University of California, Riverside
Student Recreation Center Expansion

Final Initial Study/
Negative Declaration

SCH. No. 2012031088

Prepared for

University of California, Riverside
Capital Programs – Capital Resource Management
1223 University Avenue, Suite 200
Riverside, California 92507-7209

Prepared by

BonTerra Consulting
2 Executive Circle, Suite 175
Irvine, California 92614

May 2012

UNIVERSITY OF CALIFORNIA, RIVERSIDE
STUDENT RECREATION CENTER EXPANSION

Final Initial Study
State Clearinghouse No. 2012031088

Prepared for:
University of California, Riverside
Capital Programs – Capital Resource Management
1223 University Avenue, Suite 200
Riverside, California 92507-7209

Contact: Ms. Tricia D. Thrasher, ASLA, LEED AP

Prepared by:
BonTerra Consulting
2 Executive Circle, Suite 175
Irvine, California 92614

May 2012

TABLE OF CONTENTS

This page intentionally left blank.

SECTION 1.0 INTRODUCTION

Pursuant to State law and University procedures for the implementation of the California Environmental Quality Act (CEQA), the potential environmental effects of the proposed University of California, Riverside (UCR) Student Recreation Center Expansion (Project) have been analyzed in a Draft Initial Study (SCH No. 2012031088) dated March 2012. The environmental analysis for the proposed Project is tiered from the 2005 Long Range Development Plan (LRDP) EIR (State Clearinghouse [SCH] No. 2005041164), certified by the University of California Board of Regents (The Regents) in November 2005, as augmented, revised and supplemented by the 2005 LRDP Amendment 2 EIR (SCH No. 2010111034) certified by The Regents on November 28, 2011.

Based on the project-specific analysis presented in the Initial Study, it has been determined that with incorporation of applicable LRDP Planning Strategies (PSs), Programs and Practices (PPs), and Mitigation Measures (MMs), the Project will not result in any new significant impacts that are not examined in the UCR 2005 LRDP EIR as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR or in a significant increase in the previously identified impacts. The Project would result in significant short-term noise impact during construction for which no project-specific mitigation measures are feasible. This impact would be significant and unavoidable, consistent with the findings of the 2005 LRDP EIR for development on the East Campus. Therefore, a Negative Declaration (ND) in accordance with CEQA is the appropriate environmental document for the proposed Project.

The Draft Initial Study/ Negative Declaration was released for a 30-day public review period that concluded on April 26, 2012. The Draft Initial Study was provided to approximately 47 interested agencies and individuals; it was also made available the UCR Capital Programs, Architects & Engineers website and at UCR Capital Resource Management offices. Two letters were received during the public review period, one letter from the State Clearinghouse acknowledging compliance with CEQA review requirements, and one comment letter from the California Department of Transportation [Caltrans] stating that they reviewed the project and have no further comments.

This document is the Final Initial Study/ Negative Declaration for the UCR Student Recreation Center Expansion. The document includes:

- The letter from State Clearinghouse;
- The comment letter received from Caltrans and the University's response;
- Discussion of the Mitigation Monitoring and Reporting Program
- Draft Initial Study/Negative Declaration, March 2012 (included in Attachment A).

This page intentionally left blank

SECTION 2.0 PUBLIC COMMENT LETTERS AND UNIVERSITY RESPONSES

The University received the attached letter from the Governor's Office of Planning and Research, State Clearinghouse and Planning Unit documenting compliance with CEQA review requirements. As to the acknowledgement of CEQA compliance, no response is required.

Caltrans sent its letter directly to the University. The comment letter followed by the University responses is attached. The number provided in the right margin of the letter corresponds to the response to comments.

This page intentionally left blank

Comment Letter 1

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

April 26, 2012

Tricia Thrasher
University of California, The Board of Regents
1111 Franklin Street, 12th Floor
Oakland, CA 94607

Subject: UC Riverside Student Recreation Center Expansion
SCH#: 2012031088

Dear Tricia Thrasher:

The State Clearinghouse submitted the above named Negative Declaration to selected state agencies for review. The review period closed on April 25, 2012, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2012031088
Project Title UC Riverside Student Recreation Center Expansion
Lead Agency University of California

Type Neg Negative Declaration

Description UCR proposes the construction of a new 71,147-gross s.f. Student Recreation Center Expansion building and a 8,509-gsf renovation of portions of the existing, 2-story, SRC building for a total of 79,656 gsf of new and reconstructed space. New and/or expanded facilities with the SRC buildings would include a weight training and fitness area, wellness center, Multi-Use Athletic Court (MAC), locker rooms, indoor jogging track, rock climbing wall, instructional kitchen, juice/nutrition bar, administrative offices, and support facilities. South of the new building, improvements to the outdoor Recreation Complex would be made, including construction of an outdoor swimming pool/spa and deck area, a new sand volleyball court and new tennis courts. A multi-purpose turf area would be provided in the southwest corner of the project site.

Lead Agency Contact

Name Tricia Thrasher
Agency University of California, The Board of Regents
Phone 951 827 1484 **Fax**
email
Address 1111 Franklin Street, 12th Floor
City Oakland **State** CA **Zip** 94607

Project Location

County Riverside
City Riverside
Region
Lat / Long 33° 58' 41.8" N / 117° 19' 41" W
Cross Streets Linden Street and Aberdeen Drive
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways Hwy 215, 60, 91
Airports
Railways BNSF
Waterways
Schools Highland, Hyatt, North
Land Use Long Range Development Plan Designation: Athletics and Recreation

Project Issues Aesthetic/Visual; Air Quality; Biological Resources; Geologic/Seismic; Noise; Recreation/Parks; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Landuse

Reviewing Agencies Resources Agency; Department of Fish and Game, Region 6; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 8; Regional Water Quality Control Board, Region 8; Department of Toxic Substances Control; Native American Heritage Commission; Public Utilities Commission

Date Received 03/27/2012 **Start of Review** 03/27/2012 **End of Review** 04/25/2012

Note: Blanks in data fields result from insufficient information provided by lead agency.

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN Jr. Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
PLANNING
464 WEST 4th STREET, 6th Floor MS 725
SAN BERNARDINO, CA 92401-1400
PHONE (909) 383-4557
FAX (909) 383-5936
TTY (909) 383-6300

Comment Letter 2

DESIGN & CONSTRUCTION
UC RIVERSIDE

Flex your power!
Be energy efficient!

2012 APR 24 PM 4:36

April 23, 2012

Tricia D. Thrasher, ASLA, LEED AP
Principal Environmental Project Manager
UCR Capital Programs, Capital Resource Management
University Village
1223 University Avenue, Suite 200
Riverside, CA 92507

SCH #2012031088 UC Riverside Student Recreation Center Expansions

Ms. Thrasher,

We have completed our review for the University of California Riverside Campus project. The project site boundary is located between Aberdeen Drive and Florida Street south of Interstate 215 (I-215) in the City of Riverside (9.62 Acres). 1

Please reference Environmental Impact Report for the University of California, Riverside Long Range Development Plan (LRDP) Amendment (August 2011). We have no comment concerning this report at this time. 2

As the owner and operator of the State Highway System (SHS), it is our responsibility to coordinate and consult with local jurisdictions when proposed development may impact our facilities. As the responsible agency under the California Environmental Quality Act (CEQA), it is also our responsibility to make recommendations to offset associated impacts with the proposed project. Although the project is under the jurisdiction of the County of Riverside due to the Project's potential impact to State facilities it is also subject to the policies and regulations that govern the SHS. 3

We appreciate the opportunity to offer comments concerning this project. If you have any questions regarding this letter, please contact Talvin Dennis at (909) 383-6908 or myself at (909) 383-4557 for assistance.

Sincerely,

DANIEL KOPULSKY
Office Chief
Community Planning/IGR-CEQA

"Caltrans improves mobility across California"

This page intentionally left blank

Response to Comment Letter 2

California Department of Transportation (Caltrans)
April 23, 2012

1. The commenter accurately identifies the proposed Project as presented in the Draft Initial Study/Negative Declaration (IS/ND), and states the Caltrans completed its project review. No response is required.

2. The commenter notes that they have no comments on the report. No response is required.

3. The commenter describes its responsibility with respect to coordination with local agencies. Although the Project is under the jurisdiction of the University of California, not the County of Riverside, as noted by the commenter, the Project would not have a significant impact on the State Highway System and no further action on the part of Caltrans is required.

This page intentionally left blank

SECTION 3.0 MITIGATION MONITORING AND REPORTING

The California Environmental Quality Act (CEQA) requires the adoption of feasible mitigation measures to reduce the severity and magnitude of potentially significant environmental impacts associated with project development. The CEQA Guidelines Section 15097 requires that when a public agency completes an environmental document which includes measures to mitigate or avoid significant environmental effects, the public agency must adopt a reporting or monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program must be designed to ensure compliance during project implementation.

The Final Initial Study/Negative Declaration (IS/ND) for the proposed UCR Student Recreation Center Expansion (proposed Project) (State Clearinghouse No. 2012031088) analyzes the impacts of the proposed Project, which includes all relevant LRDP Planning Strategies (PSs), Programs and Practices (PPs), and Mitigation Measures (MMs) carried forward from the 2005 LRDP Amendment 2 EIR. No project specific mitigation measures were identified.

UCR continues to implement the PSs, PPs, and MMs contained in the 2005 LRDP Amendment 2 EIR Mitigation Monitoring Program (MMP). Monitoring of the PSs, PPs, and MMs identified in the MMP is required by Public Resources Code Section 21081.6. To the extent this Project incorporates relevant LRDP PSs, PPs, and MMs previously adopted by The Regents, implementation of these mitigation measures by this Project will be monitored pursuant to the existing 2005 LRDP Amendment 2 EIR MMP previously adopted by The Regents in connection with its approval of the 2005 LRDP Amendment 2 EIR. No project specific MMs are required for this Project.

This page intentionally left blank

ATTACHMENT A

UCR STUDENT RECREATION CENTER EXPANSION
DRAFT INITIAL STUDY/NEGATIVE DECLARATION

University of California, Riverside
Student Recreation Center Expansion

Draft Initial Study/
Negative Declaration

Prepared for | University of California, Riverside
Capital Programs – Capital Resource Management
1223 University Avenue, Suite 200
Riverside, California 92507-7209

Prepared by | BonTerra Consulting
2 Executive Circle, Suite 175
Irvine, California 92614

March 2012

TABLE OF CONTENTS

Section Page

TABLES

FIGURES

APPENDICES

STUDENT RECREATION CENTER EXPANSION
UNIVERSITY OF CALIFORNIA, RIVERSIDE

Project No. 950523

Initial Study and Environmental Checklist Form

I. PROJECT INFORMATION

1. PROJECT TITLE

Student Recreation Center Expansion

2. LEAD AGENCY NAME AND ADDRESS

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

3. CONTACT PERSON AND PHONE NUMBER

Tricia D. Thrasher, ASLA, LEED AP
Principal Environmental Project Manager
Capital Programs – Capital Resource Management
University of California, Riverside
1223 University Avenue, Suite 200
Riverside, California 92507-7209
(951) 827-1484

4. PROJECT LOCATION

University of California, Riverside
Riverside, California 92521
(Refer to Figures 1 and 2)

5. PROJECT SPONSOR'S NAME AND ADDRESS

University of California, Riverside
Capital Programs
1223 University Avenue
Riverside, California 92507-7209

6. CUSTODIAN OF THE ADMINISTRATIVE RECORD FOR THIS PROJECT

Same as listed under No. 3 above

7. IDENTIFICATION AND LOCATION OF ENVIRONMENTAL IMPACT REPORT(S) BEING RELIED ON FOR TIERING

UCR 2005 Long Range Development Plan Environmental Impact Report (referred to herein as the 2005 LRDP EIR) and the *UCR 2005 Long Range Development Plan Amendment 2 Environmental Impact Report* (referred to herein as the 2005 LRDP Amendment 2 EIR) (collectively referred to as the "LRDP EIR"). The documents are available for review at the

UCR Capital Resource Management office, at the address listed above in Section 3, and online at http://lrdp.ucr.edu/.

Introduction

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

Section 15152 of the CEQA Guidelines states, "'Tiering' refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on issues specific to the later project." CEQA and the CEQA Guidelines encourage the use of tiered environmental documents to eliminate repetitive discussions of the same issues. As stated in the 2005 LRDP Amendment 2 EIR, "As authorized by Section 15168(c) of the State CEQA Guidelines, projects implementing the 2005 LRDP as revised by Amendment 2 will be examined in light of the 2005 LRDP EIR and this supplemental EIR [the 2005 LRDP Amendment 2 EIR] to determine whether the potential environmental effects of the individual project were adequately addressed in these EIRs, and whether any additional mitigation measures are required." Therefore, this Initial Study/ Negative Declaration (IS/ND) is hereby tiered from the UCR 2005 LRDP EIR as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR which was certified November 28, 2011. The documents are available for review at the UCR Capital Programs – Capital Resource Management office, at the address listed above in Section I, and online at http://lrdp.ucr.edu/.

The 2005 LRDP EIR analyzes the direct, indirect, and cumulative impacts resulting from the projected need for development of approximately 7.1 gross square foot (gsf) of new academic, housing, and support space to accommodate a total enrollment of 25,000 students[1] by the academic year 2015/16, for a total of 11.8 million gsf on the UCR campus with 2005 LRDP buildout. The 2005 LRDP Amendment 2 EIR analyzes the direct, indirect, and cumulative impacts resulting from revisions to the 2005 LRDP land use map and an increase in the maximum building space that could be built on the campus from 11.8 million gsf to 14.9 million gsf to accommodate the SOM. The 2005 LRDP Amendment 2 does not change the projected

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

enrollment level of 25,000 students but projects that this enrollment level will be attained in 2020/21, five years later than projected in the 2005 LRDP. The 2005 LRDP Amendment 2 EIR does address an increase in the projected on campus population associated with faculty, staff and visitors to 16,393 persons (an increase of 5,852 persons associated with the SOM). Measures to mitigate the significant direct, indirect, and/or cumulative impacts identified for UCR's projected development are identified in both the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR.

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

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

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

(C) they cannot be mitigated to avoid or substantially lessen the significant impacts despite the project proponent's willingness to accept all feasible mitigation measures, and the only purpose of including analysis of such effects in another environmental impact report would be to put the agency in a position to adopt a statement of overriding considerations with respect to the effects.

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

In conjunction with certification of the 2005 LRDP Amendment 2 EIR and approval of the 2005 LRDP Amendment 2, The Regents also adopted a Mitigation Monitoring and Reporting Program (MMRP). The MMRP ensures that 2005 LRDP Planning Strategies (PSs), Campus Programs and Practices (PPs), and Mitigation Measures (MMs), as revised by the 2005 LRDP Amendment 2 EIR, that are the responsibility of the University of California are implemented in a timely manner. The MMs are monitored by the appropriate campus entity and reported on an annual basis. As individual projects, such as the proposed Project, are designed and constructed, the projects include features necessary to implement relevant PSs, PPs, and MMs. Therefore, in accordance with The Regents' November 2011 approval of the 2005 LRDP Amendment 2 and certification of the associated Final EIR, all relevant PSs, PPs, and MMs have been incorporated into the proposed Project description and would be implemented as a part of the proposed Project and monitored through the approved MMRP. Relevant UCR PSs, PPs, and/or MMs are listed in the introduction to the analysis for each topical issue in Section V, Evaluation of Environmental Impacts. With incorporation of these PSs, PPs and MMs, no new project-specific impacts would result and no new project-specific mitigation measures are required.

In summary, this IS/ND provides a project-specific environmental analysis to determine if the proposed SRC Expansion Project would result in any significant impacts not adequately addressed in the UCR 2005 LRDP EIR as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR and/or if additional mitigation measures beyond those adopted in the MMRP for the 2005 LRDP Amendment 2 would be required to reduce identified impacts. In accordance with the CEQA Guidelines, an ND is the appropriate environmental document because, after incorporation of the identified MMRP, the proposed Project would not result in any new significant impacts that are not examined in the UCR 2005 LRDP EIR as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR or in a significant increase in the previously identified impacts. This project would result in a significant and unavoidable short-term noise impact during construction, consistent with the findings of the 2005 LRDP EIR.

This Initial Study, along with a Notice of Intent to Adopt a Negative Declaration, has been circulated by the State Office of Planning and Research (State Clearinghouse) for review by State agencies and to any responsible agencies, trustee agencies and interested parties, as required by CEQA, for a 30-day public review. Following receipt and evaluation of comments from agencies, organizations and/or individuals, the University of California will determine whether any substantial new environmental issues have been raised. It is anticipated that the proposed Project will subsequently be submitted to the Chancellor for consideration in or after May 2012.

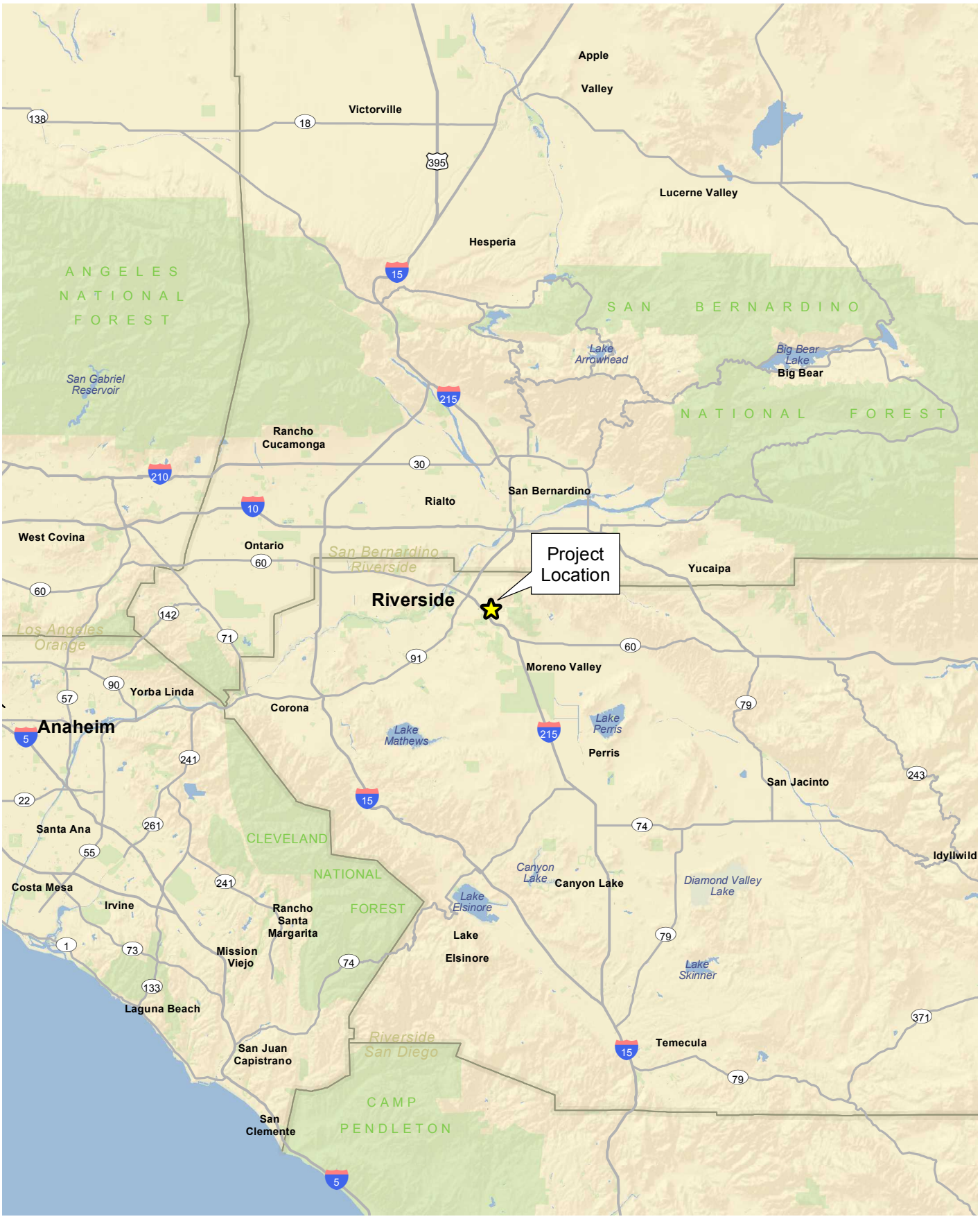
II. PROJECT DESCRIPTION

The proposed Project involves the construction of a new 71,147-gross square foot (gsf) Student Recreation Center (SRC) Expansion building and a 8,509-gsf renovation of portions of the existing, 2-story, SRC building for a total of 79,656 gsf of new and reconstructed space. The total size of the SRC building would increase from 86,140 gsf to 157,287 gsf. New and/or expanded facilities within the SRC buildings would include a weight training and fitness area, wellness center, Multi-Use Athletic Court (MAC), locker rooms, indoor jogging track, rock climbing wall, instructional kitchen, juice/nutrition bar, administrative offices, and support facilities (such as laundry and custodial spaces). The portion of the existing SRC building that would not be renovated would remain in its existing condition and there would be no change to the existing operations/facilities.

South of the new SRC Expansion building, improvements to the outdoor Recreation Complex would be made, including construction of an outdoor swimming pool/spa and deck area, a new sand volleyball court and new tennis courts. A multi-purpose turf area would be provided in the southwest corner of the project site. More detailed information and exhibits regarding the Project Description are provided below under “Proposed Project Components”. The proposed Project would not involve any modifications to the existing outdoor ropes/challenge course in the northeast corner of the project site or new parking facilities/spaces. Additionally, there are no off-campus modifications associated within the proposed project.

1. PROJECT LOCATION

The proposed Project is located adjacent to the existing SRC building at the Recreation Complex site on UCR’s East Campus; the UCR campus is located within the City of Riverside, approximately 1.5 miles east of downtown Riverside and just west of the Box Springs Mountains (refer to Figure 1). Specifically, the project site is located south of Linden Street, west of Aberdeen Drive, east of the Parking Lot 25 and the Track Stadium, and north of the Materials Science and Engineering building. Figure 2 depicts the local vicinity; Figure 3 provides a map of the UCR campus and shows the location of the proposed Project.



D:\Projects\UCR\J003\mxd\Ex_RL.mxd

Regional Location

Figure 1

UCR Student Recreation Center Expansion Project

N
W E
S

10 5 0 10
Miles

BonTerra CONSULTING

(Rev: 10-12-2011 INI) Project/UCR/J003/Graphic/Initial_Study/Ex1_RL.pdf

Source: UCR 2011

Local Vicinity

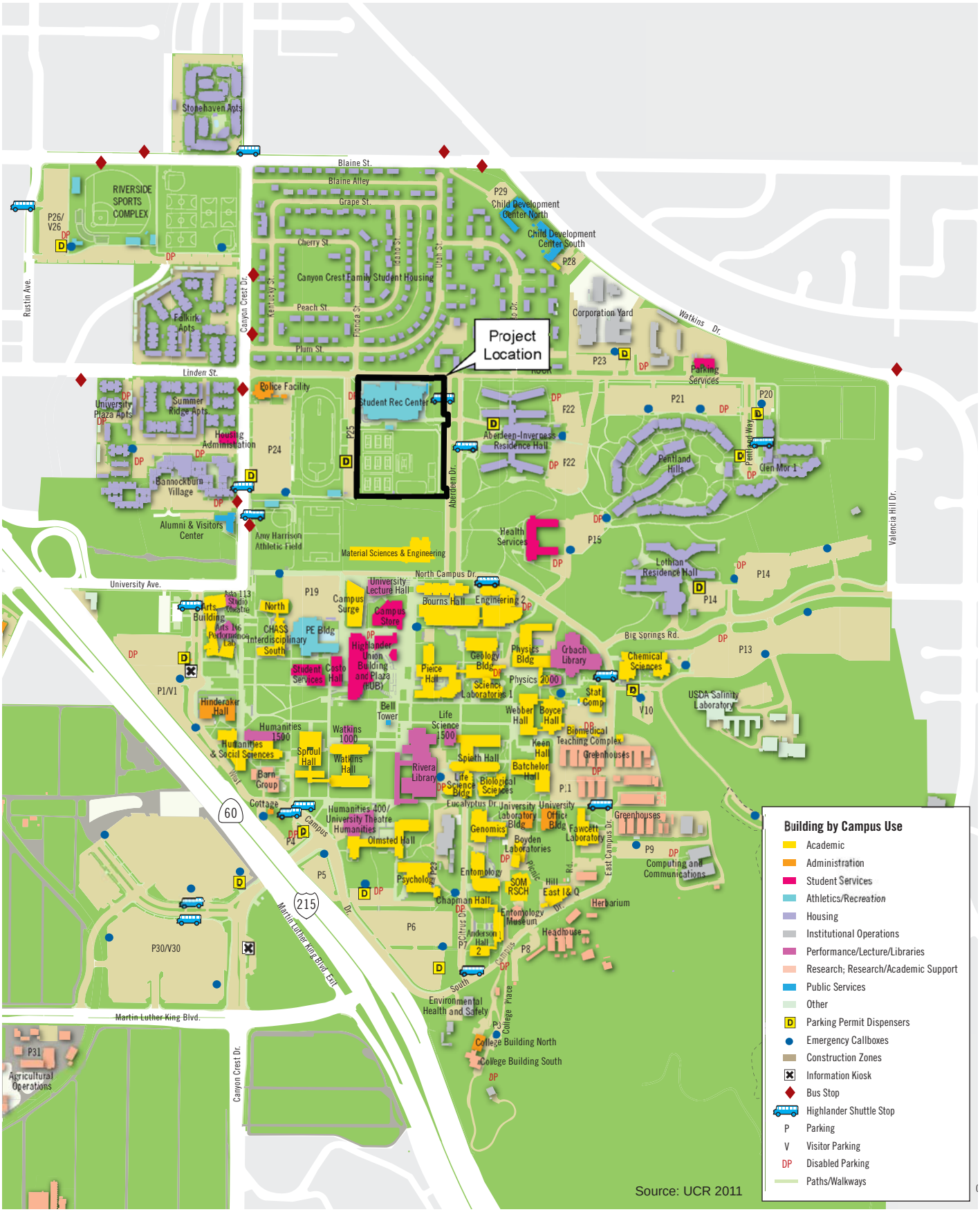
Figure 2

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(Rev 10/12/11 CJS) Projects\UCR\J003\Initial_Study\Ex_lv_aerial.pdf

D:\Projects\UCR\J003\Graphics\Ex_LV_aerial.mxd



D:\Projects\UCR\J003\Graphics\Ex_campus_map_9x11.mxd

UCR Campus Map

Figure 3

UCR Student Recreation Center Expansion Project

N W E S

Map Not to Scale

BonTerra CONSULTING

(Rev 101211 CJS) Projects\UCR\J003\Initial_Study\Ex3_campus_map.pdf

For purposes of this IS/ND, the "project site" includes the existing approximately 9.6-acre Recreation Complex area which includes the existing SRC building and outdoor Recreation Complex. The "off-site impact area" includes the area that would be potentially impacted during trenching for utility connections to the south of and within Parking Lot 25. The "project area" includes the project site, Parking Lot 25 (to be used for construction staging), the construction access driveway along Aberdeen Drive, and the off-site impact area. Figure 4, Project Limits, depicts the project site and surrounding areas.

2. ENVIRONMENTAL SETTING

The 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR include descriptions of the regulatory and environmental setting for the region, the County and City, and the UCR campus, though the 2005 LRDP Amendment 2 EIR largely focuses on the West Campus. The regulatory and environmental settings for the topics addressed in this IS/ND have not substantively changed since preparation of the 2005 LRDP EIR or the 2005 LRDP Amendment 2 EIR, as appropriate. Therefore, they are not wholly repeated in this document. Particularly relevant and site-specific details of the regulatory and environmental settings are summarized in this IS/ND. Following is a description of the environmental setting for the proposed Project and surrounding areas.

Facilities within the existing SRC building include multi-sport gymnasium courts, a fitness center, racquetball courts and squash court, large multi-purpose rooms for instructional and group exercise classes, and administrative and support spaces. The outdoor Recreation Complex to the south of the existing SRC building provides 10 tennis courts, a roller hockey court, 2 basketball courts, 2 sand volleyball courts, and a jogging trail. A challenge/ropes course and climbing wall is located east of the existing SRC building. Figure 4, Project Limits, and Figure 5, Existing Site Survey, depict the existing site conditions.

The SRC functions as the campus venue for many large scale events such as the Chancellor's Convocation, concerts, varsity athletic contests, public speakers, and banquets. The existing SRC building currently opens Monday through Friday at 6:00 AM and 9:00 AM on Saturday and Sunday. The facility closes at 12:00 AM Sunday through Thursday and 9:00 PM on Friday and Saturday. The outdoor Recreation Complex has similar hours but opens at 7:00 AM on the weekends.

Vehicular access to the project site is provided from Linden Street via Parking Lot 25. There is an existing east-west pedestrian and emergency vehicle access pathway south of the existing SRC building which is accessed from Aberdeen Drive to the east and Parking Lot 25 to the west. The service road along the east side of the existing SRC building connects to the main east-west pathway and provides service access to the mechanical, electrical and trash spaces.

As shown on Figure 4, the project site is located south of the Canyon Crest Family Student Housing, west of the Aberdeen-Inverness Residence Hall, east of Parking Lot 25 and the Track Stadium, and north of the recently constructed Materials Science & Engineering building. The visual character of this area is represented largely by recreational facilities within and surrounding the project site; one- and two-level buildings to the north, south and west with a mix of architectural styles and building materials (wood, concrete, and brick); and undeveloped landscaped areas including the "naturalistic open space" located south and east of the project site.

The topography of the project site slopes gently to the west-southwest with elevations ranging from 1,068 feet above mean sea level (msl) in the northeast corner to 1,055 feet above msl in the southwest corner. There is a westward descending slope approximately 5 to 7 feet in height east of the project site, and the 13-16 foot high south-descending slope that extends from south

of the project site to the Materials Science & Engineering building site. Vegetation within the project area consists of tree species and ornamental vegetation. Tree species identified within the project site include four species that are native to California: palo verde (*Parkinsonia* sp.), coast live oak (*Quercus agrifolia*), black willow (*Salix goodingii*), and California fan palm (*Washingtonia filifera*). Though these species are all native to California, they are not necessarily native to the Riverside area and only coast live oak and black willow are typically regulated. An additional 14 non-native tree species were identified, including: camphor (*Cinnamomum camphora*), blue gum (*Eucalyptus globulus*), gum (*Eucalyptus* sp.), ash (*Fraxinus* sp.), sweet gum (*Liquidambar styraciflua*), pine (*Pinus* sp.), London plane tree (*Platanus acerifolia*), flowering pear (*Pyrus* sp.), oak (*Quercus* sp., horticultural species), locust (*Robinia* sp.), California pepper tree (*Schinus molle*), Chinese elm (*Ulmus parviflora*), and two unidentified tree species. Tree species are further discussed in Section V.4, Biological Resources, of this IS/ND. Based on review of Figure 3.0-8 of the 2005 LRDP Amendment 2 EIR, there is no designated "natural open space" or "naturalistic open space" within the project site. Additionally, there are no sensitive hydrologic or biological resources within the project area.

Due to the minimal change in topography across the site and surrounding areas, and the presence of mature trees and adjacent development, views of the project area are limited to vantage points from adjacent structures, roadways and areas that are internal to the campus (refer to additional discussion of viewsheds provided in Section V.1, Aesthetics).

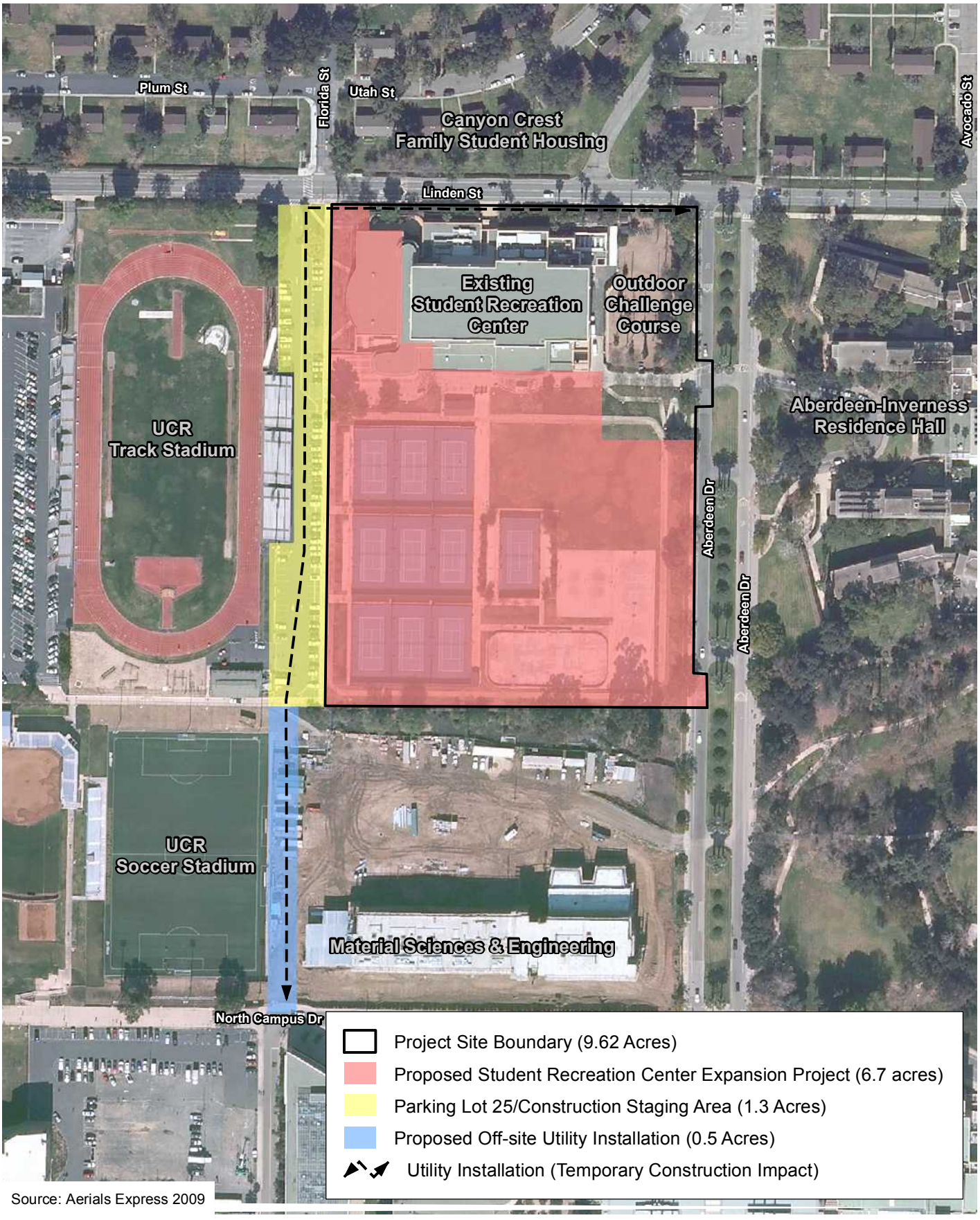
The project site is underlain by generally shallow (four- to eight-feet deep) fill materials which are underlain by native sediments mapped as very old alluvial-fan deposits that are composed primarily of silty sand and sand. Groundwater was not encountered at the project site within the maximum exploratory drilling depth of 66.5 feet below ground surface (bgs). Currently, storm water drains from the project area via sheet flow to existing catch basins and curb drains to the existing 12-inch storm drain west of the existing SRC.

Regionally, as with all of southern California, the UCR campus lies within a seismically active area. There are no known active or potentially active faults within the project site or the immediate vicinity. The nearest active fault is the San Bernardino segment of the San Jacinto fault zone located approximately 5.4 miles to the northwest.

3. BACKGROUND AND NEED FOR THE PROPOSED PROJECT

The existing SRC building opened in 1994 and provided new opportunities for recreational activities on campus to accommodate the expected growth at UCR at that time. The existing 86,140-gsf facility was constructed when the campus population was 8,600 students and was planned to accommodate a population of 11,000 students. However, between 1994 and 2008 campus enrollment more than doubled to approximately 18,000 students (Fall 2008 headcount). It should be noted that the Fall 2010 student enrollment was approximately 21,000 students (UCR 2011a). As analyzed in the 2005 LRDP Amendment 2 EIR, the projected campus population in 2020/2021 is 25,000 students. In addition to the increased campus population, participation rates among all population segments are greater and recreation users have evolving activity preferences.

Accordingly, it is recognized that UCR is facing a shortage of recreation space. Intramural programs are unable to meet sport league demand, and new sport offerings must be offset by dropping another activity due to facility constraints. Informal court-based recreation programs (e.g. volleyball and badminton) are not fully met since court time for each sport is rationed. Multipurpose room scheduling requires balancing group exercise and instructional classes with informal recreation programs and student organization reserved usage. Limited capacity



Source: Aerials Express 2009

D:\Projects\UCR\J003\mxd\Ex_impacts.mxd

Project Limits

Figure 4

UCR Student Recreation Center Expansion Project

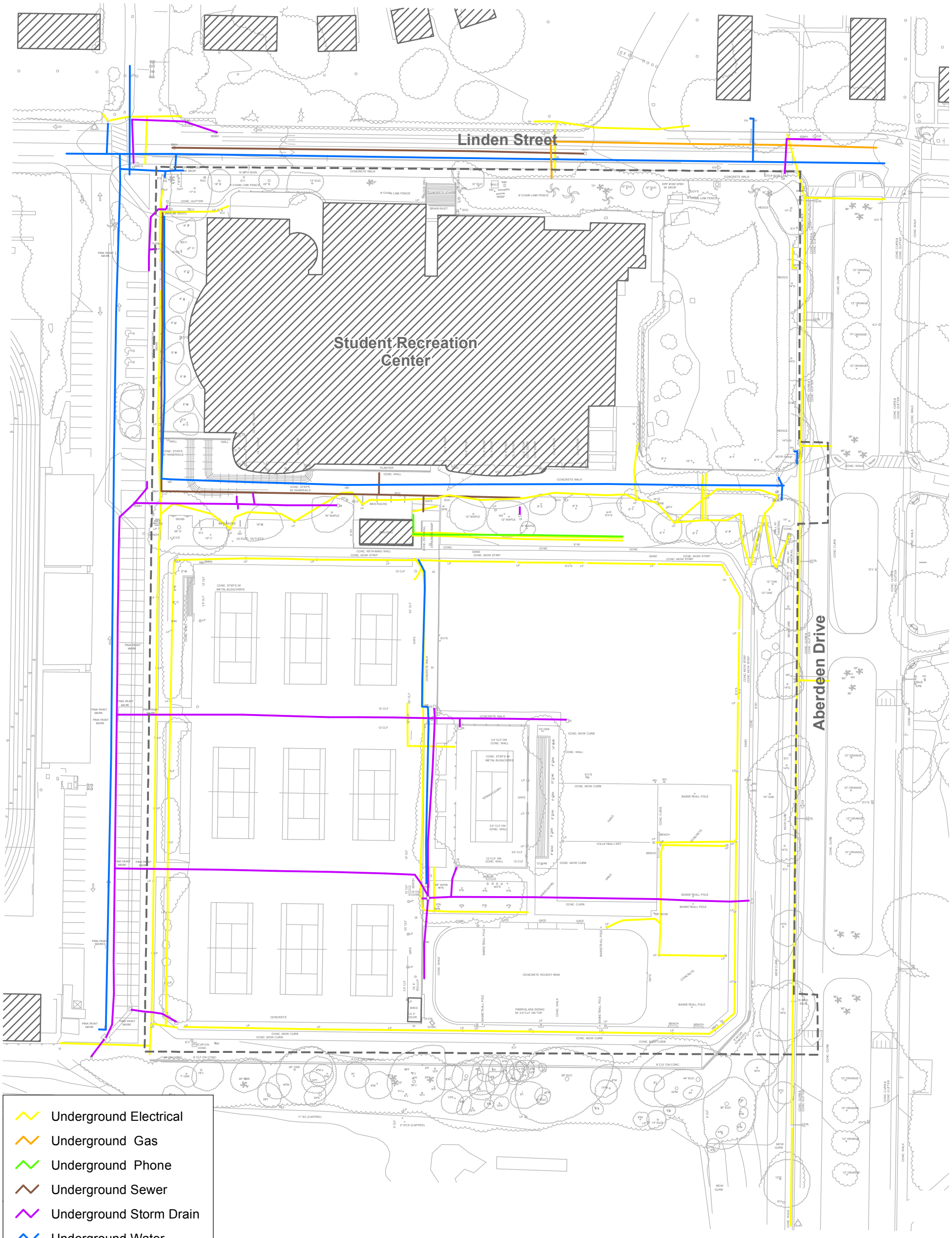
N
W E
S

200 100 0 200

Feet

BonTerra CONSULTING

(Rev: 10-13-2011 CJS) \PAS\Projects\UCR\J003\Graphics\Initial_Study\Ex4_impacts.pdf



Existing Site Survey

Figure 5

UCR Student Recreation Center Expansion Project

N W E S

100 50 0 100 Feet

BonTerra CONSULTING

(Rev: 10-12-2011 CJS) Projects\UCR\J003\Graphics\Initial_Study\Ex5_site_survey.pdf

D:\Projects\UCR\J003\mxd\Ex_site_survey.mxd

requires prioritizing programs and schedule on a reserve basis. This has resulted in student organizations using other spaces around the SRC, in particular the concourse area, for their activities (e.g. dance practice). Use of unsecured areas for these purposes creates additional risks since they were not designed for these types of activities.

The UCR Recreation Facilities Governing Board proposed the SRC Expansion project to support a campus population of 25,000 students. To determine the facilities and programs to be included in the expansion, an integrated planning process was implemented. Initial input from students, faculty and staff was obtained through a series of focus groups meetings. Information obtained from these discussions was used to develop a preliminary space program that was then incorporated in the Student Referendum Plan student survey. Additional input for the programming process was received from the Project Committee, the staff of the SRC, and from Capital Planning through a series of meetings that occurred on a regular basis throughout the duration of the project's planning. The size of the expansion was also determined by what the student survey determined was an acceptable student fee increase, and translating that fee amount into a square footage amount.

The proposed SRC Expansion attempts to meet the needs of the current and future student population while balancing program requirements with available resources. The SRC Expansion would add critically needed space, facilities, and programming and recognizes the benefits that recreation provides to the campus community. The current SRC contains 59,039 assignable square feet (asf) that equates to approximately 3.3 asf of recreation space per student based upon a campus population of 18,000 students (in 2008), and 2.8 asf per student based on the current population of 21,000 students. The proposed Project provides an additional 47,471 asf of new recreation space which would increase the total area to 106,510 asf or approximately 4.3 asf of recreation per student (assuming a campus population of 25,000 students). Based upon space planning guidelines published by the national Intramural-Recreation Sports Association, the available asf per student with the proposed Project is within the recommended recreation space asf per student range for similar size institutions (UCR 2010).

The proposed Project would support the instructional and research missions of the University of California by providing essential campus facilities for undergraduate and graduate education, and is needed to fulfill the mission of providing recreation facilities and activities to a growing and increasingly health conscious campus population. Recreation programs help students achieve a balanced and healthy lifestyle that contributes to academic success and building campus community. Additional space would enhance both the quality and quantity of recreation programs offered as well as furnish the necessary facilities to expand programs, such as a recreational aquatics program. The improved quality of the programs and facilities also supports the recruitment and retention of undergraduate and graduate students.

4. PROJECT GOALS/OBJECTIVES

As identified in the Student Recreation Center Expansion Project Planning Guide (UCR 2010), the goals of the proposed Project are:

1. To build an expansion that meets current and future demand for recreational facilities, programs and services and is in line with current trends in recreational facilities.

2. To create a flexible facility that can easily adapt to new recreational programs and allow for the effective and efficient use of financial resources and enhances operational efficiencies.

3. To create a venue that raises the profile and presence of Recreation; enhances the visibility of its programs, facilities and services to the campus, and improves access to them.

4. To create a well-organized, welcoming environment that is recognized as a campus destination.

5. To create a venue through which the recreational and social needs of users are both fostered and met; a space where students want to stay and be a part of.

6. To create a facility that is inviting, inclusive and integrative.

7. To create a facility that fosters a safe and collegial atmosphere for all of its users.

8. To provide versatile spaces that house multiple recreational, fitness and wellness programs.

9. To create a facility that is a model of sustainable design.

5. PROPOSED PROJECT COMPONENTS

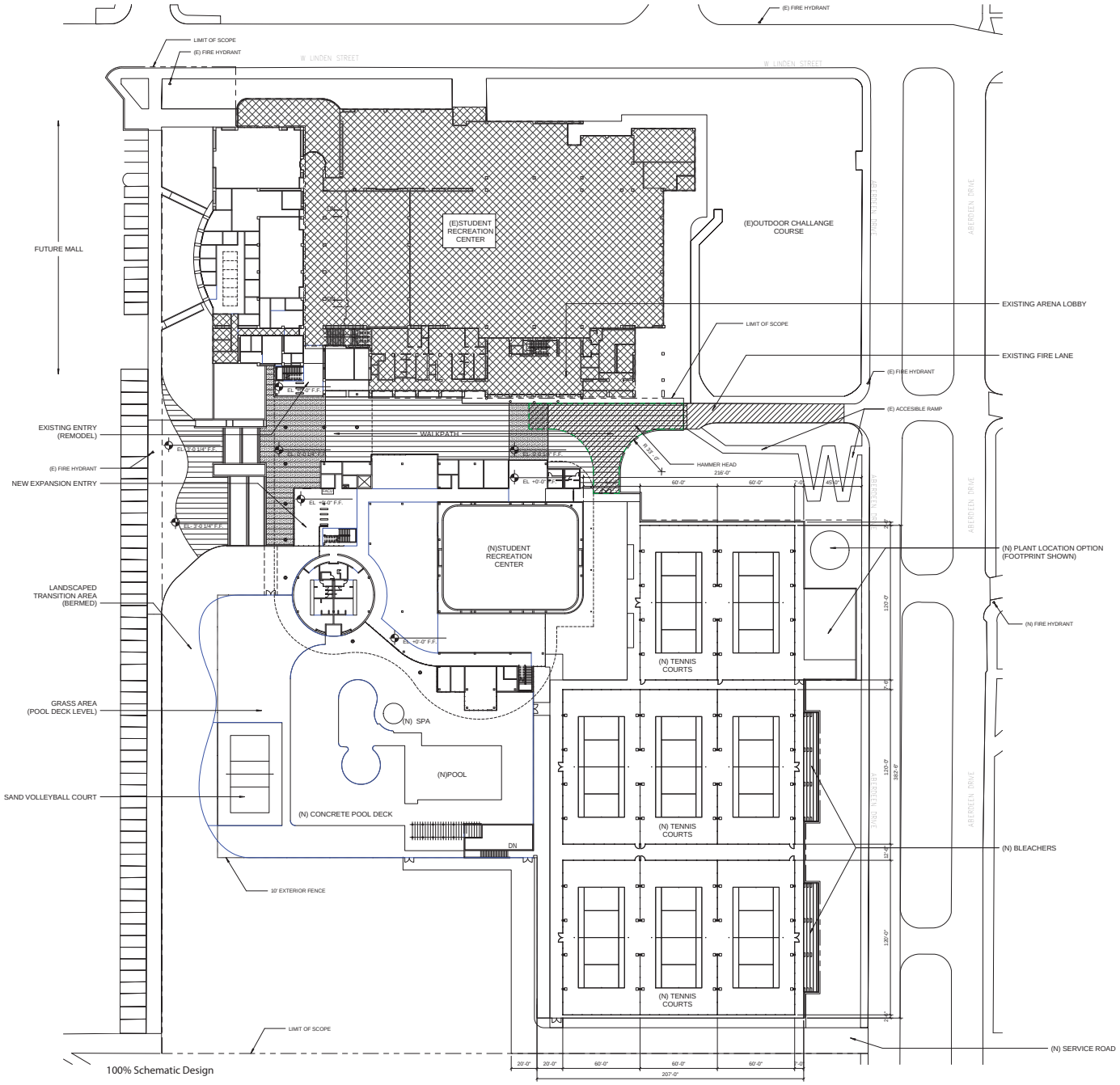
The following physical project components are described below:

- Student Recreation Center Expansion;
- Pedestrian and Vehicular Circulation/Accessibility;
- Landscape and Hardscape;
- Interior and Exterior Lighting;
- Utilities/Infrastructure;
- Sustainable Building Features; and
- Construction Activities.

Student Recreation Center Expansion

The proposed Project would provide new, renovated, and relocated/reconstructed recreation facilities within the expanded SRC building and at the outdoor Recreation Complex. The proposed expansion area encompasses approximately 6.7 acres. Figure 6 presents the proposed Project conceptual site plan. The building and site design strategy is intended to be responsive to the unique climate demands of the Riverside area as well as address aesthetics/views, solar orientation, potential future expansion, retention of open space areas, and existing campus circulation patterns. It should be noted that the existing outdoor challenge/ropes course east of the existing SRC building would be retained in its current condition.

The proposed Project would provide new and expanded recreational facilities to accommodate the planned campus population of 25,000 students; no increase in student enrollment would result from the proposed Project. Approximately 20 new non-student staff would be employed on campus to serve the proposed Project.



Source: Cannon Design 2011

Conceptual Site Plan

Figure 6

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig6_SitePlan.pdf

D:\Projects\UCR\J003\Graphicslex_SitePlan.ai

Student Recreation Center Building

As previously identified, the proposed Project involves the construction of a new 71,147-gsf SRC Expansion building and 8,509-gsf renovation of a portion of the existing, 2-story, SRC building (79,656 gsf total new and reconstructed space); the total size of the combined SRC building would increase to 157,287 gsf.

The proposed new SRC Expansion building would be sited to the south of the existing SRC building with an approximate 60-foot-wide covered breezeway between the existing and proposed buildings. This breezeway would become the main entrance to the existing and proposed SRC buildings, and the existing main entrance would be demolished. Integration of this area and consolidation of weight training and fitness areas in the new building allows for the renovation of approximately 8,509 gsf in the existing building which would accommodate a multi-purpose room, offices, and storage (refer to Figure 7). It should be noted that the portion of the existing SRC building that would not be renovated (refer to Figure 6) would remain in its existing condition and there would be no change to the existing operations/facilities.

Figures 8 and 9 present the first and second level floor plans for the new SRC Expansion building. As shown, exercise and weight rooms, lockers and showers, a rock climbing wall, a Multi-Use Athletic Court (MAC), a classroom, support facilities (such as laundry and custodial spaces), administrative offices, and storage areas would be provided on the first floor. The second floor would accommodate a multi-purpose room, wellness and fitness rooms, an indoor jogging track, and exercise areas. The majority of SRC building fitness components would be raised to the second level to provide views in all directions including the proposed pool complex to the south and the mountains to the east. The proposed building has been designed with an overall visual openness to permit staff supervision and provide orientation to the users.

The new lobby space would unify the existing lobby with an adjacent outdoor space serving as an extended outdoor lobby. The MAC lobby would also accommodate special events and relate directly with the existing Events Lobby. The existing and proposed portions of the SRC building would be connected by a second level pedestrian bridge linking the existing entry lobby to a new entry lobby at the northwest corner of the proposed SRC Expansion building.

Elevations of the proposed SRC Expansion building are presented in Figures 10a through 10d. As shown, the new two-level SRC Expansion building would be approximately 50 feet high, similar to the existing SRC building which is 52 feet high. Conceptual renderings of the proposed Project are presented in Figure 11a and 11b. UCR's blend brick would be featured prominently on the largely opaque volumes at the ground level and at the connection point to the existing SRC, while the upper level would be clad in a combination of storefront glazing systems and metal panels and would feature a combination of low-e glazing, vertical screening devices and overhangs used in various combinations and proportions to provide sun protection for the multiple solar orientations of the undulating facade. The use of these various sun-shading strategies would be responsive to the intense and unique solar conditions at the site. Additionally, the smaller ground floor would feature extensive shading from the larger upper level, and would be characterized by the open fitness area loosely defined by the enclosed masonry volumes of the MAC gym and the circular locker room.

The proposed SRC Expansion building would be designed and constructed in compliance with applicable requirements of the *California Building Code and California Fire Code, 2010 Editions and Regulations of the State Fire Marshal*. Specifically, fire sprinklers, fire alarm systems, emergency lighting, emergency response notification systems, and illuminated signage would be installed. Exterior doors would have local alarms and be outfitted with door contacts wired back in a central panel to the Campus Security System. The security system would be

connected to the Campus Police Department. Panic buttons would be provided at various locations (to be determined by UCR during final design) and would also provide a direct signal alarm to the Campus Police Department.

The hours of operation for the proposed new SRC Expansion building would be consistent with the existing operating hours.

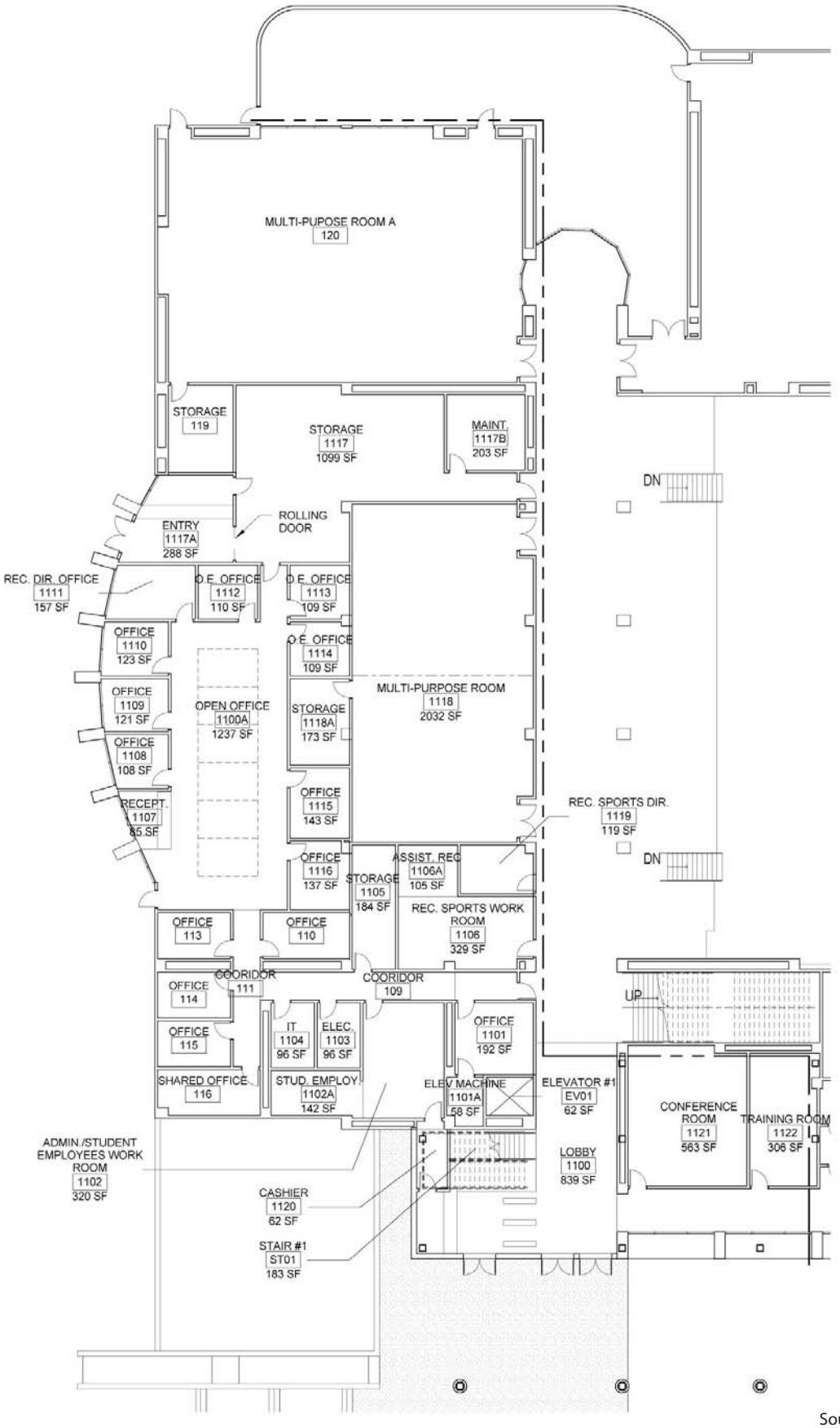
Outdoor Recreation Complex

In addition to the proposed SRC Expansion building expansion, and as shown on Figure 6, Conceptual Site Plan, the proposed Project includes new and renovated facilities within the outdoor Recreation Complex to the south of the proposed SRC Expansion building. The proposed outdoor facilities are further described below and include the following: an approximate 0.53-acre pool complex (includes pool, spa, deck, and pool equipment building); eight tennis courts, including bleachers adjacent to two; one sand volleyball court; and a general-purpose turf area. The turf area and sand volleyball court encompass approximately 1.2 acres. The hours of operation for the outdoor Recreation Complex would be consistent with the existing operating hours.

The proposed 0.53-acre swimming pool/spa complex would meet the recreational needs of UCR students and provide maximum flexibility for programming. The pool is designed to maximize areas for social use without influencing or compromising the lap lanes and other exercise- or sport-related use. The pool would be approximately 6,500 sf with depths from 3 feet 6 inches to 12 feet 6 inches; a step entry on the north side; a total of six 7-foot-wide, lap lanes; a "bubble bench"; a 2-meter diving board; a vortex; a current channel; deck-mounted water polo goals; a basketball hoop; and a volleyball net. The pool would accommodate the addition of a drop water slide in the deep end of the lap lanes adjacent to the diving board. The spa would be approximately 250 sf with hydrotherapy jets intended for both therapeutic use and general relaxation.

The pool would be equipped with a pool cover (insulating pool blanket), to reduce heat loss and evaporation, thereby saving both water and energy. The cover would be stored during pool operating hours via reels to be placed on the deck, and would be replaced daily when the pool is closed. The pool deck would surround the pool and spa and would extend to the entrance of the proposed SRC Expansion building; access to the pool area would only be provided via the SRC Expansion building. Deck equipment would be provided in compliance with applicable regulations, including the Americans with Disabilities Act (ADA).

Mechanical equipment for pool and spa operations would be housed in an approximate 12 foot high building in the southeast corner of the pool complex (refer to Figure 6, Conceptual Site Plan). The building materials would consist of brick veneer in the UCR blend and grey concrete, consistent with the proposed SRC Expansion building. A programmable chemical automation system would be installed for the pool and spa for continuous monitoring of water chemistry, Langelier Saturation Index, and for automatic control of the chemical feeders, heater, and water level. The pool and spa water would be heated by a stand-alone, gas-fired heater that is a low-NOx unit with a minimum efficiency of 85 percent. The pool and spa filter system would be designed to completely turn over the pool water every 3 hours, and the spa water every 15 minutes. Chemicals for sanitizing the water would be injected into the filtration system piping in the filter room. Additional information regarding pool chemicals that would be used is provided in Section V.8, Hazards and Hazardous Materials.



Source: Cannon Design 2011

Renovated SRC Building Space – Level One Floor Plan

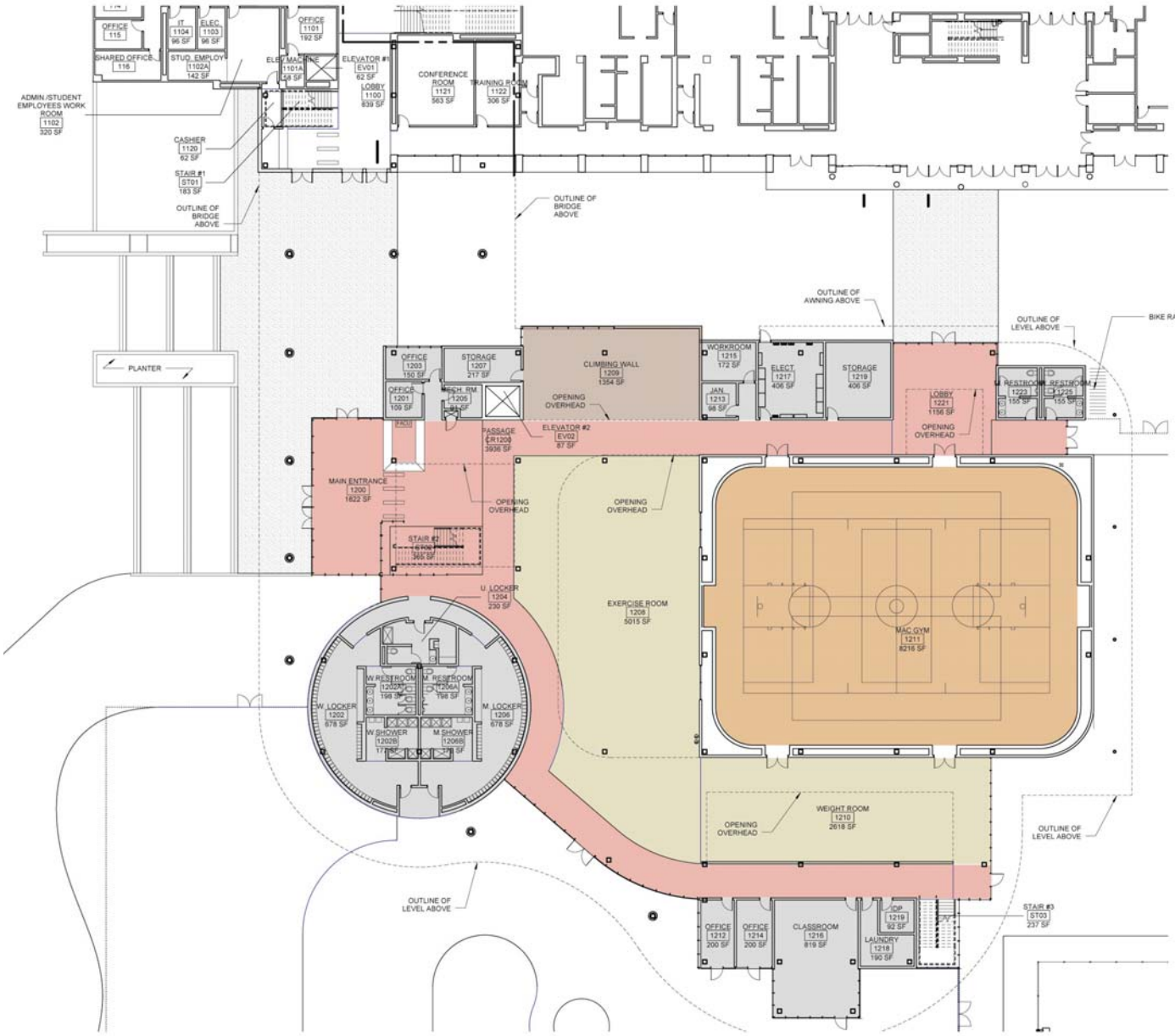
Figure 7

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig7_SRCLevelOne.pdf

D:\Projects\UCR\J003\Graphics\ex_SRCLevelOne.ai



Source: Cannon Design 2011

Level 1 Floor Plan

Figure 8

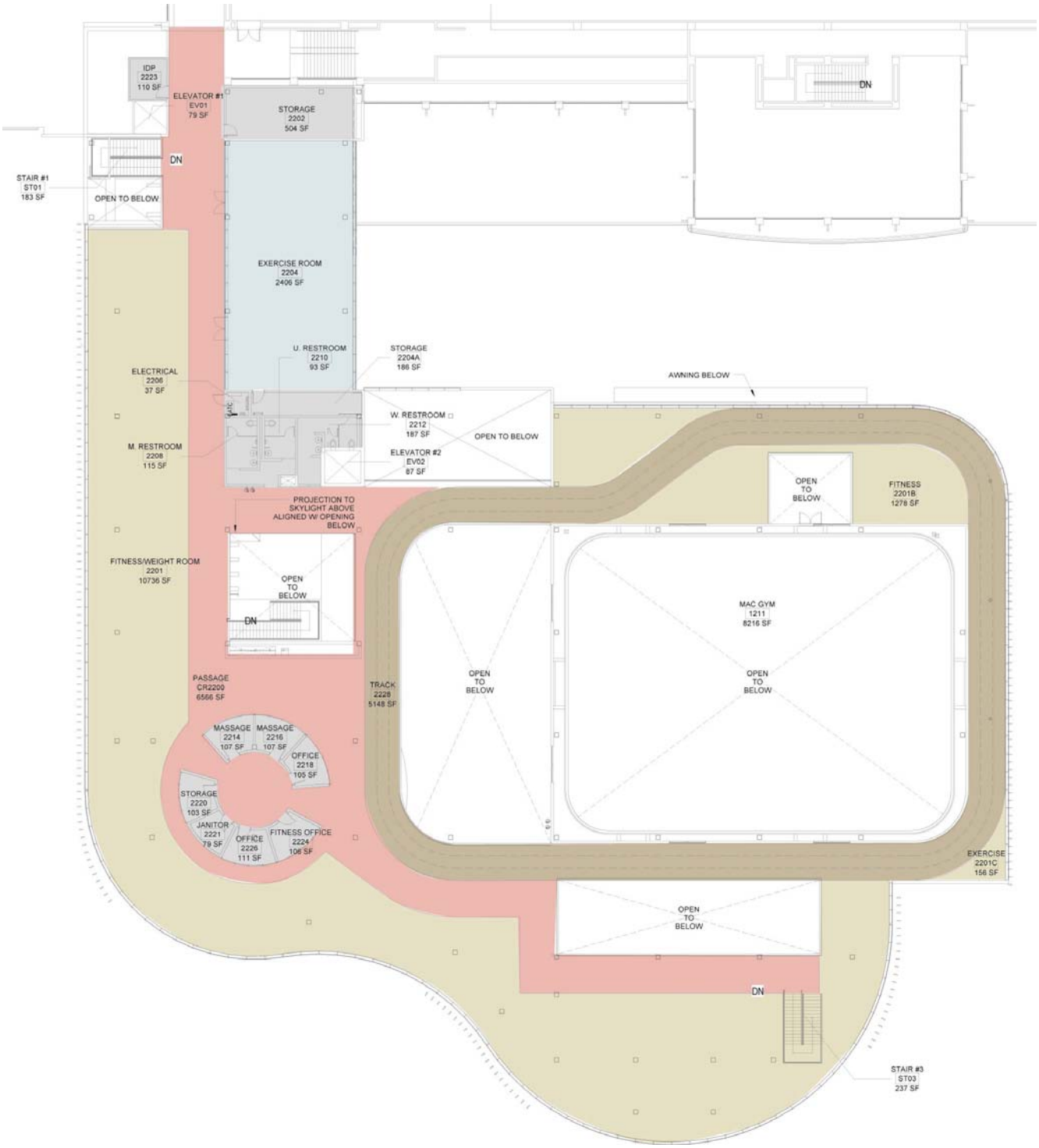
UCR Student Recreation Center Expansion Project

N
W E
S

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig8_LevelOnePlan.pdf

D:\Projects\UCR\J003\Graphics\ex_LevelOnePlan.ai



Source: Cannon Design 2011

Level 2 Floor Plan

Figure 9

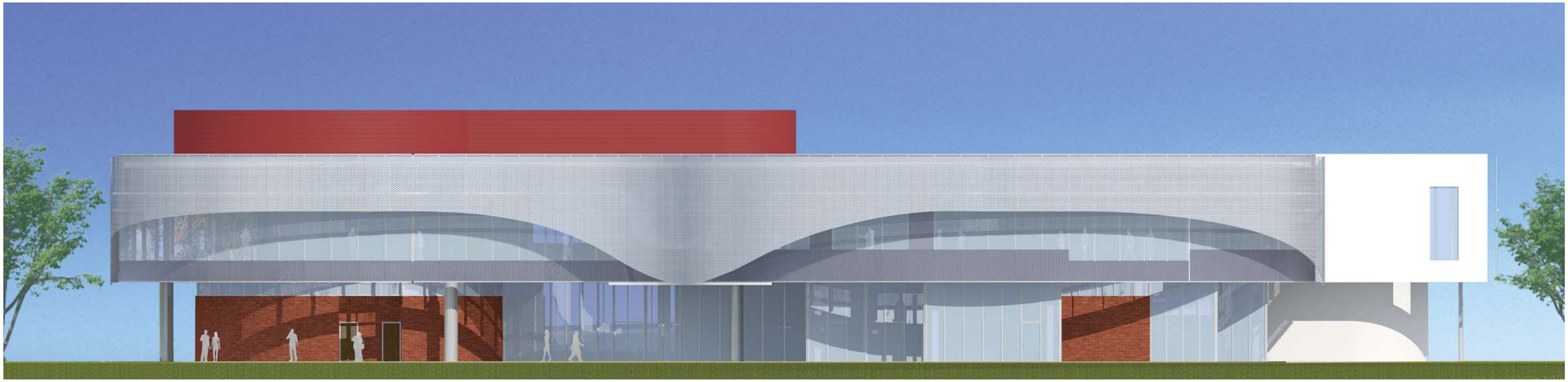
UCR Student Recreation Center Expansion Project

N
W
E
S

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig9_LevelTwoPlan.pdf

D:\Projects\UCR\J003\Graphicslex_LevelTwoPlan.ai



Source: Cannon Design 2011

South Elevation

Figure 10a

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

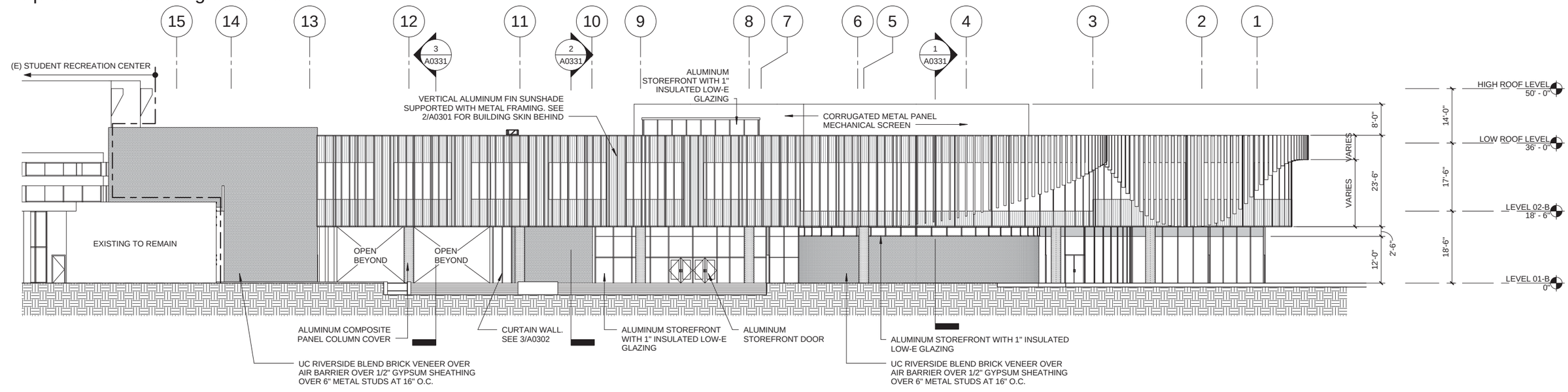
(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig10a_SouthElevation.pdf

D:\Projects\UCR\J003\Graphics\ex_SouthElevation.ai

Existing SRC Building

Proposed SRC Building

Proposed SRC Building Cross-section



Source: Cannon Design 2011

D:\Projects\UCR\J003\Graphics\ex_WestElevation.ai

West Elevation

Figure 10b

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig10b_WestElevation.pdf

D:\Projects\UCR\J003\Graphics\ex_NorthElevation.ai

Source: Cannon Design 2011

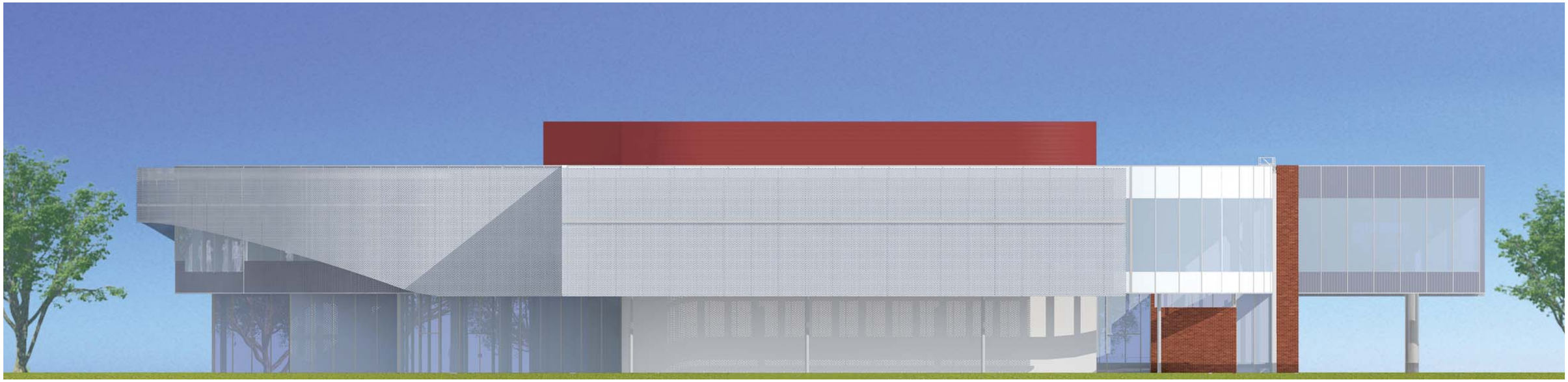
North Elevation

Figure 10c

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig10c_NorthElevation.pdf



D:\Projects\UCRJ003\Graphics\ex_EastElevation.ai

Source: Cannon Design 2011

East Elevation

Figure 10d

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig10d_EastElevation.pdf

Source: Source: Cannon Design 2011

Conceptual Rendering

Figure 11a

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig11a_ConceptualRendering.pdf

D:\Projects\UCR\J003\Graphics\ex_ConceptualRenderingA.ai

Source: Source: Cannon Design 2011

Conceptual Rendering

Figure 11b

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig11b_ConceptualRendering.pdf

D:\Projects\UCR\J003\Graphics\ex_ConceptualRenderingB.ai

Similar to existing conditions the new outdoor tennis courts would be lighted to allow nighttime use and include replacement bleacher for spectator seating. The sand volleyball court would have imported sand with an under court drainage system.

