

**DRAFT INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION FOR THE
CREEKSIDE TERRACE
SLOPE PROTECTION PROJECT**

**UNIVERSITY OF CALIFORNIA, RIVERSIDE
PROJECT No. 950503**

PREPARED FOR:

University of California, Riverside
Capital Planning
1223 University Avenue, Suite 200
Riverside, CA 92507
Tricia D. Thrasher, ASLA, LEED AP
Principal Environmental Project Manager
951/827-1484

PREPARED BY:

ICF International
3550 Vine Street, Suite 100
Riverside, CA 92507
Debra Leight, Senior Project Manager
951/683-3238

August 2014



This statement is prepared in compliance with the California Environmental Quality Act

Contents

Introduction.....	1
Project Location.....	1
Project History.....	1
Relationship to the	1
UCR Long Range Development Plan and EIR.....	1
Summary	3
Project Location.....	3
Project Site and Environmental Setting.....	3
Project Objectives.....	3
Project Description	3
Summary of Impacts.....	4
Environmental Checklist	10
I. Project Information	10
II. Project Location and Description	10
III. Environmental Factors Potentially Affected	12
IV. Determination	12
V. Evaluation of Environmental Impacts	13
I. Aesthetics.....	14
II. Agriculture and Forest Resources	15
III. Air Quality	16
IV. Biological Resources	19
V. Cultural Resources.....	27
VI. Geology and Soils.....	29
VII. Greenhouse Gas Emissions.....	31
VIII. Hazards and Hazardous Materials	33
IX. Hydrology and Water Quality	35
X. Land Use and Planning.....	39
XI. Mineral Resources	40
XII. Noise	41
XIII. Population and Housing.....	44
XIV. Public Services	44
XV. Recreation.....	46
XVI. Transportation/Traffic	46
XVII. Utilities and Service Systems	49

XVIII. Mandatory Findings of Significance..... 52

VI. Supporting Information Sources 54

Documents Incorporated by Reference..... 55

VII. Initial Study Preparers 56

Figures **follows page**

Figure 1 Regional Vicinity Map..... 4

Figure 2 Local Vicinity Map 4

Figure 3 Project Site 4

Figure 4 Property Ownership 4

Appendix A Project Plans

Appendix B Air Quality and Greenhouse Gas Technical Memorandum

**Appendix C Standard Practices from the LRDP EIR MMRP Measures and City of Riverside
General Plan**

Appendix D Biological Resources Assessment

Appendix E Biological Resources Assessment Update

Appendix F Least Bell’s Vireo Survey

Appendix G Jurisdictional Delineation

Appendix H Noise Impact Analysis Technical Memorandum

Acronyms and Abbreviations

AB	Assembly Bill
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
Basin	South Coast Air Basin
BAU	business as usual
BMPs	best management practices
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CUP	Conditional Use Permit
cy	cubic yards
dba	A-weighted decibels
EIR	environmental impact report
GHG	greenhouse gas
HMMP	Habitat Mitigation and Monitoring Program
LBV	least Bell's vireo
L _{eq}	equivalent sound level
LRDP	Long Range Development Plan
MM	Mitigation Measure
MMRP	Mitigation Monitoring and Reporting Program
MMT	million metric tons
MSHCP	Multiple Species Habitat Conservation Plan
MT	metric tons
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
PM	particulate matter
PM ₁₀	particulate matter greater than 10 microns in diameter
PM _{2.5}	particulate matter greater than 2.5 microns in diameter
PP	Programs and Practices
Project	University of California, Riverside Creekside Terrace Slope Protection Project
RCRPOSD	Riverside County Regional Parks and Open Space District
ROC	reactive organic compounds
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SKR	Stephens' Kangaroo Rat
SWPPP	Stormwater Pollution Prevention Plan
UCR	University of California, Riverside
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

Project Location

The University of California, Riverside (UCR) Creekside Terrace Slope Protection Project (herein referred to as “Project”) is located partially on property owned by the University of California, approximately 770 feet from the southern boundary of the west campus area of the Riverside campus, and partially located on property owned by others within the City of Riverside, Riverside County, California. The site is generally east of Chicago Avenue and south of Le Conte Drive. Specifically, the project site consists of a drainage feature approximately 0.20 mile north of the intersection of Chicago and Central Avenues. The Project is within Section 31, Township 2 South, Range 4 West of the Riverside East U.S. Geological Survey (USGS) quadrangle dated 1967, photorevised 1980 (USGS 1967). The primary Assessor’s Parcel Number (APN) associated with the project site is 254-370-003.

Project History

The Creekside Terrace residential development was approved by the City of Riverside in 2004; the site was graded, utility and street improvements were constructed, and common facilities (clubhouse, pool, and playground) and 24 of the 78 approved residences were completed prior to acquisition of the property by the University in 2008.

Engineering evaluations conducted during the course of the campus acquisition process identified remedial measures necessary to ensure long-term stability of the stream bank close to substantial keystone retaining walls along the northern side of the drainage (generally the western tract boundary).

The proposed Project involves the recommended remedial measures, which consist of stabilization improvements within a previously improved stream channel that lies partially within the Creekside Terrace boundaries, but primarily within the site of an adjacent apartment development. The apartment site owner has entered a legal agreement with the University that grants access for due diligence inspections and construction of the proposed stabilization improvements.

Relationship to the UCR Long Range Development Plan and EIR

The Creekside Terrace development is on University-owned property, but outside the contiguous UCR campus boundaries that define the planning area in the UCR Long Range Development Plan (LRDP) and that frame the analysis in the associated program environmental impact report (EIR). On this basis, the environmental analysis for the Creekside Terrace Slope Protection Project may not be tiered from the LRDP EIR, as is typical with campus development and improvement projects.

Even though this analysis is not tiered from the LRDP EIR, it is University policy to extend established campus avoidance, minimization, and mitigation measures as contained in the adopted

Mitigation Monitoring and Reporting Program (MMRP) for the LRDP EIR to relevant off-campus activities. Applicable LRDP EIR MMRP provisions are recognized throughout the impact discussion section of this document (beginning on page 14).

Project Location

The project site is within and adjacent to an off-campus residential development known as Creekside Terrace. Creekside Terrace is generally north of Central Avenue and east of Chicago Avenue in the Canyon Crest area of the City of Riverside. Figure 1 identifies the project location in the regional context.

Project Site and Environmental Setting

The drainage channel is a previously improved remnant feature confined by two major roads, an established apartment development, and a residential subdivision. The surrounding area to the north, south, and east is characterized by residential development. The City of Riverside's Andulka Park and further residential development are situated to the west. Figure 2 identifies the project site and vicinity and Figure 3 provides a closer aerial view of the project site. Figure 4 depicts the property ownership for land included in the project site. This includes land owned by the University and property belonging to the adjacent apartment complex. The riparian area within the proposed project site lies primarily within the legal parcels associated with the apartments bordering the south and west banks.