In southwest portion of the site a large level area would occur after demolition of the existing tennis courts (refer to Figure 6, Conceptual Site Plan). This is a potential future building site and is therefore proposed to be minimally developed as an open, multi-purpose turf area to be used for casual recreation and special events, such as pool parties that would spill over from the adjacent pool complex, or outdoor movie nights. There is a potential for limited use of a public address (PA) system in conjunction with these occasional activities. Development of this site, if proposed in the future, would be subject to the appropriate CEQA documentation.

Vehicular and Pedestrian and Circulation/Accessibility

Consistent with existing conditions, vehicular access to the SRC would be from Linden Street with parking provided at Parking Lot 25. To the south of the pool complex and tennis courts, a temporary stabilized gravel or decomposed granite service road would be constructed from Parking Lot 25 to provide access to the pool equipment. Additionally, emergency access would be provided from the existing east-west pedestrian and emergency vehicle access south of the existing SRC building which is accessed from Parking Lot 25 to the west and Aberdeen Drive to the east.

The proposed covered breezeway between the existing and proposed SRC buildings would connect the entry lobbies of each building and serve as a gateway to the existing gymnasium entrance, the new MAC gym lobby, and an active courtyard featuring a variety of events spaces, gathering areas, and low water requiring landscaping features. This permits a controlled single point of entry for recreational users while maintaining a separate events entrance. As noted above, the deck surrounding the proposed pool and spa would extend to the entrance of the proposed SRC Expansion building, providing connectivity to the building and ease of circulation. It should be noted that the pool area can only be accessed through the SRC Expansion building.

Bicycle racks, seven racks which park eight bicycles each, would be provided under the pedestrian bridge and building overhangs to provide shade and rain protection. Accommodations for skate boards would also be provided at the SRC complex.

Although not part of the proposed Project, as presented in the UCR 2005 LRDP, supplemented and updated by the UCR LRDP Amendment 2, a north-south pedestrian mall is planned to be located immediately west of the SRC facility. Heavy foot traffic from the student housing to the east would be joined by this future pedestrian mall, thereby connecting the SRC complex to the center of campus to the south.

Landscape and Hardscape

The landscape and hardscape plan for the proposed Project has been developed based on the configuration and type of planned outdoor facilities, as these occupy the majority of outdoor space within the project site. The conceptual landscape plan for the proposed Project is presented in Figure 12. There are 87 trees within the portion of the project site that would be disturbed during construction (including the construction staging area). These include trees that are considered mature (defined as 12-inch minimum trunk diameter at breast height [dbh] for non-native trees) or coast live oaks that are greater than 4-inch dbh. These are not specimen trees and are not suited for relocation. If not protected in place, the mature trees and coast live oak trees removed would be replaced onsite on a one-to-one basis with new trees at a minimum

15 gallon size. It should be noted that the existing trees along Aberdeen Drive (11 camphors and 3 coast live oaks), most trees along Linden Street (including all palm trees), and trees within the outdoor challenge course would be protected in place. Refer to the additional discussion of trees in Section V.4, Biological Resources, of this Initial Study, including Figure 14 which depicts trees within the study area.

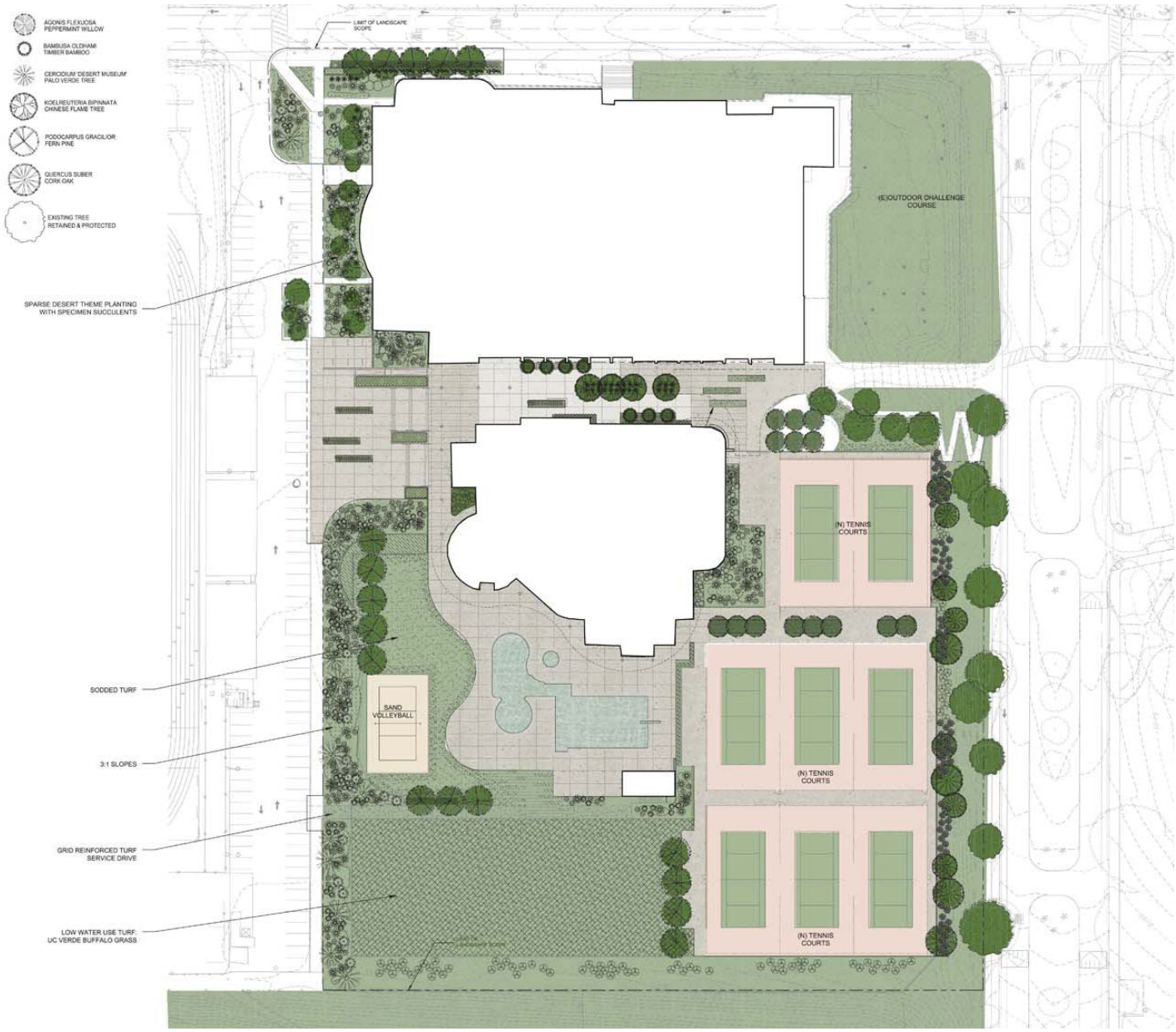
The landscape plan for the proposed Project is conceptually organized around two major axes of different landscape character (refer to Figure 12, Conceptual Landscape Plan). The types of trees, shrubs, and ground covers would be selected from an approved plant materials list provided by the UCR Campus Design Guidelines and supplemented by additional varieties suggested by the landscape architect and approved by UCR. Selected species would be appropriate for the region's soils, climate, and the criteria of the specific intended placement. The landscape areas between the project site and Parking Lot 25 largely consist of slopes that increase in height toward the project site. The proposed landscape concept for these slopes includes an ornamental interpretation of a southern California desert landscape. Trees would be arranged in informal groups. Understory planting would be sparse, while satisfying erosion control requirements, and would include species such as yuccas, succulents, and low water-requiring shrubs with deep gravel or shredded bark mulches. This type of landscaping would be extended across the western side of the existing SRC to eliminate existing high-water, low-functional turf, and to provide a unified visual character.

The landscaping along the east-west axis between the existing and proposed SRC buildings would appear lusher than the desert-themed areas. Approaching the SRC from the west, a raised planter dividing the broad steps would be planted with flowering trees, and a similar planter would be located on the other side of the pedestrian bridge to provide visual continuity and to break up the expanse of paving between the two buildings. Each end of the space would be anchored by groupings of evergreen trees. At the east end, these trees would be planted in a casual gathering area paved with permeable paving, and provided with picnic tables and an optional built-in barbecue. In order to promote water conservation in general, and to achieve LEED™ water reduction credits, turf would be restricted to areas where it is likely to be used for recreation.

The pool area would be planted predominantly in turf for maximum sunning capability. The nearby sand volleyball court would be separated from the pool deck by an approximately eight-foot-wide turf strip in order to capture sand from players' feet and discourage overspill on the pool deck. A line of deciduous trees would provide optional summer shade at the lawn to the west but would not affect the pool deck.

The multi-purpose grass area in the southwest portion of the project site would be planted with UC Verde hybrid native Buffalo Grass, which uses up to 75 percent less water than traditional turf grass.

At the north end of Parking Lot 25 entrance, the existing, tall, hedges are planned to be removed at least as far as the easterly edge of the sunken patio at the existing SRC and potentially to the steps accessing the existing SRC from Linden Street. The hedge would be replaced by a row of trees, whose prime function is to visually alert drivers of the presence of the building and the potential of pedestrians/cyclists. The intersection would also be made more visible by the installation of terraced rectilinear planters with colorful shrub plantings, a seatwall, and additional paving. The existing chain link fence, which is in poor condition, would be removed and replaced with an ornamental black tubular steel fence to match the fencing proposed for the new pool deck.



Source: Cannon Design 2011

Conceptual Landscape Plan

Figure 12

UCR Student Recreation Center Expansion Project

N
W E
S

BonTerra CONSULTING

(11/08/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig12_ConceptualLandscape.pdf

D:\Projects\UCR\J003\Graphics\ex_ConceptualLandscape.ai

Proposed hardscape features, other than the outdoor facilities, near to proposed SRC Expansion building and pedestrian breezeway would include cast-in-place concrete seatwalls for casual seating; concrete paving within pedestrian thoroughfares; painted, galvanized steel fences and gates; paving would be cast-in-place concrete with a light broom, exposed aggregate, finish or integral-color concrete paving.

Interior and Exterior Lighting

The proposed Project lighting design would provide both a quantity of lighting to ensure visual performance, safety, and a quality of design choices to control discomfort, glare, veiling reflections, uniformity, and to satisfy architectural design aesthetic requirements. The quantity of lighting would be determined by adherence to recommended illuminance levels derived from the latest industry standards (Illuminating Engineering Society lighting recommendations), and Campus Design Guidelines, and any applicable code requirements. The primary goals for the proposed lighting design include occupant safety and energy conservation. Both indoor and outdoor lighting control systems would conform to California Administrative Code Title 24 (Title 24) energy efficiency requirements.

The interior lighting design would optimize the use of natural daylight to reduce overall power consumption. Lighting control strategies would be designed to respond to the environment through the use of sensors to monitor the building's perimeter of natural lighting as well as internal occupancy levels. Outdoor lighting would include the lighting of parking areas, drives, sidewalks, plant highlighting, and floodlighting of new landscaped areas. Exterior lighting for canopy, entrances, and exits would be located so as to compliment architectural treatments and provide efficient illumination for security purposes.

The tennis and volleyball courts would have pole-mounted sports luminaires. The control of the outdoor lighting systems would be zoned by area and would be accomplished by means of contactor panels with time clock and/or photocell controls (through interface with the existing building management system).

Utilities

The proposed Project would require connection to existing campus utilities including domestic water; chilled water; sewer; storm drains; natural gas and electric systems that are currently located within the project area, as described below (refer to Figure 5, Site Survey, which shows existing utilities). Following is a description of proposed utility systems, including water quality best management practices (BMPs).

- ***Domestic Water*** – Domestic cold water and fire supply would be supplied from the existing six-inch Campus water line located in Linden Street approximately 300 feet north of the proposed expansion site. The domestic cold water service line and backflow prevention for the building would provide for all fire sprinkler service, and domestic cold water demands. Domestic water would be distributed to plumbing fixtures, hose bibs and water heaters via campus main water pressure.

  A fire main would be connected to the existing underground potable water system. Mains to individual sprinkler systems would be provided with monitored control valves and water flow switches as well as a system drain/test connection. Backflow preventers would be provided between the campus main line and the building as well as between the main line and the irrigation system.

- ***Chilled Water*** – Chilled water would be provided via a connection to the campus main located within North Campus Drive, approximately 0.1-mile to the south. A line would be installed from the connection point near North Campus Drive, directly south of the site, beginning as a 20-inch line and transitioning to a 10-inch line to serve the Project.

- ***Sewer*** – Sanitary sewer for the proposed Project would be provided by connecting to an existing Campus eight-inch gravity main, located in Linden Street approximately 300 feet north of the proposed expansion site. The sanitary sewer system would be run by gravity whenever possible. Building drains that cannot be discharged by gravity flow would be collected into a duplex sewage ejector system from which the effluent would be lifted and discharged into the gravity drainage system.

- ***Stormwater and Water Quality*** – Surface drainage would be collected by a series of catch basins and storm drains that would carry drainage to the existing storm drain. It is not expected that the volume of stormwater runoff from the project site would increase; therefore, stormwater detention would not be required. In the event detention is required, surface drainage would be directed to an underground detention structure for stormwater management purposes, with cascading flow going to the existing 12-inch storm drain west of the existing SRC building. The underground corrugated metal pipe detention structure would be located north of the sand volleyball court (west of the new SRC Expansion building) and would have a capacity of approximately 1,000 cubic feet (cf) to capture increased runoff resulting from the proposed Project during a 10-year 24-hour storm event. In order to meet the National Pollutant Discharge Elimination System (NPDES) regulations (discussed further in Section V.9, Hydrology and Water Quality, of this Initial Study), onsite stormwater from an 85th percentile storm event would be treated with a storm filter unit. This storm filter would be a flow-through filtration system. The filtration system would include rechargeable, media-filled cartridges which trap particles and adsorb materials such as dissolved metals, hydrocarbons, and nutrients in polluted runoff. Where planter areas exist adjacent to the proposed SRC Expansion building, roof drainage would be directed to splash blocks at grade to allow for bio-filtration. Impervious surfaces would be directed to planter areas wherever possible.

- ***Electricity and Natural Gas*** – Electricity for the proposed SRC Expansion building would be supplied via a connection to the existing campus electrical infrastructure at Vault 4G, located south of the project site (adjacent to North Campus Drive), and would be utilized for lighting, power, and the fire alarm system. Electric lines would be extended from Vault 4G, up the west side of the SRC Expansion project site, east on Linden Street to Vault 27 at the corner of Aberdeen Drive. Existing electrical systems in the SRC building would be maintained, modified, and/or expanded as required by the extent of the proposed SRC Expansion renovation.

  Natural gas would be supplied from an existing one-inch line in Linden Street. Natural gas would be utilized to serve domestic water heating, laundry, and the pool complex.

- ***Telecommunications*** – The telecommunications infrastructure for the proposed Project would support voice, data, and video services. Also, the SRC Expansion would include a complete fire alarm system that would function as a communication, signaling, monitoring, and control system, and would communicate with the fire alarm system in the existing SRC.

Sustainable Building Features

The proposed Project would comply with the *University of California Policy on Sustainable Practices* and adopt the principles of energy efficiency and sustainability to the fullest extent possible, consistent with budgetary constraints and regulatory and programmatic requirements. LEED™ is a green building rating system that contains prerequisites and credits in five areas: (1) environmentally sensitive site planning; (2) water conservation; (3) energy efficiency; (4) conservation of materials and resources; and (5) indoor air quality. A minimum standard of a LEED™ Silver rating has been established for all UC projects, including the proposed Project. The proposed Project would be designed to achieve a minimum LEED™ Silver rating, and strive to achieve a Gold rating. To achieve this rating, the design, construction, and operation of the proposed Project incorporates a series of green building strategies including, but not limited to, the following:

- Protect undeveloped land by developing in an urban area with existing infrastructure.
- Implement an infill Project promoting higher development density and community connectivity.
- Develop a Project near public transportation alternatives.
- Reuse of an existing building.
- Provide secure bicycle storage and changing rooms to encourage reliance on modes of travel other than single occupancy vehicles.
- Utilize roofing material with high solar reflectance to reduce the heat island effect, which contributes to higher temperatures.
- Reduce water use for irrigation by 50 percent through efficient irrigation systems and selection of climate-appropriate plant species.
- Reduce potable water use by 40 percent reduction through ultra-low flow and flush plumbing fixtures.
- Reduce building energy consumption by approximately 34 percent below Title 24.
- Divert at least 75 percent of construction and demolition waste from landfill streams toward recycling, salvage and charitable organization streams.
- Utilize 10 percent recycled building materials and 10 percent regionally-source materials (within 500 miles of the project site).
- Utilize Forest Stewardship Council (FSC)-certified products for all wood-based materials.
- Utilize low volatile organic compound (VOC)-emitting carpet, paints, coatings, adhesives, sealants and composite wood within the building interior.
- Maintain responsible construction practices to protect indoor air quality.
- Provide optimal temperature controls in regularly occupied building spaces.

- Implement a green cleaning program and policy that uses environmentally benign equipment and products certified by Green Seal and the EPA as low impact and low-emitting.

- Conduct and document an education and outreach program involving guided tours, signage and case studies to provide awareness of LEED™ and the green components of the building.

Construction Activities

Construction of the proposed Project is anticipated to begin in June 2012 with completion by December 2013 (construction duration of approximately 19 months). The generalized construction phasing is as follows, with some overlap between phases:

- Demolition (3 weeks);

- Grading/excavation (4 weeks with hauling in the first week);

- Utility installation (3 weeks); and

- Building construction (16 months) (some utilities and all paving and painting overlap with building construction).

Figure 4, Project Limits, illustrates the boundaries of the areas affected by construction as analyzed in this IS/ND. The disturbance area for the SRC Expansion encompasses approximately 6.7 acres, the off-site impact area for utility connections encompasses approximately 0.5 acres, and the potential construction staging area located at Parking Lot 25 encompasses approximately 1.3 acres. Trenching for utilities would occur along the northern property boundary, within Parking Lot 25, and south of Parking Lot 25 to North Campus Drive. The use of the southeast portion of the project site for construction staging would occur within the identified disturbance area for the SRC expansion.

The proposed project would require demolition of an approximate 247,480 sf area which primarily includes the building entry area of the existing SRC building, the concrete walk and entry steps to the south of the existing SRC building, existing tennis courts, outdoor basketball court, and roller hockey area.

Construction of the proposed Project would require common equipment such as truck loaders, compressors, backhoes, concrete breakers, bulldozers, finish graders, paving machine, 5- to 10-cy dumpsters, and concrete pumps. Earth-moving activities (grading/excavation) for the proposed Project would generally be shallow to accommodate the required removal and preparation of the underlying soils for foundation design and associated building construction, but would extend up to 16 feet deep feet for the proposed pool. Construction of the proposed Project would require an estimated 22,300 cy of cut and 26,400 cy of fill, necessitating the import of approximately 4,100 cy of soil. Importing this soil would require approximately 205 truck trips, using 20 cy trucks, over approximate one week (five workdays). Therefore, there would be from approximately 41 round truck trips per weekday during one week of the construction period.

Parking Lot 25 to the west of the project site, and the southeast portion of the project site currently occupied by the roller hockey rink and basketball courts, would be used for construction staging to receive, lay-down, and prepare materials for use during construction, and construction worker parking. Parking Lot 25 would remain open for SRC parking, to the

extent feasible, during construction. Access to parking Lot 25 would continue to be provided from the existing location on Linden Street. Construction access to the southeast portion of the project site would be provided from Aberdeen Drive by adding an earthen ramp at the existing third median break. Depending on the phase of construction, it is estimated that there could be a maximum of 20 to 30 construction workers per day at the project site.

Vehicular and Pedestrian Circulation During Construction

A construction traffic route has been designated to efficiently move construction vehicles. Pursuant to PP 4.14-2 from the 2005 LRDP Amendment 2 EIR, the construction schedules of major projects would be coordinated to adjust construction schedules, work hours, and access routes to the extent feasible in order to reduce construction-related traffic congestion. Following is the planned haul route for construction disposal traffic leaving the project site: north on Aberdeen Drive (for vehicles using the construction staging area at the southeast corner of the project site), west on Linden Street, right on Iowa Avenue, left on West Blaine Street, north on I-215, west on SR-60, exit and turn right at on Market Street, right on Agua Mansa Road, and right onto Brown Avenue to the disposal site. The hauls route extends approximately 5.8 miles. Other construction traffic (deliveries, workers, etc.) would follow the same route from the site to the freeways.

During construction, the existing SRC building would remain operational; however, vehicular and pedestrian access would be modified. Parking Lot 25 would remain open during construction, as feasible; however, if necessary, vehicles would be redirected to Parking Lot 24, west of the Track Stadium, while Parking Lot 25 is used for construction staging or the utility lines are being installed. The existing east-west access south of the existing SRC building would be closed periodically during construction; however, pedestrian access to the existing SRC building would be accommodated. Signage would be installed to facilitate wayfinding. A flag person would be present to direct pedestrian and construction vehicular movement. Emergency access during construction would be maintained; however, an alternative Emergency Assembly Area (EAA) for the SRC complex has been identified, if necessary, while the current EAA (Parking Lot 25) is used for construction staging. During any construction closures of Parking Lot 25, the temporary designated EAA for the existing SRC building would be adjacent the Track Stadium.

6. RELATIONSHIP TO THE 2005 LONG RANGE DEVELOPMENT PLAN AMENDMENT 2

The 2005 LRDP Amendment 2 approved in November 2011 projected a total enrollment of 25,000 students and 16,393 associated faculty, staff and visitors, for a total campus population of 41,393 by the academic year 2020/2021. The proposed Project would not increase the campus student population and would not therefore contribute to, or affect, the total student enrollment anticipated in the 2005 LRDP Amendment 2. As previously identified, the proposed project would require approximately 20 new non-student staff be employed on campus to serve the proposed Project. This increase in non-student population (staff) is well within the projections for the campus. The proposed Project would not increase the faculty population on campus.

The 2005 LRDP Amendment 2 projected total new building space on campus to be 14.9 million gsf by 2020/2021, including 3.1 million gsf allocated to the SOM. As identified in Table 3.0-5 of the 2005 LRDP Amendment 2 EIR, there is a total of 470,000 gsf allocated to Recreation and Athletics, with 98,269 gsf existing. Therefore, there is 371,731 gsf of Recreation and Athletics building space remaining to be developed. The proposed Project involves a 71,147 gsf expansion of the SRC building which is within the remaining building space. With

implementation of the proposed Project there would be 300,584 gsf Recreation and Athletics building space remaining on campus.

The proposed Project supports the instructional and research missions of the University of California by providing essential campus facilities for undergraduate and graduate education. Additionally, it recognizes the important benefits recreation provides to the campus community by furnishing programs that promote healthy lifestyles, physical fitness, relieve stress and provide opportunities for students to connect and become a part of the greater campus community. The quality of the programs and facilities also supports the recruitment and retention of undergraduate and graduate students.

As further discussed in Section V.10, Land Use and Planning, of this Initial Study, the 2005 LRDP Amendment 2 includes Planning Strategies for the following issues to guide expansion and development of the UCR Campus: land use, circulation and parking, open space and landscape, and campus and community. These planning strategies are required to be implemented with each development project on Campus, and have been specifically identified in the UCR 2005 LRDP EIR as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR, along with general development strategies. The Planning Strategies that are applicable to the proposed Project have been incorporated into the project as identified for each topical issue in this Initial Study.

7. ANTICIPATED DISCRETIONARY APPROVALS

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

University of California Board of Regents, or Its Designee

- Adoption of the Final Tiered Initial Study/ Negative Declaration, and
- Approval of the Design of the Student Recreation Center Expansion.

III. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

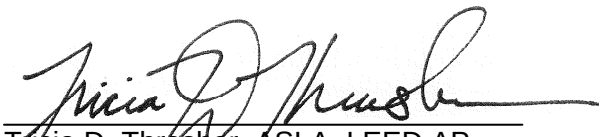
IV. DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

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

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

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



Tricia D. Thrasher, ASLA, LEED AP
University of California, Riverside
Principal Environmental Project Manager

3/22/12
Date

This page intentionally left blank.

V. EVALUATION OF ENVIRONMENTAL IMPACTS

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

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

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

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

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

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

Impact Questions and Responses

1. Aesthetics

The analysis of Aesthetics is tiered from the 2005 LRDP EIR, and was addressed in Section 4.1, Aesthetics, of that document. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to aesthetics/visual change include (1) construction of the new 71,147-gross square foot (gsf), 2-story Student Recreation Center (SRC) Expansion building; (2) the 8,509-gsf partial renovation of the existing 2-story, 86,140-gsf SRC; and (3) modifications to the existing outdoor recreation facilities, including a new pool complex, sand volleyball court, and tennis courts; and (4) installation of new or updated landscaping (including tree replacement), hardscape, and exterior lighting fixtures.

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

PS Open Space 3 — In Naturalistic Open Space areas, where arroyos and other natural features exist, preserve wherever possible, existing landforms, native plant materials, and trees. Where appropriate, restore habitat value.

PS Development Strategy 1 — Establish a design review process to provide regular review of building and landscape development on campus.

PP 4.1-1 — The Campus shall provide design professionals with the 2007 Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. *(This is identical to Land Use PP 4.9-1[a]).*

PP 4.1-2(a) — The Campus shall continue to provide design professionals with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible. *(This is identical to Land Use PP 4.9-1[b]).*

PP 4.1-2(b) — The Campus shall continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus. *(This is identical to Land Use PP 4.9-1[c]).*

PP 4.1-2(d) — To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or

construction access roads would not be created where adequate access already exists.

(ii) Removal of native shrub or brush shall be avoided, except where necessary.

(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.

(iv) Excess fill or construction waste shall not be dumped in washes.

(v) Vehicles or other equipment shall not be parked in washes or other drainages.

(vi) Overwatering shall be avoided in washes and other drainages.

(vii) Wildlife including species such as fox, coyote, snakes, etc. shall not be harassed. Harassment includes shooting, throwing rocks, etc.

(This is identical to Biological Resources PP 4.4-1(b) and Hydrology PP 4.8-3[b])

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

MM 4.1-3(b) All outdoor lighting on campus resulting from new development shall be directed to the specific location intended for illumination (e.g., roads, walkways, or recreation fields) to prevent stray light spillover onto adjacent residential areas. In addition, all fixtures on elevated light standards in parking lots, parking structures, and athletic fields shall be shielded to reduce glare. Lighting plans shall be reviewed and approved prior to project-specific design and construction document approval.

Project Impact Analysis

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

Discussion

As discussed on page 4.1-13 of the 2005 LRDP EIR, scenic vistas may generally be described in two ways: panoramic views (visual access to a large geographic area, for which the field of view can be wide and extend into the distance) and focal views (visual access to a particular object, scene, setting, or feature of interest). The 2005 LRDP EIR concluded that scenic vistas for the campus are limited to panoramic views of the Box Springs Mountains from publicly accessible viewpoints. Views of these mountains from many vantage points on the East Campus are partially blocked by buildings, mature trees, and landscaping. Notably, there are panoramic views of the Box Springs Mountains from Carillon Mall and the Athletic Fields (east of Canyon Crest Drive) within the East Campus; however, views in some portions of the Carillon Mall are obstructed by a large number of mature trees. While views of the adjacent mountains are generally available from locations on the West Campus, these locations are not publically accessible with the exception of Parking Lot 30. There are no identified focal views for the UCR campus.

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

The Athletic Fields (formerly known as the Lower Intramural Fields), one of the identified vantage points for views of the Box Springs Mountains, is located immediately to the south of and at a lower elevation than the project site. As such, the proposed SRC Expansion would be located within the line of sight between portions the Athletic Fields and the Box Springs Mountains. However, because the proposed Project would not include structures or facilities that are taller or wider than the existing SRC when viewed from the south, the expanded SRC would not block views of the Box Springs Mountains from the Athletic Fields to a greater degree than the existing condition. The proposed Project is not within the line of sight from the Carillon Mall. The available views of the mountains would remain essentially the same with implementation of the proposed Project. Therefore, the proposed Project would have a less than significant impact on a scenic vista, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be a less than significant impact on scenic vistas.

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

Discussion

As identified in the Initial Study for the 2005 LRDP EIR, the UCR campus is bisected by the I-215/SR-60 freeway, and generally bound by University Avenue, Canyon Crest Drive, Blaine Street, Watkins Drive, Valencia Hill Drive, Le Conte Drive and Chicago Avenue, none of which are officially designated or identified as eligible for designation as a State scenic highway. Therefore, development under the 2005 LRDP was determined to have no impact related to State scenic highways. While there are no scenic highways in the campus vicinity, the 2005 LRDP includes the provision to retain the southeast hills and associated rock outcroppings, considered a scenic resource, as an Open Space Reserve. The proposed Project is not located in proximity to the southeast hills. Therefore, there would be no impact from implementation of the proposed Project on scenic resources, including within a State scenic highway, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be no impact to scenic resources within a scenic highway.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒	☐

Discussion

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

The most prevalent views of the proposed Project would be from pedestrians and/or motorists along or near Aberdeen Drive, Linden Street, Parking Lot 25, and surrounding land uses to the west and east. The existing visual character of the project site and immediate surrounding areas is depicted in the site photographs provided in Figures 13a through 13e and are described below. The Project area is surrounded by existing development and the primary views of the

Project area are from immediately adjacent vantage points; views from more distant vantage points are obstructed by intervening buildings and landscaping. Due to the lower elevation and presence of mature vegetation/trees on the slope south of the project site, there are limited views of the project site from vantage points to the south. Also, views from the north of the proposed SRC Expansion building and outdoor recreation facilities would be obstructed by the existing SRC building and mature vegetation in the Outdoor Challenge Course.

- ***View 1 – View to the east of the existing SRC building.*** The focus of this photograph is the main entry of the existing SRC building, as viewed from adjacent Parking Lot 25. Also depicted is the east-west pedestrian walkway along the south side of the existing SRC building, which slopes upward at the eastern end. As shown in this photograph, the existing SRC building and mature trees obstruct views further to the east.

- ***View 2 – View to the northeast of the Project site from the south end of Parking Lot 25.*** This photograph is representative of views of the project site from vantage points to west, including the Track Stadium. Because existing facilities within the outdoor Recreation Complex are generally at ground level and since there are existing trees along the landscaped berm along the western boundary of the project site, views of existing facilities and developed areas to the north and west are limited. This photograph depicts existing light standards along both the parking lot and at the tennis courts. A portion of the second story of the SRC building is visible in the middleground view. Views of the Box Springs Mountains in the background are largely obstructed by landscaping and the existing SRC building.

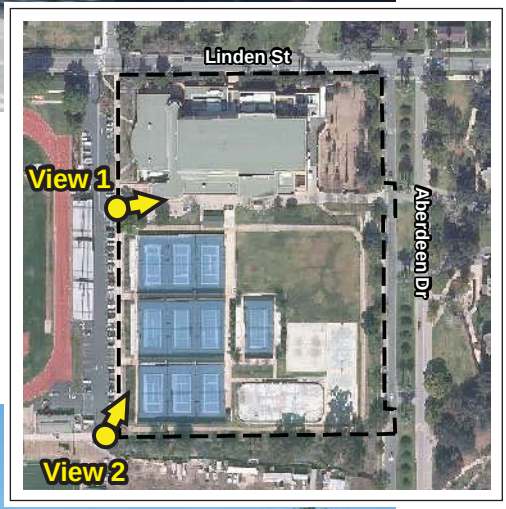
- ***View 3 – View to the east along the southern boundary of the Project site.*** This photograph depicts the southern portion of the project site, including the tennis courts and jogging track. This photograph also shows the extent of mature vegetation and trees along the southern boundary on the opposite site of the iron fence. Views of uses to the east are obstructed by the mature trees and recreational uses on the project site.

- ***View 4 – View to the south from Parking Lot 25.*** This photograph depicts the view to the south from Parking Lot 25. The purpose of this photograph is to demonstrate the topographic difference between the Project area and the uses to the south, and to show the buffer between the SRC complex and existing UCR buildings provided by the existing Athletic fields. As shown, the Athletic Fields have lighting for nighttime use.

- ***View 5 – View to the west/northwest from Aberdeen Drive.*** This photograph depicts the view from the west side of Aberdeen Drive looking at the area between the recently constructed Materials Science and Engineering building and the project site. As shown, views of the project site from the south and southwest are wholly obstructed by the mature, mixed vegetation and trees along the slope south of the project site. Additionally, there is lighting for the Athletic Fields.

- ***View 6 – View to the southwest from Aberdeen Drive.*** This photograph depicts the view from the sidewalk on the west side of Aberdeen Drive across the southern half of the project site. As shown, the topography slopes down from Aberdeen Drive and the project site is visible from the east by pedestrians on Aberdeen Drive. This photograph also reflects the typical condition, type, and extent of facilities, as well as associated lighting in the outdoor Recreation Complex. Distant views of existing development on campus are available but obstructed by mature vegetation.

View 1 – View to the east of the existing SRC building.



View 2 – View to the northeast of the project site from the south end of Parking Lot 25.

D:\Projects\UCR\J003\Graphics\Ex_PhotosA.ai

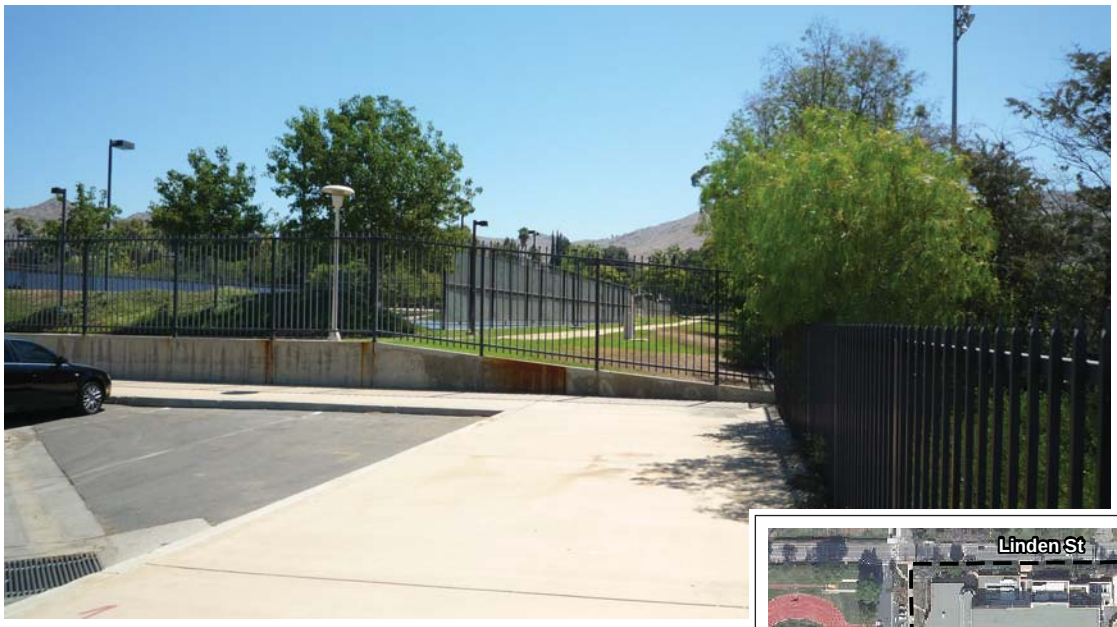
Existing Site Views

Figure 13a

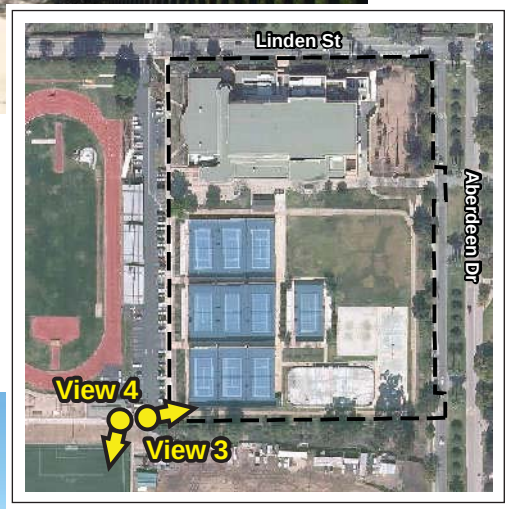
UCR Student Recreation Center Expansion Project

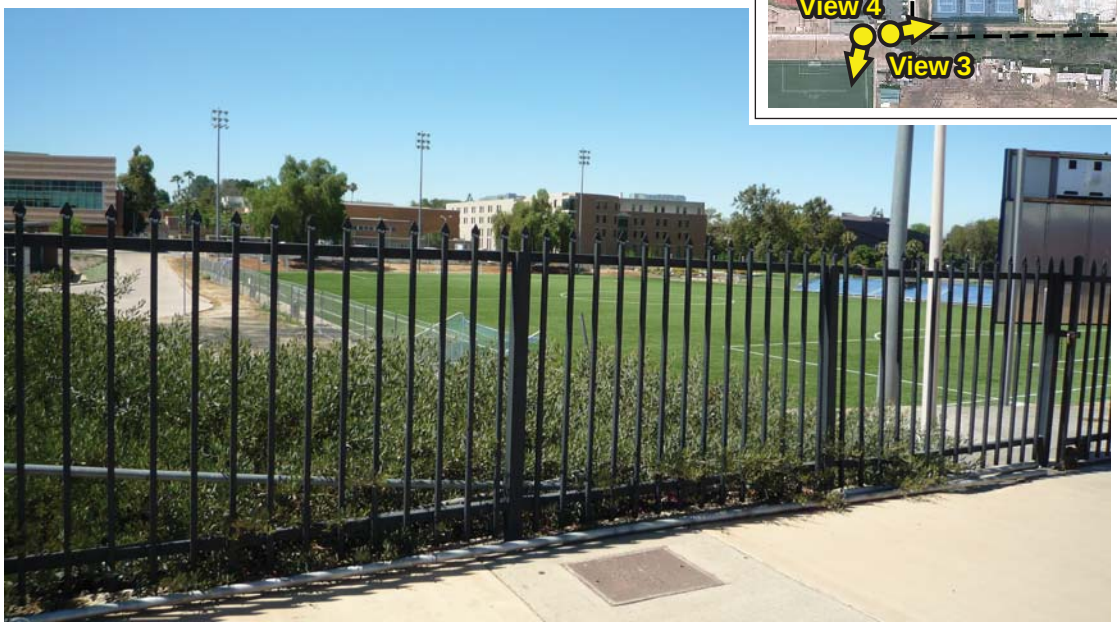
BonTerra CONSULTING

(Rev 11/16/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Ex13a_photos.pdf



View 3 – View to the east along the southern boundary of the project site.





View 4 – View to the south from Parking Lot 25.

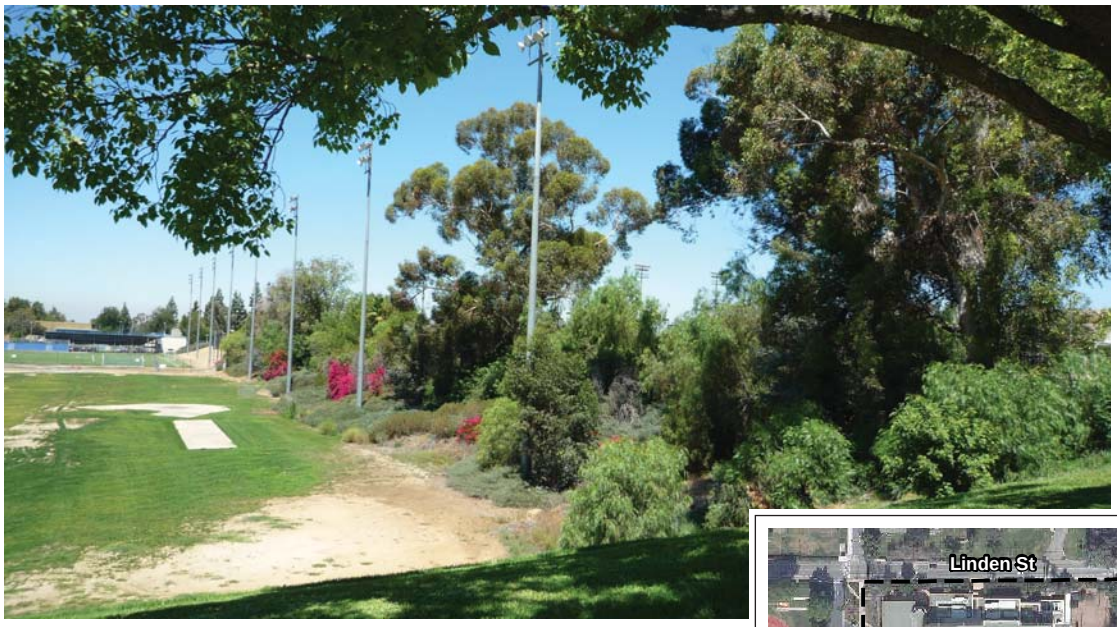
D:\Projects\UCR\J003\Graphics\Ex_PhotosB.ai

Existing Site Views

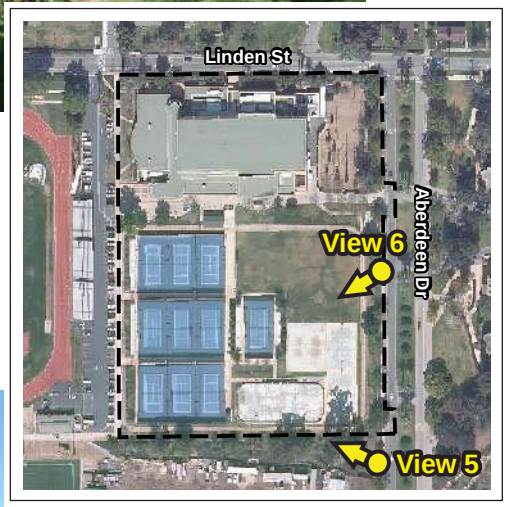
Figure 13b

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING



View 5 – View to the west/northwest from Aberdeen Drive.



View 6 – View to the southwest from Aberdeen Drive.

D:\Projects\UCR\J003\Graphics\Ex_PhotosC.ai

Existing Site Views

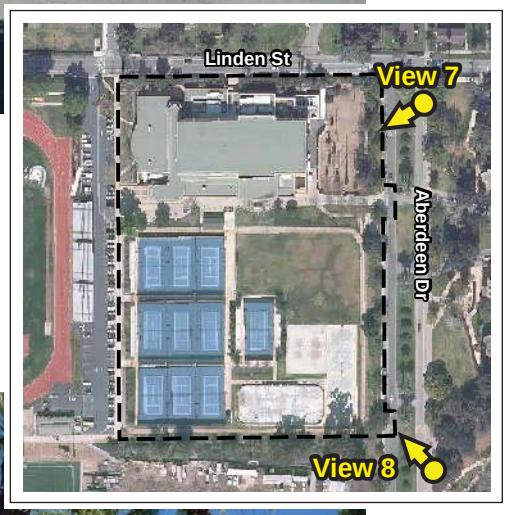
Figure 13c

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(Rev 11/16/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Ex13c_photos.pdf

View 7 – View from the east side of Aberdeen Drive toward the project site.



View 8 – View from the east side of Aberdeen Drive toward the project site.

D:\Projects\UCR\J003\Graphics\Ex_PhotosD.ai

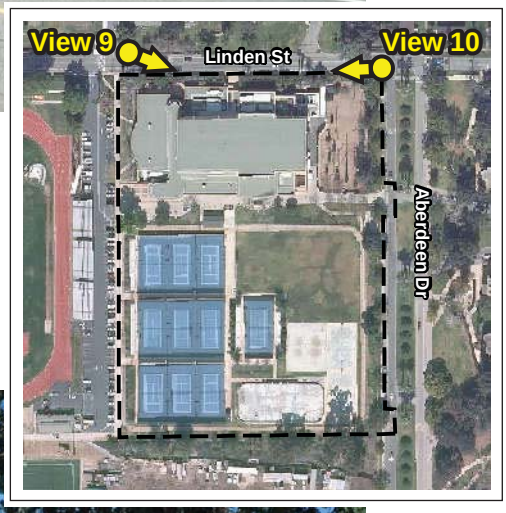
Existing Site Views

Figure 13d

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

View 9 - View to the southeast from Linden Street.



View 10 - View to the west along Linden Street.

D:\Projects\UCR\J003\Graphics\Ex_PhotosE.ai

Existing Site Views

Figure 13e

UCR Student Recreation Center Expansion Project

BonTerra CONSULTING

(Rev 11/16/11 JCD) Projects\UCR\J003\Graphics\Initial_Study\Fig13e_photos.pdf

- ***Views 7 and 8 – Views from the east side Aberdeen Drive toward the Project site.*** These photographs depict the views from the sidewalk on the east side of Aberdeen Drive toward the project site from the north (near Linden Street) and south (generally in the area of the designated naturalistic open space that extends in an east-west direction). These views are also representative of views that can be seen by motorists and pedestrians along Aberdeen Drive and residents and visitors at the Aberdeen-Inverness Residence Hall to the east. As shown, views of the project site, including the existing SRC building, are completely or partially obstructed by mature vegetation along Aberdeen Drive.

- ***View 9 – View to the southeast from Linden Street.*** This photograph is representative of the views of the existing SRC building from the north by motorists and pedestrians traveling along Linden Street and Canyon Crest Family Student Housing located to the north of the project site. As shown, mature vegetation and the existing SRC building obstruct views of the Project area from the north.

- ***View 10 – View to the west along Linden Street***. This photograph depicts the view to the west along Linden Street from its intersection with Aberdeen Drive and shows the extent of mature vegetation along the northern boundary of the project site that obstructs views into the SRC area. Notably, the vegetation in this northeastern corner of the project site is within the Outdoor Challenge Course, which is not part of the proposed Project.

As shown in these photographs, views in and around the existing SRC building and recreation complex are limited due to topography, landscaping/mature trees, and/or intervening development. To address visual changes associated with implementation of the proposed Project from limited public vantage points and to address the relationship between the proposed Project and the existing SRC facilities, building elevations are provided in Figures 10a through 10d and building renderings are provided in Figures 11a and 11b in Section II, Project Description. The proposed Project site plan is illustrated on Figure 6, and the landscape plan is illustrated on Figure 12 in Section II, Project Description.

As discussed above, PSs and PPs relevant to project design and visual character have been incorporated into the proposed Project. The proposed SRC Expansion architecture and materials have been designed to complement and be compatible with the existing SRC building, while addressing views, solar orientation, potential future expansion, retention of open space areas, and existing campus circulation patterns.

As shown on Figure 6, Conceptual Site Plan, The proposed building orientation and shape have been designed to allow preservation of outdoor, undeveloped areas within the Project area, including the Outdoor Challenge Course. As shown in the conceptual rendering presented in Figure 11a, a covered breezeway between the existing/renovated and proposed SRC buildings would connect the entry lobbies of each building. For the new building, UCR's blend brick would be featured prominently at the ground level of the new building and at the connection point to the existing SRC. The upper level would be clad in a combination of storefront glazing systems and metal panels and would feature a variety of combinations and proportions of low-e glazing, vertical screening devices, and overhangs to provide sun protection for the multiple solar orientations of the undulating facade, which would contribute to the overall architectural statement (refer to the elevations presented in Section II, Project Description).

As shown in the west building elevation presented in Figure 10b, the proposed SRC Expansion building would be two levels and would have a similar roof height as the existing SRC building. The "high roof height" of the proposed SRC Expansion building, which encompasses the rooftop

mechanical structures enclosed by a corrugated metal panel screen, would be approximately 46 feet; the high roof height of the existing SRC building is 52 feet at the highest parapet. Also, as shown on the building elevations and renderings, the overall massing, height, roof profile, and building materials and colors would blend with the existing building and would maintain important color and textural continuity with the existing SRC and UCR campus architecture, particularly the brick facade. The use of strong horizontal lines in the proposed SRC Expansion building also ties into the architecture of the existing SRC building.

The proposed reconfiguration of the outdoor Recreation Complex would result in a similar visual character as the existing facilities. The southwestern portion of the site would consist of the pool/spa complex, the sand volleyball court, and the turf area with various complimentary landscape features. The pool equipment building would be approximately 12 feet high and the building materials would consist of brick veneer in the UCR blend and grey concrete, consistent with the proposed SRC Expansion building. The replacement tennis courts would be on the eastern side of the site and would have fencing similar to the existing courts which would be demolished. These outdoor recreation uses would have a similar visual character to existing conditions and would be visible primarily from adjacent vantage points to the west and east. Similar to existing conditions, views from the south would be obstructed by existing mature vegetation; the slope up to the site and views to the north would be obstructed by the existing SRC building and mature vegetation/trees within the Outdoor Challenge Course.

As a result of the proposed Project, existing mature landscaping within the impact area, including primarily trees and shrubs, would be removed, changing the existing visual character. Potential impacts to trees are discussed in detail in Section V.4, Biological Resources, and shown on Figure 14, Tree Impacts. The proposed Project includes PP 4.1-2(a), which ensures that project-specific landscape plans are consistent with the 2007 Campus Design Guidelines with respect to, among other items, retention of existing trees. In addition, the proposed Project also includes PP 4.1-2(b) by preserving mature trees in place or replacing mature trees removed within the project site. In summary, there are 135 trees located within the SRC Expansion project site and adjacent construction staging area. Of the 135 existing trees, 77 trees would be removed during construction of the proposed Project, including 31 trees that are considered “mature” with a tree trunk diameter at breast height (dbh) of 12 inches or greater, or native coast live oak trees with a tree trunk diameter at dbh of 4 inches or greater to accommodate the new construction. The remaining 58 trees would be protected in place, including, but not limited to, 11 camphor and 3 coast live oak trees along Aberdeen Drive, palm and other trees along Linden Street, and trees within the outdoor challenge course.

As shown in Figure 12 in Section II, Project Description, the proposed Project involves installation of new landscaping. It is estimated that over 60 new trees would be planted. Replacement trees would be positioned to visually complement the proposed Project and hardscape areas and would be located in areas that would provide shade and serve as a visual buffer similar to existing conditions. Groundcover and shrubs would be planted to complement the structures and transition areas to adjacent uses.

Additionally, the proposed Project includes PS Open Space 3 and PP 4.1-2(d) and would not impact landforms, native plant materials, or trees within the designated Naturalistic Open Space south of the project site and would reduce the disturbance to this area by limiting construction activities to utility trenching.

In summary, the proposed Project structures, outdoor recreation uses, and landscaping have been designed in consideration of the 2007 Campus Design Guidelines (PPs 4.1-1 and 4.1-2[a]), and have been subject to design review by campus Design Review Board (PS Development Strategy 1). The height, massing, site design, materials, and other aspects of

the visual character of the proposed Project would be consistent with and complementary to the existing SRC facilities and surrounding uses, and would not degrade the existing visual quality of the project site and surroundings consistent with the findings of the 2005 LRDP EIR. There would be a less than significant impact and no mitigation is required.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be a less than significant impact to existing visual character or quality of the site and its surroundings.

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

Discussion

The analysis of Impact 4.1-3 in the 2005 LRDP EIR concluded that implementation of PS Land Use 3, PS Open Space 1 through 4, PS Conservation 1 and 2, PS Campus & Community 1, PS Development Strategy 1, PP 4.1-1, PP 4.1-2(a), PP 4.1-2(b), and MM 4.1-3(a) through MM 4.1-3(c) would ensure that light and glare impacts on adjacent land uses resulting from development under the 2005 LRDP would be reduced or avoided, resulting in a less than significant impact.

The 2005 LRDP EIR identifies that the primary sources of light and glare on the UCR campus include recreation facilities and surface parking lots. Specifically, the 2005 LRDP EIR identifies that the SRC and adjacent Track Stadium provide lighting on the fields, tennis courts, and the track to extend hours of use. Additionally, the existing SRC and outdoor Recreation Complex have outdoor light fixtures for safety/security purposes. There is also existing street lighting along adjacent roadways.

Development along the campus perimeter that has the potential to generate light and glare was addressed in the 2005 LRDP EIR. As previously identified, the SRC complex is internal to the campus. As described in Section II, Project Description, the proposed Project lighting design would provide both a quantity of lighting to ensure visual performance and a quality of design choices to control discomfort, glare, veiling reflections, uniformity, and to satisfy architectural design aesthetic requirements. The quantity of lighting would be determined by adherence to recommended illuminance levels derived from the latest industry standards (Illuminating Engineering Society lighting recommendations), and local ordinances, guidelines, and code requirements. The proposed Project incorporates MM 4.1-3(b), and would prevent light spillover to adjacent residential uses and glare from elevated light fixtures. The proposed Project would include outdoor lighting similar to the existing condition and would consist of lighting of outdoor recreation facilities, parking areas, sidewalks, and landscaped areas. Exterior lighting for canopy, entrances, and exits would be located so as to complement architectural treatments and to provide efficient illumination for security purposes. The tennis and volleyball courts would

have pole-mounted sports luminaires. The proposed Project includes 500-watt and 100-watt incandescent underwater lights in the pool and spa, respectively, which would result in minimal light spillover beyond the immediate area of the pool complex. Based on the level of lighting currently present on the project site and based on the existing level of ambient nighttime illumination at the UCR campus, the proposed Project would not noticeably increase the intensity of nighttime ambient light from the campus. Therefore, the lighting associated with the proposed Project would not adversely affect any existing land uses, including the student housing uses to the north and east.

The proposed Project also incorporates MM 4.1-3(a) to ensure there is no glare from the proposed structures. Building materials for the new SRC Expansion building would be non- or low-reflective and would consist of UCR's blend brick, storefront glazing systems, and metal panels. The building materials for the pool equipment building would consist of brick veneer in the UCR blend and grey concrete.

Implementation of PS Development Strategy 1 (design review), PP 4.1-1 (design in compliance with the 2007 Campus Design Guidelines), MM 4.1-3(a) (use of non-reflective building materials), and MM 4.1-3(b) (prevention of light and glare from outdoor lighting) as part of the Project, would ensure that impacts are less than significant. The proposed Project would not result in a substantial new source of light or glare and there would be less than significant impacts related to new sources of daytime or nighttime light and glare, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be a less than significant impact associated with the creation of a new source of substantial light or glare affecting day or nighttime views in the area.

2. Agricultural and Forest Resources

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

Project Impact Analysis

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

Discussion

The analysis of Impact 4.2-1 in Section 4.2, Agriculture, of the 2005 LRDP Amendment 2 EIR concluded that, even with implementation of PS Land Use 1, PS Land Use 2, and PS Land Use 3, development under the 2005 LRDP, as amended, would result in a significant and unavoidable impact due to conversion of Prime Farmland to non-agricultural uses.

The distribution of Farmland, as designated by the California Farmland Mapping and Monitoring Program (FMMP), on the UCR campus is presented in Figure 4.2-1, Important Farmland on the UCR Campus, in the 2005 LRDP Amendment 2 EIR. The UCR campus currently has a total of 481.7 acres of Prime Farmland and Farmland of Statewide Importance (collectively, "Farmland") primarily located on the West Campus with an isolated area of Farmland of Statewide Important located along the eastern boundary of the East Campus. The project area is designated as Urban Built-Up Land and, as such, implementation of the proposed Project would not convert Farmland to non-agricultural resources. Therefore, the proposed Project would have no impact on agricultural resources.

As identified in the Initial Study prepared for, and summarized in, the 2005 LRDP Amendment 2 EIR, no portion of the UCR campus is zoned for forest land, timberland, or agricultural use; it does not contain any forest land or timberland; nor is it under Williamson Act Contract. Therefore, implementation of the proposed Project would result in no impacts related to conflict with existing zoning for forest land, timberland, or agriculture; it would not conflict with a Williamson Act Contract; and it would not result in the loss or conversion of forest lands, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Implementation of the proposed Project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. Therefore, the proposed Project would result in no impacts related to indirect conversion of Farmland to non-agricultural use, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be no impacts to Farmland, forest land, timberland, or Williamson Act Contracts.

3. Air Quality

The analysis of air quality is tiered from the 2005 LRDP Amendment 2 EIR, and was addressed in Section 4.3, Air Quality, of that document. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to air quality include approximately 22,300 cubic yards (cy) of cut and 26,400 cy of fill, requiring the import of approximately 4,100 cy of soil to the project site during construction, and the use of diesel-powered and other construction equipment that would contribute to local and regional emissions (refer to discussion of "Construction Activities" in Section II, Project Description, of this Initial Study). The proposed Project would include construction of the new 71,147-gsf SRC Expansion building; the 8,509-gsf partial renovation of the existing SRC building; and reconfiguration of outdoor recreation facilities on approximately 6.7 acres. Construction would involve demolition, grading, and construction. The proposed Project would increase the UCR campus population with the addition of approximately 20 new non-student staff. There would be a minimal increase in traffic and associated air quality emissions from motor vehicles during long-term operation.

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

PS Campus and Community 4	Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.
PS Transportation 3	Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.
PS Transportation 5	Provide bicycle parking at convenient locations.
PP 4.3-1	The Campus shall continue to implement a Transportation Demand Management program that meets or exceeds all trip reduction and AVR requirements of the SCAQMD. The TDM program may be subject to modification as new technologies are developed or alternate program elements are found to be more effective. *(This is identical to Transportation and Traffic PP 4.14-1).*

PP 4.3-2(a) Construction contract specifications shall include the following:

(i) Compliance with all SCAQMD rules and regulations

(ii) Maintenance programs to assure vehicles remain in good operating condition

(iii) Avoid unnecessary idling of construction vehicles and equipment

(iv) Use of alternative fuel construction vehicles

(v) Provision of electrical power to the site, to eliminate the need for on-site generators

PP 4.3-2(b) The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

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

(ii) Replace ground cover in disturbed areas as quickly as possible

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

(iv) Water active grading sites at least twice daily

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

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

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

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

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

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

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

MM 4.3-1(a) For each construction project on the campus, the project contractor will implement Programs and Practices 4.3-2(a) and 4.3-2(b).

In addition, the following PM_{10} and $PM_{2.5}$ control measure shall be implemented for each construction project:

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

MM 4.3-1(b) For each construction project on the campus, the University shall require that the project include a construction emissions control plan that includes a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used for an aggregate of 40 or more hours during any portion of the construction project. During construction activity, the contractor shall utilize CARB certified equipment or better for all on-site construction equipment according to the following schedule:

- ~~January 1, 2011 to December 31, 2011: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 2 off-road emissions standards. In addition, all construction equipment shall be outfitted with the BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 2 or Level 3 diesel~~

~~emissions control strategy for a similarly sized engine as defined by CARB regulations~~.[2]

- January 1, 2012 to December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 3 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- Post January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- A copy of each unit's certified specification, BACT documentation and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit or equipment.

- Encourage construction contractors to apply for AQMD 'SOON" funds. Incentives could be provided for those construction contractors who apply for AQMD "SOON" funds. The "SOON" program provides funds to accelerate clean-up of off-road diesel vehicles, such as heavy duty construction equipment. More information on this program can be found at the following website: http://www.aqmd.gov/tao/implementation/soonprogram.htm

The contractor shall also implement the following measures during construction:

- Prohibit vehicle and engine idling in excess of 5 minutes and ensure that all off-road equipment is compliant with the California Air Resources Board's (CARB) in-use off-road diesel vehicle regulation and SCAQMD Rule 2449.

[2] LRDP EIR MM 4.3-1(b) has been revised, as shown. The timeframe for this component of MM 4.3-1(b) has past and the more restrictive requirements defined are applicable.

- Configure construction parking to minimize traffic interference.
- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off site.
- Schedule construction activities that affect traffic flow on the arterial system to off-peak hour to the extent practicable.
- Improve traffic flow by signal synchronization, and ensure that all vehicles and equipment will be properly tuned and maintained according to manufacturers' specifications.
- Use diesel-powered construction vehicles and equipment that operate on low-NOx fuel where possible.
- Reroute construction trucks away from congested streets or sensitive receptor areas.
- Maintain and tune all vehicles and equipment according to manufacturers' specifications.

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

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

MM 4.3-2(b) UCR shall continue to participate in greenhouse gas (GHG) reduction programs such as the American College and University Presidents' Climate Commitment (ACUPCC) and shall adhere to the UC Policy on Sustainable Practices. The measures adopted by UCR are presented in Tables 4.16-9 and 4.16-10 in Section 4.16 Greenhouse Gas Emissions of the 2005 LRDP Amendment 2 EIR. While these measures are typically targeted at GHG emissions, many act to reduce energy consumption and vehicle use on campus and would consequently also reduce air pollutant emissions from both area and mobile sources. In accordance with the ACUPCC

and the UC Policy on Sustainable Practices and through implementation of its Climate Action Plan, UCR shall commit to reducing GHG emissions to 1990 levels by 2020, which would require significant reductions (on the order of 70 percent) from these sources in terms of GHG and therefore reductions in other air pollutants as well.

Regulatory Framework

A detailed discussion of the regulatory framework for air quality is provided in Section 4.3 of the 2005 LRDP Amendment 2 EIR. In summary, both the federal and State governments have established ambient air quality standards for outdoor concentrations of specific pollutants, referred to as "criteria pollutants", in order to protect public health. The national and State ambient air quality standards have been set at concentration levels to protect the most sensitive persons from illness or discomfort; these levels are given with a margin of safety. The criteria pollutants for which federal standards have been promulgated and that are most relevant to this air quality impact analysis are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), and particulate matter (PM10 and PM2.5). Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM10. Fine particulate matter (PM2.5) is a subgroup of PM10 that consists of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. O_3 is a gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx)—both byproducts of internal combustion engine exhaust—undergo slow photochemical reactions in the presence of sunlight. Thus, VOCs and NOx are O_3 precursors.

The campus is located within the South Coast Air Basin (SoCAB), which was named as such since its geographical formation is that of a basin with the surrounding mountains trapping the air and its pollutants in the valleys (or basins) below. This area includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. The South Coast Air Quality Management District (SCAQMD) is responsible for ensuring that the SoCAB meets the national and State ambient air quality standards.

Subsequent to the preparation of the air quality study for the 2005 LRDP Amendment 2 EIR, there were changes in the attainment status in the SoCAB. In 2010, the Los Angeles County portion of the SoCAB was redesignated as a federal and State nonattainment area for lead based on data from large lead-acid battery recycling facilities located in the cities of Vernon and Industry. Because lead concentrations drop off fairly rapidly with distance from the source, the USEPA and the CARB limited the nonattainment area to Los Angeles County instead of the entire SoCAB, including Riverside County (CARB 2011; USEPA 2010).

Air Quality Sensitive Receptors

The SCAQMD defines typical sensitive receptors as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The sensitive receptors nearest the project area are the Canyon Crest Family Student Housing complex, across Linden Street to the north; the Aberdeen-Inverness residence halls, across Aberdeen Drive to the east; and the Materials Science and Engineering building to the south. Potential impacts to sensitive receptors from construction emissions are assessed under the analysis of Threshold "d" below.

Methodology

The SCAQMD recommends that projects be evaluated in terms of their quantitative thresholds, which have been established to assess both the regional and localized impacts of project-related air pollutant emissions. The significance thresholds are updated, as needed, to appropriately represent current ambient air quality standards and attainment status. As identified in Section 4.3.4, Impacts and Mitigation Measures, of the 2005 LRDP Amendment 2 EIR, UCR utilizes the SCAQMD-recommended thresholds that are in place at the time development projects are proposed in order to assess the significance of quantifiable emissions. The current SCAQMD thresholds are identified in Table 1 and are applied to the proposed Project.

TABLE 1
SCAQMD THRESHOLDS OF SIGNIFICANCE

Mass Daily Thresholds (lbs/day)		
Pollutant	**Construction**	**Operation**
VOC	75	55
NOx	100	55
CO	550	550
PM10	150	150
PM2.5	55	55
SOx	150	150
Lead	3	3
Toxic Air Contaminants		
TACs[a]	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402	
Ambient Air Quality For Criteria Pollutants[b]		
NO_2	1-hour average ≥ 0.18 ppm Annual average ≥ 0.03 ppm	
CO	1-hour average ≥ 20.0 ppm (State) 8-hour average ≥ 9.0 ppm (State/federal)	
PM10	24-hour average ≥ 10.4 µg/m^3 (construction) 24-hour average ≥ 2.5 µg/m^3 (operation) Annual average ≥ 1.0 µg/m^3	
PM2.5	24-hour average ≥ 10.4 µg/m^3 (construction) 24-hour average ≥ 2.5 µg/m^3 (operation)	
Sulfate	24-hour average ≥ 1.0 µg/m^3	

lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; TACs: Toxic Air Contaminants; NO_2: nitrogen dioxide

[a] TACs (carcinogenic and noncarcinogenic)

[b] Ambient air quality threshold based on SCAQMD Rule 403.

Source: SCAQMD 2011a

Existing Emissions

The project site is currently occupied by the existing SRC building, which will remain in its existing condition, except for renovations to the entrances, lobby, and existing weight room. The area of the project site to the south of the existing SRC building provides ten tennis courts, a roller hockey court, two basketball courts, two sand volleyball courts, a jogging trail. A

challenge/ropes course and climbing wall are located east of the existing SRC building. Emissions of criteria pollutants result from the use of natural gas for heating and hot water within the SRC building; motor vehicles; periodic repainting of interior spaces; and use of consumer products, such as cleaning supplies, that contain VOCs.

Project Impact Analysis

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

Discussion

The analysis of Impact 4.3-6 in the 2005 LRDP Amendment 2 EIR concluded that, even with implementation of PS Land Use 4 and 5, PS Transportation 1 through 6, and MM 4.3-6 (which implements MM 4.3-1 and MM 4.3-2[b]), development under the 2005 LRDP would likely conflict with SCAQMD Air Quality Management Plans (AQMPs) for ozone and particulate matter, and there would be a significant and unavoidable impact. This conclusion was based on the forecasted construction emissions that exceed SCAQMD CEQA significance mass daily thresholds for VOC, NOx, and PM10 and operational emissions that exceed the mass daily thresholds for VOC, NOx, PM10, and PM2.5.

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

With respect to the first criterion, with incorporation of the identified PSs, PPs and MMs the forecasted proposed Project construction and operational emissions as detailed in Threshold b, would not exceed the SCAQMD CEQA significance mass daily thresholds, which demonstrates that the proposed Project would not result in a long-term increase in the frequency or severity of existing regional air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards. With respect to the second criterion, the expansion of recreation space and staff to accommodate a student population of 25,000 was anticipated in the 2005 LRDP. As stated in the 2005 LRDP Amendment 2 EIR, the current 2007 AQMP would have included the projected growth associated with the 2005 LRDP. Therefore, the proposed Project would not exceed the assumptions in the AQMP. Based on these criteria, it is concluded that the proposed Project would not conflict with or obstruct the SCAQMD AQMP; there would be no impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would not conflict with or obstruct implementation of the applicable air quality plans; there would be no impact.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒	☐

Discussion

The analysis of Impacts 4.3-1 and 4.3-2 in the 2005 LRDP Amendment 2 EIR concluded that, even with implementation of PP 4.3-1, PP 4.3-2(a), PP 4.3-2(b), MM 4.3-1(a) through MM 4.3-1(c), MM 4.3-2(a), and MM 4.3-2(b), development under the 2005 LRDP could result in significant and unavoidable impacts related to

- construction emissions of VOC, NOx, and PM10 (Impact 4.3-1) and
- operational emissions of VOC, NOx, CO, PM10, and PM2.5 (Impact 4.3-2).

Following is an analysis of the short-term construction-related and long-term operational emissions that would result from implementation of the proposed Project.

Construction Emissions

Construction-related emissions are described as short-term (or temporary) in duration. Construction activities associated with the proposed Project would result in emissions of criteria air pollutants (i.e., PM10, PM2.5, CO, and the O_3 precursors VOC and NOx) from (1) construction equipment that performs excavation, grading, and erection of building materials; (2) on-road hauling of excavated soil and demolished materials; (3) material handling and transport; and (4) other miscellaneous activities including worker commuting vehicles and application of architectural coatings.

As described further in Section II.5, Proposed Project Components, under "Construction Activities", the total construction period is anticipated to extend from June 2012 through December 2013, for a period of approximately 19 months. The generalized construction phasing is as follows, with some overlap between phases:

- Demolition (3 weeks);
- Grading/excavation (4 weeks with hauling in the first week);
- Utility installation (3 weeks); and
- Building construction (16 months) (some utilities and all paving and painting overlap with building construction).

Demolition would primarily include the existing tennis courts and other hardscape south of the existing SRC building, and would also include materials removed for the existing SRC building renovation. It is estimated that demolition would require approximately 200 round trips to a construction and demolition waste disposal site approximately 5.8 miles from the project area. Importing approximately 4,100 cy of soil would require approximately 205 truck trips, using 20 cy trucks, over approximately 1 week (5 working days). Therefore, there would be approximately 41 round-trip truck trips per weekday during 1 week of the construction period. It

is assumed that the source of the soil would be ten miles from the project area. Trenching for utilities installation would occur subsequent to the grading. Construction of the proposed SRC Expansion building and renovations in the existing building, totaling approximately 79,656 gsf, as well as the swimming pool, tennis courts and other outdoor facilities, would then take approximately 16 months. Painting would be limited to interior spaces and would occur for approximately two months, concurrent with the final building construction.

Project-generated construction emissions were modeled with the California Emission Estimator Model (CalEEMod) version Version 2011.1.1 computer program (SCAQMD 2011b). CalEEMod is designed to model construction emissions for land development projects and allows for the input of project- and County-specific information. The CalEEMod model input was based on the proposed Project's construction assumptions (described above and in Section II.5, Proposed Project Components). Where specific information was not known, engineering judgment and default CalEEMod settings and parameters were used. Compliance with SCAQMD Rules is required and included as part of the proposed Project (PP 4.3-2[a]). Additionally, the proposed Project includes PPs and MMs that serve to reduce construction-related emissions and have been assumed in the analysis. Specifically, construction would be performed in accordance with Rule 403, Fugitive Dust (SCAQMD 2005) (PP 4.3-2[b]) and Rule 1113, Architectural Coatings (SCAQMD 2007) (MM 4.3-1[c]). Additionally, Tier 3 or better construction equipment would be used (MM 4.3-1[b]). Table 2 below summarizes the modeled emissions for proposed Project construction. Construction-related regional air quality impacts were determined by comparing these modeling results with applicable SCAQMD significance thresholds, as shown.

TABLE 2
MAXIMUM DAILY REGIONAL CONSTRUCTION EMISSIONS FOR THE PROPOSED PROJECT

Year	Emissions in Pounds per Day				
	VOC	**NOx**	**CO**	**PM10**	**PM2.5**
2012	7	58	47	17	8
2013	45	22	28	3	2
Maximum Daily Emissions	***45***	***58***	***47***	***17***	***8***
SCAQMD Significance Thresholds (Construction)	75	100	550	150	55
Significant Impact?	**NO**	**NO**	**NO**	**NO**	**NO**
Note: Calculations assume compliance with SCAQMD Rules 403 and 1113. CALEEMOD model data sheets are included in Appendix A.					

The maximum daily regional emissions of NOx, CO, PM10, and PM2.5 would occur for a period of one week in 2012 as a result of concurrent grading and soil import activities. Maximum VOC emissions would occur for approximately two months during concurrent painting and building activities. Estimated regional construction emissions would be less than the SCAQMD CEQA significance thresholds; therefore, the Project-specific construction emissions impact would be less than significant, and no mitigation would be required. It should be noted that implementation of PP 4.3-2(a) (construction-related requirements to be included in the contractor specifications), PP 4.3-2(b) (dust control in compliance with SCAQMD Rule 403), MM 4.3-1(b) (requirements for construction equipment), and MM 4.3-1(c) (VOC-control measures) as part of the proposed Project would provide further emissions reductions because some elements of these PPs and MMs are not quantified in the emissions modeling.

Operational Emissions

Operational emissions are comprised of area source, natural gas combustion, and mobile source emissions. Area source emissions would result from landscape maintenance equipment, periodic painting, and use of consumer products. Natural gas emissions are based on CalEEMod default data using Title 24 requirements with the data adjusted for the projected Project efficiency of 34 percent better than Title 24. The proposed Project incorporates MM 4.3.2(b) which requires UCR to participate in GHG-reduction programs, which serve to reduce natural gas emissions.

Based on an estimated 20 non-student staff employees generating 4 daily trips (to and from work and to and from lunch or errands), the proposed Project would generate a maximum 80 daily long-term vehicular trips. This is a conservative estimate because all 20 employees would not work on the same day, and some employees would only make 2 trips per day. Additionally, the proposed Project incorporates PS Campus and Community 4 (promote campus-wide non-vehicular transportation), PS Transportation 3 (campus-wide bicycle network to connect to off campus bicycle routes), PS Transportation 5 (provide bicycle parking), and PP 4.3-1 (campus-wide implementation of a transportation demand management program), which all serve to reduce vehicular trips. The peak daily operational emissions attributable to the proposed Project were calculated using CalEEMod and are shown in Table 3.

TABLE 3
PEAK DAILY OPERATIONAL EMISSIONS FOR THE PROPOSED PROJECT

	Emissions in Pounds per Day				
	VOC	**NOx**	**CO**	**PM10**	**PM2.5**
Area sources	2.9	<0.05	<0.05	<0.05	<0.05
Natural gas combustion	0.1	0.6	0.5	0.1	0.1
Mobile sources	0.3	0.8	3.2	0.5	<0.05
Maximum daily operational emissions	***3.3***	***1.4***	***3.7***	***0.5***	***0.1***
SCAQMD Significance Thresholds (Operational)	55	55	550	150	55
Significant Impact?	**NO**	**NO**	**NO**	**NO**	**NO**

Totals may not add due to rounding
Values are the higher of summer or winter

Note: CALEEMOD model data sheets are included in Appendix A.

As shown in Table 3, the operational emissions for the proposed Project would be substantially less than the SCAQMD CEQA significance thresholds. The operational impact of the proposed Project on regional emissions would be less than significant, and no mitigation is required.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project has a less than significant potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒	☐

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

The Riverside County region of the SoCAB is a nonattainment area for O_3, NO_2, PM10, and PM2.5. Therefore, cumulative regional emissions of VOCs and NOx (which are O_3 precursors) as well as PM10 and PM2.5 are addressed in the following analysis of cumulative criteria pollutant emissions (during construction and operation).

Construction

As identified in Table 4.3-8 of the 2005 LRDP Amendment 2 EIR, construction of the remaining development on campus would include individual projects that would have construction emissions that would exceed the SCAQMD NOx and PM10 mass emissions thresholds in 2012; no thresholds would be exceeded in 2013. With incorporation of the identified PPs and MMs into the proposed Project, the projected peak daily NOx and PM10 emissions of the proposed Project, also planned for 2012, would be 58 and 11 percent of the CEQA significance thresholds, respectively, for a period of one week (Table 2); subsequently, NOx emissions would be less than 35 percent, and PM10 emissions would be less than 10 percent of the thresholds. Because of the short duration of peak emissions and the relatively low emission rates, the proposed Project's cumulative contributions to construction emissions on campus would not be considerable, and the impact would be less than significant.

Operations

As discussed above, there would be a minimal increase in daily vehicle trips associated with implementation of the proposed Project. The increase in long-term emissions of all nonattainment pollutants resulting from the proposed Project would be very small relative to SCAQMD CEQA significance thresholds (Table 3), and would not be cumulatively considerable. The impact would be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

Construction and operation of the proposed Project would result in a less than significant cumulatively considerable net increase of criteria pollutants for which the Project region is in

nonattainment under an applicable federal or State ambient air quality standard (O_3, NO_2, PM10, and PM2.5).

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

Discussion

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

Carbon Monoxide

Exposure of sensitive receptors to CO is of concern if the project contributes substantial traffic to severely congested, high-volume, signalized intersections with an associated potential increase in local CO concentrations (i.e., CO hotspots). As indicated above and further discussed in Section 4.16, Transportation and Traffic, the proposed Project would generate minimal daily vehicle trips that would be within the trip generation assumed in the 2005 LRDP EIR. The proposed Project would not increase delay at any intersections and would not generate a CO hotspot.

Consistent with the conclusion of the 2005 LRDP Amendment 2 EIR, implementation of the proposed Project would not result in exposure of sensitive receptors to substantial concentrations of CO, and there would be no impact. No mitigation is required.

Toxic Air Contaminants

A human health risk assessment (HHRA) was prepared as part of the 2005 LRDP Amendment 2 EIR to estimate the potential health risks associated with TACs generated by current and projected campus-wide operations. TACs are airborne substances that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. The HHRA concluded that full development of the campus under the 2005 LRDP Amendment 2 would not generate toxic air emissions that would result in excess human cancer risk from stationary sources or that would result in a cumulative acute or chronic non-cancer Hazard Index that exceeds the established standards. Therefore, sensitive receptors on and off campus would not be exposed to substantial pollutant concentrations due to campus-generated TACs.

The proposed Project involves expansion and replacement of existing recreational facilities and of operations that already occur on campus. Users of the new facilities would not be located closer to known generators of TACs than the maximally exposed individual (MEI) identified in the HHRA, nor would the new facilities be located substantially closer to sensitive receptors. Additionally, the type, amount and frequency of the use of potentially hazardous materials in the new facilities would be similar to existing operations in the existing building, with the exception

of the new pool complex. The addition of the outdoor swimming pool and spa, which would be chlorinated, would result in the emissions of chloroform, a TAC. However, studies addressing exposure to and related health effects from airborne emissions from swimming pools are limited to indoor pools because emissions from outdoor pools are diluted in the ambient air. Therefore, implementation of the proposed Project would not result in exposure of sensitive receptors to substantial concentrations of TACs. The impact would be less than significant, which is consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Construction Emissions

The SCAQMD has developed thresholds and methodologies for analyzing the localized air quality effects on a project-specific level. The Localized significance thresholds (LST) methodology is a conservative, simple screening methodology for determining impacts to off-site receptors from on-site emissions (SCAQMD 2008a). The LST methodology provides "lookup" tables of emissions limits based on the location of the project site; the size of the project area; and the distance to the sensitive receptor. The lookup tables are prepared for sites up to five acres in area, but the five-acre thresholds may be used for sites somewhat larger than five acres since the thresholds for larger sites would be larger than those for a five-acre site.

The existing SRC building is the closest sensitive receptor to the proposed Project. The distance to the sensitive receptor used for analysis is 25 meters,[3] which is the minimum distance prescribed for the LST methodology for all source-to-receptor distances of 25 meters or less. Thresholds were obtained for Receptor Source Area 23, Metropolitan Riverside County. Based on these parameters, LST emissions and thresholds for the proposed Project are shown in Table 4. The emissions shown in Table 4 are less than those in Table 2 because Table 2 includes off-site emissions as well as on-site emissions

TABLE 4
LOCAL CONSTRUCTION EMISSIONS TO NEAREST SENSITIVE RECEPTORS

Pollutant	Maximum Daily On-Site Emissions[a] (lbs/day)	LST Threshold[b] (lbs/day)	Exceed Threshold?
NOx	34	270	No
CO	35	602	No
PM10	11	13	No
PM2.5	7	8	No

[a] CALEEMOD model data sheets are included in Appendix A.
[b] LST thresholds from SCAQMD 2009

The peak on-site emissions would occur during the four-week grading activities. As shown, the proposed Project's estimated construction emissions would not exceed the SCAQMD LST thresholds, and the impact from exposure to construction emissions at the adjacent existing SRC building or elsewhere on or off campus would be less than significant.

Additional Project-Level Mitigation Measures

None required.

[3] The methodology for LST analysis uses the metric system for distance factors.

Level of Significance

Construction and operation of the proposed Project would have a less than significant impact related to exposure of sensitive receptors to substantial pollutant concentrations.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒	☐

Discussion

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

Construction activities may generate some odors during construction, such as diesel exhaust associated with operations of diesel-fueled construction vehicles/equipment, architectural coatings, and asphalt paving. These odors are typical of urbanized environments and would be subject to construction and air quality regulations, including proper maintenance of machinery to minimize engine emissions. These emissions would occur during daytime hours and would be isolated to the immediate vicinity of construction activities. The odors would be of a relatively small magnitude and short duration and would quickly disperse into the atmosphere. These odors are not pervasive enough to cause objectionable odors affecting a substantial number of people. There would be a less than significant impact.

As identified in the 2005 LRDP Amendment 2 EIR, the campus does not contain any facilities that are considered by the SCAQMD to be odor emitting, and no such facilities would be added. The proposed recreational facilities associated with the proposed Project would be similar to existing conditions and would not add odor emitting facilities. Therefore, long-term operation of the proposed Project would not involve odor-generating activities and there would be no impact.

In summary, impacts from construction or operation of the proposed Project related to odors would be less than significant consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The Project would create a less than significant impact associated with objectionable odors affecting a substantial number of people.

4. Biological Resources

The analysis of biological resources is tiered from the 2005 LRDP EIR, and was addressed in Section 4.4, Biological Resources, of that document. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to

biological resources include tree removal, replacement and retention; and, removal of the majority of ornamental vegetation located within the project area.

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

PS Open Space 3 — In Naturalistic Open Space areas, where arroyos and other natural features exist, preserve wherever possible, existing landforms, native plant materials, and trees. Where appropriate, restore habitat value.

PP 4.4-2(b) — In compliance with NPDES, the Campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

(i) Public education and outreach on stormwater impacts

(ii) Public involvement/participation

(iii) Illicit discharge detection and elimination

(iv) Pollution prevention/good housekeeping for facilities

(v) Construction site stormwater runoff control

(vi) Post-construction stormwater management in new development and redevelopment

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

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

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

Additionally, PPs 4.1-2(a) and 4.1-2(b) (included under the Aesthetics analysis, which is Section V.1 of this Initial Study) are included in the proposed Project. PP 4.1-2(a) requires development of landscape plans that are consistent with the 2007 Campus Design Guidelines (including tree

retention). PP 4.1-2(b) requires that the campus continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐	☒

Discussion

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

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

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

As identified in the 2005 LRDP EIR, a literature search determined that special status plant and animal species have the potential to occur within Natural and Naturalistic areas of the campus; several sensitive wildlife species and one sensitive plant species were observed within the UCR Botanic Gardens (refer to Tables 4.4-1 and 4.4-2 of the 2005 LRDP EIR). Therefore, development within Natural and Naturalistic areas could result in substantial direct and indirect (e.g., removal of foraging habitat) adverse impacts on candidate, sensitive, and/or special status species. The distribution of the campus' Natural and Naturalistic areas is shown on Figure 4.4-1, Existing Campus Biological Resources, of the 2005 LRDP EIR. As shown, there are no Natural or Naturalistic areas within the project site; however, a designated Naturalistic

east-west-trending corridor is located south of the project site. It should be noted that this segment of Naturalistic open space has largely been developed with the Materials Science and Engineering building and Athletic Fields.

The proposed SRC Expansion building and improvements at the Outdoor Recreation Complex would not involve development within the Naturalistic area to the south of the project site; however, the proposed chilled water and electric line connections from the project site to North Campus Drive would involve shallow trenching through this area. As shown on Figure 4, Project Limits, there are no existing natural resources that would be impacted by these construction activities, which is consistent with PS Open Space 3 (preservation of landforms, native plant materials, and trees within Naturalistic open space areas) which is incorporated into the proposed Project. Therefore, the proposed Project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations; by the California Department of Fish and Game; or by the U.S. Fish and Wildlife Service. No impact would occur.

A discussion of impacts to migratory birds is provided under Threshold 4d below.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The Project would have no impact to candidate, sensitive, or special status plant or wildlife species.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☐	☒

Discussion

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

Based on review of Figure 4.4-1, Existing Campus Biological Resources, of the 2005 LRDP EIR, the proposed Project does not involve any development within or near designated critical habitat for the coastal California gnatcatcher, and the project area is not traversed by an arroyo or other drainage feature. Therefore, it does not have the potential to impact riparian or other

sensitive natural communities that may occur in these areas. The proposed Project would have no impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The Project would have no impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☐	☒

Discussion

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

The proposed Project, including the utility connections, incorporates PS Open Space 3 (preserve landforms, native plant materials, and trees within Naturalist open space areas) and does not involve development within any Natural or Naturalistic areas. However, the proposed chilled water and electrical line connections from the project area to North Campus Drive would involve shallow trenching through a designated Naturalistic open space area south of Parking Lot 25 that has been disturbed by construction activities and the existing Athletic Fields. There are no wetlands within or surrounding the Project area; therefore, the proposed Project would not have direct or indirect impact on wetlands.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The Project would have no impact on federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal, etc.) as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒	☐

Discussion

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

The analysis of Impact 4.4-4 in the 2005 LRDP EIR concluded there would be less than significant impacts related to wildlife movement with implementation of PS Open Space 1, 2, 3, and 5; PS Conservation 1 and 2; PP 4.4-1(a); PP 4.4-1(b); MM 4.4-4(a); and MM 4.4-4(b).

The proposed Project is located in the central portion of the UCR campus on the East Campus and would not involve development within or near the southeast hills; it would not, therefore, interfere with wildlife movement through identified corridors. The proposed utility trenching that would occur within the designated Naturalistic open space located south of the project site could interfere with the movement of native resident wildlife through this area; however, these construction activities would be short-term and would not involve any permanent facilities that would provide a barrier to movement. Impacts to wildlife movement would be less than significant, which is consistent with the conclusions of the 2005 LRDP EIR.

As shown on Figure 14, Tree Impacts, there are 135 trees within the SRC Expansion project site and adjacent construction staging area. These trees were surveyed and a summary of the relevant information is provided in Appendix B (e.g., type, height, diameter at breast height, canopy diameter, health, aesthetics). Of these 135 trees, 87 are within the identified construction impact area for the project or the construction staging area and the remaining 48 trees are in areas that would not be disturbed during construction. As shown on Figure 14,

up to 77 trees would be removed during construction of the proposed Project, including 31 trees that are considered "mature" with a tree trunk diameter at breast height (dbh) of 12 inches or greater, or native coast live oak trees with a tree trunk diameter at dbh of 4 inches or greater. The proposed Project includes PP 4.1-2(a), which ensures that project-specific landscape plans are consistent with the 2007 Campus Design Guidelines with respect to, among other items, retention of existing trees. The proposed Project would retain 10 existing trees within the identified construction limits in addition to the 48 trees that are not within the construction limits. It should be noted that the trees to be retained include the 11 camphor and 3 coast live oak trees along Aberdeen Drive, palm and other trees along Linden Street, and trees within the outdoor challenge course, as shown on Figure 14.

The proposed Project includes replacement of removed mature trees and native coast live oak trees that that meet the established criteria on a 1:1 basis with new trees at a minimum 15 gallon size. Additionally, the proposed project involves planting of additional trees throughout the project site (refer to Figure 12, Conceptual Landscape Plan). Additionally, the proposed Project includes PS Open Space 3 and PP 4.1-2(d) and would not impact landforms, native plant materials, or trees within the designated Naturalistic Open Space south of the project site and would reduce the disturbance to this area by limiting construction activities to utility trenching. However, as analyzed in the 2005 LRDP EIR, implementation of the 2005 LRDP, including the proposed Project, could still result in the removal of mature trees that may serve as perching or nesting sites of migratory birds or raptors.

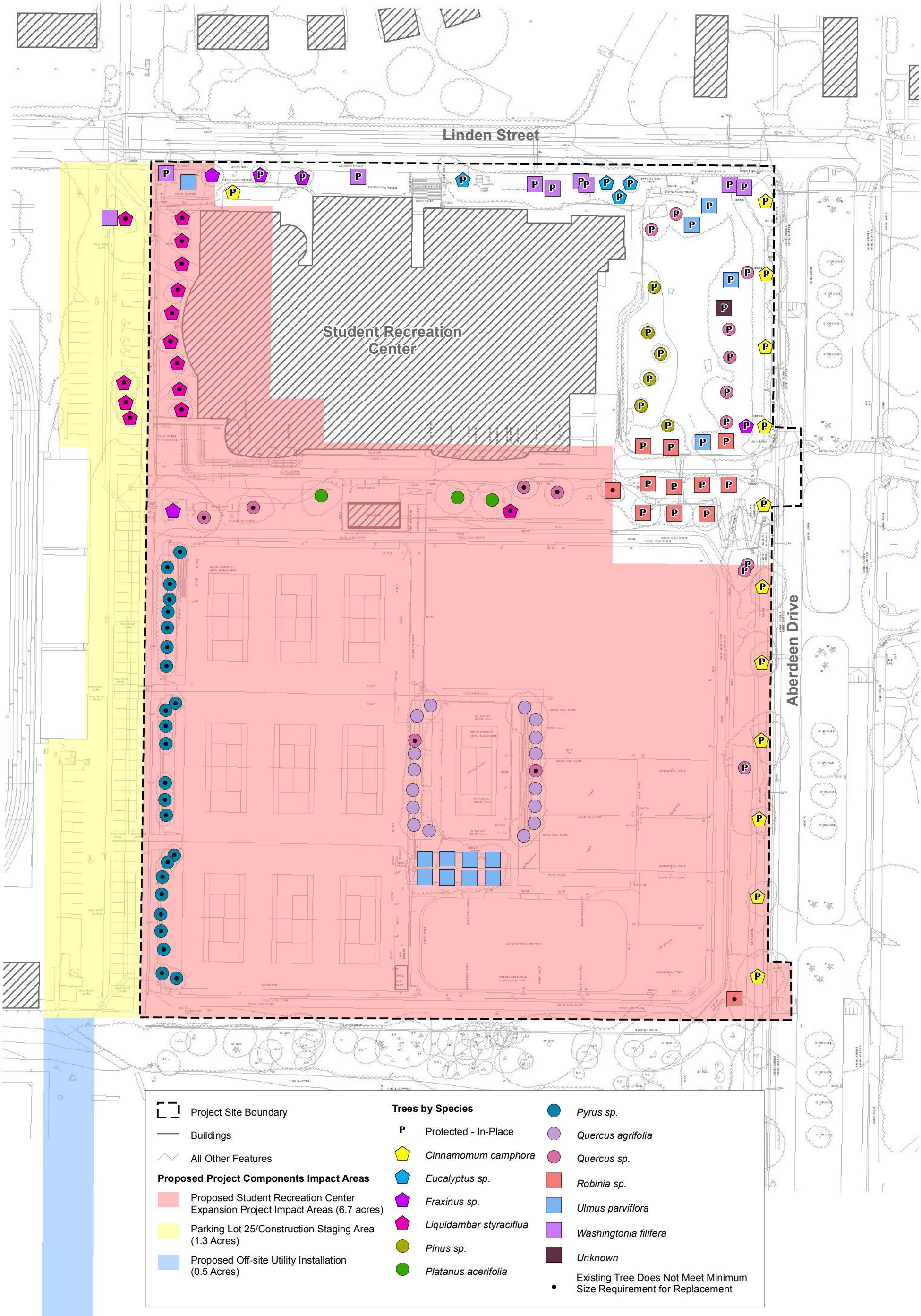
As analyzed in the 2005 LRDP EIR, it is anticipated that any migratory birds or raptors using mature trees as perching sites would leave the site upon the initiation of construction activities. Additionally, removal of mature trees could result in the loss of an occupied nest for migratory or raptor species, which would constitute substantial interference (take or destruction) with a raptor or migratory species of special concern. Therefore, the proposed Project incorporates MM 4.4-4(a), which requires a pre-construction survey for nesting special status avian species and raptors, and MM 4.4-4(b), which requires that exterior construction activities be delayed within the construction footprint or a 250-foot buffer zone until the young have fledged or appropriate mitigation measures responding to the specific situation have been developed and implemented in consultation with USFWS and CDFG. Because the proposed Project incorporates all relevant PSs, PPs, and MMs, impacts on nesting birds and raptors would be less than significant, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be a less than significant to impact to nesting birds and raptors.



D:\Projects\UCR\J003\mxd\Ex_tree_impacts_v002.mxd

Tree Impacts

Figure 14

UCR Student Recreation Center Expansion Project

N W E S

100 50 0 100 Feet

BonTerra CONSULTING

(Rev: 1-04-2012 JCD) Projects\UCR\J003\Graphics\Initial_Study\Ex14_tree_impacts.pdf

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Conflict with any applicable policies protecting biological resources?	☐	☐	☐	☐	☒

Discussion

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

As discussed under Thresholds 4a through 4d and Threshold 4f, the proposed Project incorporates PS Open Space 3, PP 4.1-2(a), PP 4.1-2(b), MM 4.4-4(a), and MM 4.4-4(b) and would have no impacts to sensitive biological resources; also, the proposed Project would have less than significant impacts related to removal of mature trees and associated potential for disturbance of protected birds and raptors with implementation of the above-listed measures. Accordingly, the proposed Project would also be consistent with the *City of Riverside General Plan* policies related to biological resources. No impact would occur.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to conflict with the *City of Riverside General Plan* policies protecting biological resources.

	Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?	☐	☐	☐	☐	☒

Discussion

A Multiple Species Habitat Conservation Plan (MSHCP) was approved and adopted by Riverside County in 2003 as a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP) focusing on conservation of both species and associated habitats to address biological and ecological diversity conservation needs in Western Riverside County. In addition to being an HCP pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act of 1973, this MSHCP also serves as a Natural Communities Conservation Plan under the Natural Communities Conservation Planning (NCCP) Act of 1991. Although sections of Cells 634 and 719 of the MSHCP do include portions of the campus, the plan does not identify any portion of the UCR for conservation. Therefore, the 2005 LRDP EIR concluded that development under the 2005 LRDP, of which the proposed Project is a part, would not conflict with the MSHCP, and there would be no impact. Therefore, the proposed Project would have no impact related to conflict with the MSHCP, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to conflict with the Western Riverside County MSHCP.

5. Cultural Resources

The analysis of cultural resources is tiered from the 2005 LRDP EIR, and was addressed in Section 4.5, Cultural Resources, of that document. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to cultural resources include proposed excavations up to depths of 16 feet below ground surface (bgs) to accommodate the proposed pool and other earth-moving activities that could encounter native soils. There are no identified historic resources within the project area.

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

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

(i) A qualified paleontologist shall determine the significance of the find.

(ii) The Campus shall make an effort to preserve the find intact through feasible project design measures.

(iii) If it cannot be preserved intact, then the University shall retain a qualified non-University paleontologist to design and implement a treatment plan to document and evaluate the data and/or preserve appropriate scientific samples.

(iv) The paleontologist shall prepare a report of the results of the study, following accepted professional practice.

(v) Copies of the report shall be submitted to the University and the Riverside County Museum.

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

Project Impact Analysis

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

Discussion

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

A detailed discussion of the regulatory setting and existing cultural resources is provided in Section 4.4, Cultural Resources, of the 2005 LRDP EIR. As identified, relevant regulatory programs include the National Historic Preservation Act of 1966, California Senate Bill 297, and the California Register of Historic Resources (CRHR). The 2005 LRDP EIR identified a total of eight campus structures located on both the East Campus and West Campus that are eligible or potentially eligible for listing in the National Register of Historic Places (NRHP) and/or the CRHR; it also identified structures exceeding 45 years of age that were evaluated and determined not to be eligible for listing as a historic resource. In addition, the 2005 LRDP EIR

included a compilation of structures that will be of age for evaluation as potentially historic by the end of the 2005 LRDP planning horizon (in 2015–2016). The planning horizon was extended to 2020–2021 as part of the 2005 LRDP Amendment 2 and, as such, would result in additional campus buildings that are potentially historic.

The existing SRC building was constructed in 1994 and therefore does not exceed nor approach the 45-year age threshold generally needed for consideration as a historic resource under CEQA. As such, the proposed Project would not involve modification or demolition of a historic or potentially historic structure. Based on review of Figure 4.5-1, Potentially Historic Structures on the UCR Campus, in the 2005 LRDP EIR the nearest potential historic resource to the Project area is the Physical Education Building, which is located approximately 0.16 mile to the south. The proposed Project would have no direct or indirect impacts on historic resources.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to the potential to cause a substantial adverse change to a significant historical resource as defined in Section 15064.5.

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

Discussion

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

As discussed in the 2005 LRDP EIR, a total of three archaeological sites have been recorded within the UCR campus: Site CA-RIV-495, a prehistoric site located on a slope in the southeast hills; the 2002 discovery of a previously undocumented prehistoric site located in the southeast hills in the vicinity of Site CA-RIV-495; and Site CA-RIV-4768H, which represents the historic Gage Canal that traverses the West Campus. Also, the cultural resources investigation in support of the 2005 LRDP EIR concluded that the following areas of the UCR campus exhibit moderate sensitivity for unknown archaeological resources: (1) the rolling hills in the southeastern portion of the campus and (2) the agricultural fields on West campus.

Regarding the East Campus, the majority of the area has been developed with academic and support uses, and large areas of grading and fill placement underlie these developed areas. Substantial ground disturbance has, therefore, occurred in these areas, and surface evidence of archaeological resources is not likely to be encountered. Further, no archaeological materials have been uncovered during excavation or grading associated with development of the campus core on the East Campus, and this area is not considered sensitive for archaeological

resources. Regarding Native American resources, the Sacred Lands File Check performed in 2003 by the Native American Heritage Commission (NAHC) for the 2005 LRDP EIR did not indicate the presence of sites of Native American cultural or religious value on the campus.

Based on review of the project-specific geotechnical investigation (C.H.J. 2011) the project area is underlain by generally shallow (four to eight feet deep) fill materials underlain by native older alluvial sediments consisting primarily of silty sand and sand. The proposed Project minimizes the area of campus subject to disturbance by implementing infill development on a previously disturbed site. Also, the project area is not located within the southeast hills or within the West Campus agricultural fields, where on-campus archeological resources are most likely to be encountered, and the project area has been subject to previous surface disturbance and development. Therefore, although there is a potential to encounter unknown archaeological resources during excavation activities that would involve disturbance of native alluvial sediments (the maximum depth of excavation is up to 16 feet bgs to accommodate the pool) the proposed Project would result in a less than significant impact to archaeological resources, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines.

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

Discussion

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

As discussed under Threshold 4(b), excavations up to 16 feet bgs are anticipated and would involve disturbance of native alluvial sediments. Therefore, there is a potential to encounter unknown paleontological resources. The proposed Project incorporates PP 4.5-4, which requires the preparation of a site-specific analysis and provisional measures in the event that paleontological resources are uncovered during construction activities. Accordingly, the proposed Project would result in a less than significant impact to paleontological resources, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

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

Discussion

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

As discussed under Threshold 4(b), excavations up to 16 feet bgs are anticipated and would involve disturbance of native alluvial sediments. Therefore, there is a potential to encounter unknown human remains. The proposed Project minimizes the area of campus subject to disturbance by implementing infill development on a previously disturbed site. Also, human burials, in addition to being potential archaeological resources, have specific provisions for treatment in Section 5097 of the *California Public Resources Code.* In accordance with these requirements, the proposed Project incorporates PP 4.5-5, which requires implementation of these provisions if human remains are discovered on campus. Accordingly, the proposed Project would result in a less than significant impact related to the disturbance of human remains, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant potential to disturb any human remains, including those interred outside of formal cemeteries.

6. Geology and Soils

The analysis of geology and soils is tiered from the 2005 LRDP EIR, and was addressed in Section 4.6, Geology and Soils, of that document. As described previously in Section II, Project

Description, of this Initial Study, relevant elements of the proposed Project related to geology and soils include excavation up to 16 feet bgs to accommodate the proposed pool; other earth-moving activities to accommodate the required removal and preparation of the underlying soils for foundation design; and associated building construction and renovation.

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

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

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

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

PP 4.6-1(c) The Campus will continue to fully comply with the University of California's Policy for Seismic Safety, as amended. The intent of this policy is to ensure that the design and construction of new buildings and other facilities shall, as a minimum, comply with seismic provisions of California Code of Regulations, Title 24, California Administrative Code, the California State Building Code, or local seismic requirements, whichever requirements are most stringent.

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

implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

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

(ii) Replace ground cover in disturbed areas as quickly as possible

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

(iv) Water active grading sites at least twice daily

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

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

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

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

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

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

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

PP 4.6-2(b)

In compliance with National Pollution Discharge Elimination System (NPDES), the Campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

(i) Public education and outreach on stormwater impacts

(ii) Public involvement/participation

(iii) Illicit discharge detection and elimination

(iv) Pollution prevention/good housekeeping for facilities

(v) Construction site stormwater runoff control

(vi) Post-construction stormwater management in new development and redevelopment

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

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☐	☒

Discussion

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

In accordance with PP 4.6-1(a), a site-specific *Geotechnical Investigation, Proposed Student Recreation Center Expansion, University of California, Riverside* (geotechnical study) was prepared for the proposed Project by C.H.J. Incorporated and is provided in Appendix C (C.H.J. 2011). The geotechnical study involved excavation of 8 exploratory soil borings within the proposed Project area to depths between 26 feet bgs and 66.5 feet bgs; inclusion of data from

5 previous exploratory borings to depths between 20 feet bgs and 51.5 feet bgs within the project site advanced by C.H.J. in 1999; placement of 4 Cone Penetrometer Test (CPT) soundings to a maximum depth of 50 feet bgs; laboratory testing of representative soil samples collected from the borings; review of geologic literature, maps, and aerial photographs; evaluation of geologic and geotechnical data; and development of site-specific geotechnical recommendations for the proposed Project.

The site-specific geotechnical study identifies that the project area is underlain by generally shallow fill materials underlain by native alluvial sediments composed primarily of silty sand and sand that is generally medium to very dense. A layer of clayey sand was encountered in 1 boring between 6 feet bgs and 15 feet bgs. The majority of borings encountered existing fill with depths ranging from 4 feet bgs to 8 feet bgs. Groundwater was not encountered within the maximum drilling depth of 66.5 feet bgs. In addition, published groundwater contour mapping and Western Municipal Water District groundwater depth data for the project area was reviewed as part of the geotechnical study. Based on the available data, a historic high groundwater level of 60 feet bgs was utilized in the geotechnical analyses.

As identified in the 2005 LRDP EIR and the site-specific geotechnical study, the UCR campus is not located within an Alquist-Priolo Earthquake Fault Zone as established by the California Department of Conservation, California Geologic Survey, and no known active or potentially active faults traverse the campus. Because ground rupture occurrences are generally limited to the location of faults, the SRC Expansion would not be subject to a substantial risk of fault (ground surface) ruptures, and there would be no impact. This is consistent with the findings of the 2005 LRDP EIR and the geotechnical study for the proposed Project, provided in Appendix C (C.H.J. 2011).

As concluded for the UCR campus in the 2005 LRDP EIR, the project area is located within a seismically active area and moderate to strong seismic shaking caused by an earthquake on any of the active or potentially active local and regional faults (refer to Figure 4.6-2, Regional Fault Map, of the 2005 LRDP EIR) can be expected during the lifetime of the proposed Project. According to the 2010 California Building Code (CBC), the project area is classified as Site Class D, corresponding to a “Stiff Soil” Profile. This classification is used as the basis for seismic design parameters to be implemented for the proposed Project in accordance with 2010 CBC standards. The geotechnical study reports that the corresponding value for peak ground acceleration at the project site is 0.40g (or 40 percent of the force of gravity) from the design acceleration spectrum.

As required by PP 4.6-1(a) a site-specific geotechnical study has been prepared and the geotechnical recommendations from this study have been incorporated into the building design. The proposed Project also incorporates PP 4.6-1(c) and ensures that buildings and other facilities are designed and constructed in compliance with the University Policy on Seismic Safety, which requires compliance with the seismic provisions of the current California Building Code and other State codes as described in PP 4.6-1(c), or local seismic requirements, whichever is more stringent. Therefore, implementation of the proposed Project would not expose people and/or structures to potentially substantial adverse effects resulting from strong seismic ground shaking, and this impact would be less than significant.

Other seismic-related hazards investigated in the site-specific geotechnical study include liquefaction, seismically induced settlement, and landslide potential. The geotechnical study concludes that liquefaction and the associated phenomena lateral spreading are not considered hazards at the project site due to the low potential for shallow groundwater and the presence of relatively dense older alluvial soils beneath the site. Landslides are not anticipated because the project area is not identified as having a potential for slope instability. The relatively flat-lying

older alluvial fan deposits underlying the site are not anticipated to contain well-developed planes of weakness such as bedding or joints that may be prone to landsliding. Additionally, excessive differential settlement would not be expected to occur (C.H.J. 2011). Therefore, there would be no impacts related to seismic-related ground failure or landslides, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impacts related to surface fault rupture or seismic-related ground failure, including liquefaction, settlement, or landslides. There would be less than significant impacts related to with strong seismic ground shaking.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒	☐

Discussion

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

Soil engineering constraints addressed in the project-specific geotechnical study that have the potential to occur on the project site include expansive soils, hydroconsolidation (water-induced collapse), subsidence, corrosive soils, and the suitability of fill soils. The geotechnical study concludes that the geologic materials within the project site have very low expansion potential and negligible hydroconsolidation potential. The project site is located in a subsidence-susceptible area, primarily related to historic declines in groundwater levels. No organic-rich soils were encountered and no evidence of past ground cracks or evidence of steeply inclined geologic contacts that could trigger subsidence cracking at the ground surface were observed during the geotechnical investigation. Therefore, the geotechnical study concludes that the hazard of subsidence-induced ground cracking or settlement at the site is very low (C.H.J. 2011). As discussed under Threshold 6a, the soils underlying the project site are not susceptible to liquefaction and lateral spreading, excessive differential settlement, or landslides.

Laboratory testing for corrosivity consisted of hydrogen potential (pH), resistivity, and major soluble salts commonly found in soils. The results of soluble sulfate testing indicate a “negligible” anticipated exposure to sulfate attack resulting in corrosion of cement. The results of

laboratory testing indicate that the site is potentially "mildly" to "corrosive" to ferrous metals. The geotechnical study recommends specific corrosion-control measures, such as coating of the pipe with non-corrosive material or alternative non-metallic pipe material, if there is a potential for saturated soils. Ammonium and nitrate levels of soils tested did not indicate a concern as to corrosion of buried copper. The soluble chloride content of the soils tested was not at levels high enough to be of concern with respect to corrosion of reinforcing steel. The geotechnical study recommends that these results be considered in combination with the soluble chloride content of the hardened concrete in determining the effect of chloride on the corrosion of reinforcing steel.

The geotechnical study also concludes that existing fill materials, with the exception of landscaped areas along the west side of the site, may be left in place, where possible, and utilized for support of flatwork or pavement. The geotechnical study recommends that proposed structures be supported by conventional shallow foundations on compacted fill. It shall be necessary to remove, at a minimum, the upper 18 inches of existing soils in all areas to be graded in order to locate and facilitate the removal of irrigation utilities, debris, or loose and disturbed soils. The extent and depth of removal should be confirmed by an engineering geologist during grading (as per the geotechnical study). To provide adequate support for the proposed structures, the foundation areas shall be further subexcavated, as necessary, and recompacted to provide a compacted fill mat beneath footings. Conventional spread foundations, either individual spread footings and/or continuous wall footings, may be utilized in conjunction with a compacted fill mat. With regard to the below grade level of the pool equipment building, should suitable soils be encountered at foundation depth and the structure is isolated from adjacent structures, the structure may be founded on approved native soils. The suitability of the soil should be confirmed by an engineering geologist during grading. The pool may be founded on approved native soil or properly compacted fill soils.

The geotechnical study concludes that the proposed Project would be feasible with implementation of the geotechnical recommendations outlined in the project-specific geotechnical report during planning, grading, and construction, as required by PP 4.6-1(a). Therefore, with the proposed Project's incorporation of PP 4.6-1(a), there would be less than significant impacts related to unstable and expansive soils, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have less than significant impacts associated with unstable and expansive soils.

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

Discussion

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

Soil erosion from water or wind can occur to exposed soils during site clearance, excavation/grading activities, and other earth-disturbing activities associated with construction including vegetation and hardscape removal. Erosion hazards in most of the East Campus, including the project area, range from slight to moderate. Construction activities associated with the proposed Project would comply with all provisions of the 2010 CBC related to excavation activities, grading activities, erosion control, and construction of foundations and retaining walls to minimize or eliminate soil erosion or loss of topsoil.

The proposed Project would also minimize or eliminate soil erosion during construction activities through implementation of dust-control measures consistent with SCAQMD Rule 403 (PP 4.6-2[a]) and implement Best Management Practices (BMPs), as identified in the UCR Stormwater Management Plan and in compliance with the National Pollution Discharge Elimination System (NPDES) PP 4.6-2[b]) permit. When these dust-control measures and construction BMPs are applied, they significantly reduce the erosion potential of project construction to negligible amounts. Therefore, the proposed Project would result in less than significant impacts related to soil erosion or loss of topsoil, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to soil erosion and the loss of topsoil.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☐	☒

Discussion

Through the Initial Study process for the 2005 LRDP EIR, implementation of the 2005 LRDP was determined to have no impact related to soils constraints for alternative wastewater disposal systems and was not carried forward for further discussion in the Draft EIR. There would be no impact related to the use of septic tanks or alternative waste water disposal systems resulting from implementation of the proposed Project because existing wastewater infrastructure would be used. This is consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

7. Greenhouse Gas Emissions

The analysis of greenhouse gas (GHG) emissions is tiered from the 2005 LRDP Amendment 2 EIR, and was addressed in Section 4.16, Greenhouse Gas Emissions, of that document. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to GHG emissions include (1) construction of the new 71,147-gsf, 2-story, SRC Expansion building; (2) the partial renovation (8,509-gsf) of the existing 2-story, 86,140-gsf SRC; and (3) modifications to the existing outdoor recreation facilities, within an approximately 6.7-acre site. Construction activities would involve demolition of portions of the existing SRC building and existing hardscape, excavation, and import of soils. The proposed Project would have the potential to increase the long-term GHG emissions if there were an increase in demand for water and energy and the generation of solid waste and wastewater within the project site. The proposed Project would be designed to achieve, at a minimum, LEED™ Silver rating, and would strive to achieve a Gold rating. The proposed Project would add approximately 20 non-student staff employees to the UCR campus population and their associated GHG emissions from motor vehicles during long-term operation.

Section 4.16 of the 2005 LRDP Amendment 2 EIR discusses the background of GHG emissions and climate change; the types of GHGs; the State, U.S., and global GHG contributions; and the regulatory framework related to GHG emissions and their assessment under CEQA. This information remains current and applicable to the analysis of GHG emissions related to the proposed Project in this IS/ND.

It is noted that analysis of GHG emissions and the establishment of GHG reduction goals has been historically based on comparisons with a "business as usual" (BAU) scenario. The BAU scenario, typically for year 2020, assumes the implementation of no GHG reduction measures. The measures not considered in BAU analysis include many now adopted and/or required at the State or local level, such as the GHG emissions standards for vehicles, renewable energy requirements for electrical utilities, and the Title 24 Green Building Code. The UCR Climate Action Plan (CAP) analysis uses the BAU scenario as a baseline.

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

PS Campus and Community 4 Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.

PS Transportation 3 Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.

PS Transportation 5 Provide bicycle parking at convenient locations.

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

In addition, the following MMs are incorporated into the proposed Project and would reduce GHG emissions: MM 4.3-2(b) included under the Air Quality analysis (Section V.2 of this Initial Study) which requires UCR to continue to participate in greenhouse gas (GHG) reduction programs; MM 4.14-1(b) included under the Transportation and Traffic analysis (Section V.16 of this Initial Study), which requires UCR to enhance its Transportation Demand Management (TDM); and, MM 4.14-1(d) included under the Transportation and Traffic analysis (Section V.16 of this Initial Study) which requires UCR to review individual projects for consistency with UC sustainable transportation policy and UCR Transportation Demand Management (TDM) strategies.

Project Impact Analysis

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

Discussion

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

Existing Campus Emissions

Total UCR campus operational GHG emissions for 2008 were estimated at 166,966 metric tons of CO_2 equivalent per year ($MTCO_2e$), as provided in UCR's Climate Action Plan (CAP) (UCR 2010). Campus GHG emissions in 2008 were approximately double the 1990 emissions (82,167 $MTCO_2e$), commensurate with the steady growth experienced in both campus population and building space. During the 1990 to 2000 period, the total campus population increased approximately 46 percent and building space increased approximately 40 percent. From 2000 to 2008, the population increased approximately 35 percent and space increased approximately 43 percent. However, despite an increase in the rate of growth in building space between 2000 and 2008, the rate of growth in GHG emissions decreased in this time period due to the implementation of a number of energy efficient projects on the campus (UCR 2010).

The project site is currently occupied by the existing SRC building, which will remain in its' existing condition, except for renovations to the entrances and lobby. The area of the project site to the south of the existing SRC building currently provides 10 tennis courts, a roller hockey court, 2 basketball courts, 2 sand volleyball courts, a jogging trail, and east of the existing SRC building, a challenge/ropes course and climbing wall. Existing GHG emissions associated with the project site result from the use of natural gas for heating and hot water within the SRC building; vehicles used by staff and students driving to and from the facilities; off-site generation of electricity used at the facility, to transport water to and treat wastewater from the facility; and energy used in the transportation and disposal of solid waste.

Proposed Project Emissions

Construction GHG emissions from the proposed Project were calculated using CalEEMod Version 2011.1.1. Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, vendor trips, and worker commuting trips. Construction assumptions are described in Section 4.3, Air Quality, and in Appendix A. The results are output in $MTCO_2e$ for each year of construction. The estimated construction GHG emissions for the proposed Project are shown in Table 5.

TABLE 5
ESTIMATED CONSTRUCTION GHG EMISSIONS

Year	Emissions ($MTCO_2e$)
2012	302
2013	646
Total	**948**
Annual emissions for 30-year amortization	***32***

$MTCO_2e$: metric tons carbon dioxide equivalent
Note: CalEEMod model data sheets are included in Appendix A.

Operational GHG emissions attributed to the proposed Project were estimated by including purchased electricity; natural gas use for space and water heating; the electricity embodied in water consumption; the energy associated with solid waste disposal; and vehicle travel by the estimated additional 20 employees. CalEEMod incorporates local energy emission factors and mitigation measures based on the California Air Pollution Control Officers Association (CAPCOA) publication *Quantifying Greenhouse Gas Mitigation* Measures (CAPCOA 2010) and the *California Climate Action Registry General Reporting Protocol* (CCAR 2009). The analysis of operational GHG emissions is applied to the total new construction. The GHG emissions reduction from the portion of the existing SRC building to be renovated (approximately 8,509 gsf) is relatively small compared to the total, and is not included in the calculations. Additionally, the proposed Project does not involve any modifications to the remainder of the existing SRC building.

UCR has committed to achieving, at a minimum, LEED™ Silver rating, and would strive to achieve a Gold rating for the proposed Project. The proposed Project also incorporates PS Campus and Community 4, PS Transportation 3 and 5, MM 4.3-2b, MM 4.14-1b, MM 4.14-1d, and MM 4.16-1, which relate primarily to UCR implementation of GHG reduction policies and measures; travel demand management; and promoting alternative transportation. Accordingly, the proposed Project would implement energy- and water-efficiency measures, which would lead to GHG emissions reductions. The following features which are included as part of the proposed Project have been input into the CalEEMod model: the proposed Project would reduce energy consumption by approximately 34 percent below Title 24 requirements; would reduce irrigation water and pool water use by 50 percent compared with projected use without water-efficient features; and would reduce operational solid waste generation by approximately 15 percent compared to a project without recycling.[4]

Estimated new GHG emissions for the proposed Project with planned GHG reduction features that are included in the Project description were calculated using CalEEMod and are shown in Table 6. For estimating annual GHG emissions, the SCAQMD has recommended amortizing construction emissions over the life of a project, and a common value for project life is 30 years (SCAQMD 2008b). As shown in Table 6, the 30-year amortized construction emissions would be 32 $MTCO_2e$/year.

[4] In accordance with CalEEMod protocol, these features are designated as “mitigation” in the model.

TABLE 6
ESTIMATED ANNUAL GHG EMISSIONS

Source	Emissions $MTCO_2e/yr$ With GHG Reduction Features
Electricity use	308
Natural Gas use	119
Water use	24
Solid waste	176
Vehicles	68
Total – Proposed Project	**695**
Plus: Amortized construction emissions (Table 5)	32
Total Increase – Proposed Project	**727**

$MTCO_2e/yr$: Metric tons of carbon dioxide per year
Totals may not add due to rounding.
Note: Detailed calculations can be found in Appendix A.

As discussed in Section 4.16 of the 2005 LRDP Amendment 2 EIR, some air quality management and air pollution control districts in California, including the CARB and the SCAQMD, have either proposed or adopted guidance documents for evaluating the significance of GHG emissions. Beginning in April 2008, the SCAQMD convened a Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. In September 2010, the SCAQMD Working Group presented a revised tiered approach to determining GHG significance for residential and commercial projects (SCAQMD 2010). These proposals have not yet been considered by the SCAQMD Board. At Tier 1, GHG emissions impacts would be less than significant if the project qualifies under a categorical or statutory CEQA exemption. At Tier 2, for projects that do not meet the Tier 1 criteria, the GHG emissions impact would be less than significant if the project is consistent with a previously adopted a GHG reduction plan that meets specific requirements.[5] At Tier 3, the Working Group proposes extending the 10,000 $MTCO_2e/yr$ screening threshold currently applicable to industrial projects where the SCAQMD is the lead agency, described above, to other lead agency industrial projects. For residential and commercial projects, the Working Group proposes the following Tier 3 screening values: either (1) a single 3,000 $MTCO_2e/yr$ threshold for all land use types or (2) separate thresholds of 3,500 $MTCO_2e/yr$ for residential projects, 1,400 $MTCO_2e/yr$ for commercial projects, and 3,000 $MTCO_2e/yr$ for mixed-use projects. A project with emissions less than the applicable screening value would be considered to have less than significant GHG emissions.

As shown in Table 6, the estimated annual operational GHG emissions for the proposed Project with GHG reduction features, including amortized construction emissions, is 727 $MTCO_2e/yr$. This value may be compared with the proposed SCAQMD Tier 3 screening threshold of

[5] The plan must (A) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area; (B) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable; (C) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area; (D) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level; (E) Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels; and (F) Be adopted in a public process following environmental review (CEQA Guidelines §15183.5).

3,000 $MTCO_2e$/yr for all land use types, thus indicating that the proposed Project is a small project (approximately 24 percent of the threshold) with respect to GHG emissions. Therefore, the proposed Project would contribute a less than significant volume of GHG emissions based on SCAQMD guidelines. It is therefore concluded that the direct and indirect GHG emissions of the proposed Project would not be cumulatively considerable and would result in a less than significant impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance after Mitigation

The proposed Project would have a less than significant impact related to GHG emissions.

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

Discussion

The analysis of Impact 4.16-2 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in a less than significant impact related to conflict with applicable plans, policies, or regulations concerning reductions in GHG emissions. The applicable plans, policies, or regulations pertinent to the proposed Project include: (1) the *UC Policy on Sustainable Practices* (March 2007) and (2) the UCR CAP.

The Climate Protection section of the *UC Policy on Sustainable Practices* targets three goals: reduction of GHG emissions to 2000 levels by 2014; to 1990 levels by 2020; and ultimately to achieve climate neutrality. Climate neutrality is defined in the policy as the University having a net zero impact on the Earth's climate, which is to be achieved by minimizing GHG emissions as much as possible, and using carbon offsets or other measures to mitigate the remaining GHG emissions. UCR's CAP, prepared in 2010, describes and addresses policy and regulatory requirements of the *UC Policy on Sustainable Practices;* Assembly Bill 32; American College and University Presidents Climate Commitment (ACUPCC), to which UCR is a signatory; CEQA; and USEPA reporting requirements. Consistent with the *UC Policy on Sustainable Practices,* the UCR CAP establishes the goal and emission reductions methods for the Campus to reduce GHG emissions to 1990 levels by 2020.

The proposed Project incorporates MM 4.3-2b, which requires UCR to implement the GHG reduction measures described in the 2005 LRDP Amendment 2 EIR (Tables 4.16-9 and 4.16-10 in Section 4.16); MM 4.14-1b, which requires UCR's continued implementation and enhancement of its TDM program; MM 4.14-1d, which requires UCR review of individual projects for consistency with UC transportation policy and TDM strategies; and MM 4.16-1, which requires UCR review of individual projects for consistency with the GHG reduction policies of the *UC Policy on Sustainable Practices* and the CAP. In accordance with these mitigation measures, as discussed under Threshold "a" above, UCR has committed to achieving, at a minimum, LEED™ Silver rating, and would strive to achieve a Gold rating for the proposed Project. Accordingly, the proposed Project incorporates energy- and water-efficiency

features, which would lead to GHG emissions reductions. The proposed Project results in energy consumption in the facilities of approximately 34 percent below Title 24 requirements; would reduce irrigation water and pool water use by 50 percent and operational solid waste generation by approximately 15 percent compared to use projections without water-efficient features and recycling. The proposed Project elements meet or exceed measures in Table 4.16-9 of the 2005 LRDP Amendment 2 EIR. A more detailed description of the sustainability features of the proposed Project is included in Section II, Project Location and Description, of this Initial Study. Also, the proposed Project would include the provision of bike racks and maintenance of the east-west pedestrian thoroughfare along the south side of the SRC. It would not include additional parking in an effort to support alternative transportation and vehicle trip reduction on campus. Therefore, the proposed Project would not conflict with the UCR CAP or the *UC Policy on Sustainable Practices*. The impact would be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance after Mitigation

The proposed Project would have a less than significant impact related to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

8. Hazards and Hazardous Materials

The analysis of hazards and hazardous materials is tiered from the 2005 LRDP EIR, and was addressed in Section 4.7, Hazards and Hazardous Materials, of that document. Section 4.7 of the 2005 LRDP EIR provides a detailed description of the hazardous materials and wastes handled and/or generated at UCR and the policies, programs, and practices implemented to manage these materials in compliance with local, State, and federal regulations, as applicable. Relevant information from the 2005 LRDP Amendment 2 EIR was also used in the following analysis.

As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to hazards and hazardous materials include: (1) construction of the new 71,147-gsf, 2-story, SRC Expansion building; (2) the partial renovation (8,509-gsf) of the existing 2-story, 86,140-gsf SRC; and (3) modifications to the existing outdoor recreation facilities, within an approximate 6.7-acre site. The construction activities would involve demolition of portions of the existing SRC building and existing hardscape; excavation; and import of soils. The proposed Project involves recreational uses and does not include any laboratory or medical uses, which are the primary facilities that handle hazardous materials. With the exception of the proposed pool complex, operation of the proposed Project would not involve handling of hazardous materials not already in use within the existing SRC. Landscape maintenance chemicals and cleaning products would continue to be used, consistent with existing conditions. Operation of the proposed pool complex would involve periodic deliveries and use of sodium hypochlorite and muriatic acid for water disinfection. The design of the proposed Project ensures that emergency access to and around the project area is maintained.

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

PP 4.7-1 The Campus shall continue to implement the current (or equivalent) health and safety plans, programs, and

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

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

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

MM 4.7-7(a) Evacuation zones designated in the UCR Emergency Operations Plan will be avoided, to the extent feasible, when siting construction staging areas. Where evacuation zones cannot be avoided, alternative evacuation zones shall be identified. UCPD and the Riverside Fire Department shall be notified of alternative evacuation zones so that they can respond accordingly to any emergencies.

MM 4.7-7(b) The campus Emergency Operations Plan shall be reviewed on an annual basis and updated as appropriate to account for new on-campus development, which may require changes to the plan, such as revised locations for Campus Evacuation Zones.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☐	☒

Discussion

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

Operational Hazards

Hazardous Materials Use and Transport

As discussed in Section 4.7 of the 2005 LRDP EIR, implementation of the 2005 LRDP would include development of facilities that use hazardous materials in teaching and research activities. Also, with an increase in on-campus facilities, expansion of maintenance and cleaning services would be required, which would increase the use, handling, storage, and disposal of products routinely used in building maintenance, some of which may contain hazardous materials (Impact 4.7-1). This, in turn, would result in an increase in the amount of hazardous materials that are used, stored, transported and disposed, and could increase the potential for an accident or accidental release of hazardous materials or wastes (Impact 4.7-3).

As noted above, the proposed Project involves the development of both renovated and new recreational facilities. The proposed facilities are the same, or similar, to those already provided at the existing SRC or elsewhere on campus. Hazardous materials that may be used as part of the proposed Project include commercial cleaning products, landscape maintenance chemicals, and chlorine (in the form of sodium hypochlorite) and muriatic acid and/or CO_2 for pool maintenance/water treatment. Double-walled bulk storage tanks that are not accessible to pool users would be provided for the sodium hypochlorite and the muriatic acid used to sanitize the pool and spa water. Exposed piping in the filter room and surge tank and all underground pool piping would be Schedule 80 polyvinyl chloride (PVC) for strength and resistance to corrosion. Periodic (as frequently as weekly) deliveries of pool chemicals would be made to the proposed SRC Expansion to resupply the storage tanks. The type, form, and concentrations of potentially hazardous materials proposed for use during operation and maintenance at the proposed SRC Expansion, including the pool complex, would be consistent with existing practices at UCR.

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

To minimize risks associated with routine hazardous material use on campus, the proposed Project incorporates PP 4.7-1, which requires compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes. Any added requirements associated with hazardous materials and waste resulting from implementation of the proposed Project would be met through modifications of these existing programs and services over time to make sure that they continue to keep the campus in compliance with the numerous hazardous materials laws and regulations at all levels of government. Therefore, the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazards materials. There would be a less than significant impact, consistent with the findings of the 2005 LRDP EIR.

Construction-Related Hazards

As discussed in Section 4.7 of the 2005 LRDP EIR, maintenance, renovation, or demolition of existing buildings and extension and/or relocation of utility systems as part of 2005 LRDP implementation could expose construction workers and campus occupants to hazardous materials or wastes that may be present in building or in underground utilities (Impact 4.7-2). Cutting, grinding, or drilling activities have the potential to release friable asbestos fibers and/or lead dust, dependent on the age of the building or utility, unless appropriate precautions are taken.

The existing SRC building was constructed in 1994; therefore, the demolition of portions of the existing SRC building and of the outdoor recreation facilities would not result in potential exposure to asbestos-containing materials or lead-based paint. Also, the existing SRC building does not include laboratories, medical equipment, or other uses that may involve hazardous materials such as mercury, reagents, or radioactive materials and, as such, the demolition activities also would not result in exposure to these types of materials. There would be no impact from potential exposure to hazardous materials from building materials during construction.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to the routine transport, use, and disposal of hazardous materials and no impact from potential exposure to hazardous materials from building materials during construction.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☐	☒

Discussion

The analysis of Impact 4.7-5 in the 2005 LRDP EIR concluded that, with implementation of PP 4.7-1, development under the 2005 LRDP would have a less than significant impact related to hazardous emissions or handling hazardous materials within ¼ mile of a school. There are six existing schools within ¼ mile of the UCR campus perimeter:

- Emerson Elementary School, 4660 Ottowa Avenue (Riverside Unified School District [RUSD]);
- Islamic Academy of Riverside Elementary School, 1038 West Linden Street (Private);
- Riverside Garden Elementary School, 1085 West Linden Street (Private);
- Highland Elementary School, 700 Highlander Drive (RUSD);
- University Heights Middle School, 1155 Massachusetts Avenue (RUSD); and
- Hyatt Elementary School, 4466 Mount Vernon Avenue (RUSD).

Specifically, the 2005 LRDP EIR stated that development under the 2005 LRDP would result in additional academic buildings, laboratories, and other research facilities that would involve the use, storage, transport and disposal of hazardous materials, which may occur within ¼ mile of an existing or proposed off-campus school. However, these materials would not exist in quantities significant enough to pose a risk to occupants of the schools or the campus community, as established through the analysis presented for Impacts 4.7-1 through 4.7-4 and Impact 4.7-6 of the 2005 LRDP EIR. Compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes, as required by PP 4.7-1, would ensure that risks associated with hazardous emissions or materials to existing or proposed schools located within ¼ mile of campus would be eliminated or reduced through proper handling techniques, disposal practices, and/or clean-up procedures.

There are no schools located within ¼ mile of the project area. The nearest school is the Islamic Academy of Riverside Elementary School, which is approximately 0.3 mile west of the project area at its nearest point. Regardless, the proposed Project incorporates PP 4.7-1, which would ensure the appropriate use and transport of the proposed pool and spa maintenance chemicals and other common hazardous materials, including cleaning and landscape maintenance products, as discussed under Thresholds “a” and “b”, above. Therefore, there would no impact related to handling hazardous materials within ¼ mile of a school, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to handling hazardous materials within ¼ mile of a school.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒	☐

Discussion

The analysis of Impact 4.7-6 in the 2005 LRDP EIR concluded that development under the 2005 LRDP would have a less than significant impact related to construction on a site included on the Cortese List, which is compiled pursuant to Section 65962.5 of the *California Government Code.* The analysis of Impact 4.7-4 in the 2005 LRDP EIR concluded that there would be a less than significant impact related to potential exposure to contaminated soil or groundwater with implementation of PP 4.7-1, PP 4.7-4, and MM 4.7-4.

The campus is listed, pursuant to Section 65962.5 of the *California Government Code,* on a list of hazardous materials sites due to the former pesticide disposal pits located over an approximate one-acre area in the agricultural teaching and research fields south of MLK Boulevard. Remediation was completed in this area in December 2002, and contamination no longer remains on the site. Also, while there have been localized areas of soil contamination in connection with leaking underground storage tanks (USTs) in the past, all of the sites on campus have been remediated and properly closed. However, although there is no known contamination associated with historic use of agricultural teaching and research fields, due to the long-term use of common agricultural practices, including the application of pesticides, fertilizers, and other agricultural chemicals, the potential exists for residues of agricultural chemicals to be present in the soil in this area. Development of new facilities in the West Campus north of MLK Boulevard could result in exposure of these residues, if any, to construction workers during construction and campus occupants during operation of the buildings and other facilities. Additionally, construction, renovation, or demolition of buildings or extension or relocation of utilities could encounter abandoned pipes, discarded building materials, unknown USTs, or previously unidentified contaminated soil and/or groundwater during construction activities, which could result in the exposure of construction workers or campus occupants to hazardous materials. It is noted, however, that, given the depth of groundwater on campus (generally greater than 60 feet bgs), the potential for groundwater to be encountered during buildout of the 2005 LRDP, as amended, during construction is considered remote.

The project area is not identified on the Cortese list. Also, because the proposed SRC Expansion is located on the East Campus and not on former agricultural lands on the West Campus, agricultural chemical residue would not be encountered in the soil during proposed Project construction. Excavation for the proposed Project would not extend near the groundwater table, with a maximum excavation depth of approximately 16 feet bgs; therefore, there would be no potential to encounter unanticipated groundwater contamination. However, as

noted above, proposed Project construction would have the potential to encounter unanticipated soil contamination. The proposed Project incorporates PP 4.7-1, described above, which requires compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes. Therefore, with implementation of PP 4.7-1, the proposed Project would result in a less than significant impact related to exposure to unanticipated soil contamination, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5; however, it would have a less than significant impact related to potential exposure to unanticipated soil contamination.

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

Discussion

Based on the Initial Study prepared for the 2005 LRDP EIR, development under the 2005 LRDP was determined to have no impact related to public use airports or private airstrips and was not carried forward for further discussion in the Draft EIR. Specifically, the UCR campus is not located within two miles of a public airport or public use airport; it has not been included in an airport land use plan; and it is not located within the vicinity of a private airstrip.

Therefore, the proposed Project would not result in any impacts from safety hazards associated with any airports or airstrips.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impacts related to public use airports or private airstrips.

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

Discussion

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

UCR's Environmental Health and Safety (EH&S) Department is responsible for the campus' Emergency Operations Plan (EOP), which is intended to safeguard people, property, research, and other resources from the consequences of natural and man-made hazards through mitigation, preparedness, response, and recovery. The EOP was last updated in 2008. Although the City of Riverside does not have a Master Emergency Response Plan prepared specifically for the campus, the campus coordinates with the City during development and update of its Emergency Operations Plan to ensure awareness and proper coordination when emergency situations occur on the campus.

Construction of the proposed Project could result in temporary lane or roadway closures to on-campus roads, Linden Street and Aberdeen Drive. However, construction and operation of the proposed Project would be designed to ensure that the EOP is maintained and that emergency access on campus is not impeded, including existing fire lanes near the project area. Multiple emergency access or evacuation routes are provided on campus to ensure that, in the event one roadway or travel lane is temporarily blocked, another may be utilized. Also, the proposed Project incorporates PP 4.7-7(a), which requires the maintenance of at least one unobstructed lane in both directions on campus roadways, to the extent feasible; PP 4.7-7(b), which requires consultation between UCR and the University of California Police Department (UCPD), Riverside Fire Department, and UCR EH&S to identify alternative travel routes for emergency vehicle access when construction projects result in roadway closures; and MM 4.7-7(b), which requires an annual review of the Campus EOP to determine whether an update of the plan is needed to accommodate new on-campus development.

Parking Lot 25, which would potentially be used for construction staging and would be subject to construction activities associated with utility installation, is a designated evacuation assembly area (EAA) for the existing SRC building. The proposed Project incorporates MM 4.7-7(a), which requires alternative evacuation zones be identified when a designated EAA is used for construction staging. During construction, the temporary designated EAA for the SRC Building would be the adjacent Track Stadium.

Therefore, the proposed Project would result in a less than significant impact related to emergency response and evacuation on campus with incorporation of PPs 4.7-7(a) and 4.7-7(b) and MMs 4.7-7(a) and 4.7-7(b), consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☐	☒

Discussion

The analysis of Impact 4.7-8 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1, MM 4.7-8(a), and MM 4.7-8(b), development under the 2005 LRDP would have a less than significant impact related to wildfires. The 2005 LRDP EIR identified the campus areas that may be subject to wildland fires, which include the following areas located adjacent to the southeast hills and the Botanic Gardens: the area south of South Campus Drive and areas currently occupied by Parking Lots 13 and V10, east of East Campus Drive.

The project area is not located within or near the areas in the southeast portions of campus that are susceptible to wildfires. Also, the project area is surrounded on all sides by development. There would be no impact related to wildland fires.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to wildland fires.

9. Hydrology and Water Quality

The analysis of hydrology and water quality is primarily tiered from the 2005 LRDP EIR; however, current regulatory information and selected portions of the impact analysis, as indicated, are tiered from the 2005 Amendment 2 EIR. Hydrology and water quality issues are addressed in Section 4.8 of both documents. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to hydrology and water quality include the conveyance of storm water runoff by a series of catch basins and storm drains into a detention basin or underground detention structure, if required, with cascading flow going to existing storm drain lines. A filter unit would be installed to treat stormwater from the 85th percentile storm event, and where planter areas exist adjacent to the

proposed SRC Expansion building, roof drainage would be directed to splash blocks at grade to allow for biofiltration. Impervious surfaces would be directed to planter areas wherever possible.

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

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

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

(i) Install hot water recirculation devices (to reduce water waste)

(ii) Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code)

(iii) Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time

(iv) Install recovery systems for losses attributable to existing and proposed steam and chilled-water systems

(v) Prohibit using water as a means of cleaning impervious surfaces

(vi) Install water-efficient irrigation equipment to maximize water savings for landscaping and retrofit existing systems over time

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

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

PP 4.8-3(b) To reduce disturbance of Natural and Naturalistic Open Space areas:

(i) Unnecessary driving in sensitive or otherwise undisturbed areas shall be avoided. New roads or construction access roads would not be created where adequate access already exists.

(ii) Removal of native shrub or brush shall be avoided, except where necessary.

(iii) Drainages shall be avoided, except where required for construction. Limit activity to crossing drainages rather than using the lengths of drainage courses for access.

(iv) Excess fill or construction waste shall not be dumped in washes.

(v) Vehicles or other equipment shall not be parked in washes or other drainages.

(vi) Overwatering shall be avoided in washes and other drainages.

(vii) Wildlife including species such as fox, coyote, snakes, etc. shall not be harassed. Harassment includes shooting, throwing rocks, etc.

(This is identical to Aesthetics PP 4.1-2[d] and Biological Resources PP 4.4-1[b]).

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

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

(ii) Replace ground cover in disturbed areas as quickly as possible

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

(iv) Water active grading sites at least twice daily

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

(vi) All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least

two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code

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

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

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

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

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

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

(i) Public education and outreach on stormwater impacts

(ii) Public involvement/participation

(iii) Illicit discharge detection and elimination

(iv) Pollution prevention/good housekeeping for facilities

(v) Construction site stormwater runoff control

(vi) Post-construction stormwater management in new development and redevelopment

(This is identical to Biological Resources PP 4.4-2[b] and Geology and Soils PP4.6-2[b]).

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

(i) Multi-project stormwater detention basins

(ii) Single-project detention basins

(iii) Surface detention design

(iv) Expansion or modification of the existing storm drain system

(v) Installation of necessary outlet control facilities

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒	☐

Discussion

The analysis of Impacts 4.8-1 and 4.8-7 in the 2005 LRDP EIR concluded that, with implementation of PS Conservation 2 and PP 4.8-1, there would be a less than significant impact related to violation of existing water quality standards or waste discharge requirements and degradation of water quality.

The Clean Water Act (CWA) establishes a framework for regulating potential water quality impacts through the National Pollutant Discharge Elimination System (NPDES) program. A detailed discussion of the regulatory setting for water quality is provided in Section 4.8, Hydrology and Water Quality, of the 2005 LRDP Amendment 2 EIR.

Construction

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

The proposed Project would involve construction activities on more than one acre. The proposed Project incorporates PP 4.8-1, which requires compliance with requirements and water quality standards set forth within the current NPDES Permit regulations. The State Water Resources Control Board (SWRCB) is authorized by the USEPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs). The proposed Project would be subject to the requirements of the statewide general NPDES permits, including the requirement to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with the Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002) which was adopted on September 2, 2009. Specifically, the proposed

Project would require completion and filing of a Permit Registration Document with the SWRCB which consists of a Notice of Intent (NOI); Risk Assessment; Site Map; Storm Water Pollution Prevention Plan (SWPPP); annual fee; and a signed certification statement. The primary objective of the SWPPP is to identify, construct, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site during construction.

A SWPPP typically includes both source-control and treatment-control BMPs to reduce water quality impacts. The BMPs that are most often used during construction include watering exposed soils; covering stockpiles of soil; installing sand bags to minimize off-site runoff; creating temporary desilting basins; and timing grading to avoid the rainy season (November through April). In addition, as the proposed Project would be under construction September 2, 2012, coverage under the Construction Permit would also include implementation of post-construction standards to achieve the pre-project volume and rate of storm water runoff from the project area. The proposed Project shall meet these standards through installation of active and passive treatment units, as described below under "Operation". The proposed Project also incorporates PP 4.8-3(c), which requires implementation of SCAQMD Rule 403 for management of fugitive dust during construction. Finally, the proposed Project would be required to comply with applicable provisions of the California Building Code and CalGreen 2010 Code, which require the reduction of erosion and sedimentation and therefore further reduce construction-related water quality impacts.

Construction of the proposed utility connection traversing a portion of the Naturalistic-designated area would comply with PP 4.8-3(b), including but not limited to avoiding unnecessary driving where adequate access to the work area already exists; avoiding unnecessary removal of natural vegetation; prohibiting placement of fill or construction waste; and prohibiting parking of vehicles or other equipment within drainages.

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

Operation

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

Implementation of the proposed Project would result in a slight increase of impermeable surface area, from approximately 58 percent to 60 percent; this increase is associated with the proposed SRC Expansion building and the additional outdoor recreation features, which would result in increased runoff (e.g., storm water) that would contain contaminants that are typical of urbanized areas and of the existing SRC. Despite the increase in development on the project site, the constituent pollutants entering the campus and City storm drain systems with proposed Project implementation would not substantively change in character, as the proposed facilities are essentially the same as the existing facilities. The pool and spa water as well as the constituent chemicals would not contribute to the storm water runoff stream. These facilities are designed to capture and recirculate the water through a gutter system, thereby minimizing the amount of water lost during use and/or rain events. In addition, the proposed Project would comply with NPDES Phase I requirements (General Construction Permit), as described above, and the campus complies with Phase II requirements through preparation and implementation

of a campus storm water management plan, as per PP 4.8-3(d). Therefore, operation of the proposed Project would not violate any water quality standards or otherwise substantially degrade water quality. There would be a less than significant impact related to surface water quality, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to (1) violating water quality standards or waste discharge requirements and (2) otherwise substantially degrading water quality.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒	☐

Discussion

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

As discussed in Section V.17, Utilities and Service Systems, of this Initial Study, the proposed Project would generate a demand for an additional 95 gallons per minute (GPM) (0.137 million gallons per day [mgd]) of potable water. The increased demand for potable water resulting from the project could indirectly increase demand for groundwater, as the City of Riverside Public Utility Department (RPU) supplies domestic water to the campus. The RPU utilizes groundwater wells for potable water. It should be noted that the proposed Project incorporates PP 4.8-2(a), which requires implementation of water conservation measures to reduce potable water consumption, and PP 4.8-2(b), which requires the campus to promptly detect and repair leaks in water and irrigation pipes. Additionally, as described in Section II, Project Description, of this Initial Study, the proposed pool would be equipped with a pool cover (insulating pool blanket), to reduce heat loss and evaporation, thereby saving both water and energy.

As discussed in the 2005 LRDP Amendment 2 EIR, the RPU's 2010 Urban Water Management Plan (2010 UWMP) identifies adequate potable water supplies to meet future demands (through 2035) within the RPU's water supply service area, which includes the UCR campus, under normal weather conditions. Specifically, the 2010 UWMP projects surplus water supplies under all scenarios, including multiple dry years, and the EIR prepared for the City of Riverside 2025 General Plan in 2007 confirms the supply surplus assessment (City of Riverside 2007). Given the projected water surplus through 2035, the incremental demand of approximately 153 acre-feet per year (afy) of water by the proposed Project would be accommodated by the existing and planned supplies. As stated in the 2005 LRDP Amendment 2 EIR, the RPU has indicated that it does not anticipate any problems in providing adequate water supply to remaining and new development on the UCR campus.

Therefore, the provision of additional water to the UCR campus, which could include groundwater, would not require water supplies in excess of existing entitlements and resources or result in the need for new or expanded entitlements, as existing and future water supply sources would exceed anticipated demand. As such, there would be sufficient water supplies, and implementation of the proposed Project would not substantially deplete groundwater supplies, which is consistent with the findings of the 2005 LRDP EIR.

As identified in the 2005 LRDP EIR, the UCR campus is not a designated groundwater recharge area for the Subbasin, nor does the campus serve as a primary source of groundwater recharge within the Subbasin. The soils underlying the East Campus are designated as Class D, which is the least-permeable soil type. Therefore, the approximate 2 percent increase in the impervious surface area as a result of the proposed Project would not substantially interfere with groundwater recharge. Therefore, there would be a less than significant impact related to groundwater recharge, which is consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to substantial depletion of groundwater supplies; it would have a less than significant impact related to interference with groundwater recharge such that there would be a net deficit in aquifer volume or lowering of the local groundwater table.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒	☐

Discussion

The analysis of Impacts 4.8-3 through 4.8-5 in the 2005 LRDP EIR concluded that, with implementation of PS Land Use 2 and 3, PS Open Space 1 through 5, PS Conservation 1 through 3, and PP 4.8-3(a) through 4.8-3(e), there would be a less than significant impact related to alteration of existing drainage patterns and storm drain system capacity.