Project Objectives

The proposed Project is intended to stabilize the stream bank in accordance with the recommendations of the University's consulting engineer, based upon accepted design standards.

The proposed finished conditions are intended to retain the existing hydrologic functions and values of the impacted drainage feature and to maximize post-construction biological functions while providing for ongoing maintenance requirements for the north¹ channel bank.

Project Description

The proposed Project involves stabilization of the north bank of an existing drainage channel adjacent to the University-owned Creekside Terrace residential development (Tract 31671).

Specifically, the channel would be reshaped and rip-rap would be placed on the north bank to match existing conditions on the south bank. The proposed improvements would require the removal of all vegetation on the north bank as well as the channel bottom. Proposed ongoing activity would maintain a vegetation-free condition on the north bank to ensure channel flow capacity is

¹ The drainage channel includes a bend within the project limits, with a portion of the channel oriented generally north/south and a portion oriented generally east/west. For this report, the bank adjacent to the University-owned property is referred to as the *north bank*, while the bank adjacent to the privately owned apartment site is referred to as the *south bank*.

maintained. Existing vegetation on the south bank would remain in place, and native vegetation would be allowed to naturally reestablish within the drainage channel bank on the south side. In addition to clearing vegetation from the work limits, the proposed improvements would include removal of non-native plants throughout the riparian area.

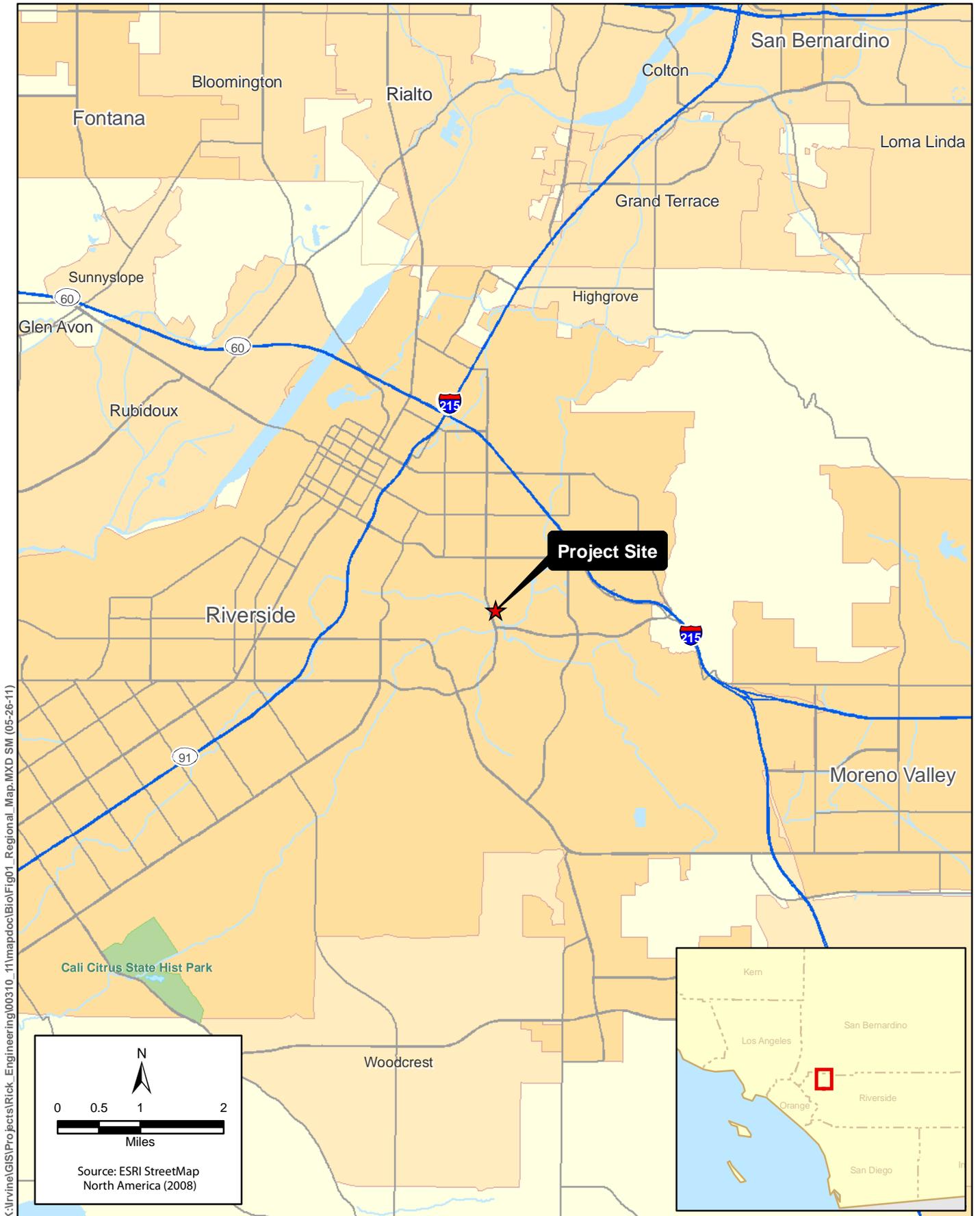
The proposed design would excavate the channel to expose the lower extent of the existing rip-rap cover on the south bank. Work would be conducted from the existing access path along the north side of the channel. A series of 34 small-diameter drains extending from the north bank would be protected in place (these are the outlets for the subdrain system for the Creekside Terrace retaining walls). Bottom sediments would be stockpiled for replacement in the reconstructed drainage channel. The excavated area would be graded to establish a v-channel with uniform slope face extending between the existing top of the bank on the Creekside Terrace side of the channel and the existing toe of rip-rap cover on the opposite bank. UngROUTED rip-rap with a filter fabric underlay would be placed over the newly graded slope and the subdrain system outlet pipes would be trimmed so that they do not extend beyond the rock surface. Stockpiled sediments would be replaced within the channel bottom and finished surface elevations would be established to create a functional flow regime between the existing culverts at each end of the Project. Rip-rap pads (5 feet wide and 10 feet long) would be established at the existing inlet and outlet for energy dissipation.

The subject drainage channel flows year-round; therefore, diversion would be necessary during construction. Considering the nature of the tributary flows and the constrained conditions along the work limits, feasible diversion methods are limited. The entire work limits would need to be dewatered for the duration of construction. This would require a piped diversion from the existing culvert outlet at the upstream end of the work limits to the existing culvert inlet at the downstream end of the work limits. The diversion pipe is expected to be placed along the south bank or perhaps within landscaped areas within the adjacent apartment development. Considering the relative grade between the culvert outlet at the upstream end of the work limits and the likely bypass pipeline location, pumping is expected to be required. A portable generator may be required as a power source.