As described in the 2005 LRDP EIR, the UCR campus is located within two sub-watersheds of the Upper Santa Ana River Watershed, generally divided by the I-215/SR-60 freeway. Most of the East Campus drains to the University Arroyo Watershed, while portions of the West Campus drain to the Box Springs Arroyo Watershed. Major storm drainages, including natural drainages, on campus are shown in Figure 4.8-3 of the 2005 LRDP EIR. As shown, there are no major storm drains or natural channels within the project site; the nearest major storm drains are located along Linden Street; along the southern boundary of Parking Lot 25; along Aberdeen Drive; and south of the project site (extending in an east-west direction through the area currently developed by the Materials Science & Engineering building). Consistent with existing conditions, storm water runoff from the project site would discharge into the East Campus' existing storm drain system, which consists of culverts, pipelines, engineered channels of the University Arroyo, and the Gage and Glade Detention Basins, and then into the City of Riverside storm drain system. Stormwater flows from the project site would not directly enter a natural channel or drainage, and the proposed Project would not alter the course of a stream or river.

In compliance with PP 4.8-3(d), UCR has evaluated the existing hydrologic conditions of the project site and future conditions with implementation of the proposed Project to determine if the proposed Project runoff would exceed the capacity of the existing storm drain system. Based on preliminary project designs, implementation of the proposed Project result in a slight increase of impermeable surface within the project site from approximately 58 percent to 60 percent. As shown in Table 7, the estimated increase in storm water runoff due to a 10-year storm event (consistent with City of Riverside requirements) from implementation of the proposed Project is 700 cubic feet (cf) based on preliminary project designs. During final design the increase in impermeable surface may be reduced to be consistent with existing conditions.

TABLE 7
EXISTING AND PROPOSED HYDROLOGY

	Pre-Development	Post-Development
Site Characteristics and Hydrology		
Site Imperviousness	58%	60%
10-Year Storm Runoff Volume (cf)	8.3 cf	8.5 cf
10-Year Storm Runoff Rate (cfs)	44,900 cfs	45,600 cfs
85th Percentile Flow Rate	-	0.6 cfs
cfs: cubic feet per second; cf: cubic feet Source: Breen 2011		

The proposed Project would include the installation of catch basins and storm drains on site to capture storm water runoff. If necessary, increased runoff from a 10-year storm even under the post-development condition would be conveyed to and stored in an on-site, underground, detention system and then gradually released into the campus storm drain system. If required, the proposed detention system would be sized to meet the City of Riverside and Santa Ana Region MS4 Stormwater Permit requirements. Based on preliminary project design the detention facility would need to accommodate approximately 1,000-cubic foot (cf). The storm drain system would be located within the project site; the installation of new or expanded storm drains off site would not be required. The proposed infrastructure has been designed to accommodate the estimated storm water flows from the project site and would not result in flooding on or off site.

In compliance with the NPDES regulations, to treat the runoff from an 85th percentile storm event (approximately 0.6 cfs), a storm filter unit is proposed upstream of the detention basin. Where planter areas exist adjacent to the proposed SRC Expansion building, roof drainage would be directed to splash blocks at grade to allow for biofiltration. Impervious surfaces would be directed to planter areas wherever possible. Additionally, as discussed above, the proposed Project incorporates PP 4.8-1 and PP 4.8-3(d), which require compliance with applicable NPDES Permits to manage storm water runoff during construction and operation with appropriate BMPs and to ensure that drainage from the project site does not result in erosion or contribute pollutants to runoff.

Therefore, the proposed Project would result in less than significant impacts related to (1) substantial alteration of existing drainage patterns and the potential to cause substantial erosion or flooding on or off site; (2) increased volumes of runoff that could exceed the capacity of the existing UCR or City of Riverside storm drain systems; or (3) substantial additional sources of polluted runoff. This determination is consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to (1) altering the existing drainage pattern in a manner that would result in substantial erosion or siltation on or off site; (2) altering the existing drainage pattern or substantially increasing the rate or amount of surface runoff in a manner that would result in flooding on or off site; and (3) creating or

contributing to runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☐	☒

Discussion

The analysis of Impacts 4.8-8 through 4.8-11 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1 and 2, PP 4.8-3(e), PP 4.8-10, and MMs 4.8-9(a) and 4.8-9(b), there would be no impact related to placing housing within a 100-year flood hazard area and less than significant impacts related to placing structures within a 100-year flood hazard area; flooding as a result of failure of a levee or dam; or inundation by seiche, tsunami, or mudflow.

The 100-year floodplain that traverses East Campus in generally an east-west direction, as shown on Figure 4.8-2, FEMA Map, of the 2005 LRDP EIR, was the subject of a Map revision to reflect a Letter of Map Revision (LOMR) effective 8/27/10. The project area is not within the Federal Emergency Management Agency's (FEMA's) 100-year flood hazard area, and would not, therefore, result in the placement of housing or other structures in a flood hazard area. Therefore, the proposed Project would not result in any impacts related to the 100-year flood hazard area.

The nearest upstream dam to the campus is the Seven Oaks Dam, located on the Santa Ana River in the upper Santa Ana Canyon about 8 miles northeast of the City of Redlands and approximately 24 miles upstream of the City of Riverside. As discussed in the 2005 LRDP EIR, given the distance between the campus and the Santa Ana River (more than three miles), the potential for flooding to occur on the project area as the result of a catastrophic failure of the Seven Oaks Dam is remote. In addition, the potential for catastrophic failure of the Santa Ana Pipeline (which is operated by the California State Department of Water Resources and is located north and east of the campus along Watkins Drive at the base of the Box Springs Mountains) to affect campus lands is also considered remote. Therefore, implementation of the proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, and there would be no impact.

As discussed in the 2005 LRDP EIR, the potential for the campus to be affected by a seiche or tsunami is considered extremely remote given the inland location of the campus and the distance to any large water bodies. In addition, the potential for mudflows to affect campus

development is limited to areas immediately adjacent to the southeast hills or within the existing on-campus arroyos. As the project area is not located in or near these areas, the proposed Project would not be susceptible to mudflows. Therefore, implementation of the proposed Project would not result in potential inundation by a seiche, tsunami, or mudflow, and there would be no impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impacts related to (1) placement of housing or structures within a 100-year flood hazard area; (2) exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; and (3) inundation by seiche, tsunami, or mudflow; and a less than significant impact related to placement of structures within a 100-year flood hazard area which would impede or redirect flood flows due to installation of a utility connection across an identified flood hazard area.

10. Land Use and Planning

The analysis of land use and planning is tiered from the 2005 LRDP EIR, and as applicable, the 2005 Amendment 2 EIR, and was addressed in Section 4.9, Land Use and Planning, of both documents. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to land use and planning include: (1) construction of the 71,147-gsf new SRC Expansion building, (2) the 8,509-gsf partial renovation of the existing SRC, (3) reconfiguration of outdoor recreation facilities, including a proposed pool complex, (4) the introduction of new or updated landscaping and hardscape, and (5) consistency with the 2005 LRDP, as amended. The proposed Project would increase the UCR campus population with the addition of approximately 20 new non-student staff; there would be no increase in the student population.

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

PS Land Use 6	Provide expanded athletics and recreational facilities and fields on the East and West Campuses, adjacent to concentrations of student housing.
PS Campus and Community 1	Provide sensitive land use transitions and landscaped buffers where residential neighborhoods might experience noise or light from UCR activities.
PS Campus and Community 4	Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.
PP 4.9-1(a)	The Campus shall provide design professionals with the 2007 Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible

architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. *(This is identical to Aesthetics PP 4.1-1).*

PP 4.9-1(b) The Campus shall continue to provide design professionals with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible. *(This is identical to Aesthetics PP 4.1-2(a)).*

PP 4.9-1(c) The Campus shall continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus. *(This is identical to Aesthetics PP 4.1-2(b)).*

Project Impact Analysis

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

Discussion

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

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to physically dividing an established community.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒	☐

Discussion

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

Following is an evaluation of the proposed Project's consistency with the local and regional plans, policies, or regulations.

UCR 2005 LRDP, as Amended

The "Vision for UC Riverside" section of the 2005 LRDP, as amended, identifies various goals for the UCR Campus. Specifically, the proposed Student Recreation Center Expansion supports the goals to "accommodate planned growth for UCR to 25,000 students while retaining flexibility for unanticipated additional needs in the future" and "emphasize strong connections and ease of access within campus and with the surrounding community" by providing needed recreational facilities to serve the anticipated campus population and designing the proposed Project to ensure convenient access through both the project site and between surrounding land uses.

Additionally, as described in the Project Planning Guide for the proposed Student Recreation Center Expansion (UCR 2010) with regard to the relationship of the proposed Project to UCR's missions and objectives, "The project supports the instructional and research missions of the University of California by providing essential campus facilities for undergraduate and graduate education. This project recognizes the important benefits recreation provides to the campus community by furnishing programs that promotes healthy lifestyles, physical fitness, relieves stress and provides opportunities for students to connect and become a part of the greater campus community. The quality of the programs and facilities also supports the recruitment and retention of undergraduate and graduate students."

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

LRDP Land Use Designation: The Land Use Plan included in the 2005 LRDP, as amended, (shown in Figure 3.0-6 of the 2005 LRDP Amendment 2 EIR) identifies 12 general categories of land use for development within the UCR Campus boundaries. The project site is designated for "Athletics and Recreation". The proposed Project which includes construction of a new SRC Expansion building, renovation of a portion of the existing SRC building, and construction of new outdoor recreational facilities, including a pool complex, would be consistent with this land use designation.

LRDP Square Footage: The 2005 LRDP, as amended, projected total new building space on campus to be 14.9 million gsf by 2020/2021, including 3.1 million gsf allocated to the SOM. As identified in Table 3.0-5 of the 2005 LRDP Amendment 2 EIR, there is a total of 470,000 gsf allocated to Recreation and Athletics, with 98,269 gsf existing. Therefore, there is 371,731 gsf of Recreation and Athletics building space remaining to be developed. The proposed Project involves a 71,147 gsf expansion of the SRC building which is within the remaining building space. With implementation of the proposed Project there would be 300,584 gsf Recreation and Athletics building space remaining on Campus.

LRDP Population: The 2005 LRDP, as amended, projected a total enrollment of 25,000 students and 16,393 associated faculty, staff and visitors, for a total campus population of 41,393 by the academic year 2020/2021. The proposed Project would not increase the campus student population and would therefore not contribute to, or affect, the total student enrollment anticipated in the 2005 LRDP, as amended. As identified in Table 3.0-4 of the 2005 LRDP Amendment 2 EIR, for the 2010/2011 academic year there are approximately 7,220 faculty, staff and visitors. Therefore, there is a projected increase in non-student population of 9,173 persons on campus which includes 5,853 persons associated with the SOM. When taking the SOM into consideration, there is a projected increase of 3,320 new persons (non-student). As previously identified, the proposed Project would require approximately 20 new non-student staff be employed on campus to serve the proposed Project. This increase in non-student population is well within the projections for the Campus.

LRDP Planning Strategies: The 2005 LRDP, as amended, includes Planning Strategies for the following issues to guide expansion and development of the UCR Campus: land use, circulation and parking, open space and landscape, and campus and community. These planning strategies are required to be implemented with each development project on Campus, and have been specifically identified in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR, along with general development strategies. The Planning Strategies that are applicable to the proposed Project have been incorporated into the project as identified for each topical issue in this Initial Study. Notably, as identified in the "Land Use" section of the 2005 LRDP, as amended, in order to achieve campus goals and to accommodate the program anticipated to be associated with an enrollment of 25,000, expansion of the campus and its facilities will be guided a number of Land Use Planning Strategies. Most relevant to the proposed Project is the following strategy which is incorporated in the proposed Project (PS Land Use 6): Provide expanded athletics and recreational facilities and fields on the East and West Campuses, adjacent to concentrations of student housing. The proposed Project involves construction of a new SRC Expansion Building, renovation of a portion of the existing SRC Building and improvements to the outdoor recreation area, including a new pool complex. This is accomplished within the boundaries of the existing SRC site adjacent to proximity to campus housing located to the north (Canyon Crest Family Student Housing) and east (Aberdeen-Inverness Residence Hall).

<u>UCR Campus Design Guidelines</u>

The UCR Campus Design Guidelines (2007) include Site and Architectural Guidelines to establish the basic premises and clear intent within with creative design decisions should be made for projects on Campus; the Campus Design Guidelines are not intended to be prescriptive. The Site Guidelines address planting, paving, site lighting, furnishings, grading and rainwater management, circulation systems, and campus wide signage. The Architectural Guidelines addressing outdoor circulation, building orientation and entrances, relationship of interior to exterior at ground floor, building massing and articulation, buildings materials and color palette, and building response to climate. A detailed description of the proposed Project

which addresses each of these issues is provided in Section II, Project Description, of this Initial Study.

The proposed Project incorporates PP 4.9-1(a) by ensuring that the project design team has taken the 2007 Campus Design Guidelines and instructions to implement the Guidelines into consideration, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. As described in Section II, Project Description, and further analyzed in Section V.1, Aesthetics, of this Initial Study, the new two-level SRC Expansion building would be similar in height to the existing SRC building. Elevations of the proposed Project are presented in Figures 10a through 10d, and conceptual renderings are presented in Figure 11a and 11b. UCR's blend brick would be featured prominently at the ground level and at the connection point to the existing SRC, while the upper level would be clad in a combination of storefront glazing systems and metal panels and would feature a combination of low-e glazing, vertical screening devices and overhangs used in various combinations and proportions to provide sun protection for the multiple solar orientations of the undulating facade. The use of these various sun-shading strategies would be responsive to the intense and unique solar conditions at the site. Additionally, the smaller ground floor would feature extensive shading from the larger upper level, and would be characterized by the open fitness area loosely defined by the enclosed masonry volumes of the MAC gym and the circular locker room.

Additionally, the proposed Project incorporates PP 4.9-1(b) by ensuring that the project design team has developed a project-specific landscape plan consistent with the Campus Design Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible. A detailed description of the landscape concept for the proposed Project is presented in Section II, Project Description; the landscape concept is depicted on Figure 12. The landscape and hardscape plan for the proposed Project has been developed based on the configuration and type of planned outdoor facilities, as these occupy the majority of outdoor space within the project site and also takes into considerations the relationship between the existing and proposed SRC Expansion building. The landscape plan is conceptually organized around two major axes of different landscape character. It should be noted that street trees would be retained along Linden Street and Aberdeen Drive. Additionally, modifications to the landscaping, hardscape, and fencing at the southeast corner of the Linden Street/Parking Lot 25 intersection would be made to increase motorists' visibility of pedestrians and cyclists. The types of trees, shrubs, and ground covers would be selected from UCR's approved plant materials list as presented in the Campus Design Guidelines and supplemented by additional varieties suggested by the landscape architect and approved by UCR. Selected species would be appropriate for the region's soils, climate, and the criteria of the specific intended placement.

Incorporation of PPs 4.9-1(a) and 4.9-1(b) into the proposed Project ensures that that the intent of the Campus Design Guidelines related to site and architectural guidelines have been met.

Regional and Local Plans

With respect to regional plans, the 2005 LRDP Amendment 2 EIR included an assessment of consistency with relevant Southern California Association of Governments' (SCAG) programs, the Santa Ana RWQCB Santa Ana Basin Plan, the Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP), and the SCAQMD Air Quality Management Plan. The Southern California Association of Governments (SCAG) is the Metropolitan Planning Organization (MPO) for six counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. As the designation MPO, the federal government mandates SCAG to research

and draw up plans for transportation, growth management, hazardous waste management, and air quality. Notably, SCAG reviews EIRs for projects of regional significance for consistency with regional plans (SCAG 2011). Although the proposed Project would not be considered regionally significant for SCAG's purposes, regional plans for which a consistency analysis is provided in the 2005 LRDP Amendment 2 EIR include the following SCAG documents: the *2008 Regional Comprehensive Plan*, the *Regional Transportation Plan* (RTP), and the *Compass Growth Vision Report* (CGV). Because the 2005 LRDP, as amended, was determined to be consistent with all applicable SCAG documents (the RCPG, the RTP, and the CGV), and the proposed Project would be consistent with the 2005 LRDP, as amended, the proposed Project would also be consistent with applicable SCAG land use planning documents.

As addressed in Section V.9, Hydrology and Water Quality, of this Initial Study, the proposed Project is required to comply with all applicable water quality requirements established by the Santa Ana RWQCB and SWRCB. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, the proposed Project would be consistent with the Basin Plan. As discussed in Section V.2, Air Quality, the proposed Project would also be consistent with the AQMP. Refer to the analysis for Threshold 10d below regarding the MSHCP.

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

In summary, consistent with the finding under Impact 4.9-2 of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to conflicts with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would result in a less than significant impact related to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☐	☒

Discussion

As addressed in Section V.4, Biological Resources, although sections of Cells 634 and 719 of the MSHCP do include portions of the campus, the plan does not identify any portion of the UCR for conservation. Therefore, the development under the 2005 LRDP, including the proposed Project, would not conflict with the MSHCP.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact to any applicable HCP or NCCP.

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

Discussion

The analysis of Impact 4.9-1 in the 2005 LRDP EIR concluded that, with implementation of PS Land Use 1 through 7, PS Open Space 1 through 7, PS Campus and Community 1 through 3, PS Transportation 1 through 6, PS Conservation 1 through 4, PS Development Strategy 1 through 3, and PP 4.9-1(a) through (c), there would be a less than significant impact related to land use incompatibilities.

The 2005 LRDP EIR addressed the development of new recreational field facilities on the East Campus north of Linden Street interspersed with new student housing, among the anticipated facilities to be developed within the 2005 LRDP planning horizon, under this threshold. While the expansion of the SRC was not specifically addressed, the analysis of East Campus recreational facilities did conclude that recreational activities would not conflict with adjacent student housing uses with implementation of the identified PSs and PPs. The proposed Project involves the continuation of similar uses at the SRC complex and consistent with the conclusion of the 2005 LRDP EIR, would not conflict with on-campus residential uses to the north and east. Additionally, the proposed Project is consistent with PS Land Use 6, to provide expanded recreational facilities on the East (and West) campuses adjacent to concentrations of student housing.

If outdoor recreational facilities are used in evening hours, nuisance noise and light effects may occur at the student housing to the east. The housing to the north is separated from the

proposed facilities by the existing SRC building, which provides a barrier to both noise and light generated on the project site. To reduce this potential land use incompatibility related to light and noise, consistent with PS Campus and Community 1, a landscaped buffer would be provided along Aberdeen Drive consisting of existing trees and new landscaping, as shown in Figure 12, Conceptual Landscape Plan. Additionally, the proposed main entry and pool complex, where the highest on-site noise levels would routinely occur, are located on the western side of the site, farthest from the housing facilities to the east. The proposed landscape plan, and associated circulation plan, would be consistent with PS Campus and Community 2 and 4, encouraging "permeable" edges in areas where students live in close proximity to campus and provide strong connections within the campus and its edges to promote alternative transportation (e.g., pedestrian, bicycle). The proposed SRC Expansion building and new outdoor facilities were located to minimize site disturbance and maintain existing landscaping, including mature trees, to the extent feasible, and was designed to be consistent with the Campus Design Guidelines, consistent with PPs 4.9-1(a) through (c).

As discussed above and further under the analysis of Aesthetics in Section V.1 of this Initial Study, the proposed Project has been designed to complement, and fully integrate into, the existing SRC building and facilities, and other land uses in the vicinity. The proposed Project design would contribute to an overall visual character that is compatible with existing on-campus development.

Therefore, there would be a less than significant impact related to development of land uses that are incompatible with existing adjacent land uses or with planned uses with incorporation of the identified PSs and PPs into the proposed Project, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to other land use impacts.

11. Mineral Resources

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

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☐	☒
b) Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☐	☒

Discussion

As identified in the Initial Study for the 2005 LRDP EIR, there are no mineral resources of regional or Statewide importance known to exist on the UC Riverside campus. Also, no mineral resource recovery activities occur on the UCR campus, and no mineral resource recovery sites are delineated in the General Plans for the County and City of Riverside, or the University Community Plan, which covers the area around the campus. Therefore, consistent with the findings of the 2005 LRDP EIR, implementation of the proposed Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, and no impact would occur.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to (1) the availability of a known mineral resource that would be of value to the region and the residents of the State or (2) the availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

12. Noise

The analysis of noise is tiered from the UCR 2005 LRDP EIR (as it relates to development in the East Campus) as supplemented and updated by the UCR 2005 LRDP Amendment 2 EIR (as it relates to increased noise from traffic generated by the 2005 LRDP Amendment 2); it was addressed in Section 4.10, Noise, of those documents. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to noise and vibration include the use of diesel-powered and other heavy equipment during construction. The proposed Project would include construction of the new 71,147-gsf SRC Expansion building, the 8,509-gsf partial renovation of the existing SRC building, construction of a new pool complex, and the reconfiguration of outdoor recreation facilities on approximately

6.7 acres, which would involve demolition, grading, and construction. With respect to long-term operations, relevant elements of the proposed Project include use of mechanical equipment (such as air conditioning units) and an increase in the UCR campus population with the addition of approximately 20 new non-student staff. There would be a minimal increase in traffic.

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

PS Campus and Community 1 Provide sensitive land use transitions and landscaped buffers where residential neighborhoods might experience noise or light from UCR activities.

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

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

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

(iii) Adequate acoustic insulation would be added to residence halls to ensure that the interior Ldn would not exceed 45 dBA during the daytime and 40 dBA during the nighttime (10 PM to 7 AM) in rooms facing major streets.

(iv) Potential noise impacts would be evaluated as part of the design review for all projects. If determined to be significant, mitigation measures would be identified and alternatives suggested. At a minimum, campus residence halls and student housing design would comply with Title 24, Part 2 of the California Administrative Code.

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

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

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

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

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

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

As identified in the Air Quality analysis presented in Section V.3 of this Initial Study, the proposed Project also incorporates PS Campus and Community 4 (promote campus-wide non-vehicular transportation), PS Transportation 3 (campus-wide bicycle network to connect to off campus bicycle routes), PS Transportation 4 (provide bicycle parking), and PP 4.3-1 (campus-wide implementation of a transportation demand management program), which all serve to reduce vehicular trips.

Noise-Sensitive Receptors

Noise-sensitive land uses include those uses where noise exposure could result in health-related risks to individuals and places where quiet is an essential element of the intended purpose. Residential dwellings are of primary concern; land uses such as parks, historic sites, cemeteries, and some recreation areas are considered sensitive to increases in exterior noise levels. Hospitals, schools, places of worship, hotels, libraries, and other places where low interior noise levels are essential are noise-sensitive land uses.

The nearest noise-sensitive land uses to the project area are the Canyon Crest Family Student Housing complex, which is across Linden Street to the north; the Aberdeen-Inverness Residence Hall, which is across Aberdeen Drive to the east; and the Materials Science and Engineering Building, which is approximately 300 feet to the south.

Existing ambient daytime noise levels were measured on July 26, 2011, between 3:00 PM and 4:30 PM at four locations in the study area (identified in Figure 15) in order to identify representative noise levels. The noise levels were measured using a Larson-Davis Model 831 sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. The sound level meter and microphone was

mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was programmed in "slow" mode to record noise levels in "A" weighted form. Meteorological conditions during the measurement periods were favorable and representative of the typical summer conditions, with clear skies, daytime temperatures approximately 85 degrees Fahrenheit (°F), and with wind speeds of 5 to 10 miles per hour. The average noise levels and sources of noise measured at each location are identified in Table 8, Existing Noise Levels.

TABLE 8
NOISE LEVEL MEASUREMENT RESULTS

Measurement # See Figure 15	Location (Time)	Noise Levels (dBA)			Primary Noise Source	Notes
		L_{eq}	L_{max}	L_{min}		
1	At Canyon Crest housing, north of the project area and the entrance to Parking Lot 25, approximately 60 feet north of the curb at Linden Street (3:00–3:15 PM).	57	68	50	Traffic on Linden Street	Sporadic traffic on Linden Street at 15 mph.
2	North of the project area and east of Aberdeen Drive, approximately 35 feet north of the curb at Linden Street (3:20–3:35 PM).	62	76	57	Traffic on Linden Street	Sporadic traffic on Linden Street at 15 mph. Minor background noise from the air conditioning unit at the Student Recreation Center building.
3	East of the project area at the facade of an Aberdeen-Inverness Residence Hall building, approximately 90 feet east of the curb at Aberdeen Drive (3:40-3:55 PM).	55	63	52	Traffic on Linden Street and Aberdeen Drive.	Sporadic traffic on Linden Street and Aberdeen Drive.
4	Western portion of the project site by the tennis courts, approximately 500 feet south of Linden Street (4:00–4:30 PM).	58	80	53	Outdoor activities at the recreation complex; local vehicles.	Maximum noise levels occurred when cars passed by at parking lot driveway. Some background noise from SR-60 Freeway.

dBA: A-weighted decibels; L_{eq}: Sound Energy Equivalent Noise Level; L_{max}: maximum noise level; L_{min}: minimum noise level; mph: miles per hour; SR: State Route.

During the survey, average daytime noise levels within the Project study area ranged from 55 to 62 A-weighted decibels (dBA) on the Sound Energy Equivalent Noise Level (L_{eq}). The predominant source of noise in the study area was traffic on Linden Street; background traffic from SR-60 could be heard at the southeastern portions of the project area. The highest noise level was recorded adjacent to Linden Street (Measurement 1), which resulted in 62 dBA L_{eq} at 60 feet from the street curb. The short-term noise monitoring results are included in Appendix D.

Source: Aerials Express 2009

D:\Projects\UCR\J003\mxd\Ex_NoiseMeasurementLocations.mxd

Noise Measurement Locations

Figure 15

UCR Student Recreation Center Expansion Project

N
W E
S

200 100 0 200

Feet

BonTerra CONSULTING

(Rev: 11-16-2011 JCD) Projects\UCR\J003\Graphics\InitialStudy\Ex15_NoiseLocations.pdf

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☐	☒

Discussion

There are no federal, State, or University noise standards applicable to the proposed Project. Therefore, there would be no impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (including construction)?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.10-3 and 4.10-9 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that development on campus would result in less than significant short-term construction-related impacts related to:

- off-campus vibration during construction including from heavy trucks and
- ambient noise levels due to special events.

The analysis of Impacts 4.10-2, 4.10-7, and 4.10-8 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in significant and unavoidable impacts related to:

- on-campus excessive groundborne vibration or groundborne noise levels during construction;
- on-campus ambient noise levels during construction; and
- off-campus ambient noise levels during construction.

Construction of the proposed Project is anticipated to begin in June 2012 with completion by the end of 2013. Construction activities would include demolition and grading that is anticipated to occur for a total period of two months. Building construction would last approximately 16 months.

Short-Term (Construction) Vibration

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

As described under the analysis of Impact 4.10-2 in the 2005 LRDP EIR, where construction occurs more than 50 feet from campus classroom buildings, office buildings, and student housing buildings, or where construction occurs more than 300 feet from research buildings with vibration-sensitive equipment, the impact would be less than significant. Construction would occur more than 50 feet from the Canyon Crest and Aberdeen-Inverness residential buildings and 300 feet or more from the Materials Science and Engineering Building. The vibration impact on campus uses would be less than significant.

Potential vibration impacts from construction activities to off-campus uses are addressed under the analysis of Impact 4.10-3 in 2005 LRDP EIR. The nearest off-campus residential uses to the project area are approximately 0.25 mile to the west along Linden Street. Based on Table 4.10-8 of the 2005 LRDP EIR, vibration levels at the nearest off campus residences from construction activities at the project area would be less than 75 decibels from vibration (VdB), which is the highest vibration level at 100 feet. No significant construction-related vibration impact to off campus uses would result, which is consistent with the findings of the 2005 LRDP EIR.

Heavy trucks would transport materials to and from the campus when construction activities occur. An estimated 200 truckloads of demolished materials would be removed from the site during a 3-week period, and an estimated 4,100 cubic yards of soil are anticipated to be imported in a 1-week period. The 1-week period of soil import would be more intense than the demolition truck activities. It is estimated that there would be 82 daily 1-way truck trips associated with import of soils and less than 30 trips per day associated with demolition. The haul routes for construction vehicles would include Aberdeen Drive, Linden Street, Iowa Avenue, and Market Street, which pass by on- and off-campus residential uses. These trucks typically generate groundborne vibration velocity levels of around 63 VdB at 50 feet, and could reach 72 VdB where trucks pass over bumps in the road; these vibration levels would be less than the Federal Railway Administration's 80 VdB vibration impact threshold for residences referenced in Table 4.10-8 of the 2005 LRDP Amendment 2 EIR. Therefore, construction of the proposed Project would not expose occupants of on- or off-campus buildings to excessive groundborne vibration levels, and this impact would be less than significant, which is consistent with the finding in the 2005 LRDP EIR and 2005 LRDP Amendment 2 Draft EIR.

Short-Term (Construction) Noise

On-Campus Receptors

For purposes of analyzing construction traffic noise, heavy truck trips during import of soils and export of demolition material would generate the highest noise levels. While any single truck passing may be noticeable to on-campus residents adjacent to Linden Street and Aberdeen Drive, the increase in hourly average noise levels (assuming and less than) is estimated at less than 3 dBA, which would likely not be perceptible resulting in a less than significant impact.

During construction, nearby noise-sensitive receptors would be exposed to occasional high noise levels associated with the operation of heavy equipment (e.g., loaders and bulldozers) during the demolition and grading phase. For the purpose of this analysis, and consistent with the 2005 LRDP EIR, noise impacts during construction would be considered significant if activities lasting more than 1 day would increase the ambient noise levels by 10 dBA L_{eq} or more over a 1-hour period at any on-campus or off-campus noise-sensitive location.

The closest sensitive receptors during demolition and grading would be the on-campus residents of the Canyon Crest Family Student Housing, located approximately 120 feet north of the project area boundary. Construction equipment noise would not be constant because of the variations of power, cycles, and equipment location. Worst-case one-hour noise levels were calculated assuming a bulldozer and loader would be operating near the northern site boundary during demolition and subsequent grading at the west side of the existing SRC. Noise levels could reach 75 dBA L_{eq} at the Canyon Crest Family Student Housing. The existing average ambient daytime noise levels at the nearest homes was measured at 57 dBA L_{eq} (refer to Table 8). Construction noise generated at or near the northern boundary could last more than 1 day, and the increase in 1-hour average noise levels could exceed 10 dBA; therefore, the impact would be significant. Except for the demolition and renovation of the existing SRC building, most of the project construction would occur south of the existing building, at distances of 350 to 800 feet from the Canyon Crest Family Student Housing; at this distance, construction noise levels would be in the 62 to 69 dBA L_{eq} range. Noise levels at the homes north of the existing SRC would be further reduced by the barrier effect of the building.

The residents of the Aberdeen-Inverness (A&I) Residence Hall are located approximately 190 feet east of the eastern project area boundary and would also be exposed to construction noise associated with demolition, grading and new construction. The worst-case 1-hour noise levels, assuming a bulldozer and loader operating near the eastern site boundary, would be approximately 70 dBA L_{eq} at the A&I residence hall. Average demolition and grading noise, assuming four pieces of construction equipment operating at various locations within the project area, would be approximately 67 dBA L_{eq} at the A&I residence hall. The existing average ambient daytime noise levels at the residence hall was measured at 55 dBA L_{eq} (refer to Table 8). Demolition and grading would last more than 1 day, and the increase in 1-hour average noise levels could exceed 10 dBA; therefore, the impact would be significant. It is noted that the orientation of the A&I residence hall is such that few windows face west with a direct line of sight to the project area. Most windows face north or south and there is no direct line of sight to the project area, which further reduces noise impacts to individual rooms. At the conclusion of demolition and grading phases, the use of heavy equipment would be limited and noise levels related to construction activity would be reduced. The proposed Project incorporates PPs 4.10-2 and 4.10-7(a), which require hours of construction to be limited to 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday. Noise impacts would be minimized with PP 4.10-7(b), which requires the muffling or shielding of equipment; PP 4.10-7(c), which requires that stationary construction equipment material and vehicle staging be placed to direct noise away from sensitive receptors; and PP 4.10-7(d), which

requires the campus to conduct regular meetings with off-campus constituents to provide notice of construction activities.

Only PP 4.10-7(b) and PP 4.10-7(c) actually would reduce construction noise levels received by the sensitive receptors. The noise reduction achieved by these measures would be limited and would not reduce levels to below the applicable threshold; therefore, construction activities associated with the proposed Project would still result in a significant noise impact to on campus sensitive receptors, especially during the grading and demolition periods. There are no feasible mitigation measures to reduce construction-related noise to less-than-significant levels; therefore, this impact is within the scope of the significant and unavoidable construction noise impact identified with implementation of the 2005 LRDP, as amended, as concluded in the 2005 LRDP EIR.

This impact was adequately addressed in the 2005 LRDP EIR (Impact 4.10-7), which determined that development under the 2005 LRDP would result in significant and unavoidable impacts related to on- and off-campus ambient noise levels during construction, even with implementation of PPs 4.10-7(a) through 4.10-7(d). A Statement of Overriding Considerations was adopted by the Board of Regents of the University of California as part of the approval of the 2005 LRDP EIR for the significant and unavoidable, construction-related noise impacts resulting from construction on the East Campus anticipated in the 2005 LRDP, of which the proposed Project is a part.

Off-Campus Receptors

As previously noted, the nearest off-campus noise receptors are located approximately 0.25 mile from the project area. At this distance, construction activity noise levels from the site would be reduced by at least 28 dBA due to distance; additional reduction would occur due to intervening buildings and terrain. It is therefore unlikely that construction noise from the site would be heard at off-campus residences. The temporary noise increases would not be substantial and would be less than significant.

With respect to construction vehicle noise impacts, heavy trucks exporting demolition materials and importing soil would pass off-campus residences approximately 40 feet from Linden Street. The route for trucks hauling demolition material would also include Market Street where there are existing residential uses. Therefore, demolition trucks may pass off-campus residences approximately 100 feet from Market Street. The additional truck noise off-campus would be mixed with existing traffic noise from Linden Street, I-215, and Market Street. Individual truck passbys may be occasionally noticeable; however, the change in the overall average noise level would not likely be perceptible. Noise level increases from construction trucks would not be substantial resulting in a less than significant impact.

Construction activities for the proposed Project would result in a less than significant impact to off campus sensitive receptors.

Special Events

It is anticipated that campus special events would occur occasionally at the outdoor recreation areas, the pool area, and the open area in the southwest corner of the project site. These events may generate noise through public address systems or music amplification as well as crowd noise. As evaluated under Impact 4.10-9 of the 2005 LRDP Amendment 2 EIR, the noise would be similar to special events that occur under existing conditions at the Track and Soccer Stadiums west and south of the project area and at other locations within the central campus area, including recreation areas, such as the SRC.

The nearest on-campus receptors are the Canyon Crest Family Student Housing, located north of the project site and the Aberdeen-Inverness Residence Hall, located east of the project site. The existing and future SRC buildings would reduce noise from special events at the proposed pool and recreation areas to the Canyon Crest homes. Because future special events would not differ substantially from existing events, in the area, the proposed Project would not result in a substantial or periodic increase in noise compared to existing conditions. Therefore, the impact would be less than significant consistent with the findings of the 2005 LRDP EIR.

The nearest off-campus noise receptors are located approximately 0.25 mile from the project site and even farther from the areas on the project site that would be used for gatherings/events. At this distance, special event noise levels would be reduced by at least 28 dBA due to distance; additional reductions would occur due to intervening buildings and terrain. Special event noise, being different in character than typical ambient noise, may be heard at off-site receptors. However, the noise increase would not be substantial and the occurrences would be infrequent. Therefore, the impact would be less than significant, which is consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

There are no feasible mitigation measures which would reduce construction-related noise impacts to a less than significant level. No mitigation is required for long-term operational noise impacts.

Level of Significance after Mitigation

The proposed Project would have less than significant impacts for on-campus and off-campus vibration during construction; for off-campus noise levels during construction; and for noise levels during special events.

The proposed Project would have a significant and unavoidable impact for on-campus noise levels during construction. This impact was adequately addressed in the 2005 LRDP EIR and a Statement of Overriding Considerations was adopted by the Board of Regents of the University of California as part of the approval of the 2005 LRDP EIR, for the significant and unavoidable construction-related on-campus noise impacts resulting from construction anticipated in the 2005 LRDP, as amended, within the East Campus, of which the proposed Project is a part.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒	☐
c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒	☐

Discussion

The analysis of Impacts 4.10-4, 4.10-5, and 4.10-6 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in less than significant long-term operational impacts related to

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

As described in the 2005 LRDP EIR, the existing campus facilities are not a major source of vibration. The proposed SRC Expansion building and outdoor recreational facilities would accommodate activities similar to existing conditions and their operation and occupancy would not result in vibrations that could expose persons on- or off-campus to excessive groundborne vibration or noise levels. This impact would be less than significant, which is consistent with findings of the 2005 LRDP EIR, as amended.

The 2005 LRDP Amendment 2 EIR addressed potential traffic-related noise impacts associated with the remaining development under the 2005 LRDP, as amended, which includes the proposed Project. Based on an estimated 20 non-student staff employees generating 4 daily trips (to and from work and to and from lunch or errand), the proposed Project would generate a maximum of 80 daily long-term vehicular trips. This is a conservative estimate because all 20 employees would not work on the same day, and some employees would only make 2 trips per day. Additionally, the proposed Project incorporates PS Campus and Community 4 (promote campus-wide non-vehicular transportation), PS Transportation 3 (provide a campus-wide bicycle network to connect to off campus bicycle routes), PS Transportation 4 (provide bicycle parking), and PP 4.3-1 (implement a campus-wide transportation demand management program), which all serve to reduce vehicular trips. Addition of project-generated traffic to existing traffic volumes would result in noise increases of less than 0.2 dBA, which would be imperceptible. Therefore, there would be less than significant long-term, traffic-related noise impacts resulting from implementation of the proposed Project, which is consistent within the findings of the 2005 LRDP Amendment 2 EIR.

Heating, ventilation, and air conditioning (HVAC) units would be installed on the roof of the new SRC Expansion building. As identified under the analysis of 4.10-6 in the 2005 LRDP Amendment 2 EIR, the type of equipment currently installed on new on-campus buildings generates noise levels up to 66 dBA L_{eq}, or 73 dBA on the Community Noise Equivalent Level (CNEL) if operating for 24 hours, when measured at 50 feet from the source. The nearest noise-sensitive receptors to the proposed recreation center expansion building's rooftop HVAC unit are the Canyon Crest Family Student Housing and the Aberdeen-Inverness Residence Hall; these receptors would be located at least 350 feet from the noise source. At that distance, without shielding, noise from the operation of typical HVAC units could be 49 dBA L_{eq} and 56 dBA CNEL. This value is compared with measured existing noise levels of 55 to 57 dBA L_{eq}. The noise level increase would not be substantial. With an interior noise reduction of 15 dBA with windows open, the HVAC noise of less than 35 dBA L_{eq} would not be readily discernable. Further, the existing SRC building would break the line of sight to most receptors north of the project area, and the edge of the proposed SRC Expansion building would break the line of sight from ground floor receptors east of the project area to the mechanical equipment on the top of the building, resulting in additional noise reduction of at least 5 dBA. It is noted that should larger, noisier HVAC units be needed, PP 4.10-6, which is incorporated into the proposed Project, requires that these units be shielded to reduce noise to sensitive receptors. The pool and spa filter system would be enclosed in an equipment building in the southeast

corner of the pool complex. Due to distance of approximately 400 feet to the nearest noise-sensitive receptor and the concrete enclosure, the operation of the filter system would not be perceptible at nearby residences. The noise impacts from stationary sources would be less than significant, which is consistent with the findings of the 2005 LRDP Amendment 2 EIR.

The proposed Project also includes the relocation of the tennis courts closer to the Aberdeen-Inverness Residence Hall (A&I); the relocation of sand volleyball courts further from A&I; and the elimination of the roller hockey rink and basketball courts that currently are closest to A&I. The proposed Project incorporates PS Campus and Community 1 and would maintain a landscaped buffer along Aberdeen Drive. The changes in recreational noise levels due the change in configuration and type of outdoor recreational uses resulting from the project would not be substantial and the impact would be less than significant.

In summary, the proposed Project would not result in a substantial increase in operational noise levels at sensitive noise receptors. The impact would be less than significant, which is consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance after Mitigation

The proposed Project would have less than significant impacts related excessive groundborne noise levels and resulting in a substantial permanent to increase in ambient noise levels in the project vicinity above existing noise levels.

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

Discussion

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

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to public use airports or private airstrips.

13. Population and Housing

The analysis of population and housing is tiered from the 2005 LRDP Amendment 2 EIR, and was addressed in Section 4.11, Population and Housing, of that document. Relevant elements of the proposed Project related to population and housing include an increase of approximately 20 new non-student staff to be employed on campus to serve the proposed Project. There were no applicable PSs, PPs, or MMs adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR related to population and housing.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒	☐

Discussion

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

The proposed Project would involve new and expanded recreational facilities at the existing SRC and has been designed to support a campus population of 25,000 students, as anticipated in the 2005 LRDP, as amended. The proposed Project would not result in new students on Campus, and would not directly generate population growth. However, as discussed in Section II, Project Description, there would be an increase of approximately 20 new non-student staff on Campus to serve the proposed Project. The shifts for these employees would be staggered over the operating hours of the SRC. As described in Section II.6, Relationship to the 2005 Long Range Development Plan Amendment 2, under the 2005 LRDP, as amended, there is projected increase in non-student population of 9,173 persons on Campus, which includes 5,853 persons associated with the School of Medicine (SOM). When taking the SOM into consideration, there is a projected increase of 3,320 new staff (non-student). The increase in non-student population resulting from the proposed Project (20 employees) represents less than 1 percent of the anticipated non-student grown on Campus (not including the SOM) and is well within the growth projections for the campus. These staff positions involve vocational opportunities that are generally found in most communities, and would not offer a unique

enough opportunity to induce job-seekers to relocate to the area for the sole purpose of filling these positions. Therefore, the proposed Project would not result in substantial population growth or growth beyond that anticipated with implementation of the 2005 LRDP, as amended. This impact is less than significant, which is consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to inducing substantial population growth in the area either directly or indirectly.

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

Discussion

The Initial Study prepared for the 2005 LRDP Amendment 2 EIR concluded that there would no impacts related to the displacement of existing housing or people since implementation of the 2005 LRDP, as amended, would not involve the demolition or removal of housing. There are no existing residential uses located within the project site. Therefore, the proposed Project would not require the construction of replacement housing consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impacts related to (1) displacement of a substantial number of existing housing that would necessitate the construction of replacement housing, or (2) displacement of substantial numbers of people that would necessitate the construction of replacement housing.

14. Public Services

The analysis of the provision of public services on campus (i.e., fire, police, schools, and other public facilities) is tiered from the 2005 LRDP Amendment 2 EIR, and was addressed in Section 4.12, Public Services, of that document. Parks and other recreational facilities are addressed in Section V.15, Recreation, of this Initial Study. As described previously in

Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to public services include the construction of the new 71,147-gsf SRC Expansion building; a 8,509-gsf partial renovation of the existing SRC; and reconfiguration of outdoor recreation facilities, including a proposed pool complex. Fire and emergency access would be maintained, including the existing access along the south side of the existing SRC building.

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

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

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

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

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

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

(v) Service roads, plazas, and pedestrian walks that may be used for fire or emergency vehicles will be constructed to withstand loads of up to 45,000 pounds.

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

PP 4.12-1(b) (i) Accident prevention features shall be reviewed and incorporated into new structures to minimize the need for emergency response from the City of Riverside.

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

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

PP 4.12-2(b) The Campus will continue to participate in the "UNET" program (for coordinated police response and staffing of a community service center), which provides law enforcement services in the vicinity of the campus, with equal participation of UCR and City police staffs.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
a) Fire protection?	☐	☐	☐	☒	☐

Discussion

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

The RFD is responsible for fire suppression, and UCR's Environmental Health and Safety Department (EH&S) is responsible for inspection, fire protection engineering, and fire prevention. The Campus has a Memorandum of Understanding (MOU) with the State Fire Marshall to provide additional support, and the Campus Fire Marshall is a designated Deputy State Fire Marshall. The proposed Project would comply with all regulations of Sections 13000 et seq. of the *California Health and Safety Code,* which pertain to fire protection systems, including provision of smoke alarms, fire extinguishers, appropriate building access, and emergency response notification systems. The proposed Project incorporates PP 4.12-1(a), which requires new structures to be designed with adequate fire protection features in compliance with State law. It also requires adequacy of water supply and water pressure to be determined prior to implementation of individual projects to ensure sufficient fire protection services for the campus. PP 4.12-1(b) requires accident prevention features to be included into new structures to minimize the demand for emergency response services from RFD. Following completion of construction, the existing walkway and emergency vehicle access on the south side of the existing SRC would be maintained. There would be no changes to the adjacent streets (Linden Street and Aberdeen Drive) and Parking Lot 25; therefore, existing emergency access would be maintained. The proposed Project would not increase the student population on campus and would generate a minimal number of new employees. Additionally, the proposed uses/activities at the SRC Expansion would be consistent with existing uses/activities.

Therefore, there would not be an increase in demand for fire protection services resulting from the proposed Project.

The Campus Fire Marshall has determined that the RFD can adequately provide fire protection and emergency medical response services; the UCR EH&S can adequately provide the fire prevention and inspection services for the proposed Project without resulting in the need for additional staff or facilities from other departments (Corrin 2011). As such, no new, expanded, or altered fire protection services or facilities would be required to serve the proposed Project, and no physical environmental impacts related to the provision of fire protection services would result.

Because emergency access and fire flows would be adequate to serve the proposed Project and no new, expanded, or altered fire protection services or facilities would be required beyond those included as part of the proposed Project, impacts associated with the provision of fire protection services from implementation of the proposed Project, which incorporates PP 4.12-1(a) and PP 4.12-1(b), are considered less than significant; this is consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact on fire protection services; no new or altered fire protection services would be required.

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

Discussion

The analysis of Impacts 4.12-2 and 4.12-3 in the 2005 LRDP Amendment 2 EIR concluded that, with implementation of PP 4.12-2(a) and PP 4.12-2(b), there would be less than significant direct and cumulative impacts related to the need for new or physically altered police facilities to accommodate the increased demand resulting from implementation of the 2005 LRDP, as amended, and to maintain acceptable service levels. As identified in the 2005 LRDP Amendment 2 EIR, the increase in staffing and equipment of the UC Police Department, Riverside (UCPDR) anticipated with the addition of planned development under the 2005 LRDP, as amended, could require provision of additional space, which could include renovation of the existing UCPDR facility, expansion of the existing facility, or the acquisition of a satellite facility (similar to the storefront facility at University Village). The potential environmental effects associated with expanding the existing facility or providing a satellite facility were evaluated in the 2005 LRDP Amendment 2 EIR at a program level, and concluded there would be a less than significant impact.

The UCPDR is responsible for providing police services to the UCR campus. The UCPDR has an MOU with the City of Riverside, whereby the UCPDR and the Riverside Police Department

(RPD) provide reciprocal assistance to each other. The two departments jointly operate a community policing enterprise known as the University Neighborhood Enhancement Team (UNET) in a 17.5 square-mile area of the City of Riverside. In addition to UNET, the UCR campus beat officers handle about 2,800 incidents within the City over an average year. In turn, RPD provides the UCPDR with emergency back-up and, infrequently, assists in handling emergency calls.

As discussed above, the proposed Project would not increase the student population on Campus and would generate a minimal number of new non-student staff positions. The types and volume of service calls for police services at the proposed SRC Expansion facilities would be similar to the existing SRC facilities. Therefore, there would not be an increase in demand for police protection services resulting from the proposed Project. Also, the proposed Project incorporates PP 4.12-2(a), which ensures the hiring of additional officers as needed to maintain adequate service levels, and PP 4.12-2(b), which ensures continued UCR participation in the UNET program. The UCPDR has determined that the proposed SRC Expansion Project can be adequately served without the need for additional staff or expanded police facilities (Freese 2011).

Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, no new or expanded police facilities would be required and no physical environmental impacts would result. There would be no impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact to police services; no new or altered police facilities would be required.

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

Discussion

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

As discussed above, the proposed Project, which would involve new, renovated and expanded recreational facilities at the existing SRC, would not generate new students and would require no more than 20 new non-student staff. These staff positions are expected to be filled from the

local labor pool. The proposed Project would not result in an increase in new students within the RUSD area. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, no new or expanded school facilities would be required and no physical environmental impacts would result. No impact to school would result from implementation of the proposed Project.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact to schools; no new or altered school facilities would be required.

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

Discussion

The analysis of the proposed Project's impacts on parks and other recreation facilities is provided in Section V.15, Recreation, of this Initial Study.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project involves the development of new and expanded recreational facilities and would have no impact to parks and other recreation facilities; no new or altered park/recreation facilities would be required.

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

Discussion

As identified in the Initial Study for the 2005 LRDP Amendment 2 EIR, implementation of the proposed 2005 LRDP Amendment 2 would not result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, and this impact would be less than significant. In addition, UCR provides libraries that are open to the public and are used by its campus population, thus reducing demand on City resources. The Initial Study also

identified that implementation of planned development under the 2005 LRDP, as amended, would increase the demand on each of the four existing libraries on campus and that satellite libraries may also be developed as part of professional school development. The potential environmental effects associated with the development of satellite libraries were evaluated in the 2005 LRDP EIR at a program level, and concluded there would be a less than significant impact.

As discussed above in Section V.13, Population and Housing, the proposed Project, which would involve new, renovated and expanded recreational facilities at the existing SRC, would not generate new students and would require no more than 20 new non-student staff. These staff positions are expected to be filled from the local labor pool. Therefore, the proposed Project would not result in an increased demand for on- or off-campus library services or other public services, nor would new or expanded library facilities or other public facilities be required. No physical environmental impacts would result. There would be no impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impacts to library services or other public services.

15. Recreation

The analysis of recreation is tiered from the 2005 LRDP EIR, and was addressed in Section 4.13, Recreation, of that document. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to recreation include the development of new, renovated, and expanded recreational facilities to serve the anticipated campus population growth at UCR. Specifically, the proposed Project would include the construction of a new 71,147-gsf SRC Expansion Building; an 8,509-gsf partial renovation of the existing SRC; and reconfiguration of outdoor recreation facilities, including a proposed pool complex, tennis courts, and sand volleyball court. The existing Outdoor Challenge Course in the northeast portion of the project area would remain. The installation of new or updated landscaping, hardscape, and exterior lighting fixtures are also included with the proposed Project.

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

PS Land Use 6	Provide expanded athletics and recreational facilities and fields on the East and West Campuses, adjacent to concentrations of student housing.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☐	☒

Discussion

The analysis of Impact 4.13-1 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 7, there would be less than significant impacts related to substantial or accelerated physical deterioration of existing neighborhood or regional parks or other recreational facilities resulting from increased campus population with implementation of the 2005 LRDP.

As discussed above in Section V.13, Population and Housing, the proposed Project, which would involve new, renovated, and expanded recreation facilities at the existing SRC, would not generate new students and would require no more than 20 new non-student staff. These staff positions are expected to be filled from the local labor pool. The proposed Project would not result in increased demand for recreational facilities on or off campus. Conversely, the addition of needed on-campus recreational facilities is planned in order to meet the increased demand for recreational facilities generated by the planned growth in the campus population, and would be expected to decrease the reliance on existing, off-campus parks and recreational facilities by UCR students, faculty, and staff. Therefore, consistent with the conclusions of the 2005 LRDP EIR, the proposed Project would not increase the demand for recreational facilities and would not result in a substantial physical deterioration of recreational facilities or acceleration of such deterioration. There would be no impact, and no mitigation is required.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒	☐

Discussion

The analysis of Impact 4.13-2 in the 2005 LRDP EIR identified that development of future recreational facilities, which were addressed at a program level in that document as a component of the 2005 LRDP, would not have adverse physical effects on the environment beyond those identified elsewhere in the 2005 LRDP EIR. The 2005 LRDP EIR concluded that there would be less than significant impacts related to the construction of recreational facilities with implementation of relevant construction-related PSs, PPs, and MMs, including, but not limited to, those related to air quality, noise, traffic, and agriculture.

The proposed Project implements PS Land Use 6 and involves the implementation of new, renovated, and expanded indoor and outdoor recreational facilities at the existing SRC, which is a major recreational facility in the East Campus. This Initial Study provides the project-specific environmental review of the proposed SRC Expansion project. Notably, local and regional air quality impacts are addressed in Section V.3, Air Quality; noise and vibration impacts are addressed in Section V.11, Noise, and traffic impacts are addressed in Section V.15, Transportation/Traffic. As identified through the analysis presented in this Initial Study, with the exception of short-term construction-related noise, the physical impacts resulting from implementation of the proposed Project, which incorporates identified PSs, PPs, and MMs, are less than significant, which is consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

Because the proposed Project involves the development of a recreational facility, the environmental impacts of the proposed Project are addressed throughout this Initial Study. No additional impacts would result beyond those identified in this Initial Study; therefore, this impact is less than significant.

16. Transportation and Traffic

The analysis of transportation and traffic is tiered from the 2005 LRDP Amendment 2 EIR, and was addressed in Section 4.14, Transportation and Traffic, of that document. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to transportation and traffic include (1) a potential increase in traffic associated with approximately 20 new non-student staff; (2) the provision of a 60-foot-wide covered breezeway between the existing SRC building and the proposed SRC Expansion building to maintain the existing walkway and emergency vehicle access and accommodate continued east-west pedestrian access for heavy foot traffic from the student housing to the east of the site, (3) modifications to the landscaping, hardscape, and fencing at the Linden

Street/Parking Lot 25 intersection to increase motorists' visibility of pedestrians and cyclists, and (4) short-term construction activities that would involve heavy trucks on the identified construction routes (as described in Section II.5, Proposed Project Components, under "Construction Activities").

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

PS Campus and Community 4 Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.

PS Transportation 3 Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.

PS Transportation 4 Over time, limit general vehicular circulation in the central campus, but allow transit, service, and emergency vehicle access, and provide access for persons with mobility impairments.

PS Transportation 5 Provide bicycle parking at convenient locations.

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

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

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

PP 4.14-8 To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, the Architects & Engineers (formerly Office of Design and Construction) shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and

identify alternative travel routes. *(This is identical to Hazards and Hazardous Materials PP 4.7-7(b)).*

MM 4.14-1b **Travel Demand Management.** To reduce on- and off-campus vehicle trips and resulting impacts, the University will enhance its Transportation Demand Management (TDM) program. TDM strategies will include measures to increase transit and Shuttle use, encourage alternative transportation modes including bicycle transportation, implement parking policies that reduce demand, and other mechanisms that reduce vehicle trips to and from the campus. The University shall monitor the performance of campus TDM strategies through annual surveys.

MM 4.14-1d **Sustainability and Monitoring.** The University shall review individual projects proposed under the amended 2005 LRDP for consistency with UC sustainable transportation policy and UCR TDM strategies to ensure that bicycle and pedestrian improvements, alternative fuel infrastructure, transit stops, and other project features that promote alternative transportation are incorporated into each project to the extent feasible.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒	☐

Discussion

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

- less than significant impacts to local roadways under existing plus project conditions and in 2020 and no mitigation is required (Impacts 4.14-3 and 4.14-4);

- significant and unavoidable impacts to 13 of the 32 study area intersections under existing plus project condition and 17 intersections under year 2020 condition; these intersection are under the jurisdiction of the City or Caltrans (Impacts 4.14-1 and 4.14-2).

As discussed in the 2005 LRDP Amendment 2 EIR, all of the intersection improvements described in the CTMP would fall under the jurisdiction of the City and/or Caltrans. However, because the City and/or Caltrans have not programmed any improvements to these facilities at the time of preparation of the EIR, the construction of the improvements cannot be assured, as it depends on actions by the City and/or Caltrans. Furthermore, improvements that would restore operations to acceptable levels are not feasible at 1 of the 17 total affected intersections under the jurisdiction of the City and/or Caltrans. For these reasons, the identified off-campus intersection impacts (Impacts 4.14-1 and 4.14-2) remain significant and unavoidable.

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

Short-term Construction Traffic

Construction activities associated with the proposed Project could result in temporary closure of on-campus traffic lanes or roadway segments in the project vicinity to permit the delivery of construction materials, transport of imported soil, provide adequate site access, or during construction of utility connections or other project-related features located adjacent to, or within, Linden Street or Aberdeen Drive. Importing approximately 4,100 cy of soil would require approximately 205 round truck trips, using 20 cy trucks, over approximately 1 week (5 working days). Therefore, there would be approximately 41 round-trip truck trips per weekday during 1 week of the construction period when soil is imported, representing the period of highest construction vehicle traffic.

Using the conservative assumption that all these trips would be generated by a tractor-trailer combination (for which each truck trip is equivalent to 2.5 vehicle trips) peak construction traffic of approximately 103 car equivalent round trips per day could result. Because these trips would occur over a typical eight-hour construction day, approximately 13 trips would be generated during an average hour. With a typical construction day starting at 7:00 AM, approximately 13 equivalent trips would be generated during the AM peak hour during the period of heaviest construction activity. Construction would typically be completed each day prior to the PM peak hour; therefore, no PM peak hour impacts are anticipated. The addition of 13 equivalent trips during the AM peak hour for one week, in itself, would not degrade intersection levels of service sufficiently to exceed the identified significance criteria even if they are not spread out over the peak hour and occur in a relatively short timeframe. Therefore, project-specific construction traffic impacts from the proposed Project would be less than significant.

There is a chance that construction of the proposed Project may overlap with construction of other on-campus projects that are either proposed or approved (e.g., the EH&S expansion, the Glen Mor 2 Student Apartments, and the Health Science Teaching Center) and may have overlapping construction traffic routes. However, the proposed Project is located along Linden Street and Aberdeen Drive, where there is not a high volume of traffic. Additionally, it is not expected that the proposed Project would require lane closures or other access restrictions along Linden Street or Aberdeen Drive for extended periods of time. Further, based on anticipated construction schedules and the fact that the period of highest truck traffic for the proposed Project would occur over a one week period, it is not expected that the need for heavy construction vehicles would occur at the same time. Additionally, the proposed Project incorporates PP 4.14-2, which requires the campus to assess construction schedules of major

projects periodically to determine the potential for overlapping construction activities and adjust construction schedules, work hours, or access routes to the extent feasible to reduce construction-related traffic congestion. Additionally, the proposed Project incorporates PP 4.14-5, which requires one travel lane in each direction, to minimize construction traffic impacts to the extent feasible. Therefore, potential Project-related traffic impacts associated with lane closures and access restrictions during construction would be less than significant. Although the 2005 LRDP Amendment 2 EIR concluded that construction traffic could be significant at some locations along the identified access routes, for the reasons discussed above, in the event there is an overlap of construction activities on campus, it is concluded that the proposed Project would result in a less than significant cumulative traffic construction impact.

Long-term Operational Traffic

As previously discussed, the proposed Project would not result in the addition of new students at the UCR campus; however, it would result in 20 new non-student staff positions. Based on this estimated increase in employees the proposed Project would generate a maximum 80 daily long-term vehicular trips. Using the trip generations presented in Table 4.14-8 of the 2005 LRDP Amendment 2 EIR, AM & PM Peak Hour Trip Rate, the proposed Project would generate approximately 10 AM peak hour trips and 14 PM peak hour trips. This is a conservative estimate because all 20 employees would not work on the same day and their shifts would be staggered. Additionally, as discussed under Threshold "f", below, the proposed Project incorporates various PSs, PPs, and MMs related to non-vehicular modes of transportation that would serve to reduce vehicular trips. The proposed Project does not provide increased parking which would encourage alternative transportation modes.

Because the employees are within the projected non-student growth anticipated in the 2005 LRDP, as amended, the traffic associated with these employees has been considered in the traffic impact analysis included in the 2005 LRDP Amendment 2 EIR. The 2005 LRDP Amendment 2 EIR traffic impact analysis study area intersections closest to the project area include Linden Street/Aberdeen Drive and Linden Street/Canyon Crest Drive. The Linden Street/Aberdeen Drive intersection is projected to operate at an acceptable LOS during the peak hours under the existing plus project and year 2020 conditions. The Linden Street/Canyon Crest Drive intersection is projected to operate at an acceptable LOS C during the AM peak hour, and LOS D in the PM peak hour. The PM peak hour delay caused by traffic associated the 2005 LRDP, as amended, exceeds the City's thresholds resulting in a significant impact. The maximum 10 trips in the AM peak hour and 14 trips in the PM peak hour generated by the proposed Project would not cause a significant impact at any study area intersections, including those closest to the project area, to occur.

Operation of the proposed Project would result in a less than significant impact related to any applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. A discussion of project impacts related to non-vehicular circulation is provided below under Threshold "f", below.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact for construction-related and operational project-related traffic.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒	☐

The analysis of Impacts 4.14-6 and 4.14-7 in the 2005 LRDP Amendment 2 EIR, which addressed the Riverside County Congestion Management Program (CMP) under existing plus project conditions and in 2020, determined that the operating conditions of all freeway segments operating unacceptably would continue to do so with the addition of 2005 LRDP-related traffic. In addition, the freeway segment level of service under existing plus project conditions for I-215 Northbound, between SR-60 and Central, and I-215 Northbound, between MLK and University, would reduce from LOS E to LOS F in the AM peak hour with the addition of project traffic. There are no feasible mitigation measures available for these impacts, and the EIR concluded there would be a significant and unavoidable impact to the affected freeway segments.

As previously discussed, the increase in employees associated with the proposed Project would result in a minimal increase in peak hour trips (maximum of 10 AM and 14 PM). Implementation of the proposed Project would not result in significant traffic impacts to Riverside County CMP facilities.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to a conflict with an applicable congestion management program including, but not limited to, level of service standards and travel demand measures, or other standards established by the Riverside County CMP for designated roads or highways.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☐	☒

Discussion

Based on the Initial Study prepared for the 2005 LRDP Amendment 2 EIR, implementation of the 2005 LRDP, as amended, would have no impact related to air traffic patterns. The closest airports to the campus are Flabob Airport, located approximately four miles to the west, and March Joint Air Reserve Base, located approximately six miles to the southeast. The Initial

Study concluded development under the 2005 LRDP, as amended, would not increase air traffic levels or result in a change in the location of air traffic patterns resulting in substantial safety risks. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be no impact from implementation of the proposed Project related to air traffic patterns.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have no impact related to a change in air traffic patterns.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒	☐

Discussion

The analysis of Impacts 4.14-8 through 4.14-10 in the 2005 LRDP Amendment 2 EIR, which addresses transportation hazards, concluded that, with implementation of PP 4.14-4, PP 4.14-5, and PP 4.14-6, development under the 2005 LRDP, as amended, would result in less than significant impacts related to (1) vehicular traffic hazards due to design or land use incompatibilities during long-term operation, (2) vehicular traffic hazards during construction due to closure of traffic lands or roadway segments, or (3) pedestrian hazards during construction due to closure of sidewalks or paths.

Vehicular Hazards During Construction

As discussed under Threshold “a”, construction activities associated with the proposed Project could result in temporary closure of on-campus traffic lanes or roadway segments in the project vicinity to permit the delivery of construction materials, transport of imported soil, provide adequate site access, or during construction of utility connections or other Project-related features located adjacent to, or within, Linden Street or Aberdeen Drive. However, disruption to adjacent roadways is expected to be minimal as the majority of construction activity would occur south of the existing SRC building, within the project site. The temporary reduction of roadway capacity, the narrowing of traffic lanes, and the occasional interruption of traffic flow on streets associated with project-related construction activities could pose hazards to vehicular traffic due to localized traffic congestion, decreased turning radii, or the condition of roadway surfaces. To minimize traffic disruption and congestion, the proposed Project incorporates PP 4.14-2, which requires coordination of major construction projects on campus; PP 4.14-5, which requires one travel lane in each direction, to minimize construction traffic impacts to the extent feasible. With implementation of these PPs construction-related traffic disruptions would be less than significant.

Pedestrian Hazards During Construction

There are existing sidewalks and other pedestrian routes located on all sides of the project site and throughout the project area. Key pedestrian routes include the walkway on the south side of the existing SRC, and the sidewalks on the west, north, and east sides of the SRC Expansion project site. As discussed in Section II, Project Description, during construction, the south side of the existing SRC building would be closed to pedestrians. Existing walkways immediately to the east and west of the SRC Expansion project site would also be closed to pedestrians periodically during construction. PP 4.14-6 is incorporated into the proposed Project; therefore, alternate pedestrian routes would be identified to maintain the same travel movement and signage would be installed to facilitate wayfinding. Also, the proposed Project would involve modifications to the landscape and hardscape at the north end of Parking Lot 25 at its intersection with Linden Street to improve visibility for motorists, pedestrians and cyclists. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be less than significant impacts related to pedestrian hazards during construction.

Vehicular Hazards During Operation

The proposed Project does not include permanent modifications to on-campus or City of Riverside roadways, or vehicular access to Parking Lot 25, which serves the SRC. Adequate vehicle and emergency access to the SRC would be maintained with proposed Project implementation, particularly the fire lane along the south side of the existing SRC building. Therefore, implementation of the proposed Project would not increase hazards due to design features or incompatible uses. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, operation of the proposed Project would result in a less than significant impact related to vehicular hazards.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to a substantial increase in traffic hazards due to a design feature or incompatible uses.

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

Discussion

The analysis of Impacts 4.14-11 and 4.14-12 in the 2005 LRDP Amendment 2 EIR, which addressed emergency access, concluded that construction and operation of development under the 2005 LRDP, as amended, would result in less than significant impacts to emergency access with implementation of PS Transportation 4.

Emergency Access During Construction

As previously discussed, Aberdeen Drive and Linden Street provide the primary emergency vehicular access to the existing SRC. Construction activities associated with the proposed Project could result in temporary closure of on-campus traffic lanes or roadway segments in the project vicinity. The reduction of roadway capacity, the narrowing of traffic lanes, and the occasional interruption of traffic flow could impair emergency access. Construction activities would be planned so that emergency access, including from Aberdeen Drive and Linden Street is provided at all times. Additionally, the proposed Project incorporates PP 4.14-8 and emergency service agencies would be consulted regarding street closures to ensure adequate access for emergency vehicles during construction. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, construction of the proposed Project would result in less than significant impacts related to vehicular hazards during construction.

Emergency Access During Operation

Emergency vehicles access the campus via roadways such as I-215/SR-60 freeway and University Avenue from each of the cardinal directions. Once emergency vehicles are on campus, the internal roadway network is adequate to allow these vehicles to reach their designated locations, including the project site. With implementation of the proposed Project, existing emergency access points would be maintained. The proposed Project does not include permanent modifications to on-campus or City of Riverside roadways, or vehicular access to Parking Lot 25, which serves the SRC. Adequate vehicle and emergency access to the SRC would be maintained with proposed Project implementation, including the fire lane along the south side of the existing SRC. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be less than significant impacts related to emergency access during operation of the proposed Project.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to emergency access.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒	☐

Discussion

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

As discussed previously, the proposed Project would not result in the addition of students at the UCR campus; however, there would be approximately 20 new non-student staff positions.

However, these positions are not expected to result in direct or indirect population growth that would create an additional demand for alternative transportation facilities. Additionally, the proposed Project incorporates PS Campus and Community 4 (promote campus-wide non-vehicular transportation) and PS Transportation 3 (campus-wide bicycle network to connect to off campus bicycle routes) by maintaining pedestrian and vehicular access through and surrounding the project site; PS Transportation 5 by providing additional onsite bicycle and skate board racks/parking; PP 4.3-1 by continuing to implement a transportation demand management program; and MMs 4.14-1(b) and (d) by provide bike racks and maintaining pedestrian and vehicular access through and surrounding the project site. These PPs, PPs, and MMs serve to reduce vehicular trips. Thus, consistent with the findings of the 2005 LRDP Amendment 2 EIR, the proposed Project would not conflict with adopted polices, plans, or programs that support alternative transportation and would result in a less than significant impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to conflicts with applicable policies, plans, or programs supporting alternative transportation.

17. Utilities and Service Systems

The analysis of utilities and service systems (i.e., water supply, solid waste, wastewater, and energy) recreation is tiered from the 2005 LRDP Amendment 2 EIR, and was addressed in Section 4.15, Utilities, of that document. As described previously in Section II, Project Description, of this Initial Study, relevant elements of the proposed Project related to utilities and service systems include: (1) construction of the new 71,147-gsf SRC Expansion building; (2) a 8,509-gsf partial renovation of the existing SRC building; and (3) reconfiguration of outdoor recreation facilities, including a proposed pool complex, that would increase the demand for water and energy and the generation of solid waste and wastewater within the project area. The proposed Project would be designed to achieve, at a minimum, LEED™ Silver rating, and would strive to achieve a Gold rating.

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

PP 4.15-1(a) Improvements to the campus water distribution system, including necessary pump capacity, will be made as required to serve new projects. Project-specific CEQA analysis of environmental effects that would occur prior to project-specific approval will consider the continued adequacy of the domestic/fire water systems, and no new development would occur without a demonstration that appropriate domestic/fire water supplies continue to be available.

PP 4.15-1(b) To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will

(i) Install hot water recirculation devices (to reduce water waste)

(ii) Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code)

(iii) Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time

(iv) Install recovery systems for losses attributable to existing and proposed steam and chilled-water systems

(v) Prohibit using water as a means of cleaning impervious surfaces

(vi) Install water-efficient irrigation equipment to local evaporation rates to maximize water savings for landscaping and retrofit existing systems over time.

(This is identical to Hydrology PP 4.8-2(a)).

PP 4.15-1(c) The Campus shall promptly detect and repair leaks in water and irrigation pipes.

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

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☐	☒

Discussion

As identified under the analysis of Impact 4.15-3 of the 2005 LRDP Amendment 2 EIR, the UCR Campus does not treat or discharge wastewater to any surface waters. Wastewater generated at the campus is collected and discharged into the City's sewer system from where it is conveyed to the City of Riverside Regional Water Quality Control Plant (RRWQCP) for

treatment and disposal. Therefore, the campus is not considered a point-source of water pollution for regulatory purposes and is not subject currently to any Waste Discharge Requirements established by the SARWQCB. Therefore, the proposed Project would not exceed wastewater treatment requirements. No impact would occur, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to exceeding wastewater treatment requirements of the applicable RWQCB.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒	☐

Discussion

The analysis of Impact 4.15-2 in the 2005 LRDP Amendment 2 EIR concluded there would a less than significant impact related to construction of new or expanded water treatment facilities with implementation of PP 4.15-1(a) and PP 4.15-1(d). The analysis of Impact 4.15-4 in the 2005 LRDP Amendment 2 EIR concluded there would a less than significant impact related to construction of new or expanded wastewater conveyance systems with implementation of MM 4.15-4. In addition, the EIR identified that campus development under the amended 2005 LRDP would also be required to follow water conservation policies listed in the UC Sustainability Policy, and adhere to goals listed in the water section of the Sustainability Action Plan (SAP).

Water

As identified in Table 4.15-4, Existing and Projected UCR Campus Water Demand, from the 2005 LRDP Amendment 2 EIR, the total water consumption on Campus in 2009-2010 was 2.5 million gallons per day (mgd); the entire demand was generated on the East Campus. The projected campus-wide water demand in 2020 is estimated at 5.3 mgd, including 3.0 mgd on the East Campus. This represents an estimated increase in water demand associated with the East Campus of 0.5 mgd.

The proposed Project would not result in an increase in the student population on Campus and would have an increase of approximately 20 non-student staff. The recreation facilities associated with the proposed Project would be similar to existing SRC facilities. With incorporation of PPs 4.15-1(b) (implementation of water consumption reduction measures) and PP 4.15-1(c) (ensures that leaks in water and irrigation pipes are repaired), the proposed Project (not including the pool) would result in an increase in water consumption of approximately 95 gallons per minute (gpm) (0.137 mgd). With installation of a pool cover (insulating pool blanket) which is included as part of the proposed Project, a daily water demand of approximately 900 gallons (0.0009 mgd) would result to replenish pool water lost due to

evaporation. Therefore, the proposed Project would have a daily water demand of approximately 0.138 mgd which would represents approximately 4 percent of the projected water demand associated with development on the East Campus assumed in the 2005 LRDP, as amended. Therefore, the proposed Project's water consumption would be well within the increase anticipated in the 2005 LRDP Amendment 2 EIR. It should also be noted that approximately 242,400 gallons of water would be used to initially fill the pool/spa over an approximate 2-day period. This one-time water consumption can be accommodated with the existing water facilities (which are sized to meet fire flow requirements) and would not impact water supply to other campus uses. The proposed Project would also use chilled water for air conditioning. It is estimated that the increased demand for chilled water would be 94 gallons per minute (GPM).

The 2005 LRDP Amendment 2 EIR concluded that because the City would be able to provide the necessary water using existing or planned water treatment facilities, implementation of the 2005 LRDP, as amended, would not require the construction of new or expanded water treatment facilities. The proposed Project's increase in Athletic and Recreation development and staff population were assumed for the campus under the 2005 LRDP, as amended. Therefore, the proposed Project's water consumption would be within the increase anticipated with buildout of the 2005 LRDP, as amended. Therefore, consistent with the conclusions of the 2005 LRDP Amendment 2 EIR, the proposed Project would have a less than significant impact related to water treatment facilities.

As required by PP 4.15-1(a), the Campus has reviewed the adequacy of the domestic/fire water systems that would serve the proposed Project. As identified in Section II, Project Description, domestic cold water and fire supply would be supplied from the existing six-inch Campus water line located in Linden Street. Chilled water would be provided via a connection to the campus main located within North Campus Drive, approximately 0.1-mile to the south. Existing flow rates are sufficient with existing main sizes and distribution pumps to allow for connection of the proposed Project to the campus water lines. No new or expanded water lines would be necessary with proposed Project implementation beyond those within the project area to connect the proposed Project to existing lines, including the chilled water line that would be installed south of the project site (Higgins 2011). The impact area for installation of these water lines is within the construction impact limits identified on Figure 4 in Section II, Project Description, and the physical impacts have been addressed in the analysis throughout this Initial Study. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, this impact would be less than significant.

Wastewater Infrastructure and Treatment

Wastewater generation on the East Campus is currently estimated at 1.1 mgd and on the West Campus is estimated at less than 0.1 mgd. Wastewater is collected in the sanitary sewer system on campus, which consists of a network of 4-, 6-, and 8-inch-diameter lines owned and maintained by UCR. Wastewater flows from the proposed Project would discharge into an 8-inch campus sewer line in Linden Street and then flow to the City's 8-inch sewer line in Canyon Crest Drive, and ultimately to the City's sewer trunk line in University Avenue.

A Sanitary Sewer Analysis Study (Sewer Study) for these sewer lines was completed for the proposed Project to determine if the existing lines have sufficient capacity to accommodate the anticipated increase in wastewater generated by the project (TTG 2012). To determine existing sewer flows, flow monitoring was performed in the existing system. The proposed Project was then analyzed to determine the peak daily flows and whether these were within the City of Riverside maximum allowable value of 0.75 (D/d) (maximum allowable capacity) for the existing sewer lines.

Based on the Sewer Study, the existing 8-inch line within Canyon Crest Drive has available capacity of 0.388 mgd (0.601 cfs) and the existing peak flow is 0.266 mgd (0.412 cfs). The additional flow that is projected to be added to the line from the proposed Project is approximately 0.056 mgd (0.087 cfs). With the proposed Project the new total projected peak flow in Canyon Crest is 0.323 mgd (0.499 cfs). Therefore, the projected peak flows within the 8-inch sewer line within Canyon Crest Drive are below the required maximum capacity allowed by the City of Riverside and no new or upgraded sewer lines would be required.

The existing 8-inch line on the south side of Linden Street has available capacity of 0.504 mgd (0.780 cfs) and the existing peak flow is 0.196 mgd (0.303 cfs). With the increase in wastewater from the proposed Project (0.056 mgd), the new total projected peak flow in Linden Street is 0.252 mgd (0.390 cfs). Therefore, the projected peak flows within the 8-inch sewer line within Linden Street are below the required maximum capacity allowed by the City of Riverside and no new or upgraded sewer lines would be required.

The proposed Project's increase in recreation development and student, faculty and staff population were assumed for the campus under the 2005 LRDP, as amended. Therefore, the proposed Project's wastewater generation would be within the increase anticipated with buildout of the 2005 LRDP, as amended, and there is sufficient remaining capacity in the City sewer lines serving the East Campus. No new or expanded sewer laterals or main lines would be necessary with proposed Project implementation beyond the sewer lines within the project area to connect the proposed Project to existing sewer lines. The impact area for installation of these sewer lines is within the construction impact limits identified on Figure 4 in Section II, Project Description, and the physical impacts have been addressed in the analysis throughout this Initial Study. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, this impact would be less than significant.

Consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be less than significant impacts related to wastewater infrastructure or wastewater treatment facility capacity. In addition, because wastewater generation is correlated with water usage, continued water conservation practices would reduce the volume of wastewater generated. Continued implementation of PPs 4.15-1(b) and 4.15-1(c) which emphasize a variety of water conservation practices, would further reduce wastewater generation and utilization of sewer line capacity.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would not require construction of new wastewater treatment facilities beyond the installation of new lines to connect to the proposed Project; the physical limits of utility construction are within the impact area addressed throughout this Initial Study. The proposed Project would have a less than significant impact related to the capacity of existing wastewater systems.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒	☐

Discussion

Please refer to the analysis of drainage provided under Section V.8, Hydrology and Water Quality, of this Initial Study. In summary, the analysis concluded that operation of the proposed Project would not exceed the capacity of the existing storm drain system and there would be a less than significant impact, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

Less than significant impact related to the need for new or expanded storm drainage facilities beyond the installation of new storm waste management facilities to serve the proposed Project. The physical limits of construction are within the impact area addressed throughout this Initial Study.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒	☐

Discussion

The analysis of Impact 4.15-1 in the 2005 LRDP Amendment 2 EIR concluded there would a less than significant impact related to water supply with implementation of PPs 4.15-1(a) through PP 4.15-1(d). In addition, the EIR identified that campus development under the amended 2005 LRDP would also be required to follow water conservation policies listed in the UC Sustainability Policy, adhere to goals listed in the water section of the SAP, and comply with any future conservation goals or programs enacted by the UC.

As described in the 2005 LRDP Amendment 2 EIR, the City of Riverside Public Utilities Department (RPU) supplies domestic water to UCR. RPU's water supply consists primarily of groundwater, with additional sources including recycled water and imported water. RPU currently operates seven water treatment plants with a daily average production of 62.3 million gallons, a peak day production of 98.0 million gallons, and a historical peak day production of 118.8 million gallons. The domestic water system at UCR consists of an underground

distribution system, a pumping system, storage tanks, and connections to the City of Riverside's municipal water distribution system. All existing and planned water supply entitlements, water rights, and/or water service contracts that may be used to serve development associated with the 2005 LRDP, as amended, are set forth in the latest City of Riverside Urban Water Management Plan (UWMP), prepared by the RPU in 2010. UCR also has rights to potable water in the Gage Canal. Current daily domestic water consumption for both the East and West Campus is approximately 2.5 mgd (UCR 2011).

As identified above under Threshold "b", the proposed Project would generate a demand for approximately 0.138 mgd of potable water, or approximately 27 percent of the total projected increase in water use (0.5 mgd) anticipated for the East Campus under the 2005 LRDP, as amended. The 2005 LRDP Amendment 2 EIR concluded there would be adequate water supplies for implementation of the 2005 LRDP, as amended, with implementation PPs 4.15-1(a) through PP 4.15-1(d). Therefore, because the proposed Project is within the assumed remaining development for the East Campus under the 2005 LRDP, as amended, the estimated increase in water demand of 0.138 mgd would also be met with existing entitlements and resources and would not result in the need for new or expanded entitlements with continued implementation of the identified PPs. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to water supply and no mitigation is required.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There are adequate water supplies to serve the proposed Project resulting in a less than significant impact.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒	☐

Discussion

The analysis of Impact 4.15-3 in the 2005 LRDP Amendment 2 EIR concluded there would a less than significant impact related to construction of new or expanded wastewater treatment facilities with implementation of PP 4.15-5 and MM 4.15-3. As identified in the 2005 LRDP Amendment 2 EIR, the Sewerage Systems Services Program and its Treatment Services unit, administered by the RPU, collects, treats, and disposes of all wastewater generated within the City of Riverside and is responsible for compliance with State and federal requirements governing the treatment and discharge of all domestic and industrial wastewater generated in its service area, including the UCR campus. The City of Riverside Regional Water Quality Control Plant (RRWQCP) provides treatment of all campus-generated wastewater, with UCR operating

its own collection system that connects to the City's system. The RRWQCP currently treats 33 million gallons per day (mgd) and has a capacity of 40 mgd. The City's Integrated Wastewater Master Plan (IWWMP) addresses facility needs for projected wastewater influent flow through the year 2025 and identifies improvements that would increase the capacity of the RRWQCP up to 52.2 mgd, although at this time the City plans to increase the treatment capacity of the RRWQCP to 46 mgd (UCR 2011).

The 2005 LRDP Amendment 2 EIR also determined that implementation of the 2005 LRDP, as amended, would not generate a volume of wastewater that would exceed the capacity of the RRWQCP wastewater treatment system in combination with the provider's existing service commitments. Because the proposed Project is within the remaining development allocation assumed for the campus in the 2005 LRDP Amendment 2 EIR, the wastewater generated would also be accommodated by the RRWQCP. The addition of approximately 0.8 mgd could be adequately treated at this facility. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, this impact would be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would not generate wastewater that exceeds the capacity of the wastewater treatment facilities resulting in a less than significant impact.

	Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒	☐
g)	Comply with applicable federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒	☐

Discussion

The analysis of Impact 4.15-6 in the 2005 LRDP Amendment 2 EIR concluded there would a less than significant impact related to landfill capacity. The analysis of Impact 4.15-7 in the 2005 LRDP Amendment 2 EIR concluded there would a less than significant impact related to compliance with applicable federal, State, and local solid waste-related statutes and regulations. It should also be noted that further reduction in solid waste generation would occur with implementation of the University of California Policy on Sustainable Practices.

The City of Riverside Solid Waste Division is responsible for the collection and handling of residential refuse, recycling, and green waste (compostable organic waste) generated within the City of Riverside. The Robert A. Nelson Transfer Station, located at 1830 Agua Mansa Road, receives refuse from western Riverside County, including the UCR campus. The transfer station is owned by the Riverside County Waste Management Department and operated by Burrtec Waste Industries. The transfer station has a capacity to transfer up to 4,000 tons of solid waste per day and is currently processing approximately 1,525 tons of solid waste per day. The operations division of the Riverside County Waste Management Department receives,

compacts, and buries refuse received at the various landfill sites at several locations in the County (UCR 2011).

On the UCR campus, trash is collected and placed in containers located throughout the campus. The trash is then collected by UCR using its own truck and taken to a central location for hauling through a contract with Athens to recycle all recyclable waste with the remaining waste hauled to the Robert A. Nelson Transfer Station. Approximately 55 percent of the general solid waste stream is diverted, recycled or reused. All landfills in Riverside County are municipal solid waste landfills, which are regulated at the federal, State, and local levels and monitored for compliance. Hazardous waste and industrial wastes are not accepted at these sites (UCR 2011).

The 2005 LRDP Amendment 2 EIR assumed an annual generation factor of 0.675 tons of solid waste per 1,000 square feet of building space on campus. This factor was developed by comparing the existing occupied building space to existing generation of solid waste at the time of preparation of the EIR. Because the 2005 LRDP Amendment 2 EIR was recently prepared (August 2011), this solid waste generation factors remains accurate and, therefore, has been applied in the analysis of the proposed Project.

The renovated portion of the existing SRC would generate essentially the same solid waste as the existing condition, and the modifications to the outdoor Recreation Complex would also result in similar solid waste generation. Therefore, this analysis focuses on the additional solid waste generation from the new SRC Expansion building. Based on the identified solid waste generation factor, the proposed 71,147-sf new SRC Expansion building would generate approximately 48.0 tons per year of solid waste, which is approximately 1.4 percent of the total projected solid waste generation for the development remaining on Campus under the 2005 LRDP, as amended, not including the SOM (3,544 tons per year). However, as discussed above, approximately 55 percent of solid waste stream on campus is diverted, recycled, or reused, consistent with the requirements of the California Integrated Waste Management Act. Therefore, the proposed Project would generate approximately 26.4 tons per year after implementation of solid waste diversion efforts.

As discussed in the 2005 LRDP Amendment 2 EIR, it is anticipated that solid waste from UCR would continue to be disposed at the Badlands Landfill, in the City of Moreno Valley, which has an estimated capacity of approximately 9.0 million tons. Based on the current permit, the landfill is expected to close in 2024. The Badlands landfill currently receives approximately 1,667 tons per day, but is permitted for a maximum of 4,000 tons per day. The approximately 26.4 tons of solid waste per year from the proposed Project (0.072 tons per day) would equate to approximately 0.002 percent tof the landfill's permitted daily capacity of 4,000 tons per day and approximately 0.003 percent of the remaining daily capacity of 2,333 tons. Therefore, the anticipated solid waste generation from the proposed Project can be accommodated within the remaining permitted capacity of the Badlands landfill, and there would be a less than significant impact related to solid waste disposal, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

In compliance with the UC Sustainable Practices Policy, the UCR campus is committed to achieving at least a 75 percent waste diversion from landfills by June 30, 2012. To accomplish this, UCR implements a waste/source reduction and recycling program that includes sorting and separation of 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. In addition, the campus is carrying out a shift in its procurement practices towards recyclable, second generation, or reusable products to the extent feasible. The campus has constructed a waste recycling facility on the West Campus where all solid waste generated on

the Campus, including the project area, will be collected. The collected waste will then be sorted by Athens Services and waste for landfill disposal will be off-hauled by Athens and recyclables will be off-hauled for recycling. The Campus will compost all green wastes on campus. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to solid waste statutes and regulations.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to (1) landfill capacity and solid waste disposal and (2) compliance with applicable federal, state and local statutes and regulations related to solid waste.

	Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
h)	Create other utility and service system impacts?	☐	☐	☐	☒	☐

Discussion

The analysis of Impacts 4.15-8 through 4.15-10 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to the need to construct new or expanded energy (electricity and natural gas) production or transmission facilities or to the inefficient use of energy.

Electricity

As identified in the 2005 LRDP Amendment 2 EIR, the RPU provides electricity to the UCR campus. Currently, the Campus uses approximately 124 million kWh of electricity annually. The energy is received through a 69 kilovolt (kV) line at a substation west of the I-215/SR-60 freeway. From this point the power is reduced to a usable voltage and distributed to individual buildings and transformers. UCR is in the process of transitioning the East Campus to 12 kV distribution lines and transformers; portions of the East Campus are currently operating under a 5kV system.

The 2005 LRDP Amendment 2 EIR concluded that the current peak power demands on Campus are 25.5 MVA (mega volt amps) and the total campus development under the 2005 LRDP, as amended, would demand 49 MVA, which is an increase of 23.5 MVA over existing conditions. The total capacity of the existing 12kV substation is 54 MVA so the 2005 LRDP Amendment 2 EIR concluded that the existing Campus electrical distribution system would be able to accommodate the anticipated demand of development under the 2005 LRDP, as amended, of which the proposed Project is a part. Additionally, it was concluded that the RPU would have adequate infrastructure to serve the remaining and new development on campus.

The proposed Project is estimated to generate an electric demand of 800 kVa (kilo volt amps), or 0.8 MVA, which would be approximately 3.4 percent of the increased electric demand anticipated with the remaining development under the 2005 LRDP, as amended, and

approximately 3.1 percent of the remaining capacity of the existing 12 kV substation serving the Campus. It should also be noted that Campus development under the 2005 LRDP, as amended, would be required to follow energy conservation policies listed in the UC Sustainability Policy, minimize energy use in order for the campus to attain the GHG reduction goals listed in the Campus CAP, and comply with any future conservation goals or programs enacted by the UC. Therefore, the electric demand of the proposed Project has been calculated taking these requirements into consideration.

As described in Section II, Project Description, electricity would be supplied to the proposed Project via a connection to the existing campus electrical infrastructure at Vault 4G, located south of the project site (adjacent to North Campus Drive). Electric lines would be extended from Vault 4G, up the west side of the SRC Expansion project site, east on Linden Street to Vault 27 at the corner of Aberdeen Drive. The installation of electric lines would be within the construction impact footprint for the proposed Project. Therefore, the potential environmental impacts from construction of the new and replacement electrical facilities are addressed as part of the proposed Project analysis provided throughout this Initial Study.

Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to construction of new or expanded electrical infrastructure or the inefficient use of energy.

Natural Gas

As identified in the 2005 LRDP Amendment 2 EIR, UCR currently uses natural gas for heating and some cooling needs for research and instructional lab purposes. Natural gas is provided to the East Campus by the Southern California Gas Company (SCGC). Currently, demand for natural gas on the Campus equates to approximately 13,758 therms per day. A high-pressure gas distribution system owned and maintained by SCGC provides natural gas to the Central Utility Plant, as well as many individual buildings on campus. Separate SCGC gas mains also enter the campus to serve the residence halls in addition to the Canyon Crest Family Student Housing area.

The 2005 LRDP Amendment 2 EIR concluded that the current natural gas demand on Campus is 13,758 therms per day and the total campus development under the 2005 LRDP, as amended, would demand 45,458 therms per day, which is an increase of 31,700 therms per day over existing conditions. The SCGC has indicated that it could provide gas service to the Campus to accommodate future development under the 2005 LRDP, as amended.

Natural gas at the project site would be utilized to serve domestic water heating, laundry, and the pool complex. The proposed Project is estimated to generate a natural gas demand of 70 therms per day which would be approximately 0.2 percent of the increased natural gas demand anticipated with the remaining development under the 2005 LRDP, as amended. It should also be noted that Campus development under the 2005 LRDP, as amended, would be required to follow energy conservation policies listed in the UC Sustainability Policy, minimize energy use in order for the campus to attain the GHG reduction goals listed in the Campus CAP, and comply with any future conservation goals or programs enacted by the UC. Therefore, the natural demand of the proposed Project has been calculated taking these requirements into consideration.

Natural gas would be supplied to the proposed Project from an existing one-inch line in Linden Street. The installation of natural gas lines within the project site and connections to the existing line in Linden Street would be within the construction impact footprint for the proposed Project. Therefore, the potential environmental impacts from construction of the new and replacement

natural gas facilities are addressed as part of the proposed Project analysis provided throughout this Initial Study.

Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to construction of new or expanded natural gas infrastructure or the inefficient use of natural gas or energy.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have a less than significant impact related to provision of electricity and natural gas to the project site, or the inefficient use of energy.

18. Mandatory Findings of Significance

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
MANDATORY FINDINGS OF SIGNIFICANCE – The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per Section 15065 of the State CEQA Guidelines):					
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒	☐

Discussion

As discussed in Section V.4, Biological Resources, the proposed Project would have no potential to impact special status plant and wildlife species or sensitive habitats and wildlife corridors. The proposed Project incorporates PS Open Space 3 (preserve natural resources, including trees, where feasible, in Naturalistic Open Space areas), MM 4.4-4(a) (surveys for nesting bird and raptor species prior to construction), and MM 4.3-1(b) (protection of active nests during construction) from the 2005 LRDP Amendment 2 EIR, and as a result would have a less than significant impact on nesting species. The proposed Project also includes tree retention and replacement to ensure a less than significant impact related to removal of trees. Therefore the potential for the proposed Project to degrade the quality of the environment related to biological resources would result in a less than significant impact.

As discussed under Section V.5, Cultural Resources, there are no historic resources within or adjacent to the project area. Therefore, the proposed Project would not have any impacts on historical resources. The proposed Project would require excavation in native soils and because it incorporates PP 4.5-4 (include instructions for addressing uncovered paleontological resources in the construction specifications) and PP 4.5-5 (instruction for discovery of a human remains) from the 2005 LRDP EIR, there would be a less than significant impact related to the potential to eliminate important examples of the major periods of California history or prehistory.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project has a less than significant impact related to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or Endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?	☐	☐	☐	☒	☐

Discussion

The proposed Project involves expansion of the existing Student Recreation Center on the East Campus. As identified through the analysis presented in this Initial Study, with the exception of construction noise, the proposed Project would not result in significant environmental impacts during construction or operation with continued implementation of applicable PSs, PPs, and MMs (identified for each environmental topic analyzed above in Sections V.1 through V.17 of this Initial Study). The proposed Project could be under construction at the same time as other development projects on campus. The Glen Mor 2 project site is approximately 0.4 mile from the SRC Expansion site and the EH&S Expansion project site is approximately 0.3 mile from the SRC Expansion site. Potential cumulative construction impacts related to air quality and traffic have been addressed in Section V.3 and V.15 of this Initial Study, respectively, and are determined to be less than significant primarily due to the relatively short peak period of time that heavy construction trips would be required (one week during import of soil). The potential for noise impacts to residents at the Aberdeen-Inverness Residence Hall would be project-specific as noise from individual construction sites would not affect the same receptors; therefore, no cumulative noise impacts would result.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed Project would have less than significant cumulatively considerable impacts.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐	☐

Discussion

As indicated in the analysis presented in this Initial Study, with the exception of short-term construction-related noise impacts, implementation of the proposed Project would not result in significant impacts that could degrade the quality of the environment or cause substantial adverse effects on human beings, either directly or indirectly.

Even with the incorporation of identified PPs, the proposed Project construction activities would result in significant short-term construction-related noise impacts due to a potential 10-dBA increase in noise levels above ambient conditions near on-campus sensitive receptors. This impact is significant and unavoidable, consistent with the findings of the 2005 LRDP EIR, as amended (Impact 4.10-7).

The proposed Project would not result in new or more significant impacts than addressed and disclosed in the 2005 LRDP EIR with continued implementation of applicable PPs, and MMs (identified for each environmental topic analyzed above in Sections V.1 through V.17 of this Initial Study) from the Mitigation Monitoring and Reporting Program (MMRP) adopted as part of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

There are no feasible mitigation measures to reduce short-term construction-related noise impacts to a less than significant level.

For other topical issues, no project-specific mitigation is required.

Level of Significance

The proposed Project would result in significant and unavoidable construction-related noise impacts (consistent with the analysis presented in the 2005 LRDP EIR). These impacts were adequately addressed in the 2005 LRDP EIR. A Statement of Overriding Considerations was adopted by the Board of Regents of the University of California as part of the approval of the 2005 LRDP, as amended, for the significant and unavoidable construction-related noise impacts

resulting from implementation of the remaining development on the East Campus under the 2005 LRDP, as amended, of which the proposed Project is a part.

Fish and Game Determination

Based on consultation with the California Dept. of Fish and Game, there is no evidence that the project has a potential for a change that would adversely affect wildlife resources or the habitat upon which the wildlife depends.

___ Yes (No Effect)

_x_ No (Pay fee)

VI. SUPPORTING INFORMATION SOURCES

Breen Engineering. 2011 (November 13). Personal communication. Email from M. Passanisi, LEED AP, Civil Engineer (Breen Engineering) to T. Andersen, Principal (BonTerra Consulting) entitled "Hydrology Discussion – SRC".

California Air Pollution Control Officers Association (CAPCOA). 2010 (August). *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*. Sacramento, CA: CAPCOA. http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

California Air Resources Board (CARB). 2011 (September 13, page last reviewed). Area Designation Maps/State and National. Sacramento, CA: CARB. www.arb.ca.gov/desig/adm/adm.htm/.

California Building Standards Commission (CBSC). 2010 (November) *Guide to the (Non-Residential) California Green Building Standards Code.* Sacramento, CA: CBSC. http://www.documents.dgs.ca.gov/bsc/CALGreen/Master-CALGreen-Non-Res-Guide2010-sec-ed-final-11-09-10.pdf.

California Climate Action Registry (CCAR). 2009 (January). *California Climate Action Registry General Reporting Protocol* (Version 3.1). Los Angeles, CA: CCAR.

California Department of Transportation (Caltrans). 2010 (May 10, Last updated). Officially Designated State Scenic Highways. Sacramento, CA: Caltrans. http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm.

C.H.J. Incorporated (C.H.J.). 2011 (June 20). *Geotechnical Investigation Report [for the] Proposed Student Recreation Center Expansion [at] University of California, Riverside.* Colton, CA: C.H.J. Incorporated.

Corrin, S. 2011 (June 23). Personal communication. Email from S. Corrin (University of California, Riverside, Fire Marshal) to J. Norman (University of California, Riverside, Office of Design and Construction).

Freese, J. 2011 (June 19). Personal communication. Email from Lieutenant J. Freese (University of California Police Department, Riverside) to T. Thrasher (University of California, Riverside, Capital Programs).

Higgins, J. 2011 (October 13). Personal communication. Email from J. Higgins (UCR Physical Plant) to J. Norman (University of California, Riverside, Capital Programs, Architects & Engineers).

Riverside, City of. 2007 (November). *Riverside General Plan 2025.* Riverside, CA: the City, Community Development Department. http://www.riversideca.gov/planning/gp2025program/general-plan.asp.

South Coast Air Quality Management District (SCAQMD). 2011a (March). *SCAQMD Air Quality Significance Thresholds*. Diamond Bar, CA: SCAQMD. http://www.aqmd.gov/ceqa/handbook/signthres.pdf.

———. 2011b. California Emission Estimator Model (CalEEMod)™ Version 2011.1.1 Developed by Environ International Corporation in Collaboration with SCAQMD and other California Air Districts. Diamond Bar, CA: SCAQMD.

———. 2010 (September 28). Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group #15 (slide presentation). Diamond Bar, CA. SCAQMD. http://www.aqmd.gov/ceqa/handbook/GHG/2010/sept2 8mtg/ghgmtg15-web.pdf.

———. 2009 (October 21). Appendix C tables for *Final Localized Significance Threshold Methodology*. Diamond Bar, CA: SCAQMD. http://www.aqmd.gov/ceqa/handbook/ LST/AppCl.pdf.

———. 2008a (July). *Final Localized Significance Threshold Methodology*. Diamond Bar, CA: SCAQMD. http://www.aqmd.gov/ceqa/handbook/LST/Method_final.pdf.

———. 2008b (October). *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Thresholds*. Diamond Bar, CA: SCAQMD.

———. 2007 (July 13, last amended). Rule 1113: Architectural Coatings. Diamond Bar, CA: SCAQMD. http://www.aqmd.gov/rules/reg/reg11/r1113.pdf.

———. 2005 (June, as amended). Rule 403: Fugitive Dust. Diamond Bar, CA: SCAQMD. http://www.aqmd.gov/rules/reg/reg04_tofc .html.

TMAD Taylor & Gaines (TTG). 2012 (March 13). *Sanitary Sewer Analysis Study for Student Recreation Center Expansion.* Ontario, CA: TMAD Taylor & Gaines.

United States Environmental Protection Agency (USEPA). 2010a (November 22). Air Quality Designations for the 2008 Lead (Pb) National Ambient Air Quality Standards. *Federal Register.* 75: 71033–71044. Washington, D.C.: U.S. Government Printing Office. http://www.gpo.gov/fdsys/pkg/FR-2010-11-22/pdf/2010-29405.pdf#page=1.

———. 2010b (April). Regulatory Announcement: EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks. Washington, D.C.: USEPA. http://www.epa.gov/otaq/climate/regulations/ 420f10014.pdf.

University of California Regents (UC Regents). 2007 (March). *University of California Policy Guidelines for Sustainable Practices.* Sacramento, CA: UC Regents. http://www.ucop.edu/ucophome/coordrev/policy/PP032207guidelines.pdf.

University of California Capital Resources Management (UC). 2011 (August, last revision). *Sustainable Practices Policy.*

University of California, Riverside (UCR). 2011a (February 2, last modified). Facts. Riverside, CA: UCR. http://www.ucr.edu/about/facts.html.

———. 2011b (August). *University of California, Riverside 2005 Long Range Development Plan Amendment 2 Draft Environmental Impact Report* (prepared by Impact Sciences, Inc.). Riverside, CA: UCR.

———. 2010a (December). *Climate Action Plan.* Riverside, CA: UCR.

———. 2010b (August). University of California, Riverside Project Planning Guide: Student Recreation Center Expansion, 2011–2016 Capital Improvement Program. Riverside, CA: UCR.

———. 2007. *University of California Riverside Campus Design Guidelines.* Riverside, CA: UCR.

———. 2005a (November). *University of California Riverside Long Range Development Plan 2005.* Riverside, CA: UCR. http://lrdp.ucr.edu/LRDP05-Oct2005.pdf.

———. 2005b (November). *University of California, Riverside 2005 Long Range Development Plan Final Environmental Impact Report* (prepared by EIP Associates). Riverside, CA: UCR. http://lrdp.ucr.edu/UCR%20LRDP%20Volume%20I%20Draft%20EIR.pdf.

This page intentionally left blank.

VII. REPORT PREPARERS

UNIVERSITY OF CALIFORNIA (LEAD AGENCY)

University of California, Riverside – Capital Programs

Tricia D. Thrasher, ASLA, LEED AP ..... Principal Environmental Project Manager

Office of the President (Reviewers)

Kelly Drumm ..... University General Counsel
Charlotte Strem ..... Interim Director Physical and Environmental Planning

BONTERRA CONSULTING (ND PREPARATION)

Christina Andersen ..... Principal-In-Charge/Project Manager
Jillian Neary ..... Environmental Planner
James Kurtz ..... Director, Air Quality and Acoustical Programs
Fernando Sotelo ..... Noise Specialist
David Hughes ..... Arborist
Julia Black ..... Technical Editor
Sheryl Kristal ..... Word Processor
Chris Starbird ..... GIS Specialist

This page intentionally left blank.

Appendix A

Air Quality and Greenhouse Gas Emissions Calculations

UCR Student Recreation Center Expansion Project

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Non-Asphalt Surfaces	2.2	Acre
City Park	2.3	Acre
Health Club	79.656	1000sqft
Recreational Swimming Pool	39.2	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.4		
		Precipitation Freq (Days)			

1.3 User Entered Comments

28

Project Characteristics -

Land Use - Health club are like gyms, per ITE land use description.
City park is the unpaved SW, NW, NE corners and W strip
Other non-asphalt is tennis courts

Construction Phase - Schedule according to info provided.
Split grading with haul/no haul phase;soil import for 1 week
Demo 6/18-7/6; Grad 7/9-13 then 7/16-8/3; Trench 8/6-24; all 2012
Bldg 8/27/12-12/20/13; Pave 1/7-4/5/13; coat 10/7-12/13/13

Off-road Equipment - default

Off-road Equipment - Bldg-default less gen set

Off-road Equipment - Demo-2 exc, 2 backhoe per UCR

Off-road Equipment - per info provided

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Pave-2 other (vendor import concrete)

Off-road Equipment - trench-3 exc, 1 loader per UCR

Trips and VMT - demo haul trip is 5.8 miles; 20 cy trucks; 400 1-way trips
soil import 205 round trip; 20 miles
added 5 vendor trips/day for tennis/pool/hardscape

Demolition - Demo est 4,000 tons

Grading - 4100 cy imported during the "grading with haul" phase
7.2 acres disturbed incl offsite utility corridors

Architectural Coating - No exterior painting

Area Coating - No exterior coating

Energy Use - Energy-Pool data from pool consultant, w/cover; factors adjusted to give KWh and Kbtu match
Inputs are nontitle elec 6.207; nontitle gas 0.096
Energy-Health club is Rec bldg using CalEEMod defaults

Water And Wastewater - Water-Pool water use is 2x evaporation with pool cover. Pool cover savings is 44.6%, similar to overall outdoor 50 percent
Water-Pool indoor use is in rec bldg
Water-Health Club is rec bldg using CalEEMod defaults

Construction Off-road Equipment Mitigation - Water exposed area 2x daily per Rule 403 and PP 4.3-2b
Unpaved road 15 mph per PP 4.3-2b
All diesel >50hp Tier 3 per MM 4.3-1

Area Mitigation - Low VOC cleaning per project description

Energy Mitigation - Excee Title 24 by 34% per PD

Water Mitigation - 50 percent irrigation water use per project description

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	11.32	103.47	54.25	0.10	24.67	4.42	29.09	10.05	4.42	14.47			0.00	0.93	0.00	10,837.48
2013	46.61	57.30	33.83	0.08	1.07	2.75	3.82	0.05	2.75	2.80			0.00	0.64	0.00	8,744.67
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	7.23	58.46	47.39	0.10	13.90	3.03	16.93	4.59	3.03	7.62			0.00	0.93	0.00	10,837.48
2013	45.07	22.25	27.90	0.08	1.07	1.74	2.70	0.05	1.74	1.78			0.00	0.64	0.00	8,744.67
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Energy	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	861.19
Mobile	0.31	0.77	3.04	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		401.94
Total	**3.31**	**1.48**	**3.64**	**0.00**	**0.46**	**0.03**	**0.53**	**0.02**	**0.03**	**0.09**				**0.04**	**0.02**	**1,263.13**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Energy	0.07	0.60	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	719.26
Mobile	0.31	0.77	3.04	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		401.94
Total	**3.30**	**1.37**	**3.54**	**0.00**	**0.46**	**0.03**	**0.53**	**0.02**	**0.03**	**0.09**				**0.03**	**0.01**	**1,121.20**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.74	0.00	5.74	0.00	0.00	0.00						0.00
Off-Road	3.27	23.19	16.34	0.03		1.60	1.60		1.60	1.60				0.29		2,624.56
Total	**3.27**	**23.19**	**16.34**	**0.03**	**5.74**	**1.60**	**7.34**	**0.00**	**1.60**	**1.60**				**0.29**		**2,624.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.55	5.82	3.48	0.01	2.72	0.20	2.92	0.02	0.20	0.22				0.03		690.68
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**0.63**	**5.92**	**4.44**	**0.01**	**2.92**	**0.21**	**3.12**	**0.03**	**0.21**	**0.23**				**0.04**		**834.12**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.58	0.00	2.58	0.00	0.00	0.00						0.00
Off-Road	1.99	12.56	17.05	0.03		1.13	1.13		1.13	1.13				0.29		2,624.56
Total	**1.99**	**12.56**	**17.05**	**0.03**	**2.58**	**1.13**	**3.71**	**0.00**	**1.13**	**1.13**				**0.29**		**2,624.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.55	5.82	3.48	0.01	2.72	0.20	2.92	0.02	0.20	0.22				0.03		690.68
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**0.63**	**5.92**	**4.44**	**0.01**	**2.92**	**0.21**	**3.12**	**0.03**	**0.21**	**0.23**				**0.04**		**834.12**

3.3 Grading (with haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.59	0.00	19.59	9.93	0.00	9.93						0.00
Off-Road	9.25	78.56	42.33	0.07		3.44	3.44		3.44	3.44				0.83		7,352.32
Total	**9.25**	**78.56**	**42.33**	**0.07**	**19.59**	**3.44**	**23.03**	**9.93**	**3.44**	**13.37**				**0.83**		**7,352.32**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.99	24.80	10.96	0.03	4.88	0.97	5.85	0.11	0.97	1.08				0.10		3,341.72
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**2.07**	**24.90**	**11.92**	**0.03**	**5.08**	**0.98**	**6.05**	**0.12**	**0.98**	**1.09**				**0.11**		**3,485.16**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.82	0.00	8.82	4.47	0.00	4.47						0.00
Off-Road	5.16	33.56	35.47	0.07		2.06	2.06		2.06	2.06				0.83		7,352.32
Total	**5.16**	**33.56**	**35.47**	**0.07**	**8.82**	**2.06**	**10.88**	**4.47**	**2.06**	**6.53**				**0.83**		**7,352.32**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.99	24.80	10.96	0.03	4.88	0.97	5.85	0.11	0.97	1.08				0.10		3,341.72
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**2.07**	**24.90**	**11.92**	**0.03**	**5.08**	**0.98**	**6.05**	**0.12**	**0.98**	**1.09**				**0.11**		**3,485.16**

3.4 Grading (no haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.58	0.00	18.58	9.93	0.00	9.93						0.00
Off-Road	9.25	78.56	42.33	0.07		3.44	3.44		3.44	3.44				0.83		7,352.32
Total	**9.25**	**78.56**	**42.33**	**0.07**	**18.58**	**3.44**	**22.02**	**9.93**	**3.44**	**13.37**				**0.83**		**7,352.32**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**0.08**	**0.10**	**0.96**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**				**0.01**		**143.44**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.36	0.00	8.36	4.47	0.00	4.47						0.00
Off-Road	5.16	33.56	35.47	0.07		2.06	2.06		2.06	2.06				0.83		7,352.32
Total	**5.16**	**33.56**	**35.47**	**0.07**	**8.36**	**2.06**	**10.42**	**4.47**	**2.06**	**6.53**				**0.83**		**7,352.32**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**0.08**	**0.10**	**0.96**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**				**0.01**		**143.44**

3.5 Underground Infraestructure - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.19	23.67	16.41	0.03		1.42	1.42		1.42	1.42				0.28		2,753.19
Total	**3.19**	**23.67**	**16.41**	**0.03**		**1.42**	**1.42**		**1.42**	**1.42**				**0.28**		**2,753.19**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.07	0.64	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		95.62
Total	**0.05**	**0.07**	**0.64**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**95.62**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.89	12.30	17.50	0.03		1.04	1.04		1.04	1.04				0.28		2,753.19
Total	**1.89**	**12.30**	**17.50**	**0.03**		**1.04**	**1.04**		**1.04**	**1.04**				**0.28**		**2,753.19**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.07	0.64	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		95.62
Total	**0.05**	**0.07**	**0.64**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**95.62**

3.6 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.68	30.96	19.79	0.04		2.04	2.04		2.04	2.04				0.42		3,426.97
Total	**4.68**	**30.96**	**19.79**	**0.04**		**2.04**	**2.04**		**2.04**	**2.04**				**0.42**		**3,426.97**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.27	3.47	1.82	0.00	0.17	0.11	0.29	0.01	0.11	0.12				0.01		510.90
Worker	0.27	0.35	3.19	0.00	0.65	0.02	0.68	0.02	0.02	0.05				0.03		478.12
Total	**0.54**	**3.82**	**5.01**	**0.00**	**0.82**	**0.13**	**0.97**	**0.03**	**0.13**	**0.17**				**0.04**		**989.02**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.00	17.24	20.88	0.04		1.46	1.46		1.46	1.46				0.42		3,426.97
Total	**3.00**	**17.24**	**20.88**	**0.04**		**1.46**	**1.46**		**1.46**	**1.46**				**0.42**		**3,426.97**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.27	3.47	1.82	0.00	0.17	0.11	0.29	0.01	0.11	0.12				0.01		510.90
Worker	0.27	0.35	3.19	0.00	0.65	0.02	0.68	0.02	0.02	0.05				0.03		478.12
Total	**0.54**	**3.82**	**5.01**	**0.00**	**0.82**	**0.13**	**0.97**	**0.03**	**0.13**	**0.17**				**0.04**		**989.02**

3.6 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.30	28.66	19.54	0.04		1.82	1.82		1.82	1.82				0.38		3,426.22
Total	**4.30**	**28.66**	**19.54**	**0.04**		**1.82**	**1.82**		**1.82**	**1.82**				**0.38**		**3,426.22**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.25	3.15	1.70	0.00	0.17	0.10	0.27	0.01	0.10	0.11				0.01		511.32
Worker	0.24	0.31	2.91	0.00	0.65	0.02	0.68	0.02	0.02	0.05				0.03		467.54
Total	**0.49**	**3.46**	**4.61**	**0.00**	**0.82**	**0.12**	**0.95**	**0.03**	**0.12**	**0.16**				**0.04**		**978.86**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.00	17.24	20.88	0.04		1.46	1.46		1.46	1.46				0.38		3,426.22
Total	**3.00**	**17.24**	**20.88**	**0.04**		**1.46**	**1.46**		**1.46**	**1.46**				**0.38**		**3,426.22**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.25	3.15	1.70	0.00	0.17	0.10	0.27	0.01	0.10	0.11				0.01		511.32
Worker	0.24	0.31	2.91	0.00	0.65	0.02	0.68	0.02	0.02	0.05				0.03		467.54
Total	**0.49**	**3.46**	**4.61**	**0.00**	**0.82**	**0.12**	**0.95**	**0.03**	**0.12**	**0.16**				**0.04**		**978.86**

3.7 Paving (tennis courts) - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.31	24.25	8.36	0.04		0.78	0.78		0.78	0.78				0.21		4,064.78
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.31**	**24.25**	**8.36**	**0.04**		**0.78**	**0.78**		**0.78**	**0.78**				**0.21**		**4,064.78**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.07	0.83	0.45	0.00	0.05	0.03	0.07	0.00	0.03	0.03				0.00		134.56
Worker	0.07	0.09	0.87	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		140.26
Total	**0.14**	**0.92**	**1.32**	**0.00**	**0.25**	**0.04**	**0.27**	**0.01**	**0.04**	**0.04**				**0.01**		**274.82**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.04		0.00	0.00		0.00	0.00				0.21		4,064.78
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.04**		**0.00**	**0.00**		**0.00**	**0.00**				**0.21**		**4,064.78**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.07	0.83	0.45	0.00	0.05	0.03	0.07	0.00	0.03	0.03				0.00		134.56
Worker	0.07	0.09	0.87	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		140.26
Total	**0.14**	**0.92**	**1.32**	**0.00**	**0.25**	**0.04**	**0.27**	**0.01**	**0.04**	**0.04**				**0.01**		**274.82**

3.8 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	41.28					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27				0.04		282.10
Total	**41.77**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**				**0.04**		**282.10**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.58	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		93.51
Total	**0.05**	**0.06**	**0.58**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**93.51**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	41.28					0.00	0.00		0.00	0.00						0.00
Off-Road	0.25	1.48	1.83	0.00		0.15	0.15		0.15	0.15				0.04		282.10
Total	**41.53**	**1.48**	**1.83**	**0.00**		**0.15**	**0.15**		**0.15**	**0.15**				**0.04**		**282.10**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.58	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		93.51
Total	**0.05**	**0.06**	**0.58**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**93.51**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.31	0.77	3.04	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		401.94
Unmitigated	0.31	0.77	3.04	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		401.94
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Health Club	79.66	79.66	79.66	137,626	137,626
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	79.66	79.66	79.66	137,626	137,626

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	9.50	7.30	7.30	33.00	48.00	19.00
Health Club	9.50	7.30	7.30	16.90	64.10	19.00
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.07	0.60	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	719.21
NaturalGas Unmitigated	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	861.14
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Health Club	7265.06	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	859.92
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Recreational Swimming Pool	10.3101	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	1.22
Total		**0.08**	**0.71**	**0.60**	**0.00**		**0.00**	**0.05**		**0.00**	**0.05**				**0.02**	**0.02**	**861.14**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Health Club	6.06599	0.07	0.59	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	717.99
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Recreational Swimming Pool	0.0103101	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	1.22
Total		**0.07**	**0.59**	**0.50**	**0.00**		**0.00**	**0.05**		**0.00**	**0.05**				**0.01**	**0.01**	**719.21**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Unmitigated	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.57					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**2.92**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**				**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.57					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**2.92**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**				**0.00**		**0.00**

UCR Student Recreation Center Expansion Project

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Non-Asphalt Surfaces	2.2	Acre
City Park	2.3	Acre
Health Club	79.656	1000sqft
Recreational Swimming Pool	39.2	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.4		
		Precipitation Freq (Days)			

1.3 User Entered Comments

28

Project Characteristics -

Land Use - Health club are like gyms, per ITE land use description.
City park is the unpaved SW, NW, NE corners and W strip
Other non-asphalt is tennis courts

Construction Phase - Schedule according to info provided.
Split grading with haul/no haul phase;soil import for 1 week
Demo 6/18-7/6; Grad 7/9-13 then 7/16-8/3; Trench 8/6-24; all 2012

Off-road Equipment - default

Off-road Equipment - Bldg-default less gen set

Off-road Equipment - Demo-2 exc, 2 backhoe per UCR

Off-road Equipment - per info provided

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Pave-2 other (vendor import concrete)

Off-road Equipment - trench-3 exc, 1 loader per UCR

Trips and VMT - demo haul trip is 5.8 miles; 20 cy trucks; 400 1-way trips
soil import 205 round trip; 20 miles
added 5 vendor trips/day for tennis/pool/hardscape

Demolition - Demo est 4,000 tons

Grading - 4100 cy imported during the "grading with haul" phase
7.2 acres disturbed incl offsite utility corridors

Architectural Coating - No exterior painting

Area Coating - No exterior coating

Energy Use - Energy-Pool data from pool consultant, w/cover; factors adjusted to give KWh and Kbtu match
Inputs are nontitle elec 6.207; nontitle gas 0.096
Energy-Health club is Rec bldg using CalEEMod defaults

Water And Wastewater - Water-Pool water use is 2x evaporation with pool cover. Pool cover savings is 44.6%, similar to overall outdoor 50 percent
Water-Pool indoor use is in rec bldg
Water-Health Club is rec bldg using CalEEMod defaults

Construction Off-road Equipment Mitigation - Water exposed area 2x daily per Rule 403 and PP 4.3-2b
Unpaved road 15 mph per PP 4.3-2b
All diesel >50hp Tier 3 per MM 4.3-1

Area Mitigation - Low VOC cleaning per project description

Energy Mitigation - Excee Title 24 by 34% per PD

Water Mitigation - 50 percent irrigation water use per project description

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	11.27	102.27	53.59	0.10	24.67	4.40	29.08	10.05	4.40	14.46			0.00	0.93	0.00	10,874.31
2013	46.61	57.12	34.12	0.09	1.07	2.75	3.82	0.05	2.75	2.80			0.00	0.64	0.00	8,825.48
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	7.19	57.26	46.73	0.10	13.90	3.02	16.92	4.59	3.02	7.61			0.00	0.93	0.00	10,874.31
2013	45.06	22.10	28.20	0.09	1.07	1.74	2.69	0.05	1.74	1.78			0.00	0.64	0.00	8,825.48
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Energy	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	861.19
Mobile	0.32	0.73	3.17	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		442.04
Total	**3.32**	**1.44**	**3.77**	**0.00**	**0.46**	**0.03**	**0.53**	**0.02**	**0.03**	**0.09**				**0.04**	**0.02**	**1,303.23**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Energy	0.07	0.60	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	719.26
Mobile	0.32	0.73	3.17	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		442.04
Total	**3.31**	**1.33**	**3.67**	**0.00**	**0.46**	**0.03**	**0.53**	**0.02**	**0.03**	**0.09**				**0.03**	**0.01**	**1,161.30**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.74	0.00	5.74	0.00	0.00	0.00						0.00
Off-Road	3.27	23.19	16.34	0.03		1.60	1.60		1.60	1.60				0.29		2,624.56
Total	**3.27**	**23.19**	**16.34**	**0.03**	**5.74**	**1.60**	**7.34**	**0.00**	**1.60**	**1.60**				**0.29**		**2,624.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.52	5.69	2.94	0.01	2.72	0.19	2.91	0.02	0.19	0.21				0.03		703.13
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**0.60**	**5.78**	**4.03**	**0.01**	**2.92**	**0.20**	**3.11**	**0.03**	**0.20**	**0.22**				**0.04**		**864.26**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.58	0.00	2.58	0.00	0.00	0.00						0.00
Off-Road	1.99	12.56	17.05	0.03		1.13	1.13		1.13	1.13				0.29		2,624.56
Total	**1.99**	**12.56**	**17.05**	**0.03**	**2.58**	**1.13**	**3.71**	**0.00**	**1.13**	**1.13**				**0.29**		**2,624.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.52	5.69	2.94	0.01	2.72	0.19	2.91	0.02	0.19	0.21				0.03		703.13
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**0.60**	**5.78**	**4.03**	**0.01**	**2.92**	**0.20**	**3.11**	**0.03**	**0.20**	**0.22**				**0.04**		**864.26**

3.3 Grading (with haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.59	0.00	19.59	9.93	0.00	9.93						0.00
Off-Road	9.25	78.56	42.33	0.07		3.44	3.44		3.44	3.44				0.83		7,352.32
Total	**9.25**	**78.56**	**42.33**	**0.07**	**19.59**	**3.44**	**23.03**	**9.93**	**3.44**	**13.37**				**0.83**		**7,352.32**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.95	23.61	10.17	0.03	4.88	0.96	5.84	0.11	0.96	1.07				0.09		3,360.86
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**2.03**	**23.70**	**11.26**	**0.03**	**5.08**	**0.97**	**6.04**	**0.12**	**0.97**	**1.08**				**0.10**		**3,521.99**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.82	0.00	8.82	4.47	0.00	4.47						0.00
Off-Road	5.16	33.56	35.47	0.07		2.06	2.06		2.06	2.06				0.83		7,352.32
Total	**5.16**	**33.56**	**35.47**	**0.07**	**8.82**	**2.06**	**10.88**	**4.47**	**2.06**	**6.53**				**0.83**		**7,352.32**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.95	23.61	10.17	0.03	4.88	0.96	5.84	0.11	0.96	1.07				0.09		3,360.86
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**2.03**	**23.70**	**11.26**	**0.03**	**5.08**	**0.97**	**6.04**	**0.12**	**0.97**	**1.08**				**0.10**		**3,521.99**

3.4 Grading (no haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.58	0.00	18.58	9.93	0.00	9.93						0.00
Off-Road	9.25	78.56	42.33	0.07		3.44	3.44		3.44	3.44				0.83		7,352.32
Total	**9.25**	**78.56**	**42.33**	**0.07**	**18.58**	**3.44**	**22.02**	**9.93**	**3.44**	**13.37**				**0.83**		**7,352.32**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**0.08**	**0.09**	**1.09**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**				**0.01**		**161.13**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.36	0.00	8.36	4.47	0.00	4.47						0.00
Off-Road	5.16	33.56	35.47	0.07		2.06	2.06		2.06	2.06				0.83		7,352.32
Total	**5.16**	**33.56**	**35.47**	**0.07**	**8.36**	**2.06**	**10.42**	**4.47**	**2.06**	**6.53**				**0.83**		**7,352.32**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**0.08**	**0.09**	**1.09**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**				**0.01**		**161.13**

3.5 Underground Infraestructure - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.19	23.67	16.41	0.03		1.42	1.42		1.42	1.42				0.28		2,753.19
Total	**3.19**	**23.67**	**16.41**	**0.03**		**1.42**	**1.42**		**1.42**	**1.42**				**0.28**		**2,753.19**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.73	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		107.42
Total	**0.05**	**0.06**	**0.73**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**107.42**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.89	12.30	17.50	0.03		1.04	1.04		1.04	1.04				0.28		2,753.19
Total	**1.89**	**12.30**	**17.50**	**0.03**		**1.04**	**1.04**		**1.04**	**1.04**				**0.28**		**2,753.19**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.73	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		107.42
Total	**0.05**	**0.06**	**0.73**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**107.42**

3.6 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.68	30.96	19.79	0.04		2.04	2.04		2.04	2.04				0.42		3,426.97
Total	**4.68**	**30.96**	**19.79**	**0.04**		**2.04**	**2.04**		**2.04**	**2.04**				**0.42**		**3,426.97**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.26	3.33	1.62	0.00	0.17	0.11	0.28	0.01	0.11	0.12				0.01		515.34
Worker	0.27	0.31	3.64	0.01	0.65	0.02	0.68	0.02	0.02	0.05				0.03		537.10
Total	**0.53**	**3.64**	**5.26**	**0.01**	**0.82**	**0.13**	**0.96**	**0.03**	**0.13**	**0.17**				**0.04**		**1,052.44**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.00	17.24	20.88	0.04		1.46	1.46		1.46	1.46				0.42		3,426.97
Total	**3.00**	**17.24**	**20.88**	**0.04**		**1.46**	**1.46**		**1.46**	**1.46**				**0.42**		**3,426.97**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.26	3.33	1.62	0.00	0.17	0.11	0.28	0.01	0.11	0.12				0.01		515.34
Worker	0.27	0.31	3.64	0.01	0.65	0.02	0.68	0.02	0.02	0.05				0.03		537.10
Total	**0.53**	**3.64**	**5.26**	**0.01**	**0.82**	**0.13**	**0.96**	**0.03**	**0.13**	**0.17**				**0.04**		**1,052.44**

3.6 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.30	28.66	19.54	0.04		1.82	1.82		1.82	1.82				0.38		3,426.22
Total	**4.30**	**28.66**	**19.54**	**0.04**		**1.82**	**1.82**		**1.82**	**1.82**				**0.38**		**3,426.22**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.24	3.04	1.50	0.00	0.17	0.10	0.27	0.01	0.10	0.11				0.01		515.82
Worker	0.25	0.28	3.33	0.01	0.65	0.02	0.68	0.02	0.02	0.05				0.03		525.32
Total	**0.49**	**3.32**	**4.83**	**0.01**	**0.82**	**0.12**	**0.95**	**0.03**	**0.12**	**0.16**				**0.04**		**1,041.14**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.00	17.24	20.88	0.04		1.46	1.46		1.46	1.46				0.38		3,426.22
Total	**3.00**	**17.24**	**20.88**	**0.04**		**1.46**	**1.46**		**1.46**	**1.46**				**0.38**		**3,426.22**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.24	3.04	1.50	0.00	0.17	0.10	0.27	0.01	0.10	0.11				0.01		515.82
Worker	0.25	0.28	3.33	0.01	0.65	0.02	0.68	0.02	0.02	0.05				0.03		525.32
Total	**0.49**	**3.32**	**4.83**	**0.01**	**0.82**	**0.12**	**0.95**	**0.03**	**0.12**	**0.16**				**0.04**		**1,041.14**

3.7 Paving (tennis courts) - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.31	24.25	8.36	0.04		0.78	0.78		0.78	0.78				0.21		4,064.78
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.31**	**24.25**	**8.36**	**0.04**		**0.78**	**0.78**		**0.78**	**0.78**				**0.21**		**4,064.78**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.06	0.80	0.39	0.00	0.05	0.03	0.07	0.00	0.03	0.03				0.00		135.74
Worker	0.07	0.09	1.00	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		157.60
Total	**0.13**	**0.89**	**1.39**	**0.00**	**0.25**	**0.04**	**0.27**	**0.01**	**0.04**	**0.04**				**0.01**		**293.34**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.04		0.00	0.00		0.00	0.00				0.21		4,064.78
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.04**		**0.00**	**0.00**		**0.00**	**0.00**				**0.21**		**4,064.78**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.06	0.80	0.39	0.00	0.05	0.03	0.07	0.00	0.03	0.03				0.00		135.74
Worker	0.07	0.09	1.00	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		157.60
Total	**0.13**	**0.89**	**1.39**	**0.00**	**0.25**	**0.04**	**0.27**	**0.01**	**0.04**	**0.04**				**0.01**		**293.34**

3.8 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	41.28					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27				0.04		282.10
Total	**41.77**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**				**0.04**		**282.10**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.67	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		105.06
Total	**0.05**	**0.06**	**0.67**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**105.06**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	41.28					0.00	0.00		0.00	0.00						0.00
Off-Road	0.25	1.48	1.83	0.00		0.15	0.15		0.15	0.15				0.04		282.10
Total	**41.53**	**1.48**	**1.83**	**0.00**		**0.15**	**0.15**		**0.15**	**0.15**				**0.04**		**282.10**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.67	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		105.06
Total	**0.05**	**0.06**	**0.67**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**105.06**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.32	0.73	3.17	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		442.04
Unmitigated	0.32	0.73	3.17	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		442.04
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Health Club	79.66	79.66	79.66	137,626	137,626
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	79.66	79.66	79.66	137,626	137,626

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	9.50	7.30	7.30	33.00	48.00	19.00
Health Club	9.50	7.30	7.30	16.90	64.10	19.00
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.07	0.60	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	719.21
NaturalGas Unmitigated	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	861.14
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Health Club	7265.06	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	859.92
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Recreational Swimming Pool	10.3101	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	1.22
Total		**0.08**	**0.71**	**0.60**	**0.00**		**0.00**	**0.05**		**0.00**	**0.05**				**0.02**	**0.02**	**861.14**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Health Club	6.06599	0.07	0.59	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	717.99
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Recreational Swimming Pool	0.0103101	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	1.22
Total		**0.07**	**0.59**	**0.50**	**0.00**		**0.00**	**0.05**		**0.00**	**0.05**				**0.01**	**0.01**	**719.21**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Unmitigated	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.57					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**2.92**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**				**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.57					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**2.92**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**				**0.00**		**0.00**

UCR Student Recreation Center Expansion Project

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Non-Asphalt Surfaces	2.2	Acre
City Park	2.3	Acre
Health Club	79.656	1000sqft
Recreational Swimming Pool	39.2	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.4		
		Precipitation Freq (Days)			

1.3 User Entered Comments

28

Project Characteristics -

Land Use - Health club are like gyms, per ITE land use description.
City park is the unpaved SW, NW, NE corners and W strip
Other non-asphalt is tennis courts

Construction Phase - Schedule according to info provided.
Split grading with haul/no haul phase;soil import for 1 week
Demo 6/18-7/6; Grad 7/9-13 then 7/16-8/3; Trench 8/6-24; all 2012
Bldg 8/27/12-12/20/13; Pave 1/7-4/5/13; coat 10/7-12/13/13

Off-road Equipment - default

Off-road Equipment - Bldg-default less gen set

Off-road Equipment - Demo-2 exc, 2 backhoe per UCR

Off-road Equipment - per info provided

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Pave-2 other (vendor import concrete)

Off-road Equipment - trench-3 exc, 1 loader per UCR

Trips and VMT - demo haul trip is 5.8 miles; 20 cy trucks; 400 1-way trips
soil import 205 round trip; 20 miles
added 5 vendor trips/day for tennis/pool/hardscape

Demolition - Demo est 4,000 tons

Grading - 4100 cy imported during the "grading with haul" phase
7.2 acres disturbed incl offsite utility corridors

Architectural Coating - No exterior painting

Vehicle Trips - There are no new vehicle trips with this project.

Area Coating - No exterior coating

Energy Use - Energy-Pool data from pool consultant, w/cover; factors adjusted to give KWh and Kbtu match
Inputs are nontitle elec 6.207; nontitle gas 0.096
Energy-Health club is Rec bldg using CalEEMod defaults

Water And Wastewater - Water-Pool water use is 2x evaporation with pool cover. Pool cover savings is 44.6%, similar to overall outdoor 50 percent
Water-Pool indoor use is in rec bldg
Water-Health Club is rec bldg using CalEEMod defaults

Construction Off-road Equipment Mitigation - Water exposed area 2x daily per Rule 403 and PP 4.3-2b
Unpaved road 15 mph per PP 4.3-2b
All diesel >50hp Tier 3 per MM 4.3-1

Area Mitigation - Low VOC cleaning per project description

Energy Mitigation - Excee Title 24 by 34% per PD

Water Mitigation - 50 percent irrigation water use per project description

Solid Waste - Negligible solid waste for pool

Waste Mitigation - Assume campus recycling and compost reduce solid waste 15 percent

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.39	2.81	1.87	0.00	0.30	0.16	0.46	0.11	0.16	0.27			301.10	0.03	0.00	301.76
2013	1.73	4.95	3.45	0.01	0.11	0.28	0.39	0.01	0.28	0.28			645.28	0.06	0.00	646.47
Total	**2.12**	**7.76**	**5.32**	**0.01**	**0.41**	**0.44**	**0.85**	**0.12**	**0.44**	**0.55**			**946.38**	**0.09**	**0.00**	**948.23**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.25	1.58	1.87	0.00	0.17	0.11	0.29	0.05	0.11	0.16			301.10	0.03	0.00	301.76
2013	1.48	2.68	3.35	0.01	0.11	0.21	0.31	0.01	0.21	0.21			645.28	0.06	0.00	646.47
Total	**1.73**	**4.26**	**5.22**	**0.01**	**0.28**	**0.32**	**0.60**	**0.06**	**0.32**	**0.37**			**946.38**	**0.09**	**0.00**	**948.23**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.53	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Energy	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01			469.01	0.02	0.01	471.92
Mobile	0.05	0.13	0.57	0.00	0.08	0.01	0.08	0.00	0.01	0.01			68.37	0.00	0.00	68.44
Waste						0.00	0.00		0.00	0.00			92.21	5.45	0.00	206.65
Water						0.00	0.00		0.00	0.00			29.34	0.15	0.00	33.65
Total	**0.59**	**0.26**	**0.68**	**0.00**	**0.08**	**0.01**	**0.09**	**0.00**	**0.01**	**0.02**			**658.93**	**5.62**	**0.01**	**780.66**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.53	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Energy	0.01	0.11	0.09	0.00		0.00	0.01		0.00	0.01			424.46	0.02	0.01	427.10
Mobile	0.05	0.13	0.57	0.00	0.08	0.01	0.08	0.00	0.01	0.01			68.37	0.00	0.00	68.44
Waste						0.00	0.00		0.00	0.00			78.38	4.63	0.00	175.65
Water						0.00	0.00		0.00	0.00			20.62	0.12	0.00	24.18
Total	**0.59**	**0.24**	**0.66**	**0.00**	**0.08**	**0.01**	**0.09**	**0.00**	**0.01**	**0.02**			**591.83**	**4.77**	**0.01**	**695.37**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.04	0.00	0.04	0.01	0.00	0.01			0.00	0.00	0.00	0.00
Off-Road	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01			17.81	0.00	0.00	17.85
Total	**0.02**	**0.17**	**0.12**	**0.00**	**0.04**	**0.01**	**0.05**	**0.01**	**0.01**	**0.02**			**17.81**	**0.00**	**0.00**	**17.85**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.02	0.00	0.02	0.00	0.00	0.00			4.74	0.00	0.00	4.75
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			1.01	0.00	0.00	1.01
Total	**0.00**	**0.04**	**0.03**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**			**5.75**	**0.00**	**0.00**	**5.76**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.02	0.00	0.02	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Off-Road	0.01	0.09	0.13	0.00		0.01	0.01		0.01	0.01			17.81	0.00	0.00	17.85
Total	**0.01**	**0.09**	**0.13**	**0.00**	**0.02**	**0.01**	**0.03**	**0.00**	**0.01**	**0.01**			**17.81**	**0.00**	**0.00**	**17.85**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.02	0.00	0.02	0.00	0.00	0.00			4.74	0.00	0.00	4.75
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			1.01	0.00	0.00	1.01
Total	**0.00**	**0.04**	**0.03**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**			**5.75**	**0.00**	**0.00**	**5.76**

3.3 Grading (with haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.05	0.00	0.05	0.03	0.00	0.03			0.00	0.00	0.00	0.00
Off-Road	0.02	0.20	0.11	0.00		0.01	0.01		0.01	0.01			16.63	0.00	0.00	16.67
Total	**0.02**	**0.20**	**0.11**	**0.00**	**0.05**	**0.01**	**0.06**	**0.03**	**0.01**	**0.04**			**16.63**	**0.00**	**0.00**	**16.67**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.06	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00			7.60	0.00	0.00	7.60
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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.34	0.00	0.00	0.34
Total	**0.00**	**0.06**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**			**7.94**	**0.00**	**0.00**	**7.94**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.02	0.00	0.02	0.01	0.00	0.01			0.00	0.00	0.00	0.00
Off-Road	0.01	0.08	0.09	0.00		0.01	0.01		0.01	0.01			16.63	0.00	0.00	16.67
Total	**0.01**	**0.08**	**0.09**	**0.00**	**0.02**	**0.01**	**0.03**	**0.01**	**0.01**	**0.02**			**16.63**	**0.00**	**0.00**	**16.67**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.06	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00			7.60	0.00	0.00	7.60
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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.34	0.00	0.00	0.34
Total	**0.00**	**0.06**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**			**7.94**	**0.00**	**0.00**	**7.94**

3.4 Grading (no haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.14	0.00	0.14	0.07	0.00	0.07			0.00	0.00	0.00	0.00
Off-Road	0.07	0.59	0.32	0.00		0.03	0.03		0.03	0.03			49.89	0.01	0.00	50.01
Total	**0.07**	**0.59**	**0.32**	**0.00**	**0.14**	**0.03**	**0.17**	**0.07**	**0.03**	**0.10**			**49.89**	**0.01**	**0.00**	**50.01**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			1.01	0.00	0.00	1.01
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**1.01**	**0.00**	**0.00**	**1.01**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.06	0.00	0.06	0.03	0.00	0.03			0.00	0.00	0.00	0.00
Off-Road	0.04	0.25	0.27	0.00		0.02	0.02		0.02	0.02			49.89	0.01	0.00	50.01
Total	**0.04**	**0.25**	**0.27**	**0.00**	**0.06**	**0.02**	**0.08**	**0.03**	**0.02**	**0.05**			**49.89**	**0.01**	**0.00**	**50.01**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			1.01	0.00	0.00	1.01
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**1.01**	**0.00**	**0.00**	**1.01**

3.5 Underground Infraestructure - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.18	0.12	0.00		0.01	0.01		0.01	0.01			18.69	0.00	0.00	18.73
Total	**0.02**	**0.18**	**0.12**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**			**18.69**	**0.00**	**0.00**	**18.73**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.67	0.00	0.00	0.68
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**0.67**	**0.00**	**0.00**	**0.68**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.09	0.13	0.00		0.01	0.01		0.01	0.01			18.69	0.00	0.00	18.73
Total	**0.01**	**0.09**	**0.13**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**			**18.69**	**0.00**	**0.00**	**18.73**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.67	0.00	0.00	0.68
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**0.67**	**0.00**	**0.00**	**0.68**

3.6 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.21	1.41	0.90	0.00		0.09	0.09		0.09	0.09			141.05	0.02	0.00	141.42
Total	**0.21**	**1.41**	**0.90**	**0.00**		**0.09**	**0.09**		**0.09**	**0.09**			**141.05**	**0.02**	**0.00**	**141.42**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.01	0.15	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01			21.18	0.00	0.00	21.20
Worker	0.01	0.01	0.15	0.00	0.03	0.00	0.03	0.00	0.00	0.00			20.46	0.00	0.00	20.49
Total	**0.02**	**0.16**	**0.23**	**0.00**	**0.04**	**0.00**	**0.04**	**0.00**	**0.00**	**0.01**			**41.64**	**0.00**	**0.00**	**41.69**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.14	0.78	0.95	0.00		0.07	0.07		0.07	0.07			141.05	0.02	0.00	141.42
Total	**0.14**	**0.78**	**0.95**	**0.00**		**0.07**	**0.07**		**0.07**	**0.07**			**141.05**	**0.02**	**0.00**	**141.42**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.01	0.15	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01			21.18	0.00	0.00	21.20
Worker	0.01	0.01	0.15	0.00	0.03	0.00	0.03	0.00	0.00	0.00			20.46	0.00	0.00	20.49
Total	**0.02**	**0.16**	**0.23**	**0.00**	**0.04**	**0.00**	**0.04**	**0.00**	**0.00**	**0.01**			**41.64**	**0.00**	**0.00**	**41.69**

3.6 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.55	3.64	2.48	0.00		0.23	0.23		0.23	0.23			393.71	0.04	0.00	394.64
Total	**0.55**	**3.64**	**2.48**	**0.00**		**0.23**	**0.23**		**0.23**	**0.23**			**393.71**	**0.04**	**0.00**	**394.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.03	0.38	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01			59.18	0.00	0.00	59.21
Worker	0.03	0.04	0.39	0.00	0.08	0.00	0.08	0.00	0.00	0.01			55.86	0.00	0.00	55.93
Total	**0.06**	**0.42**	**0.60**	**0.00**	**0.10**	**0.01**	**0.11**	**0.00**	**0.01**	**0.02**			**115.04**	**0.00**	**0.00**	**115.14**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.38	2.19	2.65	0.00		0.19	0.19		0.19	0.19			393.71	0.04	0.00	394.64
Total	**0.38**	**2.19**	**2.65**	**0.00**		**0.19**	**0.19**		**0.19**	**0.19**			**393.71**	**0.04**	**0.00**	**394.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.03	0.38	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01			59.18	0.00	0.00	59.21
Worker	0.03	0.04	0.39	0.00	0.08	0.00	0.08	0.00	0.00	0.01			55.86	0.00	0.00	55.93
Total	**0.06**	**0.42**	**0.60**	**0.00**	**0.10**	**0.01**	**0.11**	**0.00**	**0.01**	**0.02**			**115.04**	**0.00**	**0.00**	**115.14**

3.7 Paving (tennis courts) - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.08	0.79	0.27	0.00		0.03	0.03		0.03	0.03			119.68	0.01	0.00	119.81
Paving	0.00					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Total	**0.08**	**0.79**	**0.27**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**			**119.68**	**0.01**	**0.00**	**119.81**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			3.99	0.00	0.00	3.99
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00			4.29	0.00	0.00	4.29
Total	**0.00**	**0.03**	**0.04**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**			**8.28**	**0.00**	**0.00**	**8.28**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			119.68	0.01	0.00	119.81
Paving	0.00					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**			**119.68**	**0.01**	**0.00**	**119.81**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			3.99	0.00	0.00	3.99
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00			4.29	0.00	0.00	4.29
Total	**0.00**	**0.03**	**0.04**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**			**8.28**	**0.00**	**0.00**	**8.28**

3.8 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.03					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Off-Road	0.01	0.07	0.05	0.00		0.01	0.01		0.01	0.01			6.38	0.00	0.00	6.40
Total	**1.04**	**0.07**	**0.05**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**			**6.38**	**0.00**	**0.00**	**6.40**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00			2.20	0.00	0.00	2.20
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**2.20**	**0.00**	**0.00**	**2.20**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.03					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Off-Road	0.01	0.04	0.05	0.00		0.00	0.00		0.00	0.00			6.38	0.00	0.00	6.40
Total	**1.04**	**0.04**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**			**6.38**	**0.00**	**0.00**	**6.40**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00			2.20	0.00	0.00	2.20
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**2.20**	**0.00**	**0.00**	**2.20**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.05	0.13	0.57	0.00	0.08	0.01	0.08	0.00	0.01	0.01			68.37	0.00	0.00	68.44
Unmitigated	0.05	0.13	0.57	0.00	0.08	0.01	0.08	0.00	0.01	0.01			68.37	0.00	0.00	68.44
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Health Club	79.66	79.66	79.66	137,626	137,626
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	79.66	79.66	79.66	137,626	137,626

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	9.50	7.30	7.30	33.00	48.00	19.00
Health Club	9.50	7.30	7.30	16.90	64.10	19.00
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00			306.07	0.01	0.01	307.99
Electricity Unmitigated						0.00	0.00		0.00	0.00			327.26	0.01	0.01	329.31
NaturalGas Mitigated	0.01	0.11	0.09	0.00		0.00	0.01		0.00	0.01			118.35	0.00	0.00	119.07
NaturalGas Unmitigated	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01			141.71	0.00	0.00	142.57
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Health Club	2.65175e+006	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01			141.51	0.00	0.00	142.37
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Recreational Swimming Pool	3763.2	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.20	0.00	0.00	0.20
Total		**0.01**	**0.13**	**0.11**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**			**141.71**	**0.00**	**0.00**	**142.57**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Health Club	2.21409e+006	0.01	0.11	0.09	0.00		0.00	0.01		0.00	0.01			118.15	0.00	0.00	118.87
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Recreational Swimming Pool	3763.2	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.20	0.00	0.00	0.20
Total		**0.01**	**0.11**	**0.09**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**			**118.35**	**0.00**	**0.00**	**119.07**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
City Park	0					0.00	0.00	0.00	0.00
Health Club	881792					256.49	0.01	0.00	258.09
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	243314					70.77	0.00	0.00	71.22
Total						**327.26**	**0.01**	**0.00**	**329.31**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
City Park	0					0.00	0.00	0.00	0.00
Health Club	808939					235.30	0.01	0.00	236.77
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	243314					70.77	0.00	0.00	71.22
Total						**306.07**	**0.01**	**0.00**	**307.99**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.53	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Unmitigated	0.53	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.10					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Consumer Products	0.43					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Landscaping	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	**0.53**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**			**0.00**	**0.00**	**0.00**	**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.10					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Consumer Products	0.43					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Landscaping	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	**0.53**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**			**0.00**	**0.00**	**0.00**	**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					20.62	0.12	0.00	24.18
Unmitigated					29.34	0.15	0.00	33.65
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
City Park	0 / 0					0.00	0.00	0.00	0.00
Health Club	4.71134 / 2.8876					27.23	0.15	0.00	31.52
Other Non-Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0 / 0.65351					2.11	0.00	0.00	2.13
Total						**29.34**	**0.15**	**0.00**	**33.65**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
City Park	0 / 0					0.00	0.00	0.00	0.00
Health Club	3.92172 / 1.4438					19.56	0.12	0.00	23.12
Other Non-Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0 / 0.326755					1.06	0.00	0.00	1.06
Total						**20.62**	**0.12**	**0.00**	**24.18**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					78.38	4.63	0.00	175.65
Unmitigated					92.21	5.45	0.00	206.65
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
City Park	0.2					0.04	0.00	0.00	0.09
Health Club	454.06					92.17	5.45	0.00	206.56
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Total						**92.21**	**5.45**	**0.00**	**206.65**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
City Park	0.17					0.03	0.00	0.00	0.08
Health Club	385.951					78.34	4.63	0.00	175.58
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Total						**78.37**	**4.63**	**0.00**	**175.66**