Construction is anticipated to last approximately 120 days. Project improvement plans are presented in Appendix A.

Summary of Impacts

The review and analysis contained herein recognizes compliance with established local, state, and federal regulations and UCR standard procedures as the basis for a determination that impacts are less than significant for aesthetics, agricultural and forest resources, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, and transportation/traffic. No project impacts are anticipated for mineral resources, population and housing, public services, and recreation. The environmental review and analysis contained herein indicates that the proposed Project presents the potential for project-level environmental impacts related to biological resources, hydrology and water quality, land use and planning, noise, and utilities and service systems. Project impacts are summarized below.



K:\Irvine\GIS\Projects\Risk_Engineering\00310_11\mapdoc\Bio\Fig01_Regional_Map.MXD SM (05-26-11)



Figure 1
Regional Vicinity Map
UCR Creekside Terrace Slope Protection Project



Figure 2
Local Vicinity Map
UCR Creekside Terrace Slope Protection Project

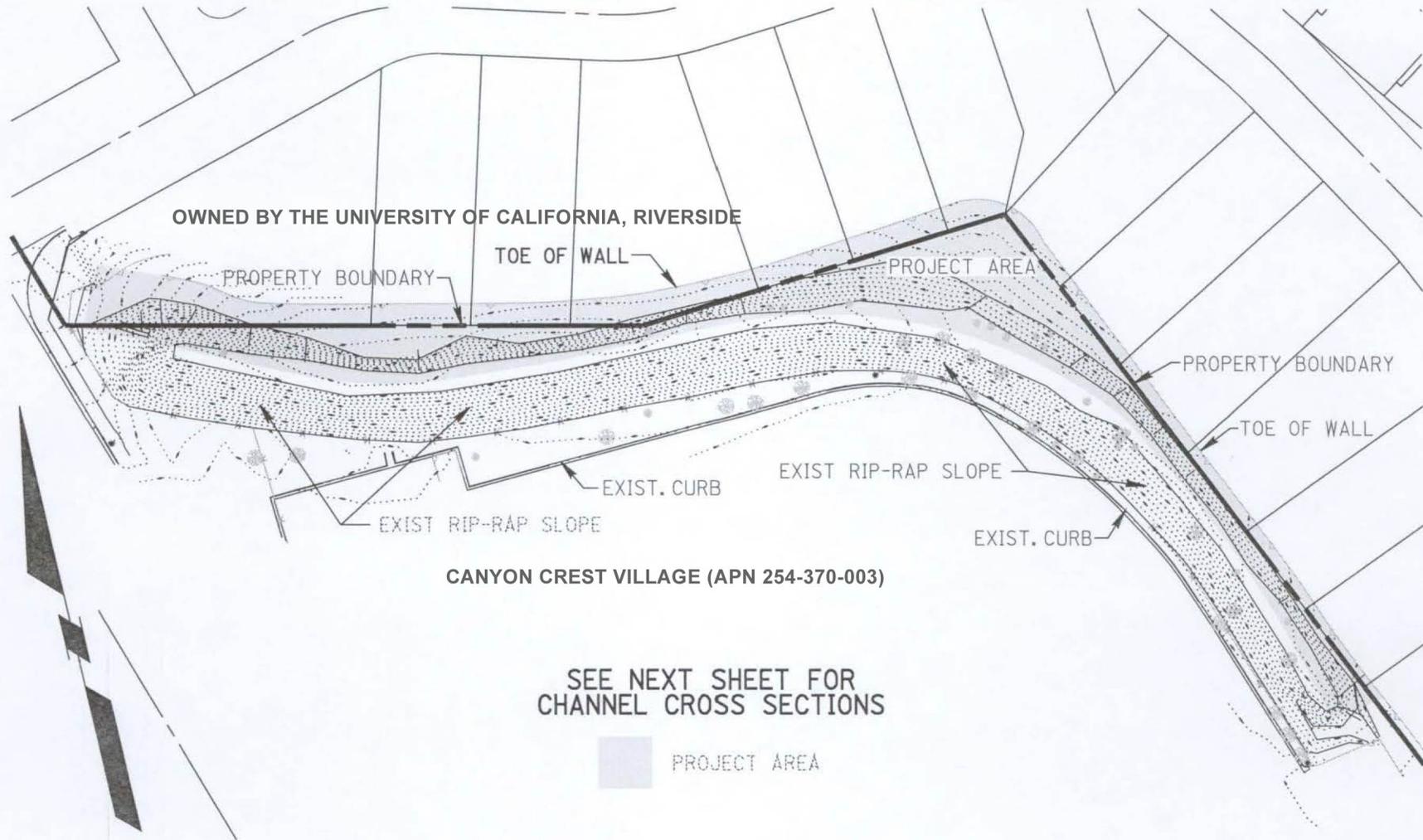


K:\Irvine\GIS\Projects\Rick_Engineering\00310_11\mapdoc\Fig03_Project_Site.mxd Date: 5/8/2013 25119



Figure 3
Project Site
UCR Creekside Terrace Slope Protection Project

CREEK STABILIZATION PROJECT AREA DETAIL



RICKTM
ENGINEERING COMPANY
Riverside

1223 UNIVERSITY AVENUE - SUITE 240
RIVERSIDE, CA 92507
951.782.0707
(FAX)951.782.0723

rickengineering.com

San Diego - Orange - San Luis Obispo - Bakersfield - Sacramento - Phoenix - Tucson

NOT TO SCALE

ICF
INTERNATIONAL

Figure 4
Property Ownership
UCR Creekside Terrace Slope Protection Project

Project Level Impacts Requiring Mitigation Measures

1. Biological Resources. The proposed Project would impact a previously channelized stream feature that meets jurisdictional criteria under state and federal programs governing streams and riparian resources. The riparian habitat within the stream area is suitable habitat for the federally listed as endangered least Bell's vireo, although focused surveys determined the species' habitat to be absent. The riparian habitat within the stream area is also suitable habitat for numerous species of birds protected under state and federal law. Collectively, the proposed improvements and post-construction treatments are judged to provide a finished condition of comparable, or better, biological function.