UCR Student Recreation Center Expansion Project

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Non-Asphalt Surfaces	2.2	Acre
City Park	2.3	Acre
Health Club	79.656	1000sqft
Recreational Swimming Pool	39.2	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.4		
		Precipitation Freq (Days)			

1.3 User Entered Comments

28

Project Characteristics -

Land Use - Health club are like gyms, per ITE land use description.
City park is the unpaved SW, NW, NE corners and W strip
Other non-asphalt is tennis courts

Construction Phase - Schedule according to info provided.
Split grading with haul/no haul phase;soil import for 1 week
Demo 6/18-7/6; Grad 7/9-13 then 7/16-8/3; Trench 8/6-24; all 2012
Bldg 8/27/12-12/20/13; Pave 1/7-4/5/13; coat 10/7-12/13/13

Off-road Equipment - default

Off-road Equipment - Bldg-default less gen set

Off-road Equipment - Demo-2 exc, 2 backhoe per UCR

Off-road Equipment - per info provided

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Pave-2 other (vendor import concrete)

Off-road Equipment - trench-3 exc, 1 loader per UCR

Trips and VMT - demo haul trip is 5.8 miles; 20 cy trucks; 400 1-way trips
soil import 205 round trip; 20 miles
added 5 vendor trips/day for tennis/pool/hardscape

Demolition - Demo est 4,000 tons

Grading - 4100 cy imported during the "grading with haul" phase
7.2 acres disturbed incl offsite utility corridors

Architectural Coating - No exterior painting

Area Coating - No exterior coating

Energy Use - Energy-Pool data from pool consultant, w/cover; factors adjusted to give KWh and Kbtu match
Inputs are nontitle elec 6.207; nontitle gas 0.096
Energy-Health club is Rec bldg using CalEEMod defaults

Water And Wastewater - Water-Pool water use is 2x evaporation with pool cover. Pool cover savings is 44.6%, similar to overall outdoor 50 percent
Water-Pool indoor use is in rec bldg
Water-Health Club is rec bldg using CalEEMod defaults

Construction Off-road Equipment Mitigation - Water exposed area 2x daily per Rule 403 and PP 4.3-2b
Unpaved road 15 mph per PP 4.3-2b
All diesel >50hp Tier 3 per MM 4.3-1

Area Mitigation - Low VOC cleaning per project description

Energy Mitigation - Excee Title 24 by 34% per PD

Water Mitigation - 50 percent irrigation water use per project description

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	11.32	103.47	54.25	0.10	24.67	4.42	29.09	10.05	4.42	14.47			0.00	0.93	0.00	10,837.48
2013	46.61	57.30	33.83	0.08	1.07	2.75	3.82	0.05	2.75	2.80			0.00	0.64	0.00	8,744.67
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	7.23	58.46	47.39	0.10	13.90	3.03	16.93	4.59	3.03	7.62			0.00	0.93	0.00	10,837.48
2013	45.07	22.25	27.90	0.08	1.07	1.74	2.70	0.05	1.74	1.78			0.00	0.64	0.00	8,744.67
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Energy	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	861.19
Mobile	0.31	0.77	3.04	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		401.94
Total	**3.31**	**1.48**	**3.64**	**0.00**	**0.46**	**0.03**	**0.53**	**0.02**	**0.03**	**0.09**				**0.04**	**0.02**	**1,263.13**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Energy	0.07	0.60	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	719.26
Mobile	0.31	0.77	3.04	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		401.94
Total	**3.30**	**1.37**	**3.54**	**0.00**	**0.46**	**0.03**	**0.53**	**0.02**	**0.03**	**0.09**				**0.03**	**0.01**	**1,121.20**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.74	0.00	5.74	0.00	0.00	0.00						0.00
Off-Road	3.27	23.19	16.34	0.03		1.60	1.60		1.60	1.60				0.29		2,624.56
Total	**3.27**	**23.19**	**16.34**	**0.03**	**5.74**	**1.60**	**7.34**	**0.00**	**1.60**	**1.60**				**0.29**		**2,624.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.55	5.82	3.48	0.01	2.72	0.20	2.92	0.02	0.20	0.22				0.03		690.68
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**0.63**	**5.92**	**4.44**	**0.01**	**2.92**	**0.21**	**3.12**	**0.03**	**0.21**	**0.23**				**0.04**		**834.12**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.58	0.00	2.58	0.00	0.00	0.00						0.00
Off-Road	1.99	12.56	17.05	0.03		1.13	1.13		1.13	1.13				0.29		2,624.56
Total	**1.99**	**12.56**	**17.05**	**0.03**	**2.58**	**1.13**	**3.71**	**0.00**	**1.13**	**1.13**				**0.29**		**2,624.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.55	5.82	3.48	0.01	2.72	0.20	2.92	0.02	0.20	0.22				0.03		690.68
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**0.63**	**5.92**	**4.44**	**0.01**	**2.92**	**0.21**	**3.12**	**0.03**	**0.21**	**0.23**				**0.04**		**834.12**

3.3 Grading (with haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.59	0.00	19.59	9.93	0.00	9.93						0.00
Off-Road	9.25	78.56	42.33	0.07		3.44	3.44		3.44	3.44				0.83		7,352.32
Total	**9.25**	**78.56**	**42.33**	**0.07**	**19.59**	**3.44**	**23.03**	**9.93**	**3.44**	**13.37**				**0.83**		**7,352.32**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.99	24.80	10.96	0.03	4.88	0.97	5.85	0.11	0.97	1.08				0.10		3,341.72
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**2.07**	**24.90**	**11.92**	**0.03**	**5.08**	**0.98**	**6.05**	**0.12**	**0.98**	**1.09**				**0.11**		**3,485.16**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.82	0.00	8.82	4.47	0.00	4.47						0.00
Off-Road	5.16	33.56	35.47	0.07		2.06	2.06		2.06	2.06				0.83		7,352.32
Total	**5.16**	**33.56**	**35.47**	**0.07**	**8.82**	**2.06**	**10.88**	**4.47**	**2.06**	**6.53**				**0.83**		**7,352.32**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.99	24.80	10.96	0.03	4.88	0.97	5.85	0.11	0.97	1.08				0.10		3,341.72
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**2.07**	**24.90**	**11.92**	**0.03**	**5.08**	**0.98**	**6.05**	**0.12**	**0.98**	**1.09**				**0.11**		**3,485.16**

3.4 Grading (no haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.58	0.00	18.58	9.93	0.00	9.93						0.00
Off-Road	9.25	78.56	42.33	0.07		3.44	3.44		3.44	3.44				0.83		7,352.32
Total	**9.25**	**78.56**	**42.33**	**0.07**	**18.58**	**3.44**	**22.02**	**9.93**	**3.44**	**13.37**				**0.83**		**7,352.32**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**0.08**	**0.10**	**0.96**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**				**0.01**		**143.44**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.36	0.00	8.36	4.47	0.00	4.47						0.00
Off-Road	5.16	33.56	35.47	0.07		2.06	2.06		2.06	2.06				0.83		7,352.32
Total	**5.16**	**33.56**	**35.47**	**0.07**	**8.36**	**2.06**	**10.42**	**4.47**	**2.06**	**6.53**				**0.83**		**7,352.32**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.08	0.10	0.96	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		143.44
Total	**0.08**	**0.10**	**0.96**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**				**0.01**		**143.44**

3.5 Underground Infraestructure - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.19	23.67	16.41	0.03		1.42	1.42		1.42	1.42				0.28		2,753.19
Total	**3.19**	**23.67**	**16.41**	**0.03**		**1.42**	**1.42**		**1.42**	**1.42**				**0.28**		**2,753.19**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.07	0.64	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		95.62
Total	**0.05**	**0.07**	**0.64**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**95.62**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.89	12.30	17.50	0.03		1.04	1.04		1.04	1.04				0.28		2,753.19
Total	**1.89**	**12.30**	**17.50**	**0.03**		**1.04**	**1.04**		**1.04**	**1.04**				**0.28**		**2,753.19**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.07	0.64	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		95.62
Total	**0.05**	**0.07**	**0.64**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**95.62**

3.6 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.68	30.96	19.79	0.04		2.04	2.04		2.04	2.04				0.42		3,426.97
Total	**4.68**	**30.96**	**19.79**	**0.04**		**2.04**	**2.04**		**2.04**	**2.04**				**0.42**		**3,426.97**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.27	3.47	1.82	0.00	0.17	0.11	0.29	0.01	0.11	0.12				0.01		510.90
Worker	0.27	0.35	3.19	0.00	0.65	0.02	0.68	0.02	0.02	0.05				0.03		478.12
Total	**0.54**	**3.82**	**5.01**	**0.00**	**0.82**	**0.13**	**0.97**	**0.03**	**0.13**	**0.17**				**0.04**		**989.02**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.00	17.24	20.88	0.04		1.46	1.46		1.46	1.46				0.42		3,426.97
Total	**3.00**	**17.24**	**20.88**	**0.04**		**1.46**	**1.46**		**1.46**	**1.46**				**0.42**		**3,426.97**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.27	3.47	1.82	0.00	0.17	0.11	0.29	0.01	0.11	0.12				0.01		510.90
Worker	0.27	0.35	3.19	0.00	0.65	0.02	0.68	0.02	0.02	0.05				0.03		478.12
Total	**0.54**	**3.82**	**5.01**	**0.00**	**0.82**	**0.13**	**0.97**	**0.03**	**0.13**	**0.17**				**0.04**		**989.02**

3.6 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.30	28.66	19.54	0.04		1.82	1.82		1.82	1.82				0.38		3,426.22
Total	**4.30**	**28.66**	**19.54**	**0.04**		**1.82**	**1.82**		**1.82**	**1.82**				**0.38**		**3,426.22**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.25	3.15	1.70	0.00	0.17	0.10	0.27	0.01	0.10	0.11				0.01		511.32
Worker	0.24	0.31	2.91	0.00	0.65	0.02	0.68	0.02	0.02	0.05				0.03		467.54
Total	**0.49**	**3.46**	**4.61**	**0.00**	**0.82**	**0.12**	**0.95**	**0.03**	**0.12**	**0.16**				**0.04**		**978.86**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.00	17.24	20.88	0.04		1.46	1.46		1.46	1.46				0.38		3,426.22
Total	**3.00**	**17.24**	**20.88**	**0.04**		**1.46**	**1.46**		**1.46**	**1.46**				**0.38**		**3,426.22**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.25	3.15	1.70	0.00	0.17	0.10	0.27	0.01	0.10	0.11				0.01		511.32
Worker	0.24	0.31	2.91	0.00	0.65	0.02	0.68	0.02	0.02	0.05				0.03		467.54
Total	**0.49**	**3.46**	**4.61**	**0.00**	**0.82**	**0.12**	**0.95**	**0.03**	**0.12**	**0.16**				**0.04**		**978.86**

3.7 Paving (tennis courts) - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.31	24.25	8.36	0.04		0.78	0.78		0.78	0.78				0.21		4,064.78
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.31**	**24.25**	**8.36**	**0.04**		**0.78**	**0.78**		**0.78**	**0.78**				**0.21**		**4,064.78**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.07	0.83	0.45	0.00	0.05	0.03	0.07	0.00	0.03	0.03				0.00		134.56
Worker	0.07	0.09	0.87	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		140.26
Total	**0.14**	**0.92**	**1.32**	**0.00**	**0.25**	**0.04**	**0.27**	**0.01**	**0.04**	**0.04**				**0.01**		**274.82**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.04		0.00	0.00		0.00	0.00				0.21		4,064.78
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.04**		**0.00**	**0.00**		**0.00**	**0.00**				**0.21**		**4,064.78**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.07	0.83	0.45	0.00	0.05	0.03	0.07	0.00	0.03	0.03				0.00		134.56
Worker	0.07	0.09	0.87	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		140.26
Total	**0.14**	**0.92**	**1.32**	**0.00**	**0.25**	**0.04**	**0.27**	**0.01**	**0.04**	**0.04**				**0.01**		**274.82**

3.8 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	41.28					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27				0.04		282.10
Total	**41.77**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**				**0.04**		**282.10**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.58	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		93.51
Total	**0.05**	**0.06**	**0.58**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**93.51**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	41.28					0.00	0.00		0.00	0.00						0.00
Off-Road	0.25	1.48	1.83	0.00		0.15	0.15		0.15	0.15				0.04		282.10
Total	**41.53**	**1.48**	**1.83**	**0.00**		**0.15**	**0.15**		**0.15**	**0.15**				**0.04**		**282.10**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.58	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		93.51
Total	**0.05**	**0.06**	**0.58**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**93.51**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.31	0.77	3.04	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		401.94
Unmitigated	0.31	0.77	3.04	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		401.94
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Health Club	79.66	79.66	79.66	137,626	137,626
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	79.66	79.66	79.66	137,626	137,626

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	9.50	7.30	7.30	33.00	48.00	19.00
Health Club	9.50	7.30	7.30	16.90	64.10	19.00
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.07	0.60	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	719.21
NaturalGas Unmitigated	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	861.14
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Health Club	7265.06	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	859.92
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Recreational Swimming Pool	10.3101	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	1.22
Total		**0.08**	**0.71**	**0.60**	**0.00**		**0.00**	**0.05**		**0.00**	**0.05**				**0.02**	**0.02**	**861.14**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Health Club	6.06599	0.07	0.59	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	717.99
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Recreational Swimming Pool	0.0103101	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	1.22
Total		**0.07**	**0.59**	**0.50**	**0.00**		**0.00**	**0.05**		**0.00**	**0.05**				**0.01**	**0.01**	**719.21**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Unmitigated	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.57					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**2.92**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**				**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.57					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**2.92**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**				**0.00**		**0.00**

UCR Student Recreation Center Expansion Project

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Non-Asphalt Surfaces	2.2	Acre
City Park	2.3	Acre
Health Club	79.656	1000sqft
Recreational Swimming Pool	39.2	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.4		
		Precipitation Freq (Days)			

1.3 User Entered Comments

28

Project Characteristics -

Land Use - Health club are like gyms, per ITE land use description.
City park is the unpaved SW, NW, NE corners and W strip
Other non-asphalt is tennis courts

Construction Phase - Schedule according to info provided.
Split grading with haul/no haul phase;soil import for 1 week
Demo 6/18-7/6; Grad 7/9-13 then 7/16-8/3; Trench 8/6-24; all 2012

Off-road Equipment - default

Off-road Equipment - Bldg-default less gen set

Off-road Equipment - Demo-2 exc, 2 backhoe per UCR

Off-road Equipment - per info provided

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Pave-2 other (vendor import concrete)

Off-road Equipment - trench-3 exc, 1 loader per UCR

Trips and VMT - demo haul trip is 5.8 miles; 20 cy trucks; 400 1-way trips
soil import 205 round trip; 20 miles
added 5 vendor trips/day for tennis/pool/hardscape

Demolition - Demo est 4,000 tons

Grading - 4100 cy imported during the "grading with haul" phase
7.2 acres disturbed incl offsite utility corridors

Architectural Coating - No exterior painting

Area Coating - No exterior coating

Energy Use - Energy-Pool data from pool consultant, w/cover; factors adjusted to give KWh and Kbtu match
Inputs are nontitle elec 6.207; nontitle gas 0.096
Energy-Health club is Rec bldg using CalEEMod defaults

Water And Wastewater - Water-Pool water use is 2x evaporation with pool cover. Pool cover savings is 44.6%, similar to overall outdoor 50 percent
Water-Pool indoor use is in rec bldg
Water-Health Club is rec bldg using CalEEMod defaults

Construction Off-road Equipment Mitigation - Water exposed area 2x daily per Rule 403 and PP 4.3-2b
Unpaved road 15 mph per PP 4.3-2b
All diesel >50hp Tier 3 per MM 4.3-1

Area Mitigation - Low VOC cleaning per project description

Energy Mitigation - Excee Title 24 by 34% per PD

Water Mitigation - 50 percent irrigation water use per project description

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	11.27	102.27	53.59	0.10	24.67	4.40	29.08	10.05	4.40	14.46			0.00	0.93	0.00	10,874.31
2013	46.61	57.12	34.12	0.09	1.07	2.75	3.82	0.05	2.75	2.80			0.00	0.64	0.00	8,825.48
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	7.19	57.26	46.73	0.10	13.90	3.02	16.92	4.59	3.02	7.61			0.00	0.93	0.00	10,874.31
2013	45.06	22.10	28.20	0.09	1.07	1.74	2.69	0.05	1.74	1.78			0.00	0.64	0.00	8,825.48
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Energy	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	861.19
Mobile	0.32	0.73	3.17	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		442.04
Total	**3.32**	**1.44**	**3.77**	**0.00**	**0.46**	**0.03**	**0.53**	**0.02**	**0.03**	**0.09**				**0.04**	**0.02**	**1,303.23**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Energy	0.07	0.60	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	719.26
Mobile	0.32	0.73	3.17	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		442.04
Total	**3.31**	**1.33**	**3.67**	**0.00**	**0.46**	**0.03**	**0.53**	**0.02**	**0.03**	**0.09**				**0.03**	**0.01**	**1,161.30**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.74	0.00	5.74	0.00	0.00	0.00						0.00
Off-Road	3.27	23.19	16.34	0.03		1.60	1.60		1.60	1.60				0.29		2,624.56
Total	**3.27**	**23.19**	**16.34**	**0.03**	**5.74**	**1.60**	**7.34**	**0.00**	**1.60**	**1.60**				**0.29**		**2,624.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.52	5.69	2.94	0.01	2.72	0.19	2.91	0.02	0.19	0.21				0.03		703.13
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**0.60**	**5.78**	**4.03**	**0.01**	**2.92**	**0.20**	**3.11**	**0.03**	**0.20**	**0.22**				**0.04**		**864.26**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.58	0.00	2.58	0.00	0.00	0.00						0.00
Off-Road	1.99	12.56	17.05	0.03		1.13	1.13		1.13	1.13				0.29		2,624.56
Total	**1.99**	**12.56**	**17.05**	**0.03**	**2.58**	**1.13**	**3.71**	**0.00**	**1.13**	**1.13**				**0.29**		**2,624.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.52	5.69	2.94	0.01	2.72	0.19	2.91	0.02	0.19	0.21				0.03		703.13
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**0.60**	**5.78**	**4.03**	**0.01**	**2.92**	**0.20**	**3.11**	**0.03**	**0.20**	**0.22**				**0.04**		**864.26**

3.3 Grading (with haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.59	0.00	19.59	9.93	0.00	9.93						0.00
Off-Road	9.25	78.56	42.33	0.07		3.44	3.44		3.44	3.44				0.83		7,352.32
Total	**9.25**	**78.56**	**42.33**	**0.07**	**19.59**	**3.44**	**23.03**	**9.93**	**3.44**	**13.37**				**0.83**		**7,352.32**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.95	23.61	10.17	0.03	4.88	0.96	5.84	0.11	0.96	1.07				0.09		3,360.86
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**2.03**	**23.70**	**11.26**	**0.03**	**5.08**	**0.97**	**6.04**	**0.12**	**0.97**	**1.08**				**0.10**		**3,521.99**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.82	0.00	8.82	4.47	0.00	4.47						0.00
Off-Road	5.16	33.56	35.47	0.07		2.06	2.06		2.06	2.06				0.83		7,352.32
Total	**5.16**	**33.56**	**35.47**	**0.07**	**8.82**	**2.06**	**10.88**	**4.47**	**2.06**	**6.53**				**0.83**		**7,352.32**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.95	23.61	10.17	0.03	4.88	0.96	5.84	0.11	0.96	1.07				0.09		3,360.86
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**2.03**	**23.70**	**11.26**	**0.03**	**5.08**	**0.97**	**6.04**	**0.12**	**0.97**	**1.08**				**0.10**		**3,521.99**

3.4 Grading (no haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.58	0.00	18.58	9.93	0.00	9.93						0.00
Off-Road	9.25	78.56	42.33	0.07		3.44	3.44		3.44	3.44				0.83		7,352.32
Total	**9.25**	**78.56**	**42.33**	**0.07**	**18.58**	**3.44**	**22.02**	**9.93**	**3.44**	**13.37**				**0.83**		**7,352.32**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**0.08**	**0.09**	**1.09**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**				**0.01**		**161.13**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.36	0.00	8.36	4.47	0.00	4.47						0.00
Off-Road	5.16	33.56	35.47	0.07		2.06	2.06		2.06	2.06				0.83		7,352.32
Total	**5.16**	**33.56**	**35.47**	**0.07**	**8.36**	**2.06**	**10.42**	**4.47**	**2.06**	**6.53**				**0.83**		**7,352.32**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.08	0.09	1.09	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		161.13
Total	**0.08**	**0.09**	**1.09**	**0.00**	**0.20**	**0.01**	**0.20**	**0.01**	**0.01**	**0.01**				**0.01**		**161.13**

3.5 Underground Infraestructure - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.19	23.67	16.41	0.03		1.42	1.42		1.42	1.42				0.28		2,753.19
Total	**3.19**	**23.67**	**16.41**	**0.03**		**1.42**	**1.42**		**1.42**	**1.42**				**0.28**		**2,753.19**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.73	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		107.42
Total	**0.05**	**0.06**	**0.73**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**107.42**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.89	12.30	17.50	0.03		1.04	1.04		1.04	1.04				0.28		2,753.19
Total	**1.89**	**12.30**	**17.50**	**0.03**		**1.04**	**1.04**		**1.04**	**1.04**				**0.28**		**2,753.19**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.73	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		107.42
Total	**0.05**	**0.06**	**0.73**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**107.42**

3.6 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.68	30.96	19.79	0.04		2.04	2.04		2.04	2.04				0.42		3,426.97
Total	**4.68**	**30.96**	**19.79**	**0.04**		**2.04**	**2.04**		**2.04**	**2.04**				**0.42**		**3,426.97**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.26	3.33	1.62	0.00	0.17	0.11	0.28	0.01	0.11	0.12				0.01		515.34
Worker	0.27	0.31	3.64	0.01	0.65	0.02	0.68	0.02	0.02	0.05				0.03		537.10
Total	**0.53**	**3.64**	**5.26**	**0.01**	**0.82**	**0.13**	**0.96**	**0.03**	**0.13**	**0.17**				**0.04**		**1,052.44**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.00	17.24	20.88	0.04		1.46	1.46		1.46	1.46				0.42		3,426.97
Total	**3.00**	**17.24**	**20.88**	**0.04**		**1.46**	**1.46**		**1.46**	**1.46**				**0.42**		**3,426.97**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.26	3.33	1.62	0.00	0.17	0.11	0.28	0.01	0.11	0.12				0.01		515.34
Worker	0.27	0.31	3.64	0.01	0.65	0.02	0.68	0.02	0.02	0.05				0.03		537.10
Total	**0.53**	**3.64**	**5.26**	**0.01**	**0.82**	**0.13**	**0.96**	**0.03**	**0.13**	**0.17**				**0.04**		**1,052.44**

3.6 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.30	28.66	19.54	0.04		1.82	1.82		1.82	1.82				0.38		3,426.22
Total	**4.30**	**28.66**	**19.54**	**0.04**		**1.82**	**1.82**		**1.82**	**1.82**				**0.38**		**3,426.22**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.24	3.04	1.50	0.00	0.17	0.10	0.27	0.01	0.10	0.11				0.01		515.82
Worker	0.25	0.28	3.33	0.01	0.65	0.02	0.68	0.02	0.02	0.05				0.03		525.32
Total	**0.49**	**3.32**	**4.83**	**0.01**	**0.82**	**0.12**	**0.95**	**0.03**	**0.12**	**0.16**				**0.04**		**1,041.14**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.00	17.24	20.88	0.04		1.46	1.46		1.46	1.46				0.38		3,426.22
Total	**3.00**	**17.24**	**20.88**	**0.04**		**1.46**	**1.46**		**1.46**	**1.46**				**0.38**		**3,426.22**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.24	3.04	1.50	0.00	0.17	0.10	0.27	0.01	0.10	0.11				0.01		515.82
Worker	0.25	0.28	3.33	0.01	0.65	0.02	0.68	0.02	0.02	0.05				0.03		525.32
Total	**0.49**	**3.32**	**4.83**	**0.01**	**0.82**	**0.12**	**0.95**	**0.03**	**0.12**	**0.16**				**0.04**		**1,041.14**

3.7 Paving (tennis courts) - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.31	24.25	8.36	0.04		0.78	0.78		0.78	0.78				0.21		4,064.78
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.31**	**24.25**	**8.36**	**0.04**		**0.78**	**0.78**		**0.78**	**0.78**				**0.21**		**4,064.78**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.06	0.80	0.39	0.00	0.05	0.03	0.07	0.00	0.03	0.03				0.00		135.74
Worker	0.07	0.09	1.00	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		157.60
Total	**0.13**	**0.89**	**1.39**	**0.00**	**0.25**	**0.04**	**0.27**	**0.01**	**0.04**	**0.04**				**0.01**		**293.34**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.04		0.00	0.00		0.00	0.00				0.21		4,064.78
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.04**		**0.00**	**0.00**		**0.00**	**0.00**				**0.21**		**4,064.78**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
Vendor	0.06	0.80	0.39	0.00	0.05	0.03	0.07	0.00	0.03	0.03				0.00		135.74
Worker	0.07	0.09	1.00	0.00	0.20	0.01	0.20	0.01	0.01	0.01				0.01		157.60
Total	**0.13**	**0.89**	**1.39**	**0.00**	**0.25**	**0.04**	**0.27**	**0.01**	**0.04**	**0.04**				**0.01**		**293.34**

3.8 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	41.28					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27				0.04		282.10
Total	**41.77**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**				**0.04**		**282.10**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.67	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		105.06
Total	**0.05**	**0.06**	**0.67**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**105.06**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	41.28					0.00	0.00		0.00	0.00						0.00
Off-Road	0.25	1.48	1.83	0.00		0.15	0.15		0.15	0.15				0.04		282.10
Total	**41.53**	**1.48**	**1.83**	**0.00**		**0.15**	**0.15**		**0.15**	**0.15**				**0.04**		**282.10**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		0.00
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
Worker	0.05	0.06	0.67	0.00	0.13	0.00	0.14	0.00	0.00	0.01				0.01		105.06
Total	**0.05**	**0.06**	**0.67**	**0.00**	**0.13**	**0.00**	**0.14**	**0.00**	**0.00**	**0.01**				**0.01**		**105.06**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.32	0.73	3.17	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		442.04
Unmitigated	0.32	0.73	3.17	0.00	0.46	0.03	0.48	0.02	0.03	0.04				0.02		442.04
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Health Club	79.66	79.66	79.66	137,626	137,626
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	79.66	79.66	79.66	137,626	137,626

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	9.50	7.30	7.30	33.00	48.00	19.00
Health Club	9.50	7.30	7.30	16.90	64.10	19.00
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.07	0.60	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	719.21
NaturalGas Unmitigated	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	861.14
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Health Club	7265.06	0.08	0.71	0.60	0.00		0.00	0.05		0.00	0.05				0.02	0.02	859.92
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Recreational Swimming Pool	10.3101	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	1.22
Total		**0.08**	**0.71**	**0.60**	**0.00**		**0.00**	**0.05**		**0.00**	**0.05**				**0.02**	**0.02**	**861.14**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Health Club	6.06599	0.07	0.59	0.50	0.00		0.00	0.05		0.00	0.05				0.01	0.01	717.99
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	0.00
Recreational Swimming Pool	0.0103101	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00	0.00	1.22
Total		**0.07**	**0.59**	**0.50**	**0.00**		**0.00**	**0.05**		**0.00**	**0.05**				**0.01**	**0.01**	**719.21**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Unmitigated	2.92	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.57					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**2.92**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**				**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.57					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00				0.00		0.00
Total	**2.92**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**				**0.00**		**0.00**

UCR Student Recreation Center Expansion Project

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Non-Asphalt Surfaces	2.2	Acre
City Park	2.3	Acre
Health Club	79.656	1000sqft
Recreational Swimming Pool	39.2	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.4		
		Precipitation Freq (Days)			

1.3 User Entered Comments

28

Project Characteristics -

Land Use - Health club are like gyms, per ITE land use description.
City park is the unpaved SW, NW, NE corners and W strip
Other non-asphalt is tennis courts

Construction Phase - Schedule according to info provided.
Split grading with haul/no haul phase;soil import for 1 week
Demo 6/18-7/6; Grad 7/9-13 then 7/16-8/3; Trench 8/6-24; all 2012
Bldg 8/27/12-12/20/13; Pave 1/7-4/5/13; coat 10/7-12/13/13

Off-road Equipment - default

Off-road Equipment - Bldg-default less gen set

Off-road Equipment - Demo-2 exc, 2 backhoe per UCR

Off-road Equipment - per info provided

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Grad-3 dozer, 1 grader per UCR

Off-road Equipment - Pave-2 other (vendor import concrete)

Off-road Equipment - trench-3 exc, 1 loader per UCR

Trips and VMT - demo haul trip is 5.8 miles; 20 cy trucks; 400 1-way trips
soil import 205 round trip; 20 miles
added 5 vendor trips/day for tennis/pool/hardscape

Demolition - Demo est 4,000 tons

Grading - 4100 cy imported during the "grading with haul" phase
7.2 acres disturbed incl offsite utility corridors

Architectural Coating - No exterior painting

Vehicle Trips - There are no new vehicle trips with this project.

Area Coating - No exterior coating

Energy Use - Energy-Pool data from pool consultant, w/cover; factors adjusted to give KWh and Kbtu match
Inputs are nontitle elec 6.207; nontitle gas 0.096
Energy-Health club is Rec bldg using CalEEMod defaults

Water And Wastewater - Water-Pool water use is 2x evaporation with pool cover. Pool cover savings is 44.6%, similar to overall outdoor 50 percent
Water-Pool indoor use is in rec bldg
Water-Health Club is rec bldg using CalEEMod defaults

Construction Off-road Equipment Mitigation - Water exposed area 2x daily per Rule 403 and PP 4.3-2b
Unpaved road 15 mph per PP 4.3-2b
All diesel >50hp Tier 3 per MM 4.3-1

Area Mitigation - Low VOC cleaning per project description

Energy Mitigation - Excee Title 24 by 34% per PD

Water Mitigation - 50 percent irrigation water use per project description

Solid Waste - Negligible solid waste for pool

Waste Mitigation - Assume campus recycling and compost reduce solid waste 15 percent

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.39	2.81	1.87	0.00	0.30	0.16	0.46	0.11	0.16	0.27			301.10	0.03	0.00	301.76
2013	1.73	4.95	3.45	0.01	0.11	0.28	0.39	0.01	0.28	0.28			645.28	0.06	0.00	646.47
Total	**2.12**	**7.76**	**5.32**	**0.01**	**0.41**	**0.44**	**0.85**	**0.12**	**0.44**	**0.55**			**946.38**	**0.09**	**0.00**	**948.23**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.25	1.58	1.87	0.00	0.17	0.11	0.29	0.05	0.11	0.16			301.10	0.03	0.00	301.76
2013	1.48	2.68	3.35	0.01	0.11	0.21	0.31	0.01	0.21	0.21			645.28	0.06	0.00	646.47
Total	**1.73**	**4.26**	**5.22**	**0.01**	**0.28**	**0.32**	**0.60**	**0.06**	**0.32**	**0.37**			**946.38**	**0.09**	**0.00**	**948.23**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.53	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Energy	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01			469.01	0.02	0.01	471.92
Mobile	0.05	0.13	0.57	0.00	0.08	0.01	0.08	0.00	0.01	0.01			68.37	0.00	0.00	68.44
Waste						0.00	0.00		0.00	0.00			92.21	5.45	0.00	206.65
Water						0.00	0.00		0.00	0.00			29.34	0.15	0.00	33.65
Total	**0.59**	**0.26**	**0.68**	**0.00**	**0.08**	**0.01**	**0.09**	**0.00**	**0.01**	**0.02**			**658.93**	**5.62**	**0.01**	**780.66**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.53	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Energy	0.01	0.11	0.09	0.00		0.00	0.01		0.00	0.01			424.46	0.02	0.01	427.10
Mobile	0.05	0.13	0.57	0.00	0.08	0.01	0.08	0.00	0.01	0.01			68.37	0.00	0.00	68.44
Waste						0.00	0.00		0.00	0.00			78.38	4.63	0.00	175.65
Water						0.00	0.00		0.00	0.00			20.62	0.12	0.00	24.18
Total	**0.59**	**0.24**	**0.66**	**0.00**	**0.08**	**0.01**	**0.09**	**0.00**	**0.01**	**0.02**			**591.83**	**4.77**	**0.01**	**695.37**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.04	0.00	0.04	0.01	0.00	0.01			0.00	0.00	0.00	0.00
Off-Road	0.02	0.17	0.12	0.00		0.01	0.01		0.01	0.01			17.81	0.00	0.00	17.85
Total	**0.02**	**0.17**	**0.12**	**0.00**	**0.04**	**0.01**	**0.05**	**0.01**	**0.01**	**0.02**			**17.81**	**0.00**	**0.00**	**17.85**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.02	0.00	0.02	0.00	0.00	0.00			4.74	0.00	0.00	4.75
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			1.01	0.00	0.00	1.01
Total	**0.00**	**0.04**	**0.03**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**			**5.75**	**0.00**	**0.00**	**5.76**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.02	0.00	0.02	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Off-Road	0.01	0.09	0.13	0.00		0.01	0.01		0.01	0.01			17.81	0.00	0.00	17.85
Total	**0.01**	**0.09**	**0.13**	**0.00**	**0.02**	**0.01**	**0.03**	**0.00**	**0.01**	**0.01**			**17.81**	**0.00**	**0.00**	**17.85**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.02	0.00	0.02	0.00	0.00	0.00			4.74	0.00	0.00	4.75
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			1.01	0.00	0.00	1.01
Total	**0.00**	**0.04**	**0.03**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**			**5.75**	**0.00**	**0.00**	**5.76**

3.3 Grading (with haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.05	0.00	0.05	0.03	0.00	0.03			0.00	0.00	0.00	0.00
Off-Road	0.02	0.20	0.11	0.00		0.01	0.01		0.01	0.01			16.63	0.00	0.00	16.67
Total	**0.02**	**0.20**	**0.11**	**0.00**	**0.05**	**0.01**	**0.06**	**0.03**	**0.01**	**0.04**			**16.63**	**0.00**	**0.00**	**16.67**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.06	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00			7.60	0.00	0.00	7.60
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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.34	0.00	0.00	0.34
Total	**0.00**	**0.06**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**			**7.94**	**0.00**	**0.00**	**7.94**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.02	0.00	0.02	0.01	0.00	0.01			0.00	0.00	0.00	0.00
Off-Road	0.01	0.08	0.09	0.00		0.01	0.01		0.01	0.01			16.63	0.00	0.00	16.67
Total	**0.01**	**0.08**	**0.09**	**0.00**	**0.02**	**0.01**	**0.03**	**0.01**	**0.01**	**0.02**			**16.63**	**0.00**	**0.00**	**16.67**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.06	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00			7.60	0.00	0.00	7.60
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
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.34	0.00	0.00	0.34
Total	**0.00**	**0.06**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**			**7.94**	**0.00**	**0.00**	**7.94**

3.4 Grading (no haul) - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.14	0.00	0.14	0.07	0.00	0.07			0.00	0.00	0.00	0.00
Off-Road	0.07	0.59	0.32	0.00		0.03	0.03		0.03	0.03			49.89	0.01	0.00	50.01
Total	**0.07**	**0.59**	**0.32**	**0.00**	**0.14**	**0.03**	**0.17**	**0.07**	**0.03**	**0.10**			**49.89**	**0.01**	**0.00**	**50.01**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			1.01	0.00	0.00	1.01
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**1.01**	**0.00**	**0.00**	**1.01**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.06	0.00	0.06	0.03	0.00	0.03			0.00	0.00	0.00	0.00
Off-Road	0.04	0.25	0.27	0.00		0.02	0.02		0.02	0.02			49.89	0.01	0.00	50.01
Total	**0.04**	**0.25**	**0.27**	**0.00**	**0.06**	**0.02**	**0.08**	**0.03**	**0.02**	**0.05**			**49.89**	**0.01**	**0.00**	**50.01**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			1.01	0.00	0.00	1.01
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**1.01**	**0.00**	**0.00**	**1.01**

3.5 Underground Infraestructure - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.18	0.12	0.00		0.01	0.01		0.01	0.01			18.69	0.00	0.00	18.73
Total	**0.02**	**0.18**	**0.12**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**			**18.69**	**0.00**	**0.00**	**18.73**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.67	0.00	0.00	0.68
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**0.67**	**0.00**	**0.00**	**0.68**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.09	0.13	0.00		0.01	0.01		0.01	0.01			18.69	0.00	0.00	18.73
Total	**0.01**	**0.09**	**0.13**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**			**18.69**	**0.00**	**0.00**	**18.73**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.67	0.00	0.00	0.68
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**0.67**	**0.00**	**0.00**	**0.68**

3.6 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.21	1.41	0.90	0.00		0.09	0.09		0.09	0.09			141.05	0.02	0.00	141.42
Total	**0.21**	**1.41**	**0.90**	**0.00**		**0.09**	**0.09**		**0.09**	**0.09**			**141.05**	**0.02**	**0.00**	**141.42**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.01	0.15	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01			21.18	0.00	0.00	21.20
Worker	0.01	0.01	0.15	0.00	0.03	0.00	0.03	0.00	0.00	0.00			20.46	0.00	0.00	20.49
Total	**0.02**	**0.16**	**0.23**	**0.00**	**0.04**	**0.00**	**0.04**	**0.00**	**0.00**	**0.01**			**41.64**	**0.00**	**0.00**	**41.69**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.14	0.78	0.95	0.00		0.07	0.07		0.07	0.07			141.05	0.02	0.00	141.42
Total	**0.14**	**0.78**	**0.95**	**0.00**		**0.07**	**0.07**		**0.07**	**0.07**			**141.05**	**0.02**	**0.00**	**141.42**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.01	0.15	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01			21.18	0.00	0.00	21.20
Worker	0.01	0.01	0.15	0.00	0.03	0.00	0.03	0.00	0.00	0.00			20.46	0.00	0.00	20.49
Total	**0.02**	**0.16**	**0.23**	**0.00**	**0.04**	**0.00**	**0.04**	**0.00**	**0.00**	**0.01**			**41.64**	**0.00**	**0.00**	**41.69**

3.6 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.55	3.64	2.48	0.00		0.23	0.23		0.23	0.23			393.71	0.04	0.00	394.64
Total	**0.55**	**3.64**	**2.48**	**0.00**		**0.23**	**0.23**		**0.23**	**0.23**			**393.71**	**0.04**	**0.00**	**394.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.03	0.38	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01			59.18	0.00	0.00	59.21
Worker	0.03	0.04	0.39	0.00	0.08	0.00	0.08	0.00	0.00	0.01			55.86	0.00	0.00	55.93
Total	**0.06**	**0.42**	**0.60**	**0.00**	**0.10**	**0.01**	**0.11**	**0.00**	**0.01**	**0.02**			**115.04**	**0.00**	**0.00**	**115.14**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.38	2.19	2.65	0.00		0.19	0.19		0.19	0.19			393.71	0.04	0.00	394.64
Total	**0.38**	**2.19**	**2.65**	**0.00**		**0.19**	**0.19**		**0.19**	**0.19**			**393.71**	**0.04**	**0.00**	**394.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.03	0.38	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01			59.18	0.00	0.00	59.21
Worker	0.03	0.04	0.39	0.00	0.08	0.00	0.08	0.00	0.00	0.01			55.86	0.00	0.00	55.93
Total	**0.06**	**0.42**	**0.60**	**0.00**	**0.10**	**0.01**	**0.11**	**0.00**	**0.01**	**0.02**			**115.04**	**0.00**	**0.00**	**115.14**

3.7 Paving (tennis courts) - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.08	0.79	0.27	0.00		0.03	0.03		0.03	0.03			119.68	0.01	0.00	119.81
Paving	0.00					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Total	**0.08**	**0.79**	**0.27**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**			**119.68**	**0.01**	**0.00**	**119.81**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			3.99	0.00	0.00	3.99
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00			4.29	0.00	0.00	4.29
Total	**0.00**	**0.03**	**0.04**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**			**8.28**	**0.00**	**0.00**	**8.28**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			119.68	0.01	0.00	119.81
Paving	0.00					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**			**119.68**	**0.01**	**0.00**	**119.81**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
Vendor	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			3.99	0.00	0.00	3.99
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00			4.29	0.00	0.00	4.29
Total	**0.00**	**0.03**	**0.04**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**			**8.28**	**0.00**	**0.00**	**8.28**

3.8 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.03					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Off-Road	0.01	0.07	0.05	0.00		0.01	0.01		0.01	0.01			6.38	0.00	0.00	6.40
Total	**1.04**	**0.07**	**0.05**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**			**6.38**	**0.00**	**0.00**	**6.40**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00			2.20	0.00	0.00	2.20
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**2.20**	**0.00**	**0.00**	**2.20**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.03					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Off-Road	0.01	0.04	0.05	0.00		0.00	0.00		0.00	0.00			6.38	0.00	0.00	6.40
Total	**1.04**	**0.04**	**0.05**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**			**6.38**	**0.00**	**0.00**	**6.40**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00
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
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00			2.20	0.00	0.00	2.20
Total	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			**2.20**	**0.00**	**0.00**	**2.20**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.05	0.13	0.57	0.00	0.08	0.01	0.08	0.00	0.01	0.01			68.37	0.00	0.00	68.44
Unmitigated	0.05	0.13	0.57	0.00	0.08	0.01	0.08	0.00	0.01	0.01			68.37	0.00	0.00	68.44
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Health Club	79.66	79.66	79.66	137,626	137,626
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Total	79.66	79.66	79.66	137,626	137,626

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	9.50	7.30	7.30	33.00	48.00	19.00
Health Club	9.50	7.30	7.30	16.90	64.10	19.00
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00			306.07	0.01	0.01	307.99
Electricity Unmitigated						0.00	0.00		0.00	0.00			327.26	0.01	0.01	329.31
NaturalGas Mitigated	0.01	0.11	0.09	0.00		0.00	0.01		0.00	0.01			118.35	0.00	0.00	119.07
NaturalGas Unmitigated	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01			141.71	0.00	0.00	142.57
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Health Club	2.65175e+006	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01			141.51	0.00	0.00	142.37
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Recreational Swimming Pool	3763.2	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.20	0.00	0.00	0.20
Total		**0.01**	**0.13**	**0.11**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**			**141.71**	**0.00**	**0.00**	**142.57**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Health Club	2.21409e+006	0.01	0.11	0.09	0.00		0.00	0.01		0.00	0.01			118.15	0.00	0.00	118.87
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Recreational Swimming Pool	3763.2	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.20	0.00	0.00	0.20
Total		**0.01**	**0.11**	**0.09**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**			**118.35**	**0.00**	**0.00**	**119.07**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
City Park	0					0.00	0.00	0.00	0.00
Health Club	881792					256.49	0.01	0.00	258.09
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	243314					70.77	0.00	0.00	71.22
Total						**327.26**	**0.01**	**0.00**	**329.31**

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
City Park	0					0.00	0.00	0.00	0.00
Health Club	808939					235.30	0.01	0.00	236.77
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	243314					70.77	0.00	0.00	71.22
Total						**306.07**	**0.01**	**0.00**	**307.99**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.53	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Unmitigated	0.53	0.00	0.00	0.00		0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.10					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Consumer Products	0.43					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Landscaping	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	**0.53**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**			**0.00**	**0.00**	**0.00**	**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.10					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Consumer Products	0.43					0.00	0.00		0.00	0.00			0.00	0.00	0.00	0.00
Landscaping	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	**0.53**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**			**0.00**	**0.00**	**0.00**	**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					20.62	0.12	0.00	24.18
Unmitigated					29.34	0.15	0.00	33.65
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
City Park	0 / 0					0.00	0.00	0.00	0.00
Health Club	4.71134 / 2.8876					27.23	0.15	0.00	31.52
Other Non-Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0 / 0.65351					2.11	0.00	0.00	2.13
Total						**29.34**	**0.15**	**0.00**	**33.65**

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
City Park	0 / 0					0.00	0.00	0.00	0.00
Health Club	3.92172 / 1.4438					19.56	0.12	0.00	23.12
Other Non-Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0 / 0.326755					1.06	0.00	0.00	1.06
Total						**20.62**	**0.12**	**0.00**	**24.18**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					78.38	4.63	0.00	175.65
Unmitigated					92.21	5.45	0.00	206.65
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
City Park	0.2					0.04	0.00	0.00	0.09
Health Club	454.06					92.17	5.45	0.00	206.56
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Total						**92.21**	**5.45**	**0.00**	**206.65**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
City Park	0.17					0.03	0.00	0.00	0.08
Health Club	385.951					78.34	4.63	0.00	175.58
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Recreational Swimming Pool	0					0.00	0.00	0.00	0.00
Total						**78.37**	**4.63**	**0.00**	**175.66**

Appendix B

Tree Survey Data

TREE SURVEY DATA

Tree No.	Tree Species		# Main Trunks	Diameter at Breast Height (in)	Sum of Largest 2 Trunks	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Within Project Boundary	Within Staging Area	Requires Replacement	To Be Removed
	Common Name	Botanical Name											
1	California fan palm	*Washingtonia filifera*	1	20.1	20.1	30	10	4	3		X		
2	American sweetgum	*Liquidambar styraciflua*	1	4.9	4.9	15	15	3	3		X		
3	California fan palm	*Washingtonia filifera*	1	13.8	13.8	30	10	4	3	X			
4	Chinese elm	*Ulmus parviflora*	1	15.4	15.4	30	25	3	2	X		X	X
5	ash	*Fraxinus sp.*	1	18.1	18.1	25	20	4	3	X		X	X
6	camphor	*Cinnamomum camphora*	1	3.9	3.9	10	5	3	3				
7	ash	*Fraxinus sp.*	1	20.5	20.5	30	20	4	3				
8	gum	*Eucalyptus sp.*	1	13.4	13.4	20	15	3	2				
9	California fan palm	*Washingtonia filifera*	1	12.6	12.6	35	10	3	3				
10	gum	*Eucalyptus sp.*	1	13.0	13.0	30	20	4	3				
11	California fan palm	*Washingtonia filifera*	1	11.8	11.8	40	10	4	3				
12	California fan palm	*Washingtonia filifera*	1	11.0	11.0	20	10	4	2				
13	California fan palm	*Washingtonia filifera*	1	9.8	9.8	30	10	4	3				
14	California fan palm	*Washingtonia filifera*	1	12.6	12.6	30	10	4	3				
15	gum	*Eucalyptus sp.*	1	9.8	9.8	25	20	4	3				
16	gum	*Eucalyptus sp.*	4	6.7, 4.7, 4.5, 3.1	11.4	25	15	3	2				
17	gum	*Eucalyptus sp.*	1	12.6	12.6	20	20	4	3				
18	California fan palm	*Washingtonia filifera*	1	16.3	16.3	96	10	4	3				
19	California fan palm	*Washingtonia filifera*	1	13.0	13.0	40	10	4	3				
20	camphor	*Cinnamomum camphora*	1	15.0	15.0	20	25	5	4				
21	oak	*Quercus sp.*	1	8.7	8.7	15	15	4	3				
22	oak	*Quercus sp.*	1	7.3	7.3	15	15	4	3				
23	Chinese elm	*Ulmus parviflora*	1	5.1	5.1	15	15	4	3				
24	Chinese elm	*Ulmus parviflora*	1	5.1	5.1	15	15	4	3				
25	pine	*Pinus sp.*	1	8.7	8.7	15	10	3	2				
26	pine	*Pinus sp.*	1	8.7	8.7	15	10	3	2				
27	pine	*Pinus sp.*	1	9.4	9.4	15	10	3	2				
28	pine	*Pinus sp.*	1	7.9	7.9	15	10	3	2				
29	pine	*Pinus sp.*	1	6.3	6.3	15	10	3	2				
30	pine	*Pinus sp.*	1	6.3	6.3	15	10	3	2				
31	Chinese elm	*Ulmus parviflora*	1	5.1	5.1	15	20	4	3				
32	oak	*Quercus sp.*	1	11.4	11.4	30	25	4	4				
33	unknown		1	9.4	9.4	20	20	3	3				

TREE SURVEY DATA
(Continued)

Tree No.	Tree Species		# Main Trunks	Diameter at Breast Height (in)	Sum of Largest 2 Trunks	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Within Project Boundary	Within Staging Area	Requires Replacement	To Be Removed
	Common Name	Botanical Name											
34	oak	*Quercus sp.*	1	6.7	6.7	20	25	4	3				
35	oak	*Quercus sp.*	1	6.3	6.3	15	20	4	3				
36	oak	*Quercus sp.*	1	10.6	10.6	20	18	2	2				
37	oak	*Quercus sp.*	2	14.6, 12.2	26.8	35	30	5	4				
38	locust	*Robinia sp.*	1	7.1	7.1	20	20	4	3				
39	locust	*Robinia sp.*	1	7.5	7.5	20	20	4	3				
40	Chinese elm	*Ulmus parviflora*	1	3.9	3.9	15	15	4	3				
41	locust	*Robinia sp.*	1	7.1	7.1	20	15	4	3				
42	ash	*Fraxinus sp.*	1	7.5	7.5	20	15	4	3				
43	camphor	*Cinnamomum camphora*	1	15.0	15.0	25	20	4	4				
44	camphor	*Cinnamomum camphora*	1	15.7	15.7	25	20	3	4				
45	camphor	*Cinnamomum camphora*	1	13.0	13.0	25	20	4	4				
46	camphor	*Cinnamomum camphora*	1	15.4	15.4	25	20	4	4				
47	oak	*Quercus sp.*	1	13.0	13.0	35	20	5	4	X			
48	oak	*Quercus sp.*	1	14.6	14.6	35	20	5	4	X			
49	camphor	*Cinnamomum camphora*	1	15.4	15.4	25	20	5	4	X			
50	camphor	*Cinnamomum camphora*	1	16.9	16.9	25	20	4	4	X			
51	camphor	*Cinnamomum camphora*	1	16.1	16.1	30	20	4	4	X			
52	oak	*Quercus sp.*	1	21.3	21.3	35	25	5	4	X			
53	camphor	*Cinnamomum camphora*	1	11.6	11.6	20	15	3	4	X			
54	camphor	*Cinnamomum camphora*	1	15.4	15.4	25	20	2	4	X			
55	camphor	*Cinnamomum camphora*	1	22.0	22.0	25	25	4	5	X			
56	locust	*Robinia sp.*	1	15.0	15.0	30	25	4	3	X		X	X
57	locust	*Robinia sp.*	3	7.5, 7.3, 4.3	14.8	18	15	2	2				
58	camphor	*Cinnamomum camphora*	1	5.5	5.5	15	10	4	3				
59	locust	*Robinia sp.*	1	8.1	8.1	15	15	4	3				
60	locust	*Robinia sp.*	1	6.7	6.7	15	15	4	3				
61	locust	*Robinia sp.*	1	7.9	7.9	15	15	4	3				
62	locust	*Robinia sp.*	1	7.1	7.1	15	15	4	3				
63	locust	*Robinia sp.*	1	7.5	7.5	15	15	4	3				
64	locust	*Robinia sp.*	1	8.7	8.7	15	15	4	3				
65	locust	*Robinia sp.*	1	7.1	7.1	15	15	4	3				
66	locust	*Robinia sp.*	1	7.1	7.1	15	15	4	3				

TREE SURVEY DATA
(Continued)

Tree No.	Tree Species		# Main Trunks	Diameter at Breast Height (in)	Sum of Largest 2 Trunks	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Within Project Boundary	Within Staging Area	Requires Replacement	To Be Removed
	Common Name	Botanical Name											
67	oak	*Quercus sp.*	1	10.2	10.2	18	15	5	1	X			X
68	oak	*Quercus sp.*	1	9.4	9.4	20	15	5	1	X			X
69	American sweetgum	*Liquidambar styraciflua*	1	6.3	6.3	18	10	4	3	X			X
70	London plane	*Platanus acerifolia*	1	14.6	14.6	30	30	5	4	X		X	X
71	London plane	*Platanus acerifolia*	1	12.0	12.0	30	20	5	4	X		X	X
72	London plane	*Platanus acerifolia*	1	16.3	16.3	35	25	5	4	X		X	X
73	oak	*Quercus sp.*	1	15.4	15.4	25	20	5	4	X		X	X
74	oak	*Quercus sp.*	1	10.2	10.2	20	20	5	4	X			
75	ash	*Fraxinus sp.*	1	34.6	34.6	40	25	5	4	X		X	X
76	American sweetgum	*Liquidambar styraciflua*	1	7.1	7.1	25	15	4	3	X			X
77	American sweetgum	*Liquidambar styraciflua*	1	7.9	7.9	25	15	4	3	X			X
78	American sweetgum	*Liquidambar styraciflua*	1	8.7	8.7	25	15	4	3	X			X
79	American sweetgum	*Liquidambar styraciflua*	1	7.5	7.5	25	15	4	3	X			X
80	American sweetgum	*Liquidambar styraciflua*	1	9.4	9.4	25	15	3	3	X			X
81	American sweetgum	*Liquidambar styraciflua*	1	10.6	10.6	30	15	4	3	X			X
82	American sweetgum	*Liquidambar styraciflua*	1	11.0	11.0	30	15	4	3	X			X
83	American sweetgum	*Liquidambar styraciflua*	1	8.7	8.7	30	15	4	3	X			X
84	American sweetgum	*Liquidambar styraciflua*	1	7.5	7.5	30	15	4	3	X			X
85	American sweetgum	*Liquidambar styraciflua*	1	7.1	7.1	25	15	4	3		X		
86	American sweetgum	*Liquidambar styraciflua*	1	5.5	5.5	25	15	4	3		X		
87	American sweetgum	*Liquidambar styraciflua*	1	5.9	5.9	20	15	4	3		X		
88	flowering pear	*Pyrus sp.*	1	5.5	5.5	15	10	4	3	X			X
89	flowering pear	*Pyrus sp.*	1	8.3	8.3	20	15	4	3	X			X
90	flowering pear	*Pyrus sp.*	1	6.3	6.3	15	15	4	3	X			X
91	flowering pear	*Pyrus sp.*	1	7.1	7.1	15	15	4	3	X			X
92	flowering pear	*Pyrus sp.*	1	7.1	7.1	15	15	4	3	X			X
93	flowering pear	*Pyrus sp.*	1	7.1	7.1	20	15	4	3	X			X
94	flowering pear	*Pyrus sp.*	1	5.5	5.5	15	15	4	3	X			X
95	flowering pear	*Pyrus sp.*	1	5.5	5.5	15	15	4	3	X			X
96	flowering pear	*Pyrus sp.*	1	7.9	7.9	20	15	4	3	X			X
97	flowering pear	*Pyrus sp.*	1	5.5	5.5	15	15	4	3	X			X
98	flowering pear	*Pyrus sp.*	1	5.5	5.5	15	15	4	3	X			X
99	flowering pear	*Pyrus sp.*	1	5.5	5.5	15	15	4	3	X			X

TREE SURVEY DATA
(Continued)

Tree No.	Tree Species		# Main Trunks	Diameter at Breast Height (in)	Sum of Largest 2 Trunks	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Within Project Boundary	Within Staging Area	Requires Replacement	To Be Removed
	Common Name	Botanical Name											
100	flowering pear	*Pyrus sp.*	1	5.5	5.5	15	15	4	3	X			X
101	flowering pear	*Pyrus sp.*	1	5.5	5.5	15	15	4	3	X			X
102	flowering pear	*Pyrus sp.*	1	7.9	7.9	15	15	4	3	X			X
103	flowering pear	*Pyrus sp.*	1	5.1	5.1	15	15	4	3	X			X
104	flowering pear	*Pyrus sp.*	1	5.1	5.1	15	15	4	3	X			X
105	flowering pear	*Pyrus sp.*	1	3.9	3.9	15	15	4	3	X			X
106	flowering pear	*Pyrus sp.*	1	3.9	3.9	15	15	4	3	X			X
107	flowering pear	*Pyrus sp.*	1	3.9	3.9	15	15	4	3	X			X
108	flowering pear	*Pyrus sp.*	1	3.9	3.9	15	10	4	3	X			X
109	flowering pear	*Pyrus sp.*	1	3.5	3.5	15	10	4	3	X			X
110	flowering pear	*Pyrus sp.*	1	3.5	3.5	15	10	4	3	X			X
111	flowering pear	*Pyrus sp.*	1	7.9	7.9	15	10	4	3	X			X
112	coast live oak	*Quercus agrifolia*	1	9.1	9.1	15	20	3	4	X		X	X
113	coast live oak	*Quercus agrifolia*	1	7.1	7.1	12	15	3	3	X		X	X
114	oak	*Quercus sp.*	1	3.5	3.5	10	10	2	2	X			X
115	coast live oak	*Quercus agrifolia*	1	5.9	5.9	12	15	3	3	X		X	X
116	coast live oak	*Quercus agrifolia*	1	5.5	5.5	15	15	4	3	X		X	X
117	coast live oak	*Quercus agrifolia*	1	6.7	6.7	15	15	4	3	X		X	X
118	coast live oak	*Quercus agrifolia*	1	5.1	5.1	15	15	3	3	X		X	X
119	coast live oak	*Quercus agrifolia*	1	9.1	9.1	20	15	2	3	X		X	X
120	coast live oak	*Quercus agrifolia*	1	9.8	9.8	20	15	2	3	X		X	X
121	coast live oak	*Quercus agrifolia*	1	9.8	9.8	20	20	3	3	X		X	X
122	coast live oak	*Quercus agrifolia*	1	12.6	12.6	20	15	2	3	X		X	X
123	coast live oak	*Quercus agrifolia*	1	4.3	4.3	10	10	2	3	X		X	X
124	coast live oak	*Quercus agrifolia*	1	11.8	11.8	20	15	4	4	X		X	X
125	oak	*Quercus sp.*	1	2.8	2.8	10	15	4	3	X			X
126	coast live oak	*Quercus agrifolia*	1	7.9	7.9	15	15	3	3	X		X	X
127	coast live oak	*Quercus agrifolia*	1	8.3	8.3	15	15	3	3	X		X	X
128	coast live oak	*Quercus agrifolia*	1	7.1	7.1	10	15	3	3	X		X	X
129	coast live oak	*Quercus agrifolia*	1	13.2	13.2	15	20	4	4	X		X	X
130	Chinese elm	*Ulmus parviflora*	1	7.1	7.1	15	15	4	3	X			X
131	Chinese elm	*Ulmus parviflora*	1	5.9	5.9	15	15	4	3	X			X
132	Chinese elm	*Ulmus parviflora*	1	3.1	3.1	15	15	4	3	X			X

TREE SURVEY DATA
(Continued)

Tree No.	Tree Species		# Main Trunks	Diameter at Breast Height (in)	Sum of Largest 2 Trunks	Height (ft)	Canopy Diameter (ft)	Health Rating	Aesthetic Rating	Within Project Boundary	Within Staging Area	Requires Replacement	To Be Removed
	Common Name	Botanical Name											
133	Chinese elm	*Ulmus parviflora*	1	3.5	3.5	15	15	4	3	X			X
134	Chinese elm	*Ulmus parviflora*	1	6.3	6.3	15	15	4	3	X			X
135	Chinese elm	*Ulmus parviflora*	1	5.5	5.5	15	15	4	3	X			X
136	Chinese elm	*Ulmus parviflora*	1	4.7	4.7	15	15	4	3	X			X
137	Chinese elm	*Ulmus parviflora*	1	3.5	3.5	15	15	4	3	X			X
138	palo verde	*Parkinsonia sp.*	1	4.7	4.7	20	20	3	3				
139	black willow	*Salix goodingii*	1	7.9	7.9	15	12	3	2	X			
140	unknown		1	3.9	3.9	20	20	3	2	X			
141	ash	*Fraxinus sp.*	1	29.5	29.5	45	30	3	2				
142	acacia	*Acacia sp.*	1	3.0	3.0	6	12	3	3				
143	Peruvian pepper	*Schinus molle*	1	11.8	11.8	30	35	3	2	X			
144	ash	*Fraxinus sp.*	1	7.9	7.9	50	35	3	3	X			
145	Peruvian pepper	*Schinus molle*	4	4.7, 3.9, 3.1, 3.0	8.6	20	30	3	2	X			
146	ash	*Fraxinus sp.*	1	5.9	5.9	25	35	3	2				
147	Peruvian pepper	*Schinus molle*	3	3.9, 3.1, 3.0	7.0	20	30	3	2				
148	ash	*Fraxinus sp.*	6	6, 5, 5, 4, 4, 4	11.0	25	25	3	2				
149	California fan palm	*Washingtonia filifera*	1	15.0	15.0	20	15	3	3				
150	Peruvian pepper	*Schinus molle*	3	4.7, 3.1, 3.0	7.8	20	25	3	2				
151	blue gum	*Eucalyptus globulus*	1	36.2	36.2	50	60	4	4				
152	Peruvian pepper	*Schinus molle*	3	5.9, 4.7, 3.9	10.6	20	35	3	2				
153	blue gum	*Eucalyptus globulus*	1	47.2	47.2	60	60	4	4				
154	blue gum	*Eucalyptus globulus*	1	27.6	27.6	50	60	4	4				
									TOTAL	86	5	24	70.0

Tree health and aesthetic values are rated in the following manner: 5=excellent, 4=good, 3=average/fair, 2=poor, 1=very poor

Appendix C

Geotechnical Study

C.H.J. Incorporated
1355 E. Cooley Drive, Colton, CA 92324 ◆ Phone (909) 824-7210 ◆ Fax (909) 824-7209
15345 Anacapa Road, Suite D, Victorville, CA 92392 ◆ Phone (760) 243-0506 ◆ Fax (760) 243-1225

June 20, 2011

University of California, Riverside
Office of Design & Construction
3615A Canyon Crest Drive
Riverside, California 92507
Attention: Ms. Jacqueline Norman

Job No. 11300-3
UCR No. 950523

Dear Ms. Norman:

This letter transmits six copies of the Geotechnical Investigation report prepared for the proposed Student Recreation Center Expansion project, to be located south of the existing Recreation Center, west of Aberdeen Drive and south of Linden Street, within the University of California campus, in the City of Riverside, California.

We appreciate this opportunity to provide geotechnical services for this project. If you have questions or comments concerning this report, please contact this firm at your convenience.

Respectfully submitted,
C.H.J., INCORPORATED

Jay J. Martin, E.G.
Vice President

JJM:ndt

Distribution: University of California, Riverside (6)

GEOTECHNICAL INVESTIGATION
PROPOSED
STUDENT RECREATION CENTER EXPANSION
UNIVERSITY OF CALIFORNIA, RIVERSIDE
PROJECT NO. 950523
PREPARED FOR
UNIVERSITY OF CALIFORNIA, RIVERSIDE
OFFICE OF DESIGN AND CONSTRUCTION
JOB NO. 11300-3

C.H.J. Incorporated
1355 E. Cooley Drive, Colton, CA 92324 • Phone (909) 824-7210 • Fax (909) 824-7209
15345 Anacapa Road, Suite D, Victorville, CA 92392 • Phone (760) 243-0506 • Fax (760) 243-1225
77-564A Country Club Drive, Suite 122, Palm Desert, CA 92211 • Phone (760) 772-8234 • Fax (909) 824-7209

June 20, 2011

University of California, Riverside
Office of Design & Construction
3615A Canyon Crest Drive
Riverside, California 92507
Attention: Ms. Jacqueline Norman

CHJ Job No. 11300-3
UCR No. 950523

Dear Ms. Norman:

Attached herewith is the Geotechnical Investigation report prepared for the proposed Student Recreation Center Expansion project, to be located south of the existing Recreation Center, west of Aberdeen Drive and south of Linden Street, within the University of California campus, in the City of Riverside, California.

This report was based upon a scope of services generally outlined in our proposal letter, dated May 17, 2011, and other written and verbal communications.

We appreciate this opportunity to provide geotechnical services for this project. If you have questions or comments concerning this report, please contact this firm at your convenience.

Respectfully submitted,
C.H.J., INCORPORATED

Jay J. Martin, E.G.
Vice President

JJM:ndt

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF APPENDICES

GEOTECHNICAL INVESTIGATION
PROPOSED
STUDENT RECREATION CENTER EXPANSION
UNIVERSITY OF CALIFORNIA, RIVERSIDE
PROJECT NO. 950523
PREPARED FOR
UNIVERSITY OF CALIFORNIA, RIVERSIDE
OFFICE OF DESIGN AND CONSTRUCTION
JOB NO. 11300-3

INTRODUCTION

During June 2011, a geotechnical investigation was performed by this firm for the proposed Student Recreation Center Expansion project, to be located south of the existing Recreation Center located south of Linden Street and west of Aberdeen Drive, within the University of California, Riverside campus. Information provided to this firm indicates that the project includes a two-story building similar to the existing structure in design. It is our understanding that the first floor footprint of the structure will occupy approximately 32,500 square feet. In addition to the proposed two-story structure, a new pool and below-grade pool equipment room is proposed for the area south of the addition, and new tennis courts are proposed to the east and southeast.

The purpose of this investigation was to explore and evaluate the geotechnical conditions at the subject site and to provide appropriate geotechnical recommendations for design and construction of the proposed development.

To orient our investigation, a first floor master site plan indicating the location of the proposed building and improvements relative to existing site features was furnished for our use. In addition, a set of topographic plans (1" = 100 feet scale), dated May 23, 2011, prepared by TMAD Taylor & Gaines, was furnished for our use. The approximate location of the proposed Recreation Center Expansion is shown on the attached Index Map (Enclosure "A-1").

We previously performed an investigation that included five hollow-stem auger borings within the proposed project area. Improvements constructed at that time include the tennis courts, hockey rink, basketball courts, and sand volleyball courts (C.H.J., Incorporated, 1999a). We also provided compaction observation and testing of earthwork performed for construction of the existing improvements within the proposed project area (C.H.J., Incorporated, 1999b).

The results of our investigation, together with our conclusions and recommendations, are presented in this report.

SCOPE OF SERVICES

The scope of services provided during this geotechnical investigation included the following:

- Review of published and unpublished literature and maps
- Review and analysis of aerial imagery dated from 1931 to 2009
- A field reconnaissance of the site and surrounding area
- Logging and sampling of eight (8) exploratory borings for testing and evaluation
- Placement of four (4) Cone Penetrometer Test (CPT) soundings
- Laboratory testing on selected samples including density, moisture content, optimum moisture- maximum density relationships, direct shear strength, hydroconsolidation, sieve analysis, hydrometer analysis, Atterberg limits, expansion tests, and chemical/corrosivity analyses
- Evaluation of geologic and geotechnical data including:
  - geologic concerns and hazards, including faulting and seismicity
  - liquefaction potential
  - seismic settlement and seismic differential settlement
  - soil expansion potential

- Development of site-specific recommendations regarding:
  - site grading
  - shallow foundation design
  - dynamic and static lateral earth pressures
  - preliminary shoring design
  - mitigation of potential geotechnical concerns and hazards such as liquefaction and seismic settlement

PROJECT CONSIDERATIONS

Information provided to this firm indicates that the project includes a two-story building similar to the existing structure in design. It is our understanding that the footprint of the structure will occupy approximately 32,500 square feet. In addition to the proposed two-story structure, a new pool and below-grade pool equipment room are proposed for the area south of the addition, and new tennis courts are proposed to the east and southeast. The proposed project also includes associated landscape and utility extensions. The project site is located south of Linden Street and west of Aberdeen Drive.

Grading or foundation plans were not available at the time of this investigation. The foundation and grading plans should be reviewed by the geotechnical engineer.

SITE DESCRIPTION

The project area is bounded to the east by a westward descending slope approximately 5 to 7 feet in height and exhibiting a gradient of approximately 2 horizontal to 1 vertical [2(h):1(v)] or less. The top of a south-descending slope parallels the southern project boundary approximately 25 feet to the south and exhibits a gradient of approximately 2(h):1(v) or less and varies from about 13 to 16 feet in height. This slope descends to an east-west oriented 'arroyo' that bisects the campus. North of the

project area is the existing Recreation Center building and associated landscape turf. West of the project area is a landscape area, walkway, and asphalt-paved parking lot.

Existing improvements within the project area include tennis courts, sand volleyball courts, a concrete surface hockey rink and associated landscaping and flatwork. Elevations within the project area vary from approximately 1,068 feet above mean sea level (amsl) in the northeast corner to 1,055 feet in the southwest corner, forming a relatively level area sloping gently to the west-southwest. The finished floor elevation (FFE) of the existing Recreation Center is approximately 1,068 feet amsl. The finished slab elevations of the existing tennis courts vary from approximately 1,055 to 1,057 feet amsl. The finished surface elevation of the existing hockey rink is approximately 1,060 feet amsl. Existing elevations within the area of the proposed new tennis courts vary from approximately 1,065 feet amsl in the northeast portion to 1,058 feet amsl in the southwest portion.

As part of this investigation, aerial photographs and imagery dating back to 1931 were reviewed for past land usage and evidence of geotechnical hazards. In 1931 the site appears as undeveloped land with possible dry cultivation surrounded by orchard-type plantings. In addition, a shallow tributary of the arroyo is visible within the area of Aberdeen Drive beyond the southeast corner of the site. In 1948 an orchard is present along the southern portion of the site, and a housing development is present north of the site across Linden Street. In 1953, the orchard is not present and the site remains undeveloped. In 1962 the existing housing development located across Aberdeen Drive to the east is present; the athletic track is present west of the site, and the site remains undeveloped. From 1974 to 1990 the site is occupied by a baseball diamond and outfield area. In 1994 the existing Recreation Center is present north of the site and the baseball diamond remains. In 2002, the existing tennis courts, hockey rink, and basketball courts are visible within the site. Based on available documents, grading for the existing tennis courts and associated infrastructure was performed between November 1999 and January 2000.

No evidence of faulting or recent flooding was observed on the site in the aerial photographs.

FIELD INVESTIGATION

The soil conditions underlying the subject site were explored by means of eight (8) hollow-stem auger (HSA) borings and four (4) CPT borings. The HSA borings were drilled with a CME 75 truck rig equipped for soil sampling. Five HSA borings were also placed within the site during our prior investigation in 1999. The approximate locations of our exploratory borings are indicated on the attached Site Plan (Enclosure "A-2").

Continuous logs of the subsurface conditions, as encountered within the exploratory borings, were recorded at the time of drilling by a staff geologist from this firm. Both an SPT sampler (2-inch outer diameter and 1-3/8-inch inner diameter) and a modified California sampler (3-1/4-inch outer diameter and 2-3/8-inch inner diameter) were utilized in our investigation. Relatively undisturbed samples were obtained by driving the modified California sampler (a split-spoon ring sampler) ahead of the borings at selected levels. The penetration resistance was recorded on the boring logs as the number of hammer blows used to advance the sampler in 6-inch increments (or less if noted). Samplers are driven with an automatic hammer that drops a 140-pound weight 30 inches for each blow. After the required seating, samplers are advanced up to 18 inches, providing up to 3 sets of blowcounts at each sampling interval. The recorded blows are raw numbers without any corrections for hammer type (automatic vs. manual cat head) or sampler size (California sampler vs. SPT sampler). Relatively undisturbed, as well as bulk, samples of typical soil types obtained were returned to the laboratory in sealed containers for testing and evaluation.

Our exploratory boring logs, both current and prior (1999), together with our in-place blowcounts per 6-inch increment, are presented in Appendix "B". The stratification lines presented on the boring logs represent approximate boundaries between soil types, which may include gradual transitions.

In order to provide additional understanding of the soil profiles at the site, four CPT soundings were advanced utilizing a 25-ton CPT ring. The CPT soundings were advanced to a maximum depth of approximately 50 feet. The CPT logs are included in Appendix "B".

LABORATORY INVESTIGATION

Included in our laboratory testing program were moisture content tests on all samples returned to the laboratory and dry density tests on all relatively undisturbed samples. The results are included on the exploratory boring logs. Optimum moisture content - maximum dry density relationships were established for typical soil types in order that the relative compaction of the subsoils might be evaluated. Direct shear tests on selected relatively undisturbed as well as remolded bulk samples of soils were performed in order to provide shear strength parameters for bearing capacity, lateral resistance, and earth pressure evaluations. Hydroconsolidation tests were performed on selected relatively undisturbed samples in order to evaluate hydroconsolidation settlement. Sieve analyses and Atterberg limits testing were performed on selected samples of soil for classification purposes and to provide parameters necessary for liquefaction and seismic settlement analyses.

Selected samples of materials were delivered to HDR/Schiff for soil corrosivity analyses.