Even though the Project would not be within the contiguous UCR campus boundaries that define the planning area in the UCR LRDP, the following project-specific mitigation measures provide a mechanism for implementation of the LRDP EIR MMRP measures below and provided in Appendix C, to reduce environmental impacts:

- Planning Strategy Conservation 1 (protect natural resources),
- Planning Strategy Conservation 2 (development to minimize site disturbance),
- Programs and Practices 4.4-1(a) (reduce impacts to Natural Open Spaces Reserve area),
- Programs and Practices 4.4-1(b) (reduce disturbance to Natural Open Spaces Reserve area),
- Programs and Practices 4.4-2(a) (avoid impacts to riparian and wetland habitats or evaluate),
- Mitigation Measure 4.4-3(b) (habitat regulated by Clean Water Act),
- Mitigation Measure 4.4-3(c) (wetland creation or enhancement),
- Mitigation Measure 4.4-4(a) (nesting special status avian species surveys during construction), and
- Mitigation Measure 4.4-4(b) (delay construction if active nests for avian species are found).

The following measures also establish means to verify successful implementation of the riparian habitat restoration aspects of the proposed improvements as characterized in the project description, as they may be adjusted through the required state and federal permit processes.

With implementation of these measures, potential impacts on biological resources would be less than significant.

BIO 1 – Minimize Direct Impacts on Riparian Habitat. Prior to initiation of ground disturbance activities, disturbance limits shall be clearly defined at the construction site and demarcated on site plans (refer to Appendix A). Access and staging shall be limited to the existing gated entrance from Chicago Avenue, the existing maintenance path along the north bank, or paved/landscaped areas within the adjoining apartment development. Protection measures for riparian habitat on the south bank will be established in consultation with the biological monitor.

BIO 2 – Conduct Biological Monitoring During Construction. A qualified biologist shall monitor construction for compliance with best management practices outlined in LRDP Programs and Practices (PP) 4.4-1(b) (reduce disturbance to Natural Open Space areas). Such measures may include minimizing vehicular access and parking in undisturbed areas or drainages; avoiding removal of native shrub or disturbance of

drainages, except where necessary; avoiding overwatering; and not harassing wildlife species, as provided in full detail in Appendix C. Considering the nature of the work area and proximity of protected resources to the work limits, monitoring shall be continuous during the initial preparation and excavation phases. Once work transitions to placement of rip-rap, the frequency of monitoring may be reduced, as recommended by the monitoring biologist (taking into consideration the nature of the proposed work and time of year).

BIO 3 – Provide Worker Education Pamphlet. To ensure compliance with best management practices identified in LRDP PP 4.4-1(b) (reduce disturbance to Natural Open Space areas), a biologist shall provide the construction contractor field supervisor with a worker education pamphlet to be provided to all construction personnel prior to personnel initiating ground disturbance activities. The education pamphlet will include a discussion of the importance of the stream and associated riparian habitat, areas to be avoided (including during parking and staging of equipment), a discussion of native wildlife with the potential to occur, and education on not harassing native wildlife.

BIO 4 – Remove Exotic Species. During the construction phase, exotic plant species shall be removed from the riparian zone, including the protected south bank area. Exotic plant material shall be properly handled to prevent sprouting or regrowth. Construction equipment shall be cleaned of mud or other debris that may contain invasive plants/seed and inspected to reduce the potential of spreading noxious weeds before mobilizing to the work area and before leaving the work area. Cleaning of equipment shall occur outside the work area where the wastewater stream is contained so as to prevent any invasive plant material from entering natural areas. During project operations, exotic species shall be removed periodically in accordance with the Habitat Mitigation and Monitoring Program (HMMP) and agency approval subject to the conditions established by the approved permits.

BIO 5 – Monitor Post-construction Revegetation. Native riparian vegetation shall be allowed to reestablish through natural recruitment within the work limits. Prior to initiation of ground disturbance activities, a monitoring plan shall be prepared and submitted to the relevant agencies (i.e., U.S. Army Corps of Engineers [USACE], California Department of Fish and Wildlife [CDFW]). Prior to removal of vegetation, a qualified biologist shall conduct an assessment of functions and values for the stream and associated riparian habitat. The assessment will focus upon characterization of existing functions and values as a benchmark for evaluation of success of the post-construction effort. The performance criteria shall include functions and values that are of equal or greater value than existing conditions. During project operations, exotic species shall be removed periodically in accordance with the HMMP and agency approval subject to the conditions established by the approved permits. The plan should be sufficient to meet agency requirements and at a minimum shall include the following:

- a map and acreage of vegetation to be temporarily affected,
- location of monitoring area,
- functions and values assessment of pre-construction condition,

- performance criteria,
- monitoring guidelines, and
- contingency measures.

BIO 6 – Purchase Mitigation Bank Credits to Replace Residual Mitigation Obligation under Prior Permits. The University shall purchase credits from the Santa Ana River Mitigation Bank operated by Riverside County Regional Parks and Open Space District (RCRPOSD), or other bank or in-lieu fee program approved by the permitting agencies (i.e., USACE and CDFW). Based upon the anticipated difference in riparian cover in the post-construction condition (0.2 acre) and minimum purchase requirements for this bank, a minimum purchase of 0.25-acre credit from the RCRPOSD bank would be required. The final credit purchase requirement will be determined through the regulatory permit process with USACE and CDFW.

BIO 7 – Pre-construction Nesting Bird Surveys. Prior to the onset of construction activities that would result in vegetation removal between February 15 and September 15, nesting bird surveys shall be conducted by a qualified biologist a maximum of 7 days prior to initiation of ground disturbance activities. The survey area shall include the direct disturbance limits and a 250-foot buffer zone. If nesting birds are encountered within the survey area, the qualified biologist will flag an avoidance buffer zone around the nest. No ground disturbance activities shall occur within the avoidance buffer zone until the qualified biologist has determined that the nest is no longer active and the young are not dependent on the nest.

The project site is within the plan areas of two regional conservation efforts—the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and the Long-term Habitat Conservation Plan for the Stephens’ Kangaroo Rat (SKR). Implementation of the SKR plan is at a stage in which all conservation lands have been acquired. For projects outside the reserve areas, plan conformance is achieved through payment of mitigation fees that support ongoing management of the reserve lands. The campus is not within an SKR reserve and the University is exempt from payment of SKR mitigation fees.

Under the MSHCP, the stream feature and associated riparian habitat are subject to plan provisions for riverine and riparian resources. For riparian habitat, the plan requires consideration of suitability for three protected bird species: least Bell’s vireo, southwestern willow flycatcher, and western yellow-billed cuckoo. The habitat at the project site is not suitable for southwestern willow flycatcher, and western yellow-billed cuckoo and least Bell’s vireo are assumed to be absent on the basis of negative focused surveys.

The MSHCP stipulates that riparian habitat is to be avoided to the greatest extent practicable. If riparian habitat is affected, mitigation must demonstrate equal or superior functions and values. The proposed stabilization improvements would affect a highly constrained stream feature that is removed from MSHCP reserve areas. **Mitigation Measures BIO 1 through BIO 4 and BIO 7** provide for implementation of various measures during construction to ensure individual least Bell’s vireos are not impacted and to ensure that impacts on the stream and riparian habitat are minimized. **Mitigation Measures BIO 5 and BIO 6** provide for post-construction monitoring and purchase of mitigation bank credits to ensure that riverine and riparian habitat functions and values are equal or superior to pre-project conditions. **With implementation of Mitigation Measures BIO 1 through BIO 6, proposed activities and improvements would not conflict**

with MSHCP provisions for riparian and riverine resources, and a less-than-significant impact would result.

2. Hydrology and Water Quality. Temporary diversion of the existing stream would be required for the approximately 120-day construction period. Considering the proposed work limits, the constrained nature of the stream, and the proximity of developed private property and public improvements, the options for diversion are limited. It is expected that diversion would involve a contained method, such as pipes or hoses, extending from the existing inlet to the existing outlet and placed along the south bank or within adjacent landscaped areas.

With the assumed contained diversion, there is potential for flooding due to an upset condition involving a breach in the pipe or hose. An approximately 0.92-acre area that contains the existing stream channel has been zoned as Watercourse by the City of Riverside. This roughly corresponds to the fenced area between the apartment site parking lot and the Creekside Terrace development. As long as the potential overflow boundaries are confined to the existing Watercourse-zoned area, there would be no change in anticipated inundation boundaries and, therefore, no potential for significant impacts due to flooding from the temporary change in the stream course. **The following mitigation measure provides a means to ensure that the temporary diversion does not result in flooding on or off site, and impacts in this regard would be less than significant.**

HYD 1 – Temporary Diversion Design. The temporary diversion works shall be designed such that the inundation limits (including those resulting from an inadvertent breach of flows contained in a pipe or hose) are confined to the existing Watercourse overlay zone boundary. The University shall ensure that construction contracts provide sufficient detail for the design and method of temporary diversion.

3. Land Use and Planning. Potential impacts in regard to land use and planning relate to project consistency with the adopted regional conservation plans. The discussion of Biological Resources above explains that, with implementation of recommended **Mitigation Measures BIO 1 through BIO 6**, the proposed Project would not conflict with applicable provisions of the two adopted habitat conservation plans that apply within the project area. **Therefore, a less-than-significant impact would result with implementation of mitigation.**
4. Noise. The project-specific noise analysis evaluated potential construction-period noise from operation of heavy equipment and of a generator and pump for the temporary stream diversion. Predicted noise levels at the nearest residential receptors exceed applicable standards established under the City of Riverside Municipal Code.

For all noise sources except the generator/pump for the stream diversion, construction activity may be limited to adhere to the provisions of Riverside Municipal Code Section 7.35.10(b)(5). Recommended **Mitigation Measure NOI 1** provides a means to enforce this restriction and, with implementation of this measure, impacts in this regard would be less than significant. This measure is consistent with, and more restrictive than, the construction hour limits typically applied to campus projects under LRDP EIR MMRP PP 4.10-2 (hour limits for construction activities).

Generator and/or pump operations for streamflow diversion would be continuous, and it would not be feasible to conform to the hour limitations under **Mitigation Measure NOI 1**. Recommended **Mitigation Measure NOI 2** requires implementation of attenuation features to

achieve noise levels not exceeding applicable Riverside Municipal Code standards. **With implementation of this measure, impacts in this regard would be less than significant.**

NOI 1 – Restrict Construction Hours. The University will ensure that the construction contractor limits construction activities to occurring between 7:00 a.m. and 9:00 p.m. Monday through Friday and 8:00 a.m. and 6:00 p.m. on Saturday. An exception is made as to operation of a generator and/or pump for temporary stream diversion, subject to Mitigation Measure NOI 2, below.

NOI 2 – Attenuation for diversion pump and generator. The University will ensure construction contracts specify that any generator or diversion pump will be equipped with mufflers, silencers, shrouds, shields, or other noise-reducing features so as to achieve a maximum exterior operational noise level not exceeding 45 A-weighted decibels (dBA) (one-hour equivalent sound level [L_{eq}]) at exterior locations of nearby noise-sensitive land uses. Measures that can be implemented to achieve this include but are not limited to:

- enclosing equipment in solid wall structures,
 - using low-noise equipment, and
 - placing sound barriers (earth berms or constructed barriers) around equipment.
5. **Utilities and Service Systems.** Potential impacts on utilities and service systems relate to the function of the subject stream feature as a component of the City of Riverside storm water drainage system. The proposed bank stabilization improvements would temporarily disturb the existing stream channel and associated riparian vegetation, which presents the potential for significant environmental effects related to biological resources, temporary flooding, and noise, as noted above. **Mitigation Measures BIO 1 through BIO 8, HYD 1, NOI 1, and NOI 2** have been identified to reduce these potential impacts to below a level of significance. **With implementation of the recommended mitigation measures and City (for cultural resources) and campus standard practices noted above, the potential environmental effects of the proposed storm water facility improvements would be less than significant.**

Environmental Checklist

I. Project Information

1. **Project Title:** Creekside Terrace Slope Protection Project
UCR Project Number 950503
2. **Lead Agency Name and Address:** University of California, Riverside
Capital Planning
1223 University Avenue, Suite 200
Riverside, CA 92507
3. **Contact Person and Phone Number:** Tricia D. Thrasher, ASLA, LEED AP
Principal Environmental Project Manager
(951) 827-1484
4. **Project Location:** Northeast of Central and Chicago Avenues in the City of Riverside.
5. **Project Sponsor's Name and Address:** See items 2 and 3, above
6. **Custodian of the administrative record for this project (if different from response to item 3 above.):** See item 3, above
7. **Identification of previous EIRs relied upon for tiering purposes (including all applicable LRDP and project EIRs and address where a copy is available for inspection.)** LRDP EIR and LRDP MMRP incorporated by reference

II. Project Location and Description

1. **Description of Project:** (Describe the whole action involved, including but not limited to physical characteristics, site, later phases of the project, and any secondary, support, or off-site features necessary for its implementation and site selection process. Attach additional sheets if necessary.)

The proposed Project involves stabilization of the north bank of an existing drainage channel adjacent to the University-owned Creekside Terrace residential development (Tract 31671). See *Project Description* in the preceding *Summary* section for a complete description.

2. Project Objectives:

The proposed Project is intended to stabilize the existing stream bank in accordance with the recommendations of the University's consulting engineer based upon accepted design standards.

The proposed finished conditions are intended to retain the existing hydrologic functions and values of the impacted drainage feature and to maximize post-construction biological functions while providing for ongoing maintenance requirements for the north channel bank.

3. Surrounding land uses and environmental setting (Briefly describe the project's surroundings):

The project site is within a developed area of the City of Riverside. Residential development is located to the north, south, and east. Chicago Avenue, Andulka Park, and residential development are located to the west.