Summaries of the laboratory test results are presented in Appendix "C".

SITE GEOLOGY AND SUBSURFACE SOIL CONDITIONS

The site is located on the Perris Block, a portion of the Peninsular Ranges Geomorphic Province. The Perris Block is a fault-bounded region of relative tectonic stability composed of crystalline bedrock of the Southern California Batholith that is thinly and discontinuously mantled by sedimentary material. Several geomorphic surfaces are well developed on the Perris Block and represent former, local, erosional/depositional base levels. The site lies in the northern portion of the Perris Block near the margin of a bedrock highland where older alluvial surfaces form a gently-sloping surface that is locally dissected by a system of arroyos. The site is situated on a relatively flat-lying bench north of an east-west oriented arroyo known locally as the University Arroyo. A Geologic Index Map is presented as Enclosure "A-3".

The native geologic materials within the project site are mapped as 'very old alluvial-fan deposits' and 'old alluvial-fan deposits' (Morton and Cox, 2001). Fill was encountered within seven of the eight the current HSA borings, to depths ranging from 4 feet to 8 feet below the ground surface (bgs). The fill consists primarily of silty sand. Fill composed of clayey sand was encountered in Exploratory Boring Nos. 11 and 12. Fill was not encountered in Exploratory Boring No. 10. The fill is underlain by native older alluvial sediments composed primarily of silty sand and sand. A layer of clayey sand was encountered in Exploratory Boring No. 5, between 6 and 14 feet bgs.

Data obtained from the CPT soundings generally confirm the soil profiles encountered in the HSA borings.

The native materials underlying the site are generally medium dense to very dense.

Bedrock was not encountered in our exploratory borings to the maximum depth attained (66-1/2 feet).

Refusal to further advancement of the drilling augers was experienced in Exploratory Boring No. 5 at a depth of 66-1/2 feet bgs.

Soil tested during this investigation exhibited a "very low" potential for expansion (E.I. = 4) in accordance with ASTM D 4829.

Consolidation testing and dry density tests on relatively undisturbed samples indicated negligible potential for hydroconsolidation (water-induced collapse).

Groundwater was not encountered within the maximum 66-1/2 foot depth of the current or prior borings.

The results of corrosivity testing are discussed in the "Chemical/Corrosivity Testing" section of this report.

Slight caving of the borings was experienced upon removal of the augers.

A more detailed description of the subsurface soil conditions encountered is presented on the attached boring logs (Appendix "B").

FAULTING

The site does not lie within or immediately adjacent to an Alquist-Priolo Earthquake Fault Zone (APFZ) designated by the State of California to include traces of suspected active faulting (Hart, 1997). The closest APFZ is located approximately 8-1/2 kilometers (5.3 miles) northeast of the site. No active faults are shown on or in the immediate vicinity of the site on published geologic maps, nor was evidence for active faulting on or immediately adjacent to the site observed during the geologic field reconnaissance or on the aerial photographs reviewed.

The tectonics of the Southern California region are dominated by the interaction of the North American and Pacific tectonic plates, which are sliding past each other in a translational manner. Although some of the motion may be accommodated by rotation of crustal blocks such as the western Transverse Ranges (Dickinson, 1996), the San Andreas fault zone is thought to represent the major surface expression of the tectonic boundary and to be accommodating most of the translational motion between the Pacific Plate and the North American Plate. However, some of the plate motion is accommodated by other northwest-trending, strike-slip faults that are related to the San Andreas system, such as the San Jacinto fault and the Elsinore fault. Local compressional or extensional strain resulting from the translational motion along this boundary is accommodated by left-lateral, reverse, and normal faults such as the Cucamonga fault, the Crafton Hills fault zone, and the blind thrust faults of the Los Angeles Basin (Matti and others, 1992; Morton and Matti, 1993).

The San Jacinto fault zone is a system of northwest-trending right-lateral strike-slip faults. The San Bernardino segment of the San Jacinto fault zone is located approximately 8.7 kilometers (5.4 miles) northeast of the site and is assigned a characteristic maximum magnitude of Mw 7.06. The San

Jacinto Valley segment of the San Jacinto fault zone traverses portions of the San Jacinto Valley and San Timoteo Badlands and is located approximately 13.8 kilometers (8.6 miles) east of the site. The San Jacinto fault zone is considered to contribute the majority of seismic-shaking hazard to the site. More large historic earthquakes have occurred on the San Jacinto fault than any other fault in Southern California (Working Group on California Earthquake Probabilities, 1988). The Working Group on California Earthquake Probabilities (1995) tentatively assigned a 43 percent (±17 percent) probability of a major earthquake on the San Jacinto Valley segment of the San Jacinto fault for the 30-year interval from 1994 to 2024.

The San Andreas fault zone is located along the southwest margin of the San Bernardino Mountains, approximately 21.5 kilometers (13 miles) northeast of the site. The toe of the mountain front in the San Bernardino area roughly demarcates the presently active trace of the San Andreas fault, which is characterized by youthful fault scarps, vegetational lineaments, springs, and offset drainages. The Working Group on California Earthquake Probabilities (1995) tentatively assigned a 28 percent (±13 percent) probability to a major earthquake occurring on the San Bernardino Mountains segment of the San Andreas fault between 1994 and 2024.

The southern margin of the San Gabriel Mountains is coincident with a series of east-west trending, predominantly reverse and thrust faults known as the Transverse Ranges frontal fault system. The San Fernando fault of this system ruptured during the 1971 magnitude (**M**) 6.7 San Fernando earthquake. The Cucamonga fault of this system is located approximately 25 kilometers (15-1/2 miles) north-northwest of the site. Evidence of recent activity on this fault includes fresh scarps, sag ponds, and disrupted Holocene alluvium (Dutcher and Garrett, 1963; Yerkes, 1985; Morton and Yerkes, 1987).

The Glen Ivy segment of the Elsinore fault zone is located approximately 27 kilometers (17 miles) southwest of the site. The Elsinore fault zone is composed of multiple *en echelon* and diverging fault traces and splays into the Whittier and Chino faults to the north. In addition to being a zone of overall right-lateral deformation consistent with the regional plate tectonics, traces of the Elsinore

fault zone form the graben of the Elsinore and Temecula Valleys. Holocene surface rupture events have been documented for several principal strands of the Elsinore fault zone (Saul, 1978; Rockwell and others, 1986; Wills, 1988).

The Box Springs fault was mapped by Rogers (1966) as a buried trace approximately coincident with the northeast corner of the UCR Campus (east of the site) and is visible as a lineament in bedrock southeast of the site. More recent geologic mapping of the site region by Morton and Cox (1994 and 2001) does not include this fault. Mapping by the California Geological Survey (Jennings and Bryant, 2010) does not show faulting associated with the Box Springs fault or nearby faults. The Box Springs fault is not expressed in Pleistocene-age alluvium and is considered to be inactive.

HISTORICAL EARTHQUAKES

The southern California area is one of the most seismically active regions in the United States. A map of recorded earthquake epicenters is included as Enclosure "A-4" (Epi Software, 2000). This map includes the California Institute of Technology database for earthquakes of magnitude 4.0 or greater from 1932 through 2010. Recent significant earthquakes within the site region are summarized in the following table.

Summary of Historic Seismicity

Event	Date	Magnitude	Distance from Site (km)	Direction from Site
Long Beach	March 11, 1933	6.4	70	SW
San Fernando	February 9, 1971	6.6	110	NW
Whittier Narrows	October 1, 1987	5.9	70	WNW
Upland	February 28, 1990	5.4	39	NW
Sierra Madre	June 28, 1991	5.8	70	NW
Landers	June 28, 1992	7.3	85	NE

Summary of Historic Seismicity				
Event	**Date**	**Magnitude**	**Distance from Site (km)**	**Direction from Site**
Big Bear	June 28, 1992	6.4	53	NE
Northridge	January 17, 1994	6.7	115	WNW
Hector Mine	October 16, 1999	7.1	120	NE
Yucaipa	June 16, 2005	4.9	23	NE
Chino Hills	July 29, 2008	5.4	40	W

The Working Group on California Earthquake Probabilities (1988) lists seven **M** 6.0 or greater earthquakes that have occurred on the San Jacinto fault since 1899, although they acknowledge that several of these earlier episodes may have occurred on other nearby faults. Two of these earthquakes took place in the San Bernardino Valley. An **M** 6.5 event in 1899 near Lytle Creek and an **M** 6.2 event in 1923 near Loma Linda may have occurred on the San Jacinto fault. However, Fife and others (1976) and Matti and Carson (1991) suggest that the 1923 event took place on an unnamed fault parallel to and east of the San Jacinto fault.

An **M** 6.0 event in 1910 in the Temescal Valley area is attributed to the Elsinore fault. This event caused damage to structures from Corona to Wildomar (Weber, 1977). Since 1932, four **M** 4.0 or greater earthquakes have occurred along the Elsinore fault zone in the Santiago Peak area (Weber, 1977).

No large earthquakes have occurred on the San Bernardino Mountains segment of the San Andreas fault within the regional historical time frame. Using dendrochronological evidence, Jacoby and others (1987) inferred that a great earthquake on December 8, 1812 ruptured the northern reaches of this segment. Recent trenching studies have revealed evidence of rupture on the San Andreas fault at Wrightwood within this time frame (Fumal and others, 1993). Comparison of rupture events at the Wrightwood site and Pallett Creek, and analysis of reported intensities at the coastal missions, led

Fumal and others (1993) to conclude that the December 8, 1812 event ruptured the San Bernardino Mountains segment of the San Andreas fault largely to the southeast of Wrightwood, possibly extending into the San Bernardino Valley. The average recurrence interval for large earthquakes along the southern San Andreas fault at six paleoseismic sites is 182 years (Stone and others, 2005).

Surface rupture occurred on the Mojave segment of the San Andreas fault in the great 1857 Fort Tejon earthquake. The Coachella Valley segment of the San Andreas fault was responsible for the 1948 **M** 6.5 earthquake in the Desert Hot Springs area and for the 1986 **M** 5.6 earthquake in the North Palm Springs area.

No significant historical earthquakes have been specifically attributed to the Cucamonga fault.

DESIGN ACCELERATION PARAMETERS

The site is not located within an Alquist-Priolo earthquake fault zone, State-designated seismic hazard zone, or zone designated by the City of Riverside or County of Riverside for seismic hazards.

Based on the geologic setting and anticipated earthwork for construction of the proposed project, the soils underlying the site are classified as Site Class D, "stiff soil", according to the 2010 California Building Code (CBC). The seismic parameters according to the 2010 CBC are summarized in the following table.

2010 CBC - Seismic Parameters	
Mapped Spectral Acceleration Parameters	S_s = 1.50 and S_1 = 0.60
Site Coefficients	F_a = 1.0 and F_v = 1.5
Adjusted Maximum Considered Earthquake (MCE) Spectral Response Parameters	S_{MS} = 1.50 and S_{M1} = 0.90
Design Spectral Acceleration Parameters	S_{DS} = 1.00 and S_{D1} = 0.60

The corresponding value of PGA from the design acceleration spectrum according to the 2010 CBC is 0.40g.

GROUNDWATER AND LIQUEFACTION

The site is located in Section 20 of Township 2 South, Range 4 West, in the Riverside-Arlington Subbasin of the Upper Santa Ana Valley groundwater basin. Depth-to-groundwater data in the vicinity of the site is available from the Western Municipal Water District, Cooperative Well Program (2011). These data are summarized in the following table.

State Well No.	Date Measured	Depth to Water (feet)	Approximate Water Surface Elevation (feet)	Location of Well
02S/04W-29M001S	12-03-2010	65.6	986	3/4 mile S
	11-19-2008	65.93	986	
	05-23-1995	63.50	989	
02S/04W-19E	12-07-2010	>127	--	1.1 miles NW
02S/04W-19F	07-01-1996	70	--	0.9 mile NW
02S/04W-19Q	06-02-2009	185	--	1/2 mile W

Based on published groundwater contour mapping by Carson and Matti (1985), the minimum depth to groundwater in the area of the site was approximately 150 feet bgs for the time period from 1973 to 1979. Based on the available data, a historic high groundwater of 60 feet bgs was utilized in our analyses.

LIQUEFACTION POTENTIAL

According to the City of Riverside General Plan (2004) and County of Riverside Land Information System (2011), the site is not located in an area identified as having a potential for liquefaction.

Liquefaction is a process in which strong ground shaking causes saturated soils to lose their strength and behave as a fluid (Matti and Carson, 1991). Ground failure associated with liquefaction can result in severe damage to structures. Soil types susceptible to liquefaction include sand, silty sand, sandy silt, and silt, as well as soils having a plasticity index (P.I.) less than 7 (Boulanger and Idriss, 2006) and loose soils with a P.I. less than 12 and a moisture content greater than 85 percent of the liquid limit (Bray and Sancio, 2006). The geologic conditions for increased susceptibility to liquefaction are: 1) shallow groundwater (generally less than 50 feet in depth); 2) the presence of unconsolidated sandy alluvium, typically Holocene in age; and 3) strong ground shaking. All three of these conditions must be present for liquefaction to occur.

Due to the low potential for the presence of shallow groundwater beneath the site (greater than 60 feet bgs), and the presence of relatively dense older alluvial soils beneath the site, liquefaction is not considered a hazard at the site.

SEISMICALLY-INDUCED SETTLEMENT

Severe seismic shaking may cause dry and non-saturated sands to densify, resulting in settlement expressed at the ground surface. Seismic settlement in dry soils generally occurs in loose sands and silty sands, with cohesive soils being less prone to significant settlement. Soil types susceptible to liquefaction include silty sand, sand, sandy silt, and clayey silt.

The underlying native soils on the site are comprised predominantly of silty sand (SM) with interbedded sandy clays (SC) and sands with silt (SP-SM). SPT blowcounts and density testing performed on relatively undisturbed samples indicate that the soils encountered generally ranged from medium dense to very dense to the maximum depths attained.

The seismic settlement potential was evaluated for the soil profile encountered in Exploratory Boring No. 5. Using the method outlined by Pradel (1998), calculations were performed to estimate the maximum and the differential settlement to be anticipated as a result of a major seismic event. As

input into our calculations, a deaggregated modal moment magnitude of 7.0 and an acceleration of 0.40g were utilized. The results indicate that a maximum seismic settlement of less than 1/2 inch can be anticipated with the recommended removals being replaced as properly compacted soils. Based on the relative uniformity of soil materials encountered, differential seismic settlement is anticipated to be less than 1/4 inch.

The settlement is accumulated from soil layers to a maximum depth of 66-1/2 feet. The detailed calculations and results are included in Appendix "D".

SUBSIDENCE

Subsidence of the ground surface has been reported in several areas of California. Principal causes have been fluid withdrawal (oil, gas, or water), soil collapse, and oxidation of organic-rich soil. According to the County of Riverside Land Information System (2011), the site is located in a subsidence-susceptible area. The subsidence hazard in this area is primarily related to historic declines in groundwater levels. No organic-rich soils were encountered during this investigation in the area of the site. During the geologic field reconnaissance of the site and surrounding area, no evidence of past ground cracks were observed. Evidence of steeply-inclined geologic contacts that could trigger subsidence cracking at the ground surface was not observed. Based on these observations and the dense nature of older geologic materials underlying the project area, the hazard of subsidence-induced ground cracking or settlement is very low at the site.

HYDROCONSOLIDATION

Density testing and equivalent SPT data from our exploratory borings indicates that the soils encountered were in medium dense to very dense states. To evaluate the potential deformation which may be caused by the addition of water, hydroconsolidation tests were performed on selected representative relatively undisturbed samples. The results are shown in Enclosure "C-5". The results of these tests show that hydroconsolidation strains of 0.6 and 1.6 percent. Based upon the density

testing and equivalent SPT data, it appears that disturbance of the second sample may have occurred. It is our opinion that the hydroconsolidation potential of the soils tested is considered negligible.

SLOPE STABILITY

No evidence of landsliding was observed on the site or in the review of historic aerial photographs, and landsliding is not anticipated. The site is not located in an area identified as having a potential for slope instability. The relatively flat-lying older alluvial fan deposits underlying the site are not anticipated to contain well-developed planes of weakness such as bedding or joints that may be prone to landsliding. Based on the results of our liquefaction evaluation and observations at the site, lateral spreading is not considered to be a hazard.

The site is situated within older alluvium that is anticipated to be relatively cohesive. Temporary cut slopes, shoring, or both may be required during construction. The near surface native soils (Qof and Qvof) at the site are generally classified as Type 'B' soils as per CAL/OSHA (California, State of, 2001). Near surface fill materials encountered in our borings are classified as Type 'C' soils per CAL/OSHA. Accordingly, the steepest inclination allowed by CAL/OSHA for simple temporary slopes up to 20 feet in height in Type 'B' soils is 1(h):1(v) and for Type 'C' soils is 1.5(h):1(v). Slopes for excavations greater than 20 feet should be designed by a registered professional engineer.

FLOODING AND EROSION

No evidence of recent flooding of the site or surrounding area was observed during the geologic mapping or on the aerial photographs reviewed. The northern boundary of a 100-year flood zone is located south of the project area. Proposed project structures are not within the 100-year flood zone. An evaluation of the hazard of flooding to the site and the adequacy of existing flood control measures near the site fall outside the purview of this firm.

According to the City of Riverside General Plan (2004), the site is not located within a potential inundation zone for seismically-induced dam/reservoir failure. No large water storage facilities are known to exist within the area of the site; therefore, the potential for seismically-induced dam failure or seiche to affect the site appears low. The site is not located within a coastal area; therefore, tsunami is not a potential hazard to the site.

CONCLUSIONS

On the basis of our research and field and laboratory investigations, it is the opinion of this firm that construction of the proposed structures is feasible from a geotechnical standpoint, provided the recommendations contained in this report are implemented during planning, grading, and construction.

No evidence of active faulting was observed on or adjacent to the site.

Moderate to severe seismic shaking of the site can be expected during the lifetime of the proposed project.

Fill was encountered within seven of the eight current HSA borings to depths ranging from 4 feet to 8 feet bgs. Based upon the results of our testing and the previous testing and documentation, it is our opinion that the existing fill, with the exception of landscaped areas along the west side where Exploratory Boring No. 12 was located, may be left in place, where possible, and utilized for support of flatwork or pavement.

Bedrock was not encountered in any of the exploratory borings.

Refusal was experienced in Exploratory Borings No. 5 at a depth of 66-1/2 bgs.

No groundwater was encountered within any of our exploratory borings.

All of our current exploratory borings experienced slight caving upon removal of the drilling augers.

Soil tested during this investigation exhibited a "very low" potential for expansion (E.I. = 4) in accordance with ASTM D 4829.

Due to the low potential for the presence of shallow groundwater beneath the site (greater than 60 feet bgs), and the presence of relatively dense older alluvial soils beneath the site, liquefaction is not considered a hazard at the site.

The results indicate that a maximum seismic settlement of less than 1/2 inch can be anticipated with the recommended removals being replaced as properly compacted soils. Based on the relative uniformity of soil materials encountered, differential seismic settlement is anticipated to be less than 1/4 inch.

Density testing and equivalent SPT data from our exploratory borings, as well as hydroconsolidation tests, indicate that the hydroconsolidation potential of the soils tested is negligible.

No evidence of recent significant flooding of the site was observed during the geologic field reconnaissance or on the aerial photographs reviewed. The site is located adjacent to a 100-year flood zone; however, proposed structures are not located within the flood zone. A more detailed evaluation of the flood potential of the site falls under the purview of others.

No evidence of landsliding was observed on the site or in the review of historic aerial photographs, and landsliding is not anticipated. The site is not located in an area identified as having a potential for slope instability.

Based on the site conditions, it is our recommendation that the proposed building structures be supported by conventional shallow foundations on compacted fill. Because of the site conditions, it will be necessary to remove, at a minimum, the upper 18 inches of existing soils in all areas to be

graded. This removal is to be performed in order to locate and facilitate the removal of irrigation utilities, debris, or loose and disturbed soils. The extent and depth of removal should be confirmed by an engineering geologist from this firm during grading. To provide adequate support for the proposed structures, it is our recommendation that the foundation areas be further subexcavated as necessary and recompacted to provide a compacted fill mat beneath footings. A compacted fill mat will provide a dense, uniform, high-strength soil layer to distribute the foundation loads over the underlying soils. Conventional spread foundations, either individual spread footings and/or continuous wall footings, may be utilized in conjunction with a compacted fill mat.

With regard to the below grade pool equipment building, should suitable soils be encountered at foundation depth, and the structure is isolated from adjacent structures to allow for differential settlement, the structure may be founded on approved native soils. The suitability of the soil should be confirmed by an engineering geologist from this firm during grading.

The pool may be founded on approved native soil or properly compacted fill soils.

The proposed grading is expected to be feasible utilizing conventional heavy grading equipment.

RECOMMENDATIONS

DESIGN ACCELERATION PARAMETERS:

Based on the geological setting and subsurface data from the site, the soils underlying the site are classified as Site Class D, "stiff soil profile", according to the 2010 CBC. The Design Acceleration Parameters were determined according to the 2010 CBC and are summarized in the following table.

2010 CBC - Seismic Parameters	
Mapped Spectral Acceleration Parameters	S_s = 1.50 and S_1 = 0.60
Site Coefficients	F_a = 1.0 and F_v = 1.5
Adjusted Maximum Considered Earthquake (MCE) Spectral Response Parameters	S_{MS} = 1.50 and S_{M1} = 0.90
Design Spectral Acceleration Parameters	S_{DS} = 1.00 and S_{D1} = 0.60

The corresponding value of PGA from the design acceleration spectrum according to the 2010 CBC is 0.40g.

Moderate to severe seismic shaking of the site can be expected during the lifetime of the proposed structures and improvements. Therefore, the proposed structures should be designed accordingly.

GENERAL SITE GRADING:

It is imperative that no clearing and/or grading operations be performed without the presence of a representative of the geotechnical engineer. An on-site, pre-job meeting with the project owner, the contractor, and the geotechnical engineer should occur prior to all grading-related operations. Operations undertaken at the site without the geotechnical engineer present may result in exclusions of affected areas from the final compaction report for the project.

Grading of the subject site should be performed, at a minimum, in accordance with these recommendations and with applicable portions of the 2010 CBC. The following recommendations are presented for your assistance in establishing proper grading criteria.

INITIAL SITE PREPARATION:

All areas to be graded should be stripped of significant vegetation and other deleterious materials. These materials should be removed from the site for disposal.

Any existing pockets of undocumented fill or loose disturbed soils encountered during construction should be completely removed, cleaned of significant deleterious materials, and may be reused as compacted fill. Any roots or other deleterious materials encountered at this time should be removed prior to replacing the soil.

Because of the site conditions, it will be necessary to remove, at a minimum, the upper 18 inches of existing soils in all areas to be graded. This removal is to be performed in order to locate and facilitate the removal of irrigation utilities, debris, or loose and disturbed soils. The extent and depth of removal should be confirmed by an engineering geologist from this firm during grading. The removed and cleaned soils may be reused as properly compacted fill. In areas where those irrigation utilities, debris, or loose and disturbed soils are not removed by grading or the mandatory removal, additional removals will be necessary. Following approval, the bottom should be scarified to a depth of approximately 6 inches, brought to near optimum moisture content, and recompacted to at least 90 percent relative compaction (ASTM D 1557) prior to refilling the excavation to grade as properly compacted fill.

Cavities created by removal of subsurface obstructions should be thoroughly cleaned of loose soil, organic matter, and other deleterious materials, shaped to provide access for construction equipment, and backfilled as recommended for site fill.

COMPACTED FILLS:

The on-site soils should provide adequate quality fill material, provided they are free from roots, other organic matter, and deleterious materials. Unless approved by the geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than 8 inches should not be buried or placed in fills.

Import fill should be inorganic, non-expansive granular soil free from rocks or lumps greater than 6 inches in maximum dimension. Sources for import fill should be observed and approved by the geotechnical engineer prior to their use.

Fill should be spread in near-horizontal layers, approximately 8 inches in thickness. Thicker lifts may be approved by the geotechnical engineer if testing indicates that the grading procedures are adequate to achieve the required compaction. Each lift should be spread evenly, thoroughly mixed during spreading to attain uniformity of the material and moisture in each layer, brought to near optimum moisture content, and compacted to a minimum relative compaction of 90 percent in accordance with the current version of ASTM D 1557.

SHRINKAGE AND SUBSIDENCE:

Based upon the relative compaction of the soils tested during this investigation, and the relative compaction anticipated for compacted fill soils, we estimate a compaction shrinkage of approximately 0 to 5 percent. Therefore, 1.0 cubic yards to 1.05 cubic yards of in-place soil material would be necessary to yield 1 cubic yard of properly compacted fill material. In addition, we would anticipate subsidence of approximately 0.1 foot. These values are exclusive of losses due to stripping or the removal of other subsurface obstructions, if encountered, and may vary due to differing conditions within the project boundaries and the limitations of this investigation.

Values presented for shrinkage and subsidence are estimates only. Final grades should be adjusted, and/or contingency plans to import or export material should be made to accommodate possible variations in actual quantities during site grading.

DEWATERING:

Groundwater was not encountered within any of our exploratory borings. Generally, groundwater should not be an issue during construction.

LATERAL LOADING:

Resistance to lateral loads will be provided by passive earth pressure and base friction. For footings bearing against compacted fill, passive earth pressure may be considered to be developed at a rate of 430 pounds per square foot (psf) per foot of depth. Base friction may be computed at 0.45 times the

normal load. Base friction and passive earth pressure may be combined without reduction, but should not be increased by one-third during seismic loadings. If the design is to be based on allowable lateral resistance values, we recommend that minimum factors of safety of 1.5 and 2.0 be applied to the friction coefficient and passive lateral earth pressure, respectively. The resulting allowable lateral resistance values are: passive lateral earth pressure, 215 psf per foot of depth; and base friction coefficient, 0.30.

For preliminary retaining wall design purposes utilizing the existing on-site native and fill materials, a lateral active earth pressure developed at a rate of 35 psf per foot of depth should be utilized for unrestrained conditions. For restrained conditions, an at-rest earth pressure of 60 psf per foot of depth should be utilized. The "at-rest" condition applies to braced walls which are not free to tilt. The "active" condition applies to unrestrained cantilevered walls where wall movement is anticipated. The structural designer should use judgment in determining the wall fixity and may utilize values interpolated between the "at-rest" and "active" conditions where appropriate. These values should be verified prior to construction when the backfill materials and conditions have been determined. These values are applicable only to level properly drained backfill with no additional surcharge loadings and do not include a factor of safety other than conservative modeling of the soil strength parameters. If import material is to be utilized for backfill, an engineer from this firm should verify the backfill has equivalent or superior strength values. Toe bearing pressure for walls on soils not bearing against compacted fill as described earlier under PREPARATION OF FOOTING AREAS should not exceed the 2010 CBC values.

For walls with a surcharge loading, the increase in active pressure can be calculated as the product of 0.28 and the surcharge load, q, (i.e., 0.28×q) for level backfill. The increase in at-rest pressure can be calculated as the product of 0.48 and the surcharge load, q, (i.e., 0.48×q). The resulting additional surcharge pressure should be applied to the wall as a rectangular distribution, from top to bottom.

The typical earth pressure distributions are included in Enclosure "D-2".

For both constrained and nonconstrained poles, the flag pole formulas as well as other requirements in the CBC (2010), Section 1807.3, should be utilized for design proposes. Lateral bearing pressure with the attendant vertical foundation pressure obtained from Class 4 materials in Table 1806.2 may be utilized.

Backfill behind retaining walls should consist of a soil of sufficient granularity that the backfill will properly drain. The granular soil should be classified per the Unified Soil Classified System as either GW, GP, SW, SP, SW-SM, or SP-SM. Surface drainage should be provided to prevent ponding of water behind walls. A drainage system should be installed behind all retaining walls consisting of any of the following:

1. A 4-inch diameter perforated PVC (Schedule 40) pipe or equivalent at the base of the stem encased in 2 cubic feet of granular drain material per linear foot of pipe; or

2. Synthetic drains such as Enkadrain, Miradrain, Hydraway 300, or equivalent

Perforations in the PVC pipe should be 3/8-inch in diameter. Granular drain material should be wrapped with filter cloth to prevent clogging of the drains with fines. Below grade walls should be waterproofed to prevent nuisance seepage. Water should outlet to an approved drain.

Foundation concrete should be placed in neat excavations with vertical sides, or the concrete should be formed and the excavations properly backfilled as recommended for site fill.

SEISMIC LATERAL EARTH PRESSURE:

The seismic earth pressure acting on a cantilevered retaining wall was calculated by the Mononobe-Okabe ("M-O") method (Okabe, 1926; Mononobe and Matsuo, 1929). It is recommended by AASHTO (LRFD Bridge Design Specifications, Fifth Edition, 2010, Section C11.8.6) that the pseudostatic horizontal seismic coefficient (k_h) be taken equal to $k_h=0.5\times PGA=0.20g$. The pseudostatic vertical seismic coefficient (k_v) is usually taken as one-half of k_h. For retaining walls

with non-expansive soils as backfill, a unit weight of 125 pounds per cubic foot (pcf) and a friction angle of 34 degrees were assumed in the calculation. These values should be verified prior to construction when the backfill materials and conditions have been determined and are applicable only to level, properly drained backfill with no additional surcharge loadings.

The total lateral active earth pressure (including static and seismic active earth pressure) developed at a rate of 50 psf per foot of depth should be utilized for unrestrained conditions. A triangular distribution of total seismic earth pressure should be used in the design (Atik & Sitar, 2010).

The above lateral earth pressures are for a cantilever-type wall with level backfill. If inclined backfills are proposed, this firm should be contacted.

EXPANSIVE SOILS:

Since the material tested during this investigation exhibited a "very low" potential for expansion (E.I. = 4) in accordance with ASTM D 4829, specialized construction procedures, such as the inclusion of steel reinforcement in footings and slabs and the moisture-treatment of the slab subgrade soils, will not be necessary. Requirements for reinforcing steel to satisfy structural criteria are not affected by this recommendation. Additional evaluation of soils for expansion potential should be conducted by the soils engineer during the grading operation.

CHEMICAL/CORROSIVITY TESTING:

Selected samples of materials were delivered to HDR/Schiff for soil corrosivity testing. Laboratory testing consisted of pH, resistivity, and major soluble salts commonly found in soils. The results of the laboratory tests performed by HDR/Schiff appear in Enclosure"C-7".

These tests have been performed to screen the site for potentially corrosive soils. Although C.H.J., Incorporated does not practice corrosion engineering, values from the soil tested ranged from potentially "mildly" to "corrosive" to ferrous metals at as-received and saturated conditions. Specific

corrosion control measures, such as coating of the pipe with non-corrosive material or alternative non-metallic pipe material, are considered to be needed if there is a potential for saturated soils.

Ammonium and nitrate levels did not indicate a concern as to corrosion of buried copper.

Results of the soluble sulfate testing indicate a "negligible" anticipated exposure to sulfate attack. Based upon the criteria from Table 4.3.1. of the American Concrete Institute Manual of Concrete Practice (2000), no special measures, such as specific cement types, water-cement ratios, etc., will be needed for this "negligible" exposure to sulfate attack.

The soluble chloride content of the soils tested was not at levels high enough to be of concern with respect to corrosion of reinforcing steel. The results should be considered in combination with the soluble chloride content of the hardened concrete in determining the effect of chloride on the corrosion of reinforcing steel.

C.H.J., Incorporated does not practice corrosion engineering. If further information concerning the corrosion characteristics, or interpretation of the results submitted herein are required, then a competent corrosion engineer could be consulted.

PREPARATION OF FOOTING AREAS:

All footings should rest upon at least 24 inches of properly compacted fill material (or approved original ground soils in the case of the below-grade pool building). In areas where the required thickness of compacted fill is not accomplished by site rough grading, mandatory subexcavation operation, the footing areas should be subexcavated to a depth of 24 inches or more below the proposed footing base grade, with the subexcavation extending at least 10 feet beyond the footing lines, where possible. This subexcavation operation should include a minimum of the upper 18 inches of existing material even though planned filling will be sufficient to satisfy compacted fill thickness requirements. The removal of the upper 18 inches of soil, regardless, is to locate and facilitate the removal of irrigation utilities, debris, or loose and disturbed soils. The bottom of this

excavation should then be scarified to a depth of at least 6 inches, brought to near optimum moisture content, and recompacted to a minimum of 90 percent relative compaction in accordance with ASTM D 1557 prior to refilling the excavation to grade as properly compacted fill.

Should grading result in fill thicknesses that vary by a significant amount, a potential for static differential settlement will exist. As such, it is our recommendation that the thickness of fill not be allowed to vary by more than 50 percent, 10 feet maximum, across any structure. If fill thickness is to vary by more than this amount as a result of grading, it will be necessary to increase the removals in the cut portion of the building pad in order to construct a fill mat with a relatively uniform fill thickness. Fill deeper than 10 feet should be compacted at a minimum of 95 percent relative compaction to reduce the differential settlement potential.

The "structure area" includes the structure footprint and the zone of influence consisting of a 1(h):1(v) downward projection from 5 feet outside the structure footing. Where the depth of subexcavation exceeds 5 feet below finish grade, the overexcavation should extend beyond the footing lines at the bottom of the excavation laterally a minimum distance equal to the depth of subexcavation plus 5 feet (i.e., should subexcavation equal a depth of 15 feet below bottom of footing, the bottom of the subexcavation should extend laterally a distance of 20 feet beyond the footing lines). A determination of specific structural pad areas that require additional subexcavation should be performed at the time of grading.

FOUNDATION DESIGN:

If the site is prepared as recommended, the proposed structures may be safely founded on conventional spread foundations, either individual spread footings and/or continuous wall footings, bearing on a minimum of 24 inches of compacted fill (or approved original ground soils in the case of the below-grade pool building). Footings should not be allowed to span from fill to native soil material. Footings should be a minimum of 12 inches wide and should be established at a minimum depth of 24 inches below lowest adjacent final subgrade level. For the minimum width and depth, footings may be designed for a maximum safe soil bearing pressure of 3,000 pounds per square foot

(psf) for dead plus live loads. This allowable bearing pressure may be increased by 500 psf for each additional foot of width and by 1,000 psf for each additional foot of depth to a maximum safe soil bearing pressure of 4,500 psf for dead plus live loads. These bearing values may be increased by one-third for wind or seismic loading.

For footings thus designed and constructed, we would anticipate a maximum static settlement of 1 inch or less. Differential settlement between similarly loaded adjacent footings is expected to be approximately one-half the total settlement. These settlement estimates do not include seismically-induced settlement.

Foundation concrete should be placed in neat excavations with vertical sides, or the concrete should be formed and the excavations properly backfilled as recommended for site fill.

SLABS-ON-GRADE:

To provide adequate support, concrete slabs-on-grade should bear on a minimum of 12 inches of compacted soil. Concrete slabs-on-grade should be a minimum of 4 inches in thickness. The soil should be compacted to 90 percent relative compaction. The final pad surfaces should be rolled to provide smooth dense surfaces.

Concrete slab-on-grade for the court areas should bear on 6 inches of aggregate or gravel base bearing on a minimum of 12 inches of compacted soil. Slabs should be no less than 4 inches thick and reinforced with 6 inch by 6 inch No. 10 welded wire mesh. Thicker slabs may be necessary as per the tennis court designer.

Slabs to receive moisture-sensitive coverings should be provided with a moisture vapor retarder. We recommend that a vapor retarder be designed and constructed according to the American Concrete Institute (ACI) 302.1R, Concrete Floor and Slab Construction guidelines, which addresses moisture vapor retarder construction. At a minimum, the vapor retarder should comply with ASTM E 1745 and have a nominal thickness of at least 10 mils. The vapor retarder should be properly sealed per the

manufacturer's recommendations and protected from punctures and other damages. Two inches of sand under the vapor retarder may assist in reducing punctures.

Concrete slabs subjected to heavy loads, such as materials storage and/or forklift traffic, should be designed by a registered civil engineer competent in concrete design.

A modulus of vertical subgrade reaction of 200 pounds per cubic inch can be utilized in the design of slabs-on-grade for the proposed project.

PRELIMINARY SHORING RECOMMENDATIONS

GENERAL:

The following recommendations are preliminary and may require revision for final design. The contractor should be responsible for final shoring design and for providing adequate excavation support.

LATERAL PRESSURES:

For design of cantilevered shoring, a triangular distribution of lateral earth pressure may be used. It may be assumed that the retained soils with a level surface behind the cantilevered shoring will exert a lateral pressure equal to that developed by a fluid with a density of 35 pounds pcf.

For the design of tied-back or braced shoring, we recommend the use of a rectangularly distributed apparent earth pressure for calculating the total load. The recommended pressure distribution, for the case where the grade is level behind the shoring, is illustrated in Enclosure "D-2"(e), with the maximum pressure equal to 25H in pounds per square foot (psf), where H is the height of the shoring in feet. The design engineer should refer to FHWA-IF-99-015 for the recommended apparent earth pressure diagram.

In addition to the recommended earth pressures, the upper 10 feet of shoring adjacent to streets or other vehicular traffic areas should be designed to resist a uniform lateral pressure of 100 psf, behind the shoring due to the normal street traffic. If the traffic is kept back at least 10 feet from the shoring, the traffic surcharge may be neglected.

Shoring adjacent to existing buildings should be designed to support the lateral surcharge pressure from existing building foundations, or the foundations should be underpinned.

PRE-JOB CONFERENCE:

It is imperative that no clearing and/or grading operations be performed without the presence of a representative of the geotechnical engineer. An on-site pre-job meeting with the owner, the contractor, and the geotechnical engineer should occur prior to all grading-related operations. It should be stressed that operations undertaken at the site without the presence of the geotechnical engineer may result in exclusions of affected areas from the final compaction report for the project.

CONSTRUCTION OBSERVATION:

All grading operations, including site clearing and stripping, should be observed by a representative of this firm. The presence of our field representative will be for the purpose of providing observation and field testing and will not include any supervising or directing of the actual work of the contractor, his employees, or agents. Neither the presence of our field representative, nor the observations and testing by our firm shall excuse the contractor in any way for defects discovered in his work. It is understood that our firm will not be responsible for job or site safety on this project, which will be the sole responsibility of the contractor.

LIMITATIONS

C.H.J., Incorporated has striven to perform our services within the limits prescribed by our client, and in a manner consistent with the usual thoroughness and competence of reputable geotechnical

engineers and engineering geologists practicing under similar circumstances. No other representation, express or implied, and no warranty or guarantee is included or intended by virtue of the services performed or reports, opinion, documents, or otherwise supplied.

This report reflects the testing conducted on the site as the site existed during the investigation, which is the subject of this report. However, changes in the conditions of a property can occur with the passage of time, due to natural processes or the works of man on this or adjacent properties. Changes in applicable or appropriate standards may also occur whether as a result of legislation, application, or the broadening of knowledge. Therefore, this report is indicative of only those conditions tested at the time of the subject investigation, and the findings of this report may be invalidated fully or partially by changes outside of the control of C.H.J., Incorporated. This report is therefore subject to review and should not be relied upon after a period of one year.

The conclusions and recommendations in this report are based upon observations performed and data collected at separate locations, and interpolation between these locations, carried out for the project and the scope of services described. It is assumed and expected that the conditions between locations observed and/or sampled are similar to those encountered at the individual locations where observation and sampling was performed. However, conditions between these locations may vary significantly. Should conditions be encountered in the field, by the client or any firm performing services for the client or the client's assign, that appear different from those described herein, this firm should be contacted immediately in order that we might evaluate their effect.

If this report or portions thereof are provided to contractors or included in specifications, it should be understood by all parties that they are provided for information only and should be used as such.

The report and its contents resulting from this investigation are not intended or represented to be suitable for reuse on extensions or modifications of the project, or for use on any other project.

CLOSURE

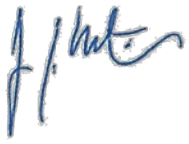
We appreciate this opportunity to be of service and trust this report provides the information desired at this time. Should questions arise, please do not hesitate to contact this firm.

Respectfully submitted,

C.H.J., INCORPORATED

John S. McKeown, E.G. 2396
Project Geologist

06-20-11



Jay J. Martin, E.G. 1529
Vice President

06-20-11

James F. Cooke, R.C.E. 71276
Project Engineer

06-20-11

Allen D. Evans, G.E. 2060
Vice President

06-20-11

JSM/JJM/JFC/ADE:ndt

REFERENCES

American Concrete Institute, 318-05, Chapter 4, Section 4.3, Table 4.3.1.

American Society of Civil Engineers (ASCE), 2006, Minimum design loads for buildings and other structures, ASCE standard 7-05.

AASHTO, 2010 LRFD Bridge Design, Specification, 5th Edition

Boulanger, R.W., and Idriss, I.M., 2006, Liquefaction Susceptibility Criteria for Silts and Clays: American Society of Civil Engineers, Journal of the Geotechnical Engineering Division, v. 132, n. 11, 1413-1426.

Bray, J.D., and Sancio, R.B., 2006, Assessment of the Liquefaction Susceptibility of Fine-Grained Soils: American Society of Civil Engineers, Journal of the Geotechnical and Geoenvironmental Engineering, v. 132, n. 9, p. 1165-1177.

Carson, S.E. and Matti, J.C., 1985, Contour map showing minimum depth to ground water, upper Santa Ana River Valley, California, 1973-1979, U.S. Geologic Survey miscellaneous field studies map MF-1802.

C.H.J., Incorporated, 1999a, Geotechnical Investigation, Tennis Center, Aberdeen Drive, University of California, Riverside, prepared for University of California, Riverside, CHJ Job. No. 99254-3.

C.H.J., Incorporated, 1999b, Compaction Report, Slab Areas, Sports and Recreation Complex Expansion, University of California, Riverside Campus, Riverside, California, prepared for University of California, Riverside, CHJ Job. No. 99879-1.

Dickinson, W. R., 1996, Kinematics of transrotational tectonism in the California Transverse Ranges and its contribution to cumulative slip along the San Andreas transform fault system: Geological Society of America Special Paper 305.

Dutcher, L.C., and Garrett, A.A., 1963, Geologic and hydrologic features of the San Bernardino area, California, with reference to underflow across the San Jacinto fault: U.S. Geological Survey Water Supply Paper 1419.

Epi Software, 2000, Epicenter Plotting Program.

FHWA, 1999, Geotechnical Engineering Circular No. 4, Ground Anchors and Anchored Systems, Publication No. FHWA-IF-99-015.

REFERENCES

Fife, D. L., Rodgers, D. A., Chase, G. W., Chapman, R. H., and Sprotte, E. C., 1976, Geologic hazards in southwestern San Bernardino County, California: California Division of Mines and Geology Special Report 113.

Fumal, T. E., Pezzopane, S. K., Weldon, R. J., and Schwartz, D. P., 1993, A 100-year average recurrence interval for the San Andreas fault at Wrightwood, California: Science, v. 259, p. 199-203.

Hart, E.W., *Fault-Rupture Hazard Zones in California.* California Division of Mines and Geology, Special Publication 42. 1994.

International Conference of Building Officials, 2010, California Building Code; Whittier, California.

Jacoby, J. C., Sheppard, P. R., and Sieh, K. E., 1987, Irregular recurrence of large earthquakes along the San Andreas fault: Evidence from trees, *in* Earthquake geology, San Andreas fault system, Palm Springs to Palmdale: Association of Engineering Geologists, Southern California Section, 35th Annual Meeting, Guidebook and Reprint Volume.

Jennings, C.W. and Bryant, W.A., 2010, Fault activity map of California and adjacent areas: California Division of Mines and Geology Geologic Data Map No. 6.

Matti, J. C., and Carson, S.E ., 1991, Liquefaction susceptibility in the San Bernardino Valley and vicinity, southern California - A regional evaluation: U.S. Geological Survey Bulletin 1898.

Matti, J. C., Morton, D. M., and Cox, B. F., 1992, The San Andreas fault system in the vicinity of the central Transverse Ranges province, Southern California: U.S. Geological Survey Open File Report 92-354.

Mononobe, N., and H. Matsuo, 1929, "On the determination of earth pressures during earthquakes". Proceedings World Engineering Congress, Vol. 9.

Morton, D. M. and Cox, B., 2001, Geologic map of the Riverside East 7.5' quadrangle, Riverside County, California, U.S. Geological Survey Open-File Report 01-452.

Morton, D.M. and Cox, B.F. 1994, Geologic map of the Riverside East Quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 88-754. Scale: 1:24,000.

Morton, D. M. and Matti, J. C., 1993, Extension and contraction within an evolving divergent strike slip fault complex: The San Andreas and San Jacinto fault zones at their convergence in Southern California: *in* Powell, R. E. and others, The San Andreas Fault System: Palinspastic Reconstruction, and Geologic Evolution: Geological Society of America Memoir 178.

REFERENCES

Morton, D. M., and Miller, F. K., 2003, Preliminary Geologic Map of the San Bernardino 30 minute by 60 minute Quadrangle, California, U.S. Geological Survey Open-File Report 03-293. Scale: 1:100,000.

Morton, D. M., and Yerkes, R. F., 1987, Introduction to surface faulting in the Transverse Ranges, California, *in* Morton, D.M., and Yerkes, R.F., eds.: Recent reverse faulting in the Transverse Ranges, California: U.S. Geological Survey Professional Paper 1339, p. 1-5.

Okabe, S. (1926), "General theory of earth pressure." Japan Society of Civil Engineers, Vol. 12, No. 1, Tokyo.

Pradel, D. (1998), "Procedure to Evaluate Earthquake-Induced Settlement in Dry Sand Soils", Journal of Geotechnical and Geoenvironmental Engineering, Vol 124, No. 4.

Petersen, Mark D., Frankel, Arthur D., Harmsen, Stephen C., Mueller, Charles S., Haller, Kathleen M., Wheeler, Russell L., Wesson, Robert L., Zeng, Yuehua, Boyd, Oliver S., Perkins, David M., Luco, Nicolas, Field, Edward H., Wills, Chris J., and Rukstales, Kenneth S., 2008, Documentation for the 2008 Update of the United States National Seismic Hazard Maps: U.S. Geological Survey Open-File Report 2008–1128, 61 p.

Risk Engineering, 2011, EZFRISK computer program, version 7.60.

Riverside, City of, 2004, Safety Element of the General Plan.

Riverside County Land Information System, 2011, http://www3.tlma.co.riverside.ca.us/pa/rclis/index.html, accessed June 1, 2011.

Rockwell, T. K., McElwain, R. S., Millman, D. E., and Lamar, D. L., 1986, Recurrent Late Holocene faulting on the Glen Ivy North strand of the Elsinore fault at Glen Ivy marsh, *in* Ehlig, P.L., ed., Neotectonics and Faulting in Southern California, Guidebook and Volume, 82nd Annual Meeting, Cordilleran Section, Geological Society of America.

Rogers, T. H., 1966, Geologic map of California, Olaf P. Jenkins edition, Santa Ana Sheet: California Division of Mines and Geology. Scale: 1:250,000.

Saul, R., 1978, Elsinore Fault Zone (South Riverside County Segment) with Description of the Murrieta Hot Springs Fault: California Division of Mines and Geology Fault Evaluation Report 76.

Stone, E. L., Grant, L. B., and Arrowsmith, J. R., 2005, Recent rupture history of the San Andreas fault southeast of Cholame in the northern Carrizo Plain, California: Seismological Society of America Bulletin, v. 92, No. 3, pp. 983-997.

REFERENCES

Weber, F. H., 1977, Seismic hazards related to geologic factors, Elsinore and Chino fault zones, northwestern Riverside County, California: California Division of Mines and Geology Open-File Report 77-04. Scale: 1:24,000.

Western Municipal Water District, 2011, Cooperative Well Measuring Program, Covering the Upper Santa Ana River Watershed, the San Jacinto Watershed and the Upper Santa Margarita Watershed.

Wills, C. J., 1988, Ground Cracks in Wolf and Temecula Valleys, Riverside County: California Division of Mines and Geology Fault Evaluation Report 195.

Working Group on California Earthquake Probabilities, 1988, Probabilities of large earthquakes occurring in California on the San Andreas fault: U.S. Geological Survey Open-File Report 88-398.

Working Group on California Earthquake Probabilities, 1995, Seismic hazards in southern California: Probable earthquakes, 1994 to 2024: Bulletin of the Seismological Society of America, v. 85, no. 2, p. 379-439.

Yerkes, R. F., 1985, Earthquake and surface faulting sources - Geologic and seismologic setting, *in* Ziony, J.I., ed., Evaluating earthquake hazards in the Los Angeles region: U.S. Geological Survey Professional Paper 1360, p. 25-41.

Yi, F., 2010, "GeoSuite 2008 version 2.2.0.24 - A Program for Geotechnical Calculations", C.H.J., Incorporated.

AERIAL PHOTOGRAPHS REVIEWED

County of Riverside Flood Control Division, January 28, 1962, black and white aerial photograph no. 1-154.

County of Riverside Flood Control Division, May 24, 1974, black and white aerial photograph nos. 87 and 88.

County of Riverside Flood Control Division, February 23, 1984, black and white aerial photograph nos. 1625 and 1626.

County of Riverside Flood Control Division, January 23, 1990, black and white aerial photograph nos. 3-15 and 3-16.

County of Riverside Flood Control Division, February 1, 1995, black and white aerial photograph nos. 3-16 and 3-17.

Fairchild Aerial Photograph Collection, September 1931, black and white aerial photograph nos. B:76 and B:77.

Google Earth, 2011, web-based software application, aerial imagery dated May 31, 1994; May 21, 2002; and November 15, 2009, accessed June 1, 2011.

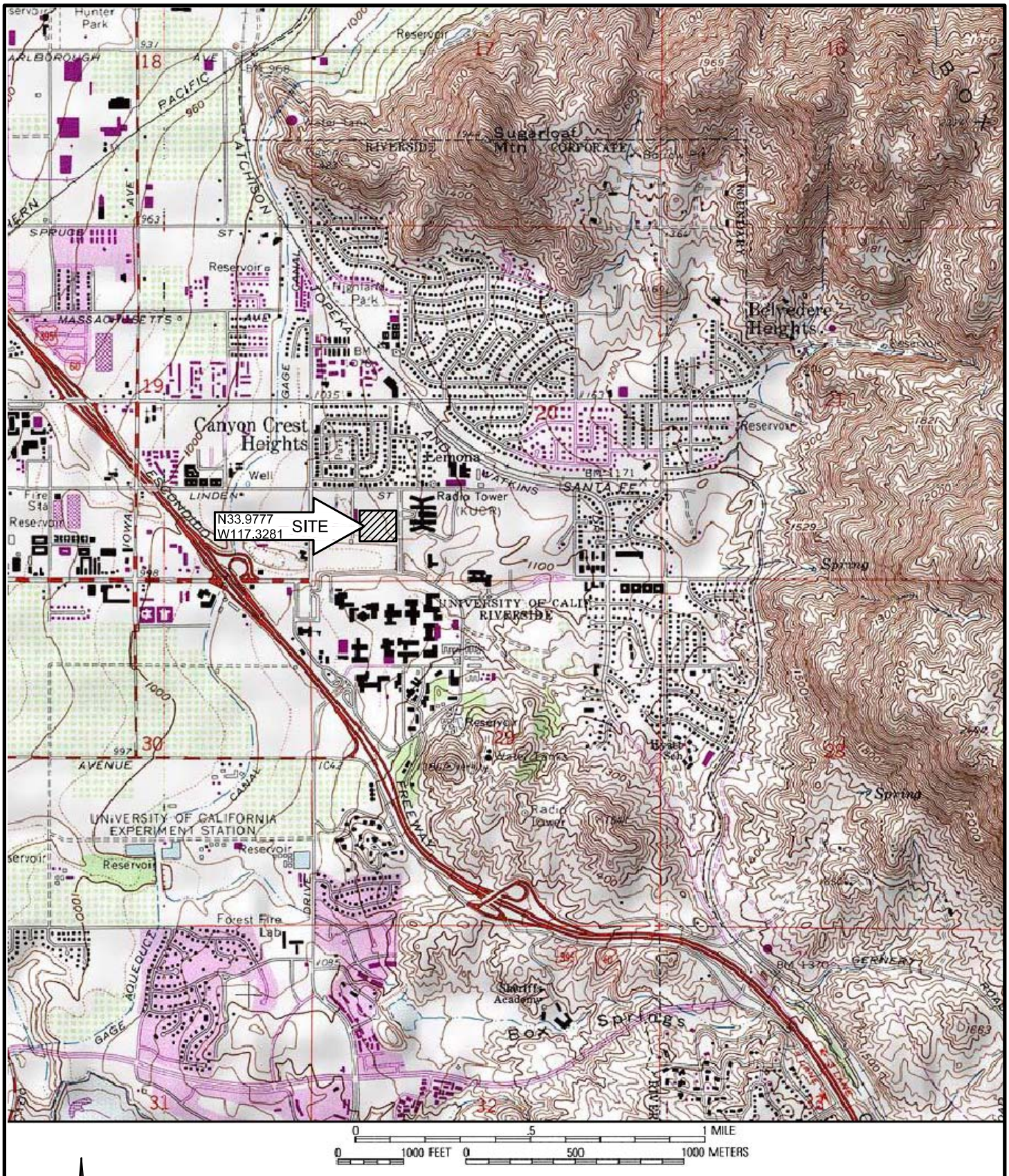
U.S. Department of Agriculture, January 19, 1948, black and white aerial photograph nos. 129 and 130.

U.S. Department of Agriculture, July 8, 1948, black and white aerial photograph nos. 72 and 73.

U. S. Department of Agriculture, September 22, 1953, black and white aerial photographs nos. AXM-5K-83 and -84.

APPENDIX "A"

GEOTECHNICAL MAPS



INDEX MAP

FOR: UNIVERSITY OF CALIFORNIA, RIVERSIDE
OFFICE OF DESIGN AND CONSTRUCTION

DATE: JUNE 2011

GEOTECHNICAL INVESTIGATION
PROPOSED STUDENT RECREATION CENTER EXPANSION
UNIVERSITY OF CALIFORNIA
RIVERSIDE, CALIFORNIA

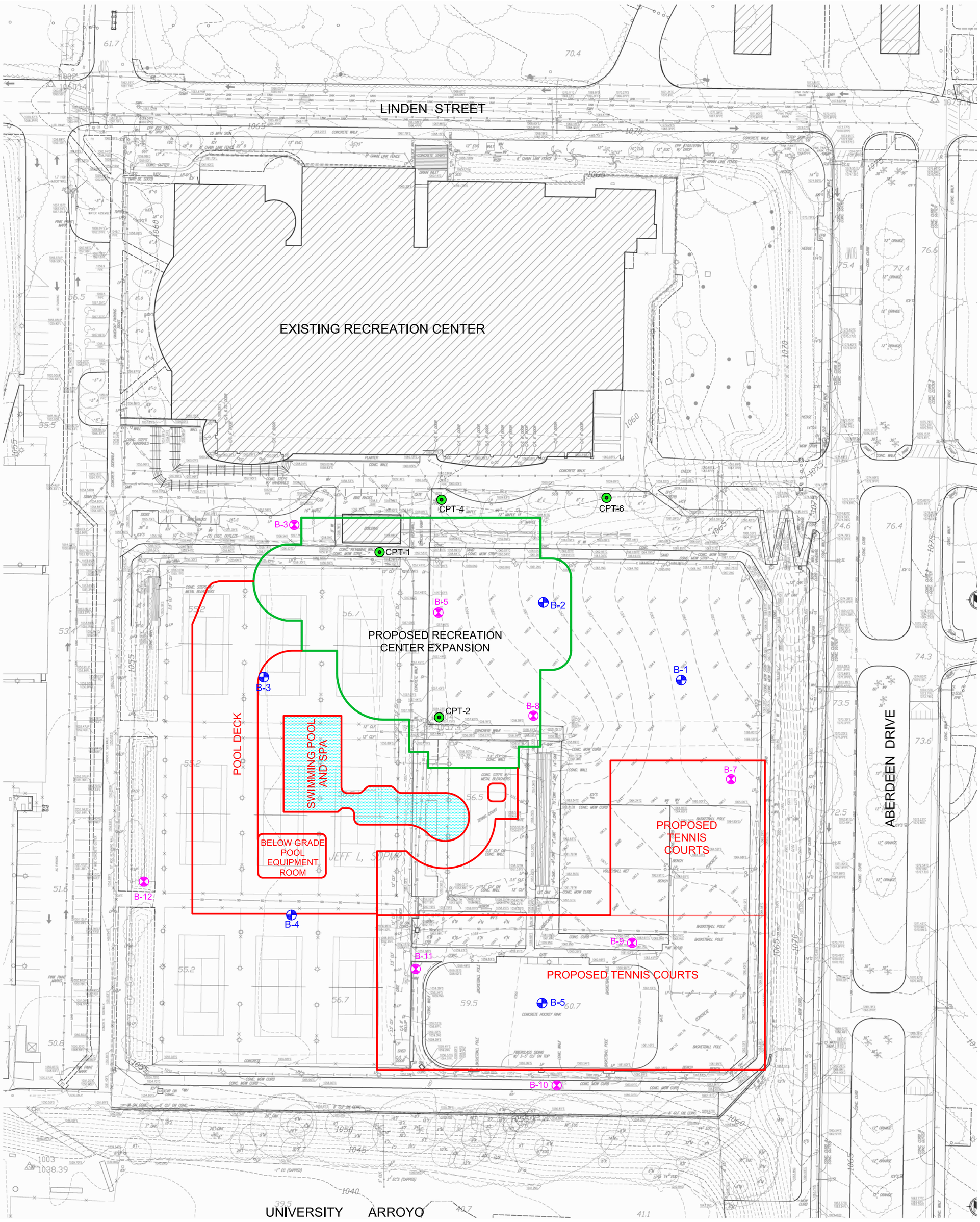
ENCLOSURE "A-1"

JOB NUMBER 11300-3

-N-

SCALE: 1" = 2,000'

C.H.J. Incorporated



N

SCALE: 1" = 60'

0 60 120

LEGEND:

- Location of prior HSA boring (CHJ, 1999)
- Location of current HSA boring
- Location of CPT sounding
- Approximate footprint of proposed building

SITE PLAN

FOR: UNIVERSITY OF CALIFORNIA, RIVERSIDE
OFFICE OF DESIGN AND CONSTRUCTION

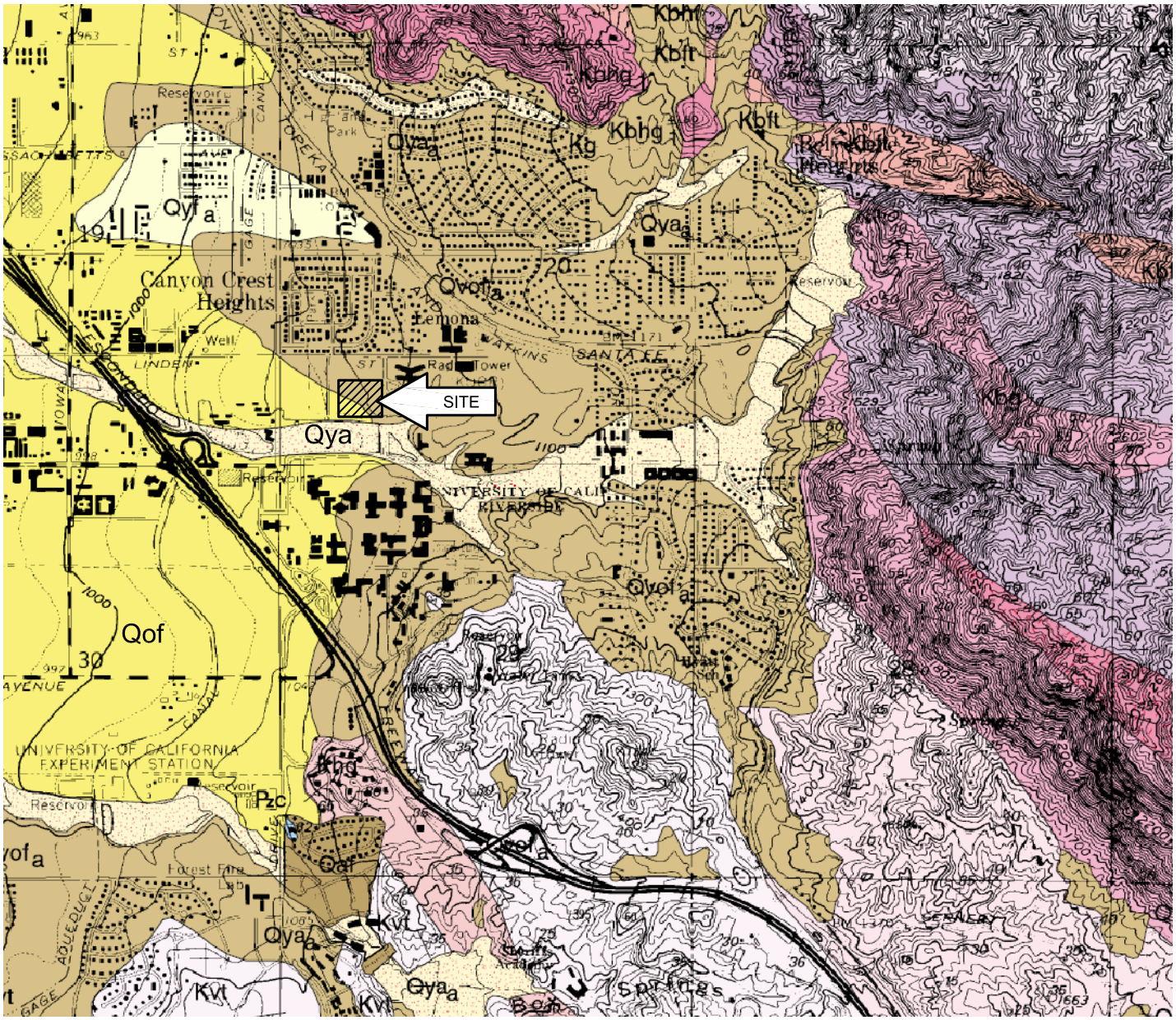
DATE: JUNE 2011

GEOTECHNICAL INVESTIGATION
PROPOSED STUDENT RECREATION CENTER EXPANSION
UNIVERSITY OF CALIFORNIA
RIVERSIDE, CALIFORNIA

ENCLOSURE "A-2"

JOB NUMBER 11300-3

C.H.J. Incorporated



(Base Map: Morton and Cox, 2001)

GEOLOGIC UNITS:

Qaf - Artificial fill (late Holocene)
Qyf - Young alluvial fan deposits (Holocene and late Pleistocene)
Qya - Young axial channel deposits (Holocene and late Pleistocene)
Qof - Old alluvial fan deposits (late to middle Pleistocene)
Qvof - Very old alluvial fan deposits (early Pleistocene)
Kbfg - Box Springs plutonic complex biotite, granodiorite and tonalite (Cretaceous)
Kbg - Box Springs plutonic complex porphyritic granodiorite (Cretaceous)
Kbft - Box Springs plutonic complex biotite-hornblende tonalite (Cretaceous)
Kvt - Val Verde tonalite (Cretaceous)
Kt - Tonalite, undifferentiated (Cretaceous)
Pzc - Calc-silicate rocks (Paleozoic?)

geologic contact

−N−

SCALE: 1" = 2,000'

GEOLOGIC INDEX MAP

FOR: UNIVERSITY OF CALIFORNIA, RIVERSIDE
OFFICE OF DESIGN AND CONSTRUCTION

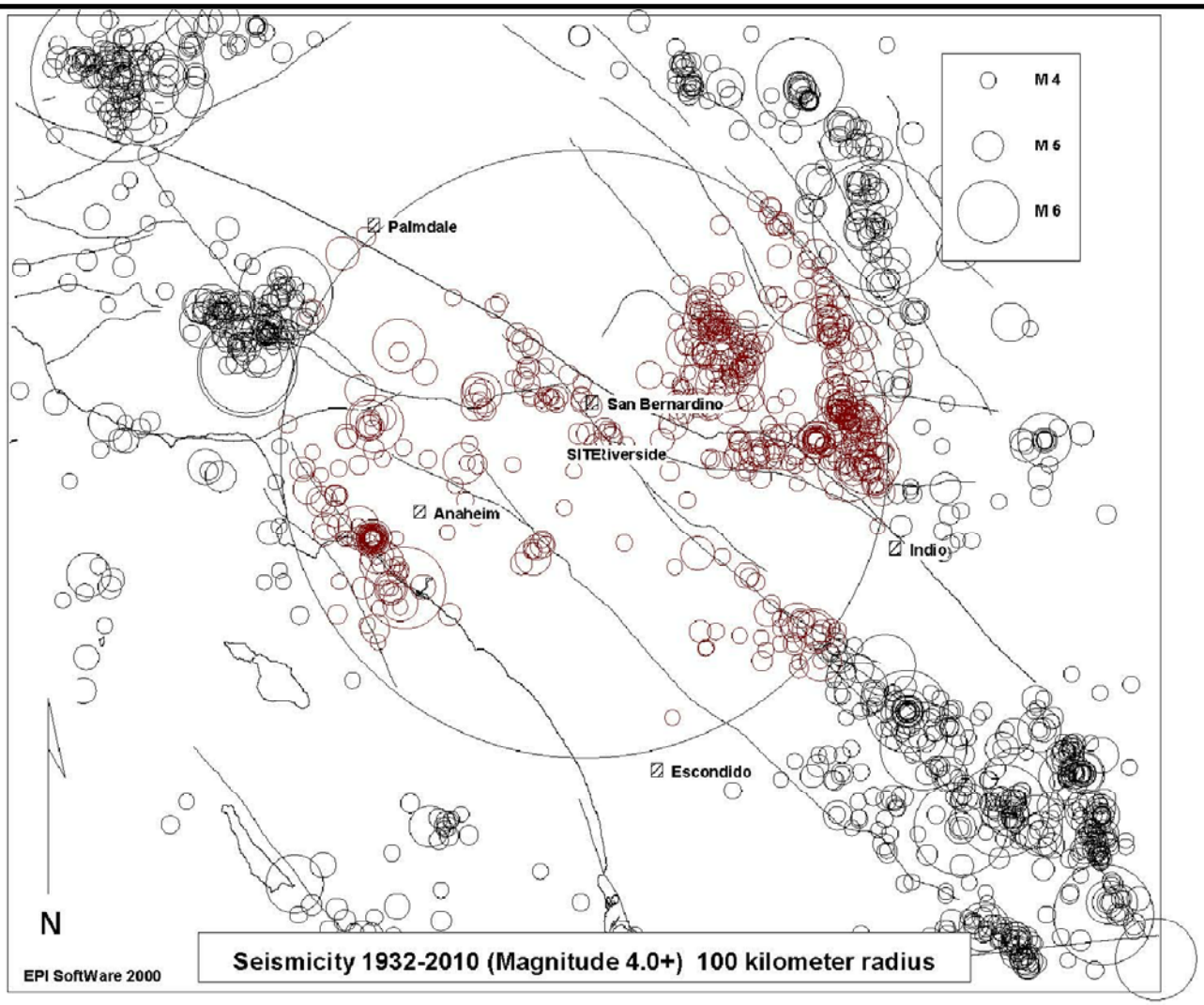
DATE: JUNE 2011

GEOTECHNICAL INVESTIGATION
PROPOSED STUDENT RECREATION CENTER EXPANSION
UNIVERSITY OF CALIFORNIA
RIVERSIDE, CALIFORNIA

ENCLOSURE "A-3"

JOB NUMBER 11300-3

C.H.J. Incorporated



SITE LOCATION: 33.9777 LAT. -117.3281 LONG.

MINIMUM LOCATION QUALITY: C

TOTAL # OF EVENTS ON PLOT: 1600

TOTAL # OF EVENTS WITHIN SEARCH RADIUS: 648

MAGNITUDE DISTRIBUTION OF SEARCH RADIUS EVENTS:

4.0- 4.9 : 584
5.0- 5.9 : 59
6.0- 6.9 : 4
7.0- 7.9 : 1
8.0- 8.9 : 0

0 50 100
KILOMETERS

CLOSEST EVENT: 4.7 ON TUESDAY, NOVEMBER 07, 1939 LOCATED APPROX. 5 KILOMETERS NORTHEAST OF THE SITE

LARGEST 5 EVENTS:

7.3 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 85 KILOMETERS EAST OF THE SITE
6.4 ON SUNDAY, JUNE 28, 1992 LOCATED APPROX. 52 KILOMETERS NORTHEAST OF THE SITE
6.4 ON SATURDAY, MARCH 11, 1933 LOCATED APPROX. 71 KILOMETERS SOUTHWEST OF THE SITE
6.1 ON THURSDAY, APRIL 23, 1992 LOCATED APPROX. 93 KILOMETERS EAST OF THE SITE
6.0 ON SATURDAY, DECEMBER 04, 1948 LOCATED APPROX. 87 KILOMETERS EAST OF THE SITE

EARTHQUAKE EPICENTER MAP

FOR: UNIVERSITY OF CALIFORNIA, RIVERSIDE OFFICE OF DESIGN AND CONSTRUCTION	GEOTECHNICAL INVESTIGATION PROPOSED STUDENT RECREATION CENTER EXPANSION UNIVERSITY OF CALIFORNIA RIVERSIDE, CALIFORNIA	ENCLOSURE "A-4"
DATE: JUNE 2011		JOB NUMBER 11300-3

C.H.J. Incorporated

APPENDIX "B"

EXPLORATORY LOGS

Enclosure "B" (1 of 3)
Job No. 11300-3

KEY TO LOGS

LEGEND OF LAB/FIELD TESTS:

AL	Atterberg limits (ASTM D 4318)
Blows	A measure of the penetration resistance of soil expressed as the number of hammer blows required to advance the indicated sampler 6 inches (or less if noted). Samplers are driven with an automatic hammer that drops a 140-pound weight 30 inches for each blow. After the required seating, samplers are advanced up to 18 inches ahead of the boring, providing up to 3 sets of blows per drive.
Bulk	Indicates Disturbed or Bulk Sample
Consol.	Consolidation Test (ASTM D 2435)
Cor.	Chemical/Corrosivity Tests (Caltrans 417, 422, & 643)
Dist.	Indicates Disturbed Sample
DS	Direct Shear Test (ASTM D 3080)
Exp.	Expansion Test (ASTM D 4829)
Hydro	Hydrometer analysis (ASTM D 422)
MDC	Maximum Density Optimum Moisture Test (ASTM D 1557)
N.R.	Indicates No Recovery of Sample
Pass #200	Washed through #200 Screen(ASTM C 117)
Ring	Indicates Relatively Undisturbed Ring Sample. The number of blows per 6 inches required to drive a "California Sampler" (3.25" O.D. and 2.42" I.D.) 18 inches using a 140-pound weight falling 30 inches was recorded.
SA	Sieve Analysis (ASTM C 117/136)
SE	Sand Equivalent Test (ASTM D 2419)
SPT	Indicates Standard Penetration Test. The number of blows per 6 inches required to drive an unlined SPT sampler (2" O.D. and 1 3/8" I.D). 18 inches using a 140-pound weight falling 30 inches was recorded.