4. Discretionary approval authority and other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

Primary approval authority resides with The Regents of University of California or its delegate (the University).

Approvals may also be required from the City of Riverside Public Works and/or Planning departments (the campus has been in contact with City representatives, and determinations as to any required approvals by the City of Riverside are pending).

The proposed construction would also be subject to approvals from CDFW, the California Regional Water Quality Control Board, and USACE under various programs governing work within jurisdictional streams. Applications are pending with each agency: USACE file number 2012-004340JEM, Regional Board File Number 332012-01, and CDFW reference number 1600-2005-0093-R6.

5. Consistency with the LRDP: (Describe the project's consistency with: the scope of development projected in the LRDP; campus and community population levels projected in the LRDP; LRDP designation for this type of project; and applicable policy objectives and goals of the LRDP).

The Creekside Terrace development is located off-campus, outside of the LRDP planning area. While the LRDP does not specifically address this location, the analysis in this document takes into account LRDP planning strategies, programs and practices, and mitigation measures that are applicable to resources potentially impacted by the proposed Project.

III. Environmental Factors Potentially Affected

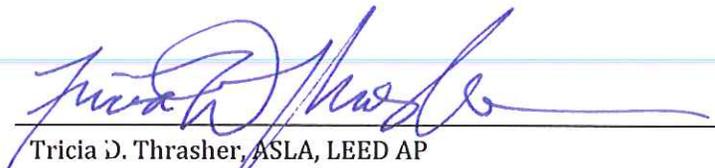
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forest Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials | <input checked="" type="checkbox"/> Hydrology/Water Quality |
| <input checked="" type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation/Traffic | <input checked="" type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

IV. Determination

On the basis of this initial evaluation that follows:

- I find that the proposed project WOULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made that will avoid or reduce any potential significant effects to a less than significant level. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment. An ENVIRONMENTAL IMPACT REPORT will be prepared.


 Tricia D. Thrasher, ASLA, LEED AP

University of California, Riverside

Principal Environmental Project Manager

8-22-14

Date

V. Evaluation of Environmental Impacts

During the completion of the environmental evaluation, the lead agency relied on the following categories of impact noted as column headings in the initial study checklist:

- A) “Potentially Significant Impact” is appropriate if there is substantial evidence that the project’s effect may be significant. If there are one or more “Potentially Significant Impacts” a Project EIR will be prepared.
- B) “Less Than Significant With 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 mitigation measures must be described, including a brief explanation of how the measures reduce the effect to a less-than-significant level.
- C) “Less Than Significant Impact” applies where the Project will not result in any significant effects. The project impact is less than significant without the incorporation of mitigation.
- D) “No Impact” applies where the 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).

I. Aesthetics	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The project site is situated at the interface of an existing apartment development and an existing single-family residential subdivision, at the bottom of an approximately 40-foot bluff. The existing terrain and the apartment buildings limit public views of the project site to only a very limited window along Chicago Avenue. While the proposed improvements would remove mature riparian vegetation within the work limits, the existing mature vegetation on the south bank would be retained, and riparian vegetation would be allowed to reestablish within the channel bottom. Physical conditions at the project site, together with the nature of the proposed improvements, preclude the potential for substantial adverse effects upon scenic vistas.</p>				
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>While the project site is not within the viewshed of a designated or eligible state scenic highway, Central Avenue between Chicago Avenue and Canyon Crest Drive is designated as a Scenic Boulevard in the City of Riverside General Plan, Circulation and Community Mobility Element (Figure CCM-4, Master Plan of Roadways). The proposed Project would remove mature trees and other vegetation within the stream channel. Views of the project limits from Central Avenue would be blocked by existing topography and the apartment development. Since the improvement area is not visible from Central Avenue and would be removed from a designated or eligible state scenic highway, the proposed Project does not present the potential for significant impacts upon scenic roadways.</p>				
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The project site is characterized by a remnant natural drainage feature isolated within a residential area within the City of Riverside. The riparian zone is visible from parking areas within the adjacent apartment development and from a very limited window along Chicago Avenue. The visual character of the project area and its surroundings could be affected in the short term by construction activity, including excavation, stockpiling, and presence of construction materials and equipment. Such conditions would cease once construction is complete and are not considered to represent a substantial degradation of the visual character of the site or its surroundings.</p> <p>The proposed improvements would require removal of all vegetation on the north bank of the channel, as well as the channel bottom. The existing mature vegetation on the south bank, adjacent to the apartments, would be retained, and riparian vegetation would be allowed to reestablish within the channel bottom. While the proposed Project may diminish the extent of riparian cover, the essential look and function as perceived from the existing public perspectives would not change substantially. Therefore, potential impacts on the visual character and quality of the site and its surroundings would be less than significant.</p>				

I. Aesthetics	Potentially Significant Impact	Less-than-Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed channel improvements do not include temporary or permanent lighting elements or reflective construction materials. The proposed Project, by its nature, would not produce any new sources of light or glare.

II. Agriculture and Forest Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the CA Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site itself is developed and is surrounded by developed lands and existing roads within the City of Riverside. The project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program. The resource of concern is absent and there is no potential for adverse impacts.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	-------------------------------------	--------------------------

The project site is not subject to a Williamson Act contract (City of Riverside General Plan Figure OS-3, Williamson Act Preserves). While agricultural uses are permitted within the Watercourse overlay zone that applies within the drainage channel, multiple physical constraints at this particular location would not accommodate agricultural uses (access, slopes, trees, perennial water flows).

II. Agriculture and Forest Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is in a developed area of the City of Riverside. The site and surrounding area do not contain forest land or timberland. The resources of concern are absent and there is no potential for adverse impacts.

d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	-------------------------------------

The project site is in a developed area of the City of Riverside. The site and surrounding area do not contain forest land. The resource of concern is absent and there is no potential for adverse impacts.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	-------------------------------------

The project site is in a developed setting. The site and surrounding area do not contain forest land or farmland. The resources of concern are absent and there is no potential for adverse impacts.

III. Air Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
-------------------------	--------------------------------	--	------------------------------	-----------

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------

The project site is within the South Coast Air Basin (Basin), which is a subregion of the South Coast Air Quality Management District (SCAQMD). Development within the Basin is subject to a comprehensive program of pollution control strategies detailed in SCAQMD's Air Quality Management Plan (AQMP) and implementing Rules. The AQMP and implementing Rules are directed at reducing emissions in order to achieve state and federal air quality standards.

The limited activities associated with ongoing operation and maintenance of the completed improvements would generate a negligible volume of air pollutant emissions. Therefore,

III. Air Quality

Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
--------------------------------	--	------------------------------	-----------

assessment of air quality impacts for this Project is limited to the construction phase.

AQMP provisions and rules applicable to the proposed stabilization work include those pertaining to fugitive dust control (Rules 403, 404, and 405), visibility of emissions (Rule 401), and nuisance activities (Rule 402) (SCAQMD 2013c). PP 4.3-2(a) (construction contract specifications measures to reduce emissions) and 4.3-2(b) (dust control measures) under the UCR LRDP EIR MMRP require compliance with SCAQMD rules and regulations applicable to this Project, and LRDP EIR MMRP Mitigation Measures (MM) 4.3-1(a) (particulate matter [PM] control measures), 4.3-1(b) (construction emissions control plan), and 4.3-2 (use of low nitrogen oxide [NO_x] diesel fuel) detail project-specific actions to ensure implementation of measures at construction sites and through construction contract specifications, as provided in Appendix C. Such measures include but are not limited to: incorporating into construction contract specifications measures to reduce emissions (compliance with SCAQMD Rules and regulations, maintenance programs, avoid idling, use of alternative fuels, provision of electrical on-site eliminating generators); implementing dust control measures to reduce fugitive dust (apply water or soil stabilizers, replace ground cover, suspend grading when wind speeds exceed 25 miles per hour, cover loose material within haul trucks, sweep streets, install wheel washers, post and enforce speed limits); providing contact information for notification of dust complaints; use of California Air Resources Board (ARB)-certified equipment during construction; prohibiting vehicle and engine idling in excess of 5 minutes; providing temporary traffic controls; scheduling construction activities to off-peak times to not affect traffic flows; maintaining construction equipment to specification; and use of low NO_x diesel fuel and construction equipment. Campus procedures for project design development and contract administration provide an established mechanism for implementation of LRDP EIR MMRP provisions, including those related to implementation of applicable SCAQMD Rules for individual construction projects. Because project emissions would be restricted to the construction phase and established campus programs would ensure compliance with applicable SCAQMD Rules, the proposed Project would not conflict with or obstruct implementation of the SCAQMD AQMP. This would be considered a less-than-significant impact.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

The proposed Project would generate air pollutant emissions during construction. Estimated emissions from combustion sources and fugitive dust (particulate matter greater than 10 microns in diameter [PM10] and greater than 2.5 microns in diameter [PM2.5]) were compiled using CalEEMod, an emissions estimation/evaluation model developed by SCAQMD in collaboration with other air quality management districts within California. Appendix B contains the air quality and greenhouse gas emission impact analysis, including assumptions and model output.

Table 1 in Appendix B summarizes the emissions estimates for project construction and compares the estimated emissions to the regional and localized significance thresholds established by SCAQMD. Estimated emissions are all substantially below the applicable thresholds. Emissions estimates for PM10 and PM2.5 take into account compliance with SCAQMD Rule 403. As noted in the response to item III.a, above, PP 4.3-2(a) (construction contract specifications measures to reduce emissions) and 4.3-2(b) (dust control measures) under the LRDP EIR MMRP require compliance with SCAQMD Rules and regulations applicable to this Project, and LRDP EIR MMRP MM 4.3-1(a) (PM control measures), MM 4.3-1(b) (construction emissions control plan), and

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

III. Air Quality

MM 4.3-2 (use of low NO_x diesel fuel) detail project-specific actions to ensure implementation of measures at construction sites and through construction contract specifications (see item III.a, above, for additional detail). Campus procedures for project design development and contract administration provide an established mechanism for implementation of LRDP EIR MMRP provisions, including those related to implementation of applicable SCAQMD Rules for individual construction projects. Because estimated emissions are below applicable SCAQMD thresholds and established campus programs provide for incorporation of SCAQMD Rule 403 controls for particulate emissions assumed in the impact analysis, the proposed Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Potential impacts in this regard would be less than significant. The applicable standard campus practices detailed in the LRDP EIR MMRP are provided in Appendix C.

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 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)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

The Basin is in nonattainment status for ozone, PM10, and PM2.5. Ozone is regulated by way of its precursors—reactive organic compounds (ROC) and NO_x. SCAQMD guidelines suggest that construction-related or operational emissions that exceed thresholds for individual projects would also be considered cumulatively considerable net increases in pollutants. As discussed under item III.b above, proposed construction is subject to standard construction-period control measures governed by SCAQMD Rules and regulations and LRDP EIR MMRP PP 4.3-2(a) (construction contract specifications measures to reduce emissions) and 4.3-2(b) (dust control measures) and MM 4.3-1(a) (PM control measures), MM 4.3-1(b) (construction emissions control plan), and MM 4.3-2 (use of low NO_x diesel fuel), provided in Appendix C. Estimated emissions for the approximately 120-day construction period are below the applicable SCAQMD daily significance thresholds, as provided in Appendix B. In the long term, the Project would involve only limited operation and maintenance activities that would not generate appreciable emissions. As such, the proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the region is in nonattainment.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| d. Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Diesel particulate matter, which is classified as a carcinogenic toxic air contaminant by ARB, is the primary pollutant of concern with respect to health risks to sensitive receptors. Cancer health risks associated with exposures to diesel exhaust are typically associated with chronic exposure, in which a 70-year exposure period is assumed. Because construction would be of short duration (approximately 4 months), project construction is not anticipated to result in an elevated cancer risk to exposed sensitive receptors. In addition, localized construction emissions estimates would be well below SCAQMD localized emissions thresholds for applicable criteria pollutants (see Table 1, Appendix B). Considering the limited scale and duration of the proposed stabilization improvements, the proposed Project would not present the potential for significant sources of carbon monoxide, diesel particulate matter, or other toxic air pollutants that are of potential

III. Air Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
-------------------------	--------------------------------	--	------------------------------	-----------

concern with respect to sensitive receptors. Potential impacts would be less than significant.

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| e. Create objectionable odors affecting a substantial number of people? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Considering the nature and scale of the proposed stabilization improvements, potential sources of objectionable odors would be exhaust from vehicles and construction equipment during the approximately 120-day construction period. Construction at the project site would be of limited scale and duration, and the project site would be located at a major street intersection where such sources of odors are an element of the baseline condition. The proposed Project would not materially change the exposure to sources of odors in the project vicinity.

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
---------------------------------	--------------------------------	--	------------------------------	-----------

Would the project:

- | | | | | |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|
| a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|

In furtherance of LRDP EIR MMRP MM 4.4-1(a) (reduce impacts to Natural Open Space areas), biological surveys (Appendices D and E) evaluated habitat within and adjoining the project limits. A total of 58 special-status plant species and 41 special-status animal species identified through inquiry of established databases and literature resources were evaluated for potential to occur within the project limits. Two additional sensitive animal species were observed in the course of survey work (Cooper’s hawk and downy woodpecker). For 57 of the plant species, absence was confirmed during the site visit, or key habitat characteristics are absent. The lone remaining plant species, California satintail, was deemed to have low potential to occur. No satintail plants were observed during the site survey, and the biologist concluded that impacts to any limited number of plants that may be present would be considered less than significant.