SOIL CONSISTENCY:

Compactness of Granular Soils

Description	Approximate Relative Density (%)
Very Loose	0-15
Loose	15-40
Medium Dense	40-70
Dense	70-85
Very Dense	85-100

Consistency of Plastic Soils

Description	Approximate Shear Strength (psf)
Very Soft	Less Than 250
Soft	250-500
Medium Stiff	500-1000
Stiff	1000-2000
Very Stiff	2000-4000
Hard	More Than 4000

C.H.J. Incorporated

Enclosure "B" (3 of 3)
Job No. 11300-3

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

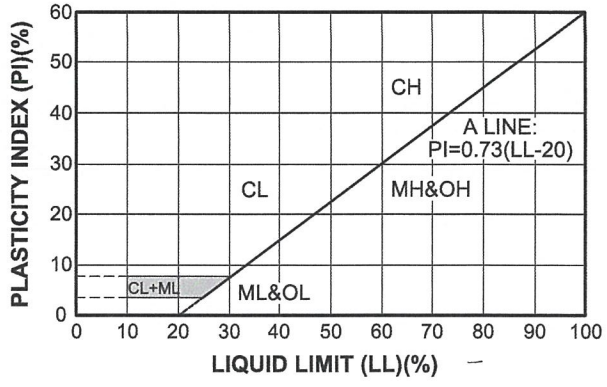
COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size)			
GRAVELS More than 50% of coarse fraction larger than No.4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No.4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for SW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size).
Coarse-grained soils are classified as follows:
Less than 5 percent.....GW, GP, SW, SP
More than 12 percent.....GM, GC, SM, SC
5 to 12 percent.....Borderline cases requiring dual symbols

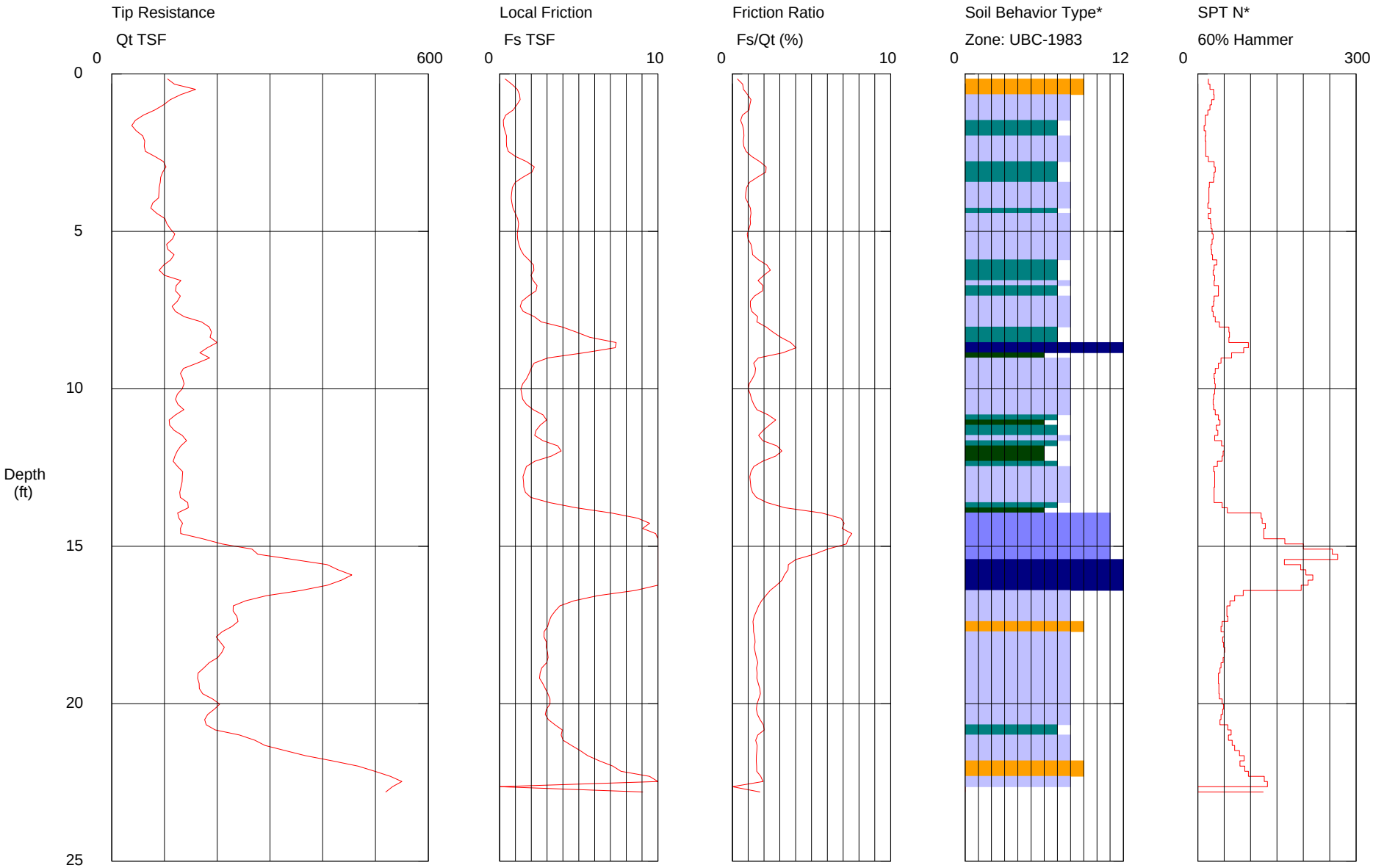
PLASTICITY CHART



CHJ

Operator: RS/JC
Sounding: C-1
Cone Used: DDG1124

CPT Date/Time: 6/3/2011 9:39:42 AM
Location: Recreation Center at UCR
Job Number: 11300-3

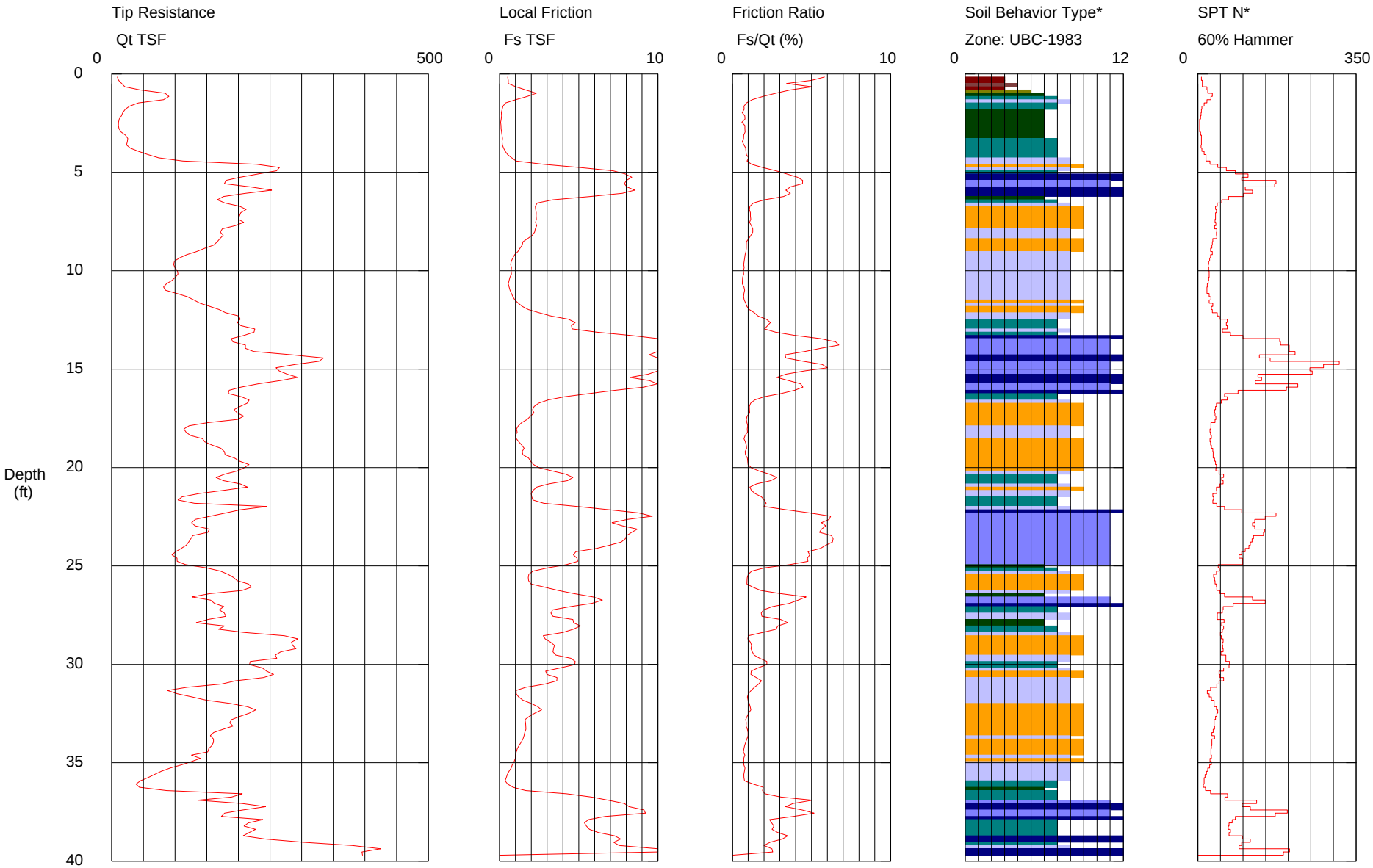


*Soil behavior type and SPT based on data from UBC-1983

CHJ

Operator: RS/JC
Sounding: C-2
Cone Used: DDG1124

CPT Date/Time: 6/3/2011 8:46:37 AM
Location: Recreation Center at UCR
Job Number: 11300-3



Maximum Depth = 39.70 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

EXPLORATORY BORING NO. 3

Date Drilled: 5/31/11 Client: University of California, Riverside

Equipment: CME 75 Track Rig Driving Weight / Drop: 140 lbs./30 in.

Surface Elevation(ft): 1062 Logged by: VJR Measured Depth to Water(ft): N/A

DEPTH (ft)	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
	(SM) Silty Sand, fine with medium and clay, red brown	Fill				7.9		
			X		8 9 12	9.2	125	Ring
5	(SM) Silty Sand, fine with medium, brown	Qoa				9.1		
			X		18 33 29	9.5	133	Pass #200, MDC, DS, Cor. Ring
10			X		26 31 28	7.6	116	Ring
	(SP-SM) Sand, fine to medium with coarse, silt, brown					2.8		
15			X		13 26 28	2.5	116	Ring, Consol.
20			X		20 25 26	2.8	115	Ring
25			X		14 22 30	7.0	119	Ring
	END OF BORING							
30	NO REFUSAL, NO BEDROCK, FILL TO 4.0' SLIGHT CAVING, NO FREE GROUNDWATER							

BORING LOG - NO EQUIV & BLOW PER 6 IN 11300-3.GPJ CHJ.GDT 6/20/11

C.H.J.

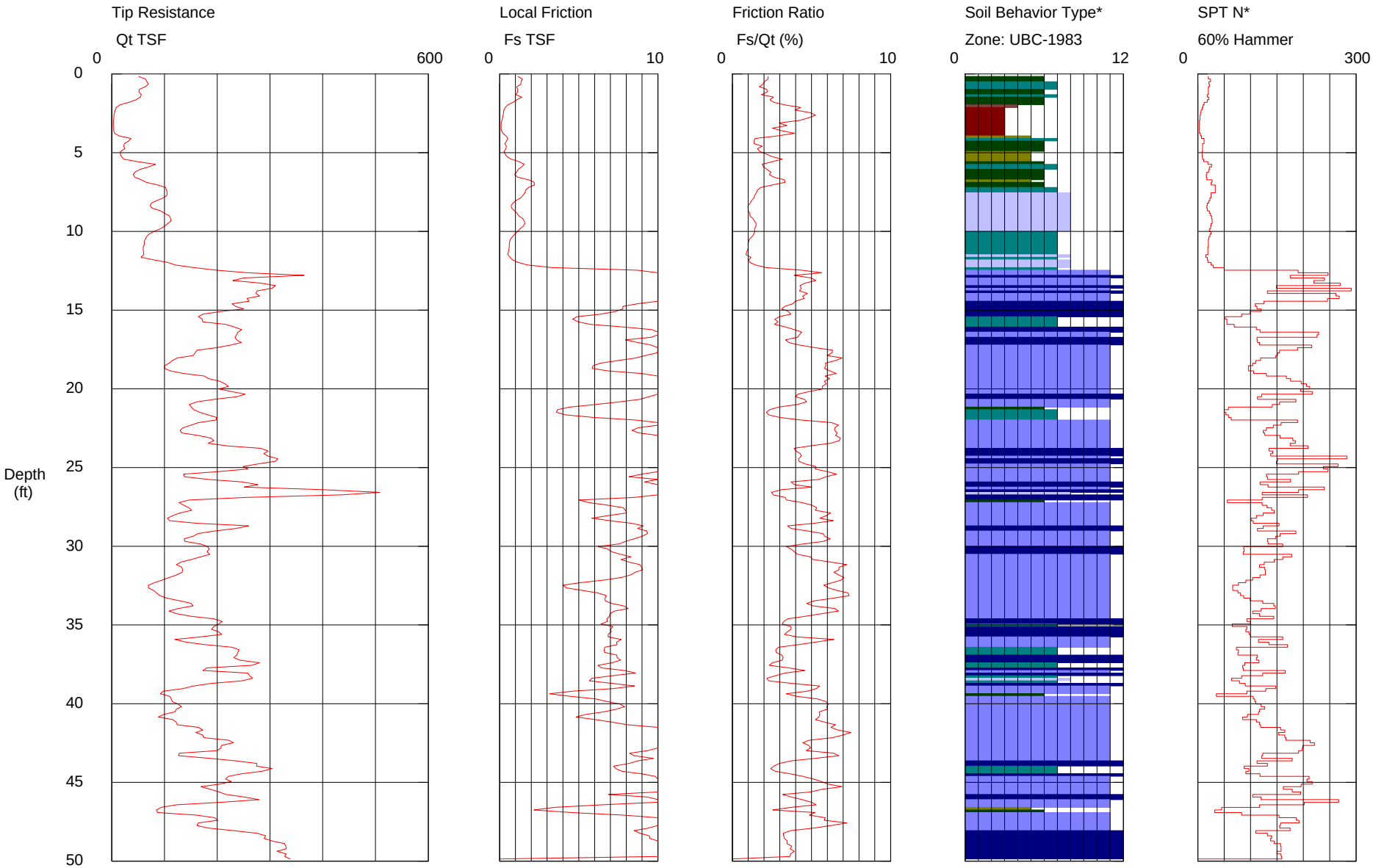
RECREATION CENTER EXPANSION
UCR CAMPUS, RIVERSIDE, CALIFORNIA

Job No. 11300-3 Enclosure B-3

CHJ

Operator: RS/JC
Sounding: C-4
Cone Used: DDG1185

CPT Date/Time: 6/7/2011 11:57:34 AM
Location: Recreation Center at UCR
Job Number: 11300-3



Maximum Depth = 49.87 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

EXPLORATORY BORING NO. 5

Date Drilled: 5/31/11

Client: University of California, Riverside

Equipment: CME 75 Track Rig

Driving Weight / Drop: 140 lbs./30 in.

Surface Elevation(ft): 1058

Logged by: VJR

Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine to medium with coarse and clay, brown	Fill				7.4		
				X		2 2 3	6.3		SPT
5				X		7 11 12	10.7		SPT
		(SC) Clayey Sand, fine to coarse, brown	Qoa				10.1		Hydro, MDC, Exp., AL
10				X		8 12 16	9.2		SPT
		(SP-SM) Sand, fine to coarse with silt, dark brown					4.7		
15				X		4 4 14	5.1		SPT
20				X		9 16 18	5.1		SPT, Wash 200
25				X		7 12 15	4.5		SPT
		(SM) Silty Sand, fine to medium with coarse, brown							
30				X		8 16 26	9.4		SPT, Wash 200

BORING LOG - NO EQUIV & BLOW PER 6 IN 11300-3.GPJ CHJ.GDT 6/20/11

C.H.J.

RECREATION CENTER EXPANSION
UCR CAMPUS, RIVERSIDE, CALIFORNIA

Job No. 11300-3 Enclosure B-5a

EXPLORATORY BORING NO. 5

Date Drilled: 5/31/11 | Client: University of California, Riverside

Equipment: CME 75 Track Rig | Driving Weight / Drop: 140 lbs./30 in.

Surface Elevation(ft): 1058 | Logged by: VJR | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine to medium with coarse, brown		X		10 12 14	10.1		SPT
40		(SM) Silty Sand, fine to medium with coarse and clay, brown		X		9 14 19	12.0		SPT
45				X		11 18 24	10.0		SPT, Wash 200
50				X		13 20 24	7.6		SPT
55		(SM) Silty Sand, fine to coarse, brown		X		15 26 33	7.4		SPT
60				X		15 30 42	7.2		SPT, Wash 200
65			Refusal	X		17 24 37	8.3		SPT
		END OF BORING REFUSAL AT 66.5', NO BEDROCK, FILL TO 6.0' SLIGHT CAVING, NO FREE GROUNDWATER							

BORING LOG - NO EQUIV & BLOW PER 6 IN 11300-3.GPJ CHJ.GDT 6/20/11

C.H.J.

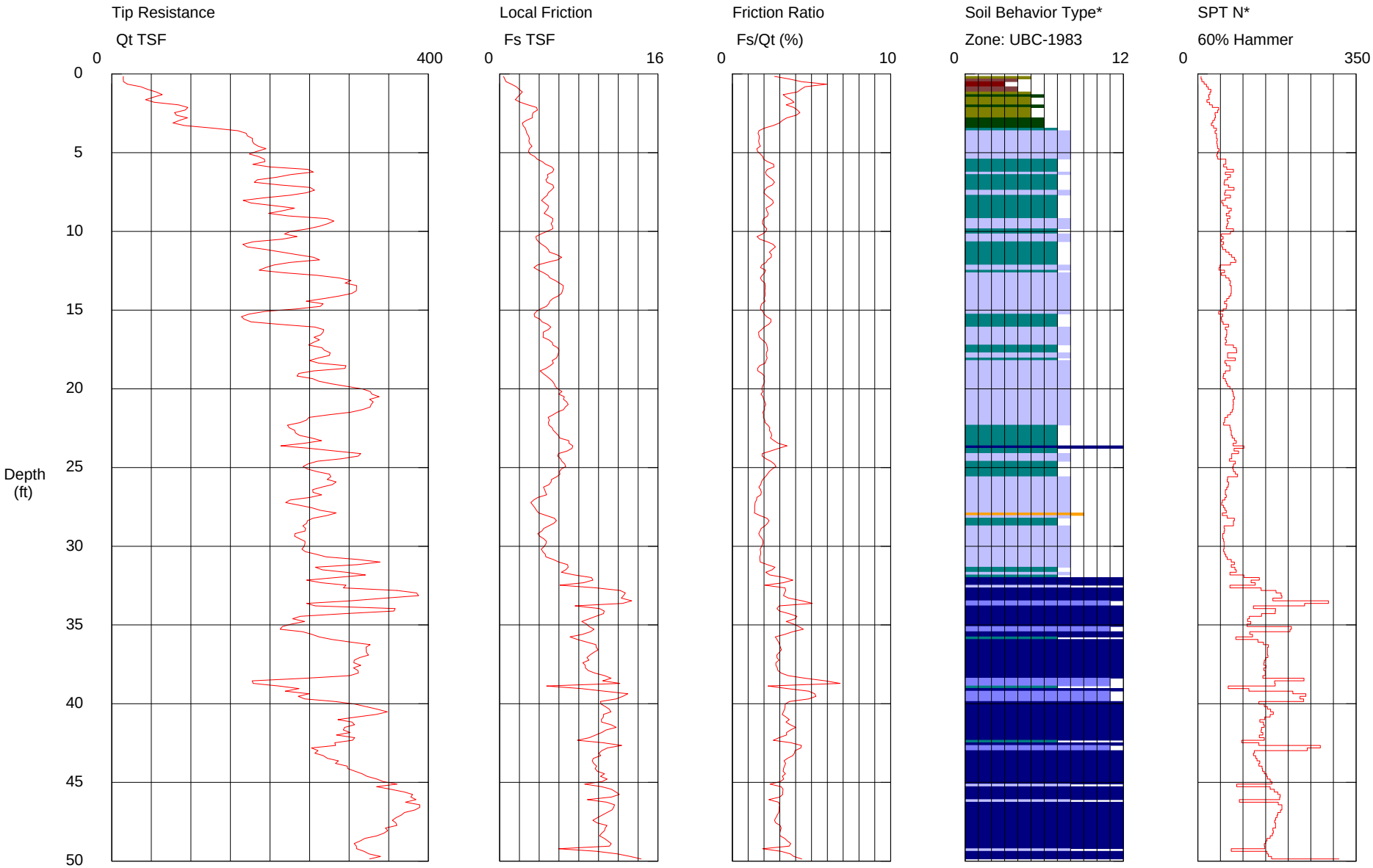
RECREATION CENTER EXPANSION
UCR CAMPUS, RIVERSIDE, CALIFORNIA

Job No. 11300-3 Enclosure B-5b

CHJ

Operator: RS/JC
Sounding: C-6
Cone Used: DDG1185

CPT Date/Time: 6/7/2011 1:37:46 PM
Location: Recreation Center at UCR
Job Number: 11300-3



Maximum Depth = 50.36 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

EXPLORATORY BORING NO. 7

Date Drilled: 5/31/11

Client: University of California, Riverside

Equipment: CME 75 Track Rig

Driving Weight / Drop: 140 lbs./30 in.

Surface Elevation(ft): 1066

Logged by: VJR

Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine to medium with coarse and clay, brown	Fill				11.0		
				X		13 20 27	9.2	135	Ring
5				X		25 48 47	9.4	131	Ring
		(SP-SM) Sand, fine to medium with coarse and silt, brown	Qoa				5.4		
10				X		19 20 23	8.7	121	Ring
15				X		22 40 40	4.8	112	Ring
20				X		18 30 30	4.0	110	Ring
25				X		18 36 45	2.6	115	Ring
		END OF BORING NO REFUSAL, NO BEDROCK FILL TO 7.0', SLIGHT CAVING NO FREE GROUNDWATER							
30									

BORING LOG - NO EQUIV & BLOW PER 6 IN 11300-3.GPJ CHJ.GDT 6/20/11

C.H.J.

RECREATION CENTER EXPANSION
UCR CAMPUS, RIVERSIDE, CALIFORNIA

Job No. 11300-3

Enclosure B-7

EXPLORATORY BORING NO. 8

Date Drilled: 5/31/11

Client: University of California, Riverside

Equipment: CME 75 Track Rig

Driving Weight / Drop: 140 lbs./30 in.

Surface Elevation(ft): 1059

Logged by: VJR

Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SM) Silty Sand, fine to medium with clay, red brown	Fill				10.5		
				X		9 14 26	10.6	130	Ring
5									
		(SM) Silty Sand, fine to medium with coarse, brown	Qoa				8.0		
				X		11 20 26	7.1	121	Ring
10									
				X		20 50/5"	9.9	127	Ring
15									
		(SP-SM) Sand, fine to coarse with silt, brown					6.3		
				X		16 30 41	4.5	119	Ring, Consol.
20									
				X		30 32 50/5"	9.0	Dist.	Ring
25									
		(SP) Sand, fine to coarse with silt, brown					5.1		
				X		22 50	5.4	Dist.	Ring
		END OF BORING							
30		NO REFUSAL, NO BEDROCK FILL TO 6.0', SLIGHT CAVING NO FREE GROUNDWATER							

BORING LOG - NO EQUIV & BLOW PER 6 IN 11300-3.GPJ CHJ.GDT 6/20/11

C.H.J.

RECREATION CENTER EXPANSION
UCR CAMPUS, RIVERSIDE, CALIFORNIA

Job No. 11300-3 Enclosure B-8

EXPLORATORY BORING NO. 9

Date Drilled: 5/31/11

Client: University of California, Riverside

Equipment: CME 75 Track Rig

Driving Weight / Drop: 140 lbs./30 in.

Surface Elevation(ft): 1062

Logged by: VJR

Measured Depth to Water(ft): N/A

DEPTH (ft)	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
	(SM) Silty Sand, fine to medium with clay, dark brown	Fill				11.7		
			X		10 12 9	11.4	125	Ring
	(SM) Silty Sand, fine to medium with coarse, brown	Qoa				8.3		
5			X		50	6.4	Dist.	Ring
10			X		20 30 35	10.0	117	Ring
15			X		18 38 50/5	7.5	119	Ring
	(SP) Sand, fine to coarse with silt, brown					2.9		
20			X		20 25 28	2.5	119	Ring
25			X		16 50	6.5	Dist.	Ring
	END OF BORING							
30	NO REFUSAL, NO BEDROCK FILL TO 4.0', SLIGHT CAVING NO FREE GROUNDWATER							

BORING LOG - NO EQUIV & BLOW PER 6 IN 11300-3.GPJ CHJ.GDT 6/20/11

C.H.J.

RECREATION CENTER EXPANSION
UCR CAMPUS, RIVERSIDE, CALIFORNIA

Job No. 11300-3

Enclosure B-9

EXPLORATORY BORING NO. 10

Date Drilled: 5/31/11 | Client: University of California, Riverside

Equipment: CME 75 Track Rig | Driving Weight / Drop: 140 lbs./30 in.

Surface Elevation(ft): 1058 | Logged by: VJR | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
0		(SP-SM) Sand, fine to coarse with silt, brown	Qoa				3.1		
						7 8 8	2.0	111	Ring
5						11 26	5.6	124	Ring
		(SM) Silty Sand, fine to coarse, brown				31	3.3		
10						25 31 35	2.2	118	Ring
15						30 50	2.8	Dist.	Ring
20		(SP) Sand, fine to coarse with silt, brown					1.8		
						25 30 44	1.5	106	Ring
25						15 50	1.7	Dist.	Ring
30									
		END OF BORING NO REFUSAL, NO BEDROCK, NO FILL SLIGHT CAVING, NO FREE GROUNDWATER				50/5	NR	NR	Ring

BORING LOG - NO EQUIV & BLOW PER 6 IN 11300-3.GPJ CHJ.GDT 6/20/11

C.H.J.

RECREATION CENTER EXPANSION
UCR CAMPUS, RIVERSIDE, CALIFORNIA

Job No. 11300-3 Enclosure B-10

EXPLORATORY BORING NO. 11

Date Drilled: 5/31/11 | Client: University of California, Riverside

Equipment: CME 75 Track Rig | Driving Weight / Drop: 140 lbs./30 in.

Surface Elevation(ft): 1058 | Logged by: VJR | Measured Depth to Water(ft): N/A

DEPTH (ft)	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
	(SC) Clayey Sand, fine to medium with coarse and silt, dark brown	Fill				12.6		
			X		5 8 8	12.2	121	Ring
	(SM) Silty Sand, fine to medium with clay, brown	Qoa				10.7		Wash 200, Cor. Ring, DS
5			X		13 33 46	12.0	129	
10			X		10 17 22	13.7	109	Ring
	(SP-SM) Sand, fine to coarse with silt and clay, brown					4.5		Wash 200
15			X		11 20 29	3.2	114	Ring, DS
	(SM) Silty Sand, fine with clay, brown					25.0		
20			X		17 20 34	17.9	114	Ring
	(SM) Silty Sand, fine to coarse, brown							
25			X		14 21 32	7.0	123	Ring
	END OF BORING NO REFUSAL, NO BEDROCK, FILL TO 4.0' SLIGHT CAVING, NO FREE GROUNDWATER							
30								

BORING LOG - NO EQUIV & BLOW PER 6 IN 11300-3.GPJ CHJ.GDT 6/20/11

C.H.J.

RECREATION CENTER EXPANSION
UCR CAMPUS, RIVERSIDE, CALIFORNIA

Job No. 11300-3 Enclosure B-11

EXPLORATORY BORING NO. 12

Date Drilled: 5/31/11 | Client: University of California, Riverside

Equipment: CME 75 Track Rig | Driving Weight / Drop: 140 lbs./30 in.

Surface Elevation(ft): 1052 | Logged by: VJR | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/6 IN.	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LAB/FIELD TESTS
		(SC) Clayey Sand, fine with medium and silt, dark brown	Fill				14.6		
				X		4 2 3	21.2	94	Ring
5		(SM) Silty Sand, fine with medium and clay, brown	Qoa				10.8		
				X		20 50	10.4	131	Ring
10				X		14 17 20	4.2 2.0	119	Ring
		(SP) Sand, fine to coarse with silt, brown							
15				X		10 18 27	2.4	116	Ring
20				X		20 22 30	2.1	117	Ring
25		BORING TERMINATED AT 33.5' NO REFUSAL, NO BEDROCK, FILL TO 5.0' SLIGHT CAVING, NO FREE GROUNDWATER		X		15 26 40	1.9	112	Ring
30				X		17 35 30	3.0	105	Ring
		END OF BORING							

BORING LOG - NO EQUIV & BLOW PER 6 IN 11300-3.GPJ CHJ.GDT 6/20/11

C.H.J.

RECREATION CENTER EXPANSION
UCR CAMPUS, RIVERSIDE, CALIFORNIA

Job No. 11300-3 Enclosure B-12

LOG OF BOREHOLE 1

Date Drilled: 4/7/99 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation(ft): N/A | Logged by: T.M. | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS/FOOT (Equiv. SPT)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		(SM) SiltySand, fine with medium, red brown					8.5		SS
				X		9	10.6	108	Ring
		(SM) Silty Sand, fine with medium and clay, dark brown					10.4		Exp.
5				X		24	11.7	120	Ring
		(SM) Silty Sand, fine with medium and coarse, dark brown					9.7		
10				X		16	10.5	123	Ring
		(SP) Sand, fine to medium with coarse, brown					10.1		
15				M		40/4"	10.0	103	Ring
		(SP-SM) Sand, fine to medium with silt, light brown					7.3		
20				X		48	6.1	116	Ring
25				X		44	6.1	112	Ring
		(SP) Sand, fine with medium, light brown					4.0		
		(SP) Sand, fine with fine to medium lenses, light brown					4.7		
30				X		47	7.3	108	Ring

BOREHOLE_LOG 99254-3.GPJ CHJ.GDT 4/22/99

C·H·J·

TENNIS CENTER
UCR CAMPUS

Job No.
99254-3

Enclosure
B-13a

LOG OF BOREHOLE 1

Date Drilled: 4/7/99 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation(ft): N/A | Logged by: T.M. | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS/FOOT (Equiv. SPT)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		(SP) Sand, fine with fine to medium lenses, light brown		X		42	6.0	103	Ring
40				X		50	7.9	113	Ring
		(SP) Sand, fine with silt, light brown					8.6		
		(SM) Silty Sand, fine with fine to coarse lenses, light brown					10.7		
45				X		71/11"	11.7	113	Ring
		(SC-SM) Silty Clayey Sand, fine with medium, brown					17.5		
50				X		54	17.3	115	Ring
		END OF BORING							
55									
60		NO BEDROCK NO REFUSAL NO FILL NO FREE GROUNDWATER							
65									

BOREHOLE_LOG 99254-3.GPJ CMJ.GDT 4/22/99

C·M·J·

TENNIS CENTER
UCR CAMPUS

Job No.
99254-3

Enclosure
B-13b

LOG OF BOREHOLE 2

Date Drilled: 4/8/99 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation(ft): N/A | Logged by: T.M. | Measured Depth to Water(ft): N/A

DEPTH (ft)	VISUAL CLASSIFICATION	REMARKS	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS/FOOT (Equiv. SPT)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	(SM) Silty Sand, fine with medium, light brown			▨		4.4		MDC, DS
			☒		12	3.0	108	Ring
5								
	(SM) Silty Sand, fine to medium with calcium carbonate, red brown			▨		10.2		
			☒		24	10.3	112	Ring
10	(SM) Silty Sand, fine with medium, light brown			▨		9.9		
			☒		54	10.3	122	Ring
	(SP) Sand, fine with medium and coarse, light brown			▨		5.3		
15			☒		42	5.2	107	Ring
20								
			☒		48	5.5	109	Ring
25								
			☒		43	3.6	108	Ring
	NO BEDROCK NO REFUSAL NO FILL NO FREE GROUNDWATER							
30								
			☒		47	11.5	109	Ring
	END OF BORING							

BOREHOLE_LOG 99254-3.GPJ CHJ.GDT 4/22/99

C·M·J·

TENNIS CENTER
UCR CAMPUS

Job No.
99254-3

Enclosure
B-14

LOG OF BOREHOLE 3

Date Drilled: 4/8/99 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation(ft): N/A | Logged by: T.M. | Measured Depth to Water(ft): N/A

DEPTH (ft)	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	(SM) Silty Sand, fine with medium, dark brown					9.1		SS
			X		5	9.9	120	Ring
	(SM) Silty Sand, fine with medium and coarse, brown					7.6		
5			X		20	6.9	116	Ring
	(SM) Silty Sand, fine, with medium and coarse, brown					6.6		
10			X		28	5.9	114	Ring
15			X		18	8.4	114	Ring
20			X		58	7.8	125	Ring
	END OF BORING							
25								
30	NO BEDROCK NO REFUSAL NO FILL NO FREE GROUNDWATER							

BOREHOLE_LOG 99254-3.GPJ CHJ.GDT 4/22/99

C·H·J·

TENNIS CENTER
UCR CAMPUS

Job No.
99254-3

Enclosure
B-15

LOG OF BOREHOLE 4

Date Drilled: 4/8/99 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation(ft): N/A | Logged by: T.M. | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS/FOOT (Equiv. SPT)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		(SM) Silty Sand, fine with medium to coarse, light brown			▒		5.3		SS
				☒		27	3.9	119	Ring
5		(SM) Silty Sand, fine with medium, light brown			▒		6.8		
		(SP-SM) Sand, fine with medium and silt, light brown			▒		3.9		
				☒		22	5.6	114	Ring
10		(SP) Sand, fine with medium and coarse, light brown			▒		2.3		
				☒		27	4.2	114	Ring
15									
				☒		17	6.3	106	Ring
		(SP) Sand, fine with medium and silt, light brown			▒		5.3		
20		END OF BORING							
25									
30		NO BEDROCK NO REFUSAL NO FILL NO FREE GROUNDWATER							

BOREHOLE_LOG 99254-3.GPJ CHJ.GDT 4/22/99

C·H·J

TENNIS CENTER
UCR CAMPUS

Job No.
99254-3

Enclosure
B-16

LOG OF BOREHOLE 5

Date Drilled: 4/8/99 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation(ft): N/A | Logged by: T.M. | Measured Depth to Water(ft): N/A

DEPTH (ft)	VISUAL CLASSIFICATION	REMARKS	SAMPLES DRIVE	SAMPLES BULK	BLOWS/FOOT (Equiv. SPT)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	(SM) Silty Sand, fine with medium to coarse, light brown	Fill				9.4		
			X		34	10.5	122	Ring
	(SM) Silty Sand, fine with medium, light brown	Native				10.2		
5			X		29	12.6	112	Ring
	(SM) Silty Sand, fine with medium, light brown					6.3		
10			X		22	3.3	110	Ring
	(SM) Silty Sand, fine with medium, light brown					9.9		
15			X		38	9.8	122	Ring
20			X		39	9.7	126	Ring
	(SP) Sand, fine with medium and coarse, light brown					6.6		
25			X		36	8.1	107	Ring
30			X		46	7.5	106	Ring

BOREHOLE_LOG 99254-3.GPJ C+J.GDT 4/22/99

C·M·J·

TENNIS CENTER
UCR CAMPUS

Job No.
99254-3

Enclosure
B-17a

LOG OF BOREHOLE 5

Date Drilled: 4/8/99 | Client: University of California, Riverside

Equipment: CME 55 Drill Rig | Driving Weight / Drop: 140 lb/30 in

Surface Elevation(ft): N/A | Logged by: T.M. | Measured Depth to Water(ft): N/A

DEPTH (ft)	GRAPHIC LOG	VISUAL CLASSIFICATION	REMARKS	SAMPLES: DRIVE	SAMPLES: BULK	BLOWS/FOOT (Equiv. SPT)	FIELD MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
		(SP) Sand, fine with medium and coarse, light brown		X		42	5.4	111	Ring
		END OF BORING							
40									
45									
50									
55		NO BEDROCK NO REFUSAL FILL TO 3.0' NO FREE GROUNDWATER							
60									
65									

BOREHOLE LOG 99254-3.GPJ CHJ.GDT 4/22/99

TENNIS CENTER
UCR CAMPUS

Job No.
99254-3

Enclosure
B-17b

APPENDIX "C"

LABORATORY TESTING

TEST DATA SUMMARY

FINES CONTENT:

Boring No.	Depth (ft)			Fine Contents (%)	USCS
3	5	—	14	34.0	SM
5	14	—	29	6.6	SP-SM
5	29	—	39	27.4	SM
5	39	—	54	28.4	SM
5	54	—	66.5	23.7	SM
11	4	—	12	33.0	SM
11	12	—	19	7.8	SP-SM

EXPANSION INDEX:

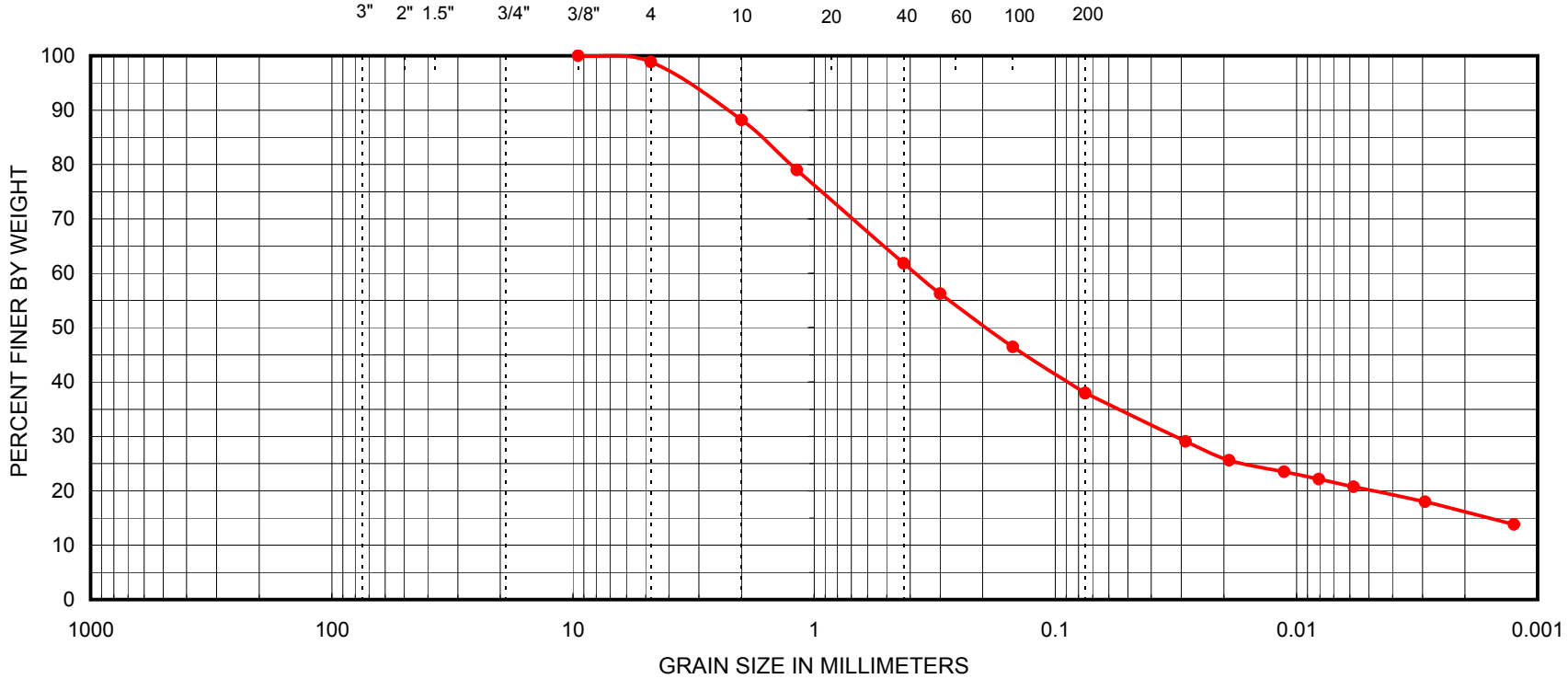
(ASTM D 4829)

Sample No.	5
Depth (ft)	6
Initial Moisture (%)	8.1
Final Moisture (%)	13.0
Degree of Saturation (%)	50.0
Expansion Index	4.0
Expansion Potential	Very Low

C.H.J. Incorporated

TEST DATA SUMMARY			
Project:	Proposed Student Recreation Center Expansion Project		
Location:	South of Existing Recreation Center, UCR Campus		
Job No.:	11300-3	Enclosure:	C-1

Sieve Sizes - U.S.A. Standard Series (ASTM D422)



Cobbles & Boulders	Gravel		Sand			Silt	Clay
	Coarse	Fine	Coarse	Medium	Fine		

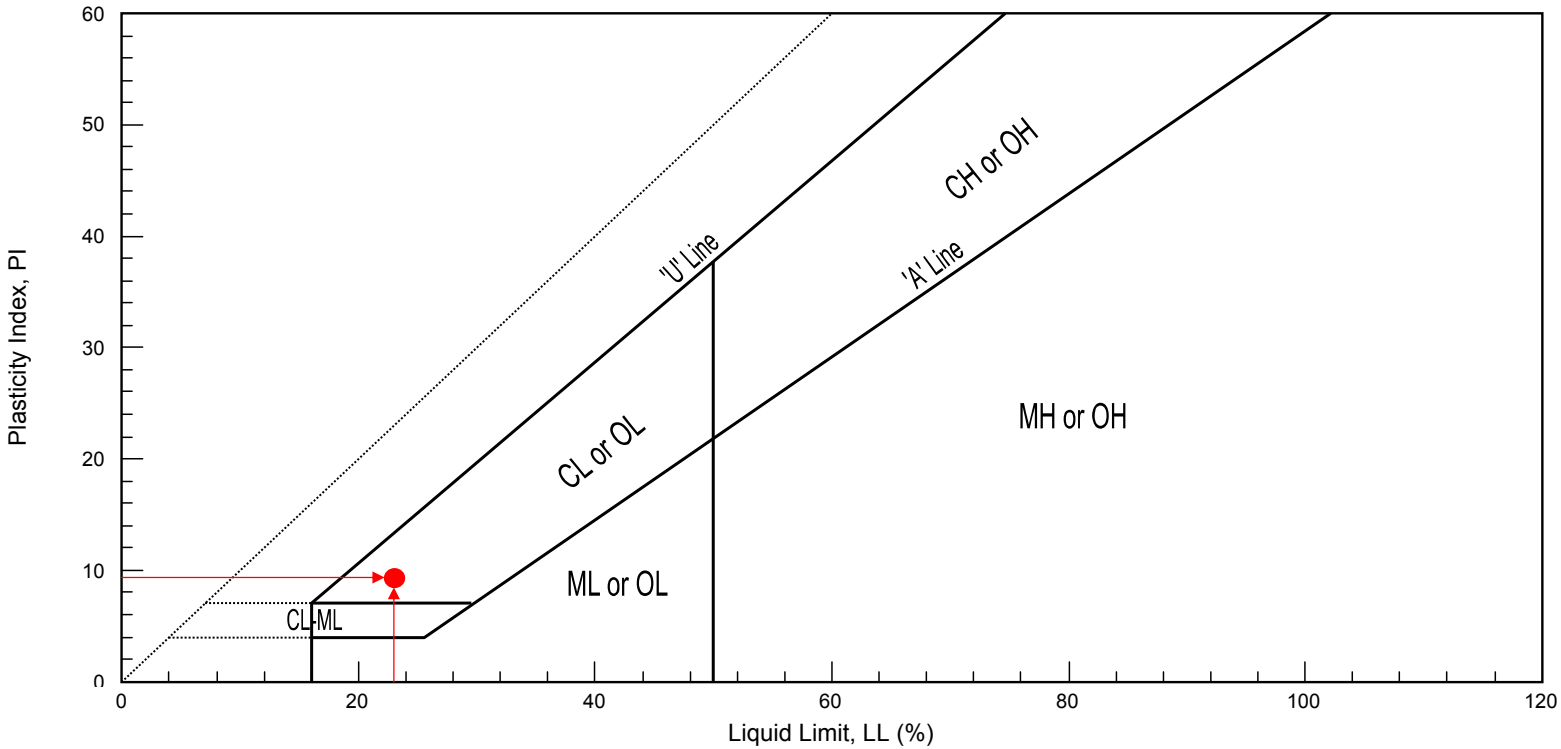
Symbol	Boring No.	Depth (ft)	Classification	D_{10} (mm)	D_{30} (mm)	D_{50} (mm)	D_{60} (mm)	C_u	C_c	SE
●	5	6	(SC) Clayey sand, fine to coarse		0.032	0.193	0.379			

C.H.J. Incorporated

GRAIN SIZE DISTRIBUTION

Project:	Proposed Student Recreation Center Expansion Project		
Location:	South of Existing Recreation Center, UCR Campus		
Job Number:	11300-3	Enclosure:	C-2

Prepared at 6/13/2011

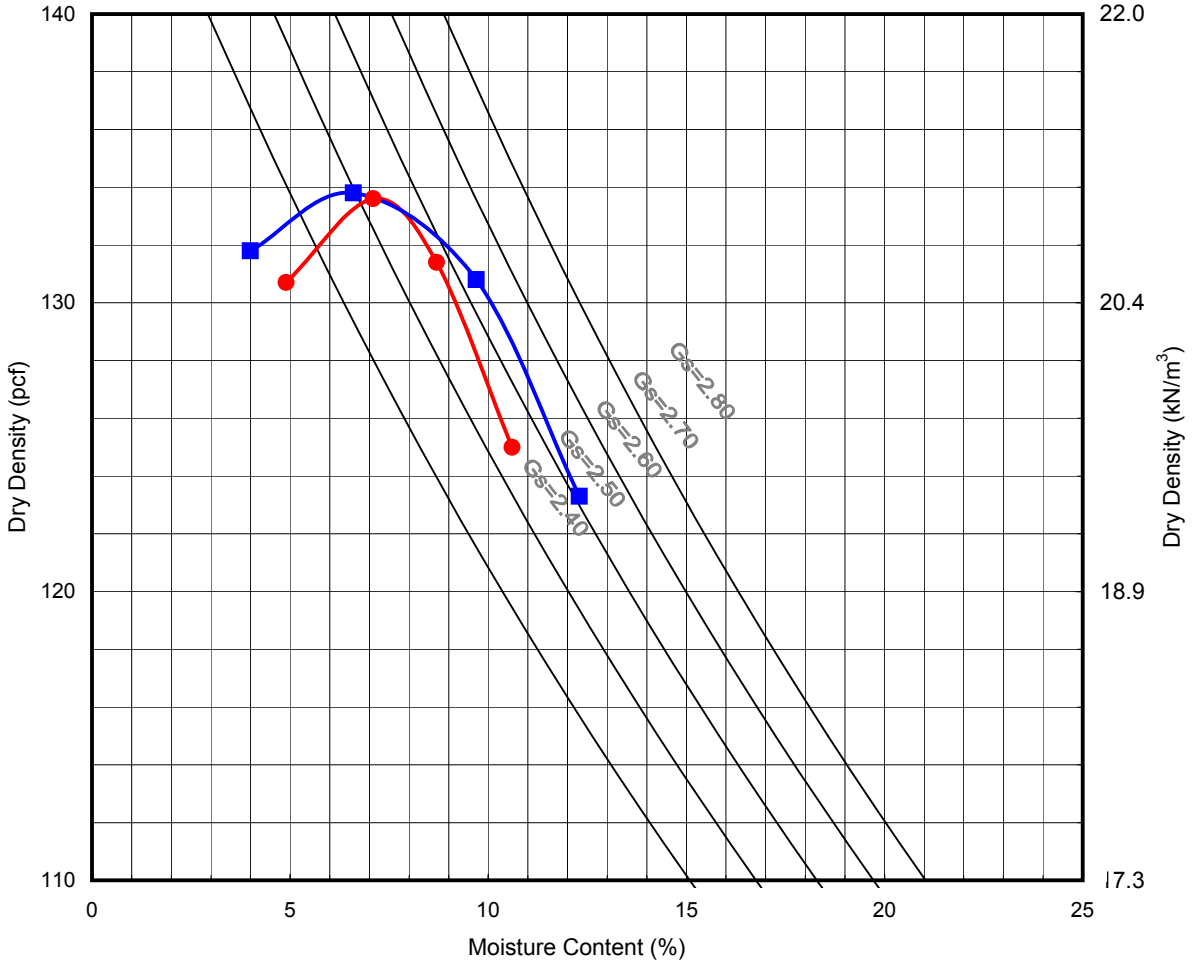


Symbol	Boring No.	Depth (ft)	Classification	PL (%)	LL (%)	PI (%)
●	5	6	(CL or OL)	13.7	23.0	9.3

C.H.J. Incorporated

Plasticity Chart (ASTM D 4318)			
Project:	Proposed Student Recreation Center Expansion Project		
Location:	South of Existing Recreation Center, UCR Campus		
Job Number:	11300-3	Enclosure:	C-3

Optimum Moisture - Maximum Density Determination Test (ASTM D 1557)

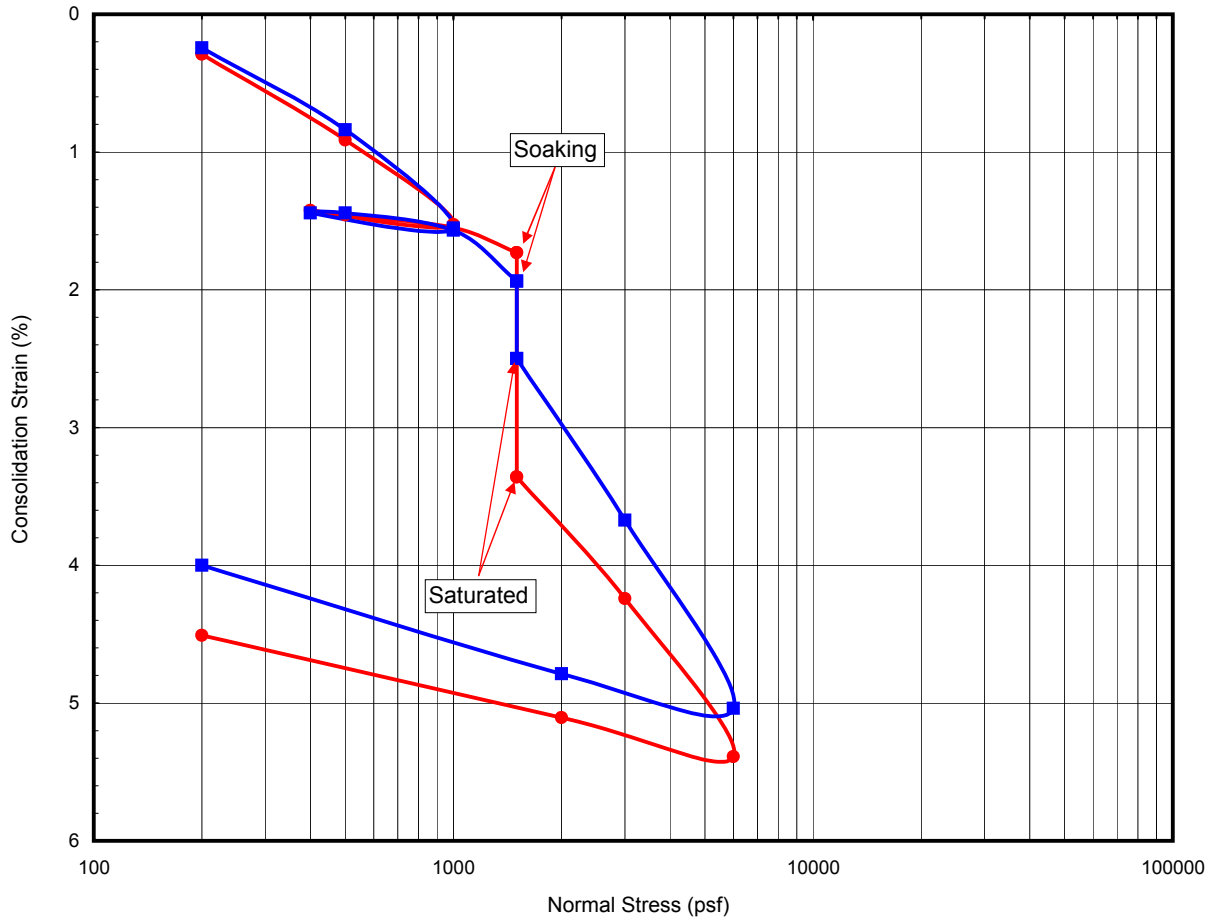


Boring No.		Depth (ft)	Soil/Sample Type	γ_{max} (pcf)	w_{opt} (%)
●	3	5	(SM) Silty sand, fine to medium	134.0	7.5
■	5	6	(SC) Clayey sand, fine to coarse	134.5	8.5

C.H.J. Incorporated

MOISTURE-DENSITY RELATIONSHIP			
Project:	Proposed Student Recreation Center Expansion Project		
Location:	South of Existing Recreation Center, UCR Campus		
Job No.:	11300-3	Enclosure:	C-4

Consolidation Test (ASTM D 2435)

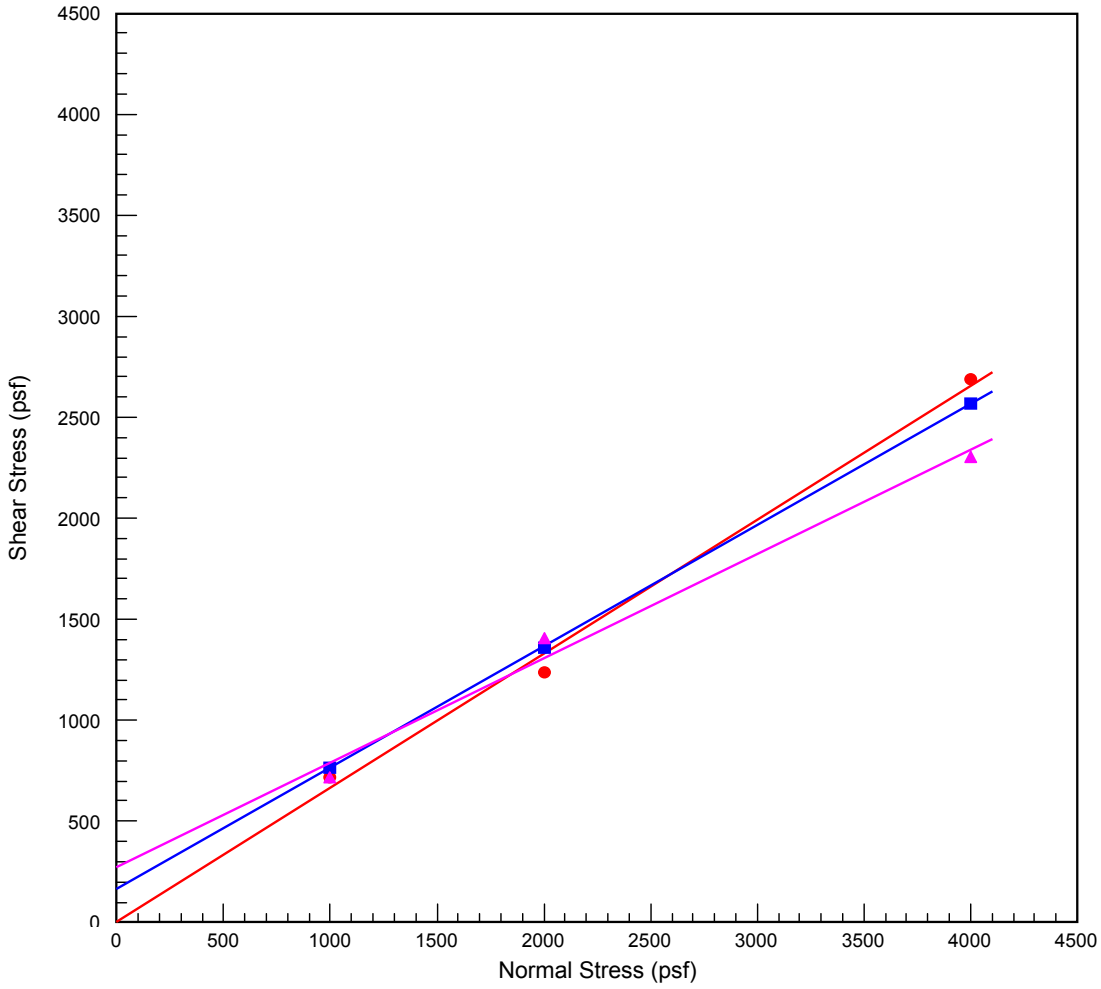


Boring #		Depth (ft)	Soil/Sample Type	γ_d (pcf)	MC(%)	HCS(%)
●	3-4	15	(SP-SM) Sand, fine to medium with coarse and silt	105.1	3.1	1.6
■	8-4	17	(SP-SM) Sand, fine to coarse with silt	106.5	4.7	0.6

* HCS - Hydroconsolidation strain in percent.

C.H.J. Incorporated

CONSOLIDATION TEST			
Project:	Proposed Student Recreation Center Expansion Project		
Location:	South of Existing Recreation Center, UCR Campus		
Job No.:	11300-3	Enclosure:	C-5



Boring No.		Depth (ft)	Soil/Sample Type	γ_d (pcf)	MC(%)	C (psf)	φ(°)
●	3	5	(SM) Silty sand, fine to medium / remolded to 90%	121	7.5	0	34
■	11	5	(SM) Silty sand, fine to medium with clay / rel. undist.	129	12.0	162	31
▲	11	16	(SP-SM) Sand, fine to coarse with silt and clay / rel. undist.	114	3.2	270	27

C.H.J. Incorporated

DIRECT SHEAR TEST

Project:	Proposed Student Recreation Center Expansion Project		
Location:	South of Existing Recreation Center, UCR Campus		
Job No.:	11300-3	Enclosure:	C-6

Table 1 - Laboratory Tests on Soil Sample(s)

C.H.J., Inc.
UCR REC CENTER
Your #11300-3, HDR|Schiff #11-0528LAB
7-Jun-11

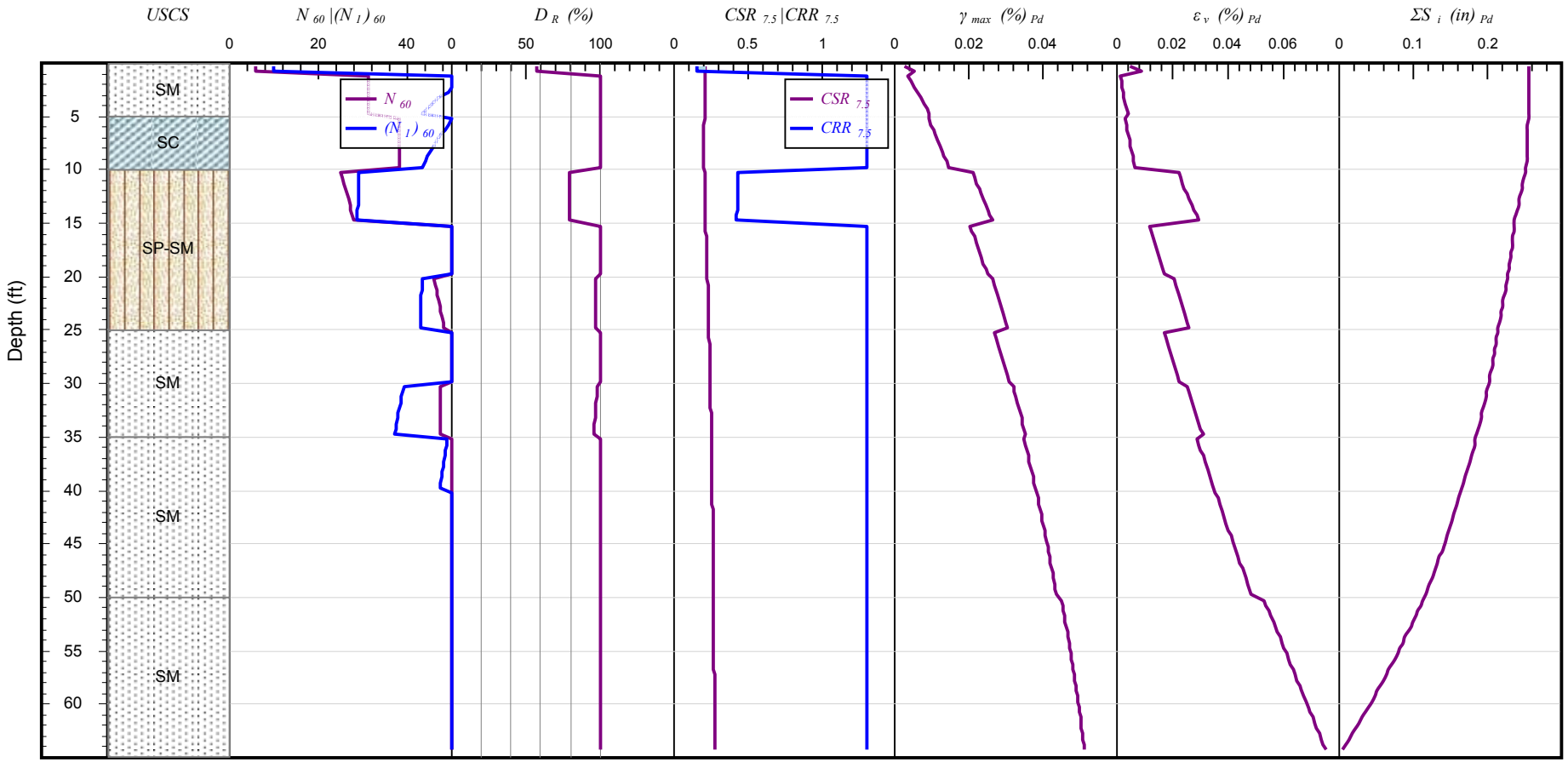
Sample ID			3B	11B
Resistivity		**Units**		
as-received		ohm-cm	6,800	11,600
saturated		ohm-cm	1,480	4,400
pH			8.1	8.2
Electrical Conductivity		mS/cm	0.20	0.07
Chemical Analyses				
Cations				
calcium	Ca^{2+}	mg/kg	40	37
magnesium	Mg^{2+}	mg/kg	24	6.6
sodium	Na^{1+}	mg/kg	147	51
potassium	K^{1+}	mg/kg	5.4	4.8
Anions				
carbonate	CO_3^{2-}	mg/kg	ND	ND
bicarbonate	HCO_3^{1-}	mg/kg	140	131
fluoride	F^{1-}	mg/kg	3.8	3.9
chloride	Cl^{1-}	mg/kg	60	3.9
sulfate	SO_4^{2-}	mg/kg	232	21
phosphate	PO_4^{3-}	mg/kg	1.2	2.2
Other Tests				
ammonium	NH_4^{1+}	mg/kg	ND	ND
nitrate	NO_3^{1-}	mg/kg	ND	3.2
sulfide	S^{2-}	qual	na	na
Redox		mV	na	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

431 West Baseline Road · Claremont, CA 91711
Phone: 909.626.0967 · Fax: 909.626.3316

APPENDIX "D"

GEOTECHNICAL DETAILS



SM

SC

SP-SM

Earthquake & Groundwater Information:
Magnitude = 7
Max. Acceleration = 0.4 g
Project GW = 100 ft
Maximum Settlement = 0.26 in
Settlement at Target Depth = 0.26 in

Liquefaction: Idriss & Boulanger (2008)
Settl.: [dry] Yi (2009)
Lateral spreading: Idriss & Boulanger (2008)
M correction: [Sand] Boulanger & Idriss(2004)
σv correction: Idriss & Boulanger (2008)
Stress reduction: Idriss & Boulanger (2008)

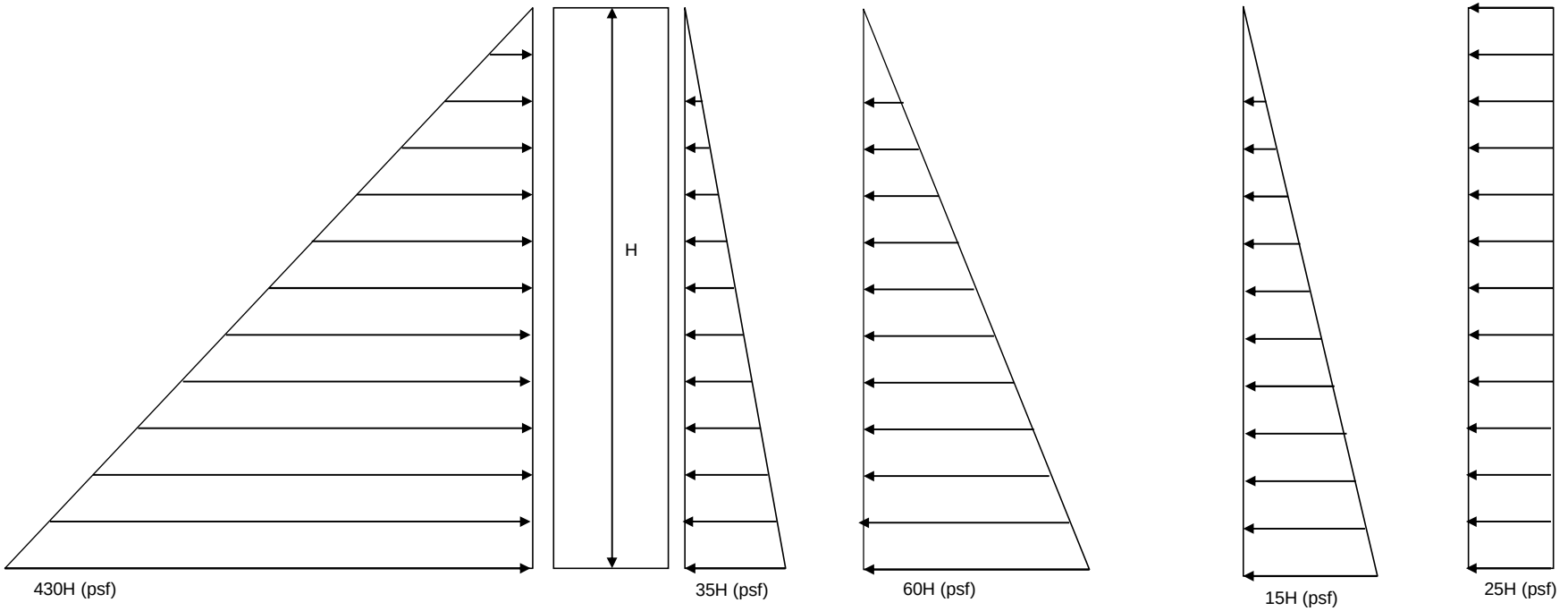
C.H.J. Incorporated

Seismic Settlement - SPT Data

Project:	Proposed Student Recreation Center Expansion Project				
Location:	University of California, Riverside, California				
Job Number:	11300-3	Boring No.:	B-5	Enclosure:	D-1

F:\Projects\Geotechnical\2011\11300-3 UCR - Rec Center Addition\GeoSuite 2008\GeoSuite_11300-3_B-5.csv

Prepared at 6/14/2011 2:58:55 PM



(a) Passive Earth Pressure

(b) Active Earth Pressure

(c) At-rest Earth Pressure

(d) Active Seismic Earth Pressure

(e) Apparent Earth Pressure (Sand)

Ultimate Passive Resistance:	430H (psf)	Ultimate Base Friction:	0.45
Allowable Passive Resistance:	215H (psf)	Allowable Base Friction:	0.30
Factor of Safety:	2.0	Factor of Safety:	1.5

* not scaled

C.H.J. Incorporated

Typical Earth Pressure Distributions

Project:	Proposed Student Recreation Center Expansion Project		
Location	South of Existing Recreation Center, UCR Campus		
Job Number	11300-3	Enclosure	D-2

Appendix D

Noise Monitoring Data

General Information

Serial Number	01742
Model	831
Firmware Version	2.000
Filename	831_Data.002
User	FJS
Job Description	UCR Recreation Ctr.
Location	1
Measurement Description	
Start Time	Tuesday, 2011 July 26 15:07:40
Stop Time	Tuesday, 2011 July 26 15:23:13
Duration	00:15:30.8
Run Time	00:14:55.6
Pause	00:00:35.2
Pre Calibration	Tuesday, 2011 July 26 15:02:23
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		56.6	dB
LASmax	2011 Jul 26 15:11:21	68.4	dB
LApeak (max)	2011 Jul 26 15:11:49	92.3	dB
LASmin	2011 Jul 26 15:18:17	50.3	dB
LCeq		67.6	dB
LAeq		56.6	dB
LCeq - LAeq		11.0	dB
LAIeq		58.9	dB
LAeq		56.6	dB
LAIeq - LAeq		2.3	dB
Ldn		56.6	dB
LDay 07:00-22:00		56.6	dB
LNight 22:00-07:00		---	dB
Lden		56.6	dB
LDay 07:00-19:00		56.6	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		86.1	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS5.00	61.6	dBA
LAS10.00	59.1	dBA
LAS33.30	55.6	dBA
LAS50.00	54.4	dBA
LAS66.60	53.2	dBA
LAS90.00	52.0	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	6 / 16.0	s
LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	26 Jul 2011 15:02:23	-26.4
PRM831	12 Jul 2011 11:16:13	-26.3
PRM831	30 Mar 2011 08:17:19	-26.2

General Information

Serial Number	01742
Model	831
Firmware Version	2.000
Filename	831_Data.003
User	FJS
Job Description	UCR Recreation Ctr.
Location	2
Measurement Description	
Start Time	Tuesday, 2011 July 26 15:25:27
Stop Time	Tuesday, 2011 July 26 15:40:38
Duration	00:15:09.5
Run Time	00:15:09.5
Pause	00:00:00.0
Pre Calibration	Tuesday, 2011 July 26 15:02:23
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		62.1	dB
LASmax	2011 Jul 26 15:37:51	75.6	dB
LApeak (max)	2011 Jul 26 15:25:55	95.3	dB
LASmin	2011 Jul 26 15:40:35	56.9	dB
LCeq		72.3	dB
LAeq		62.1	dB
LCeq - LAeq		10.2	dB
LAIeq		64.7	dB
LAeq		62.1	dB
LAIeq - LAeq		2.6	dB
Ldn		62.1	dB
LDay 07:00-22:00		62.1	dB
LNight 22:00-07:00		---	dB
Lden		62.1	dB
LDay 07:00-19:00		62.1	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		91.7	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS5.00	65.9	dBA
LAS10.00	64.6	dBA
LAS33.30	61.8	dBA
LAS50.00	60.4	dBA
LAS66.60	59.2	dBA
LAS90.00	57.8	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	24 / 126.7	s
LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	26 Jul 2011 15:02:23	-26.4
PRM831	12 Jul 2011 11:16:13	-26.3
PRM831	30 Mar 2011 08:17:19	-26.2

General Information

Serial Number	01742
Model	831
Firmware Version	2.000
Filename	831_Data.004
User	FJS
Job Description	UCR Recreation Ctr.
Location	3
Measurement Description	
Start Time	Tuesday, 2011 July 26 15:43:16
Stop Time	Tuesday, 2011 July 26 15:58:41
Duration	00:15:23.4
Run Time	00:15:23.4
Pause	00:00:00.0
Pre Calibration	Tuesday, 2011 July 26 15:02:23
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		55.1	dB
LASmax	2011 Jul 26 15:47:20	62.8	dB
LApeak (max)	2011 Jul 26 15:45:05	85.4	dB
LASmin	2011 Jul 26 15:43:30	52.4	dB
LCeq		68.1	dB
LAeq		55.1	dB
LCeq - LAeq		13.0	dB
LAIeq		56.3	dB
LAeq		55.1	dB
LAIeq - LAeq		1.2	dB
Ldn		55.1	dB
LDay 07:00-22:00		55.1	dB
LNight 22:00-07:00		---	dB
Lden		55.1	dB
LDay 07:00-19:00		55.1	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		84.8	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS5.00	57.5	dBA
LAS10.00	56.4	dBA
LAS33.30	55.1	dBA
LAS50.00	54.7	dBA
LAS66.60	54.3	dBA
LAS90.00	53.5	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	26 Jul 2011 15:02:23	-26.4
PRM831	12 Jul 2011 11:16:13	-26.3
PRM831	30 Mar 2011 08:17:19	-26.2

General Information

Serial Number	01742
Model	831
Firmware Version	2.000
Filename	831_Data.005
User	FJS
Job Description	UCR Recreation Ctr.
Location	4
Measurement Description	
Start Time	Tuesday, 2011 July 26 16:13:54
Stop Time	Tuesday, 2011 July 26 16:28:58
Duration	00:15:02.1
Run Time	00:15:02.1
Pause	00:00:00.0
Pre Calibration	Tuesday, 2011 July 26 15:02:23
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		58.2	dB
LASmax	2011 Jul 26 16:16:48	80.2	dB
LApeak (max)	2011 Jul 26 16:16:48	103.0	dB
LASmin	2011 Jul 26 16:22:54	52.7	dB
LCeq		71.5	dB
LAeq		58.2	dB
LCeq - LAeq		13.3	dB
LAIeq		67.3	dB
LAeq		58.2	dB
LAIeq - LAeq		9.1	dB
Ldn		58.2	dB
LDay 07:00-22:00		58.2	dB
LNight 22:00-07:00		---	dB
Lden		58.2	dB
LDay 07:00-19:00		58.2	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		87.7	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS5.00	62.5	dBA
LAS10.00	59.0	dBA
LAS33.30	56.4	dBA
LAS50.00	55.7	dBA
LAS66.60	55.0	dBA
LAS90.00	54.0	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	8 / 17.2	s
LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	26 Jul 2011 15:02:23	-26.4
PRM831	12 Jul 2011 11:16:13	-26.3
PRM831	30 Mar 2011 08:17:19	-26.2