For 34 of the special-status animal species, key habitat characteristics are absent. For seven additional species—western pond turtle, San Diego desert woodrat, long-eared owl, yellow warbler, yellow-breasted chat, downy woodpecker and Cooper’s hawk—regional conservation efforts have, and will, conserve sufficient habitat for these species. These regional conservation efforts, under the Western Riverside County MSHCP, are focused on habitat outside of the project site and surrounding area. On the basis of the regional conservation efforts, potential impacts, if any, to these seven species as a result of the proposed stabilization improvements would be considered less than significant.

The following addresses potential for substantial adverse effects for the two remaining special-status animal species for which suitable habitat is present:

Western Yellow Bat: individual palm trees within the stream and adjoining area are suitable

IV. Biological Resources

Potentially Significant Impact	Less-than- Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
--------------------------------------	--	-------------------------------------	--------------

roosting habitat for this species; the trees and stream within the riparian feature are potential foraging habitat. Because (1) the few large palm trees within the project limits provide limited habitat suitable only for individual bats (rather than communal roosting habitat), (2) there are many additional such individual roost sites in the general project vicinity, and (3) suitability of the stream area as foraging habitat would be largely unchanged as a result of the proposed Project, potential impacts on western yellow bat are considered less than significant.

Least Bell’s Vireo (LBV): While the riparian habitat within the stream area is suitable for this species, focused surveys (Appendix F) did not detect any individuals of this species and the project site is a considerable distance from known occurrences (approximately 4 miles to the nearest known occurrence). On this basis, currently it is assumed to be absent from the site, with no potential for significant impacts to occur.

- | | | | | |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|
| b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|

The project site is characterized by a remnant reach of stream completely encompassed by existing residential development and major streets. The stream supports approximately 0.6 acre of riparian habitat in a highly constrained, previously channelized feature. The on-site riparian community includes numerous exotic plant species including edible fig, Mexican Fan Palm, salt-cedar, tree tobacco, and castor bean.

Several LRDP EIR MMRP provisions have been taken into account in the campus design and development process for the proposed improvements, namely:

PS Conservation 1 – Protect natural resources, including native habitat, remnant arroyos, and mature trees, identified as in good health as determined by a qualified arborist, to the extent feasible.

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

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.

IV. Biological Resources

Potentially Significant Impact	Less-than- Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
--------------------------------------	--	-------------------------------------	--------------

PP 4.4-2(a) – Impacts to riparian and wetland habitats shall be avoided, wherever feasible. If avoidance is not feasible, then the impacts will be evaluated as part of the Clean Water Act section 404 and California Fish and Game Code section 1602 permit application process. If mitigation is required, the University of California will develop and implement a resource mitigation program to be reviewed and approved by the ACOE [USACE] and CDFG [CDFW] through the State and federal permit process. The permit shall mitigate the habitats such that they are consistent with the Clean Water Act and CDFG policy of “no net loss” of wetland. Furthermore, impacted wetlands and/or riparian vegetation that cannot be avoided would be replaced at a ratio approved by the ACOE and CDFG. If replacement within the area is not feasible, then an approved mitigation bank or other off-site area will be used. The revegetation of impacted areas or mitigation parcels will be performed by a qualified restoration specialist and shall be conducted only on sites where soils, hydrology, and microclimate conditions are suitable for riparian habitat. First priority will be given to areas that are adjacent to existing patches of native habitat.

MM 4.4-3(b) – If wetland or riparian habitat would be removed as a result of project development, the University shall restore or enhance wetland or riparian habitat as required by the applicable State and/or federal resource agencies.

MM 4.4-3(c) – Any proposal for wetland creation or enhancement (pursuant to MM 4.4-3(b) above) will be based upon the completion of soils, hydrologic and other studies confirming the feasibility of the creation or enhancement proposal and shall include United States Army Corps of Engineers (USACE)–approved measures intended to promote occupancy by special status and other wetland-dependent species (e.g., plantings, collection of topsoil and inoculation of target areas).

Aside from temporary diversions required during construction, the proposed improvements would not alter the existing hydrologic regime—flows would continue to enter through the upstream culvert and exit through the downstream culvert. Tributary area limits and characteristics would not be altered.

The potential for adverse effects on riparian habitat relates to the direct removal that would be required to construct the stabilization improvements and the ongoing maintenance activities that would restrict reestablishment of riparian vegetation within the new rip-rap on the north bank. Construction is expected to remove 0.4 acre of riparian habitat consisting of plant material rooted within the channel bottom and the north bank. After construction, riparian vegetation would be allowed to naturally reestablish within the channel bottom, mostly in the southern half of the work limits. Over time, the permanent loss of riparian cover is expected to be approximately 0.2 acre (an amount to be determined through the regulatory permit process with USACE and CDFW). Riparian habitat is considered a sensitive biological resource; therefore, the temporary and permanent impacts on riparian vegetation represent a significant impact. **Mitigation Measures BIO 1 through 5**, below, would provide a means to document compliance with project commitments to minimize impacts on riparian habitat within the work area, and to confirm that the post-construction conditions are achieved as anticipated.

The on-site riparian area is the approved mitigation site under previously issued regulatory permits for the existing Creekside Terrace development. An enhancement program to establish 0.7 acre of riparian habitat was approved to compensate for loss of an ephemeral tributary feature that was filled with the grading for the homes at the top of the retaining walls. This stabilization

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
--------------------------	--------------------------------	--	------------------------------	-----------

Project would also provide for long-term protection of this riparian zone, but would not support the full program of enhancement required under the previous permits. The University proposes that any gap in mitigation obligation from the prior permits be compensated through the established Santa Ana River mitigation bank operated by RCRPOSD. This mitigation bank provides regional improvements to riparian systems through removal of invasive plant species within the Santa Ana River, to which the project stream is tributary. As of August 14, 2014, there are approximately 28 acres of credits available in the RCRPOSD bank (Personal communication, Rhonda Long, RCRPOSD, August 14, 2014). **Mitigation Measure BIO 6** below establishes the project commitment to offset any gap in the prior mitigation obligation.

With implementation of measures **BIO 1 through BIO 6**, project impacts on riparian habitat would be less than significant.

BIO 1 – Minimize Direct Impacts on Riparian Habitat. Prior to initiation of ground disturbance activities, disturbance limits shall be clearly defined at the construction site and demarcated on site plans (refer to Appendix A). Access and staging shall be limited to the existing gated entrance from Chicago Avenue, the existing maintenance path along the north bank, or paved/landscaped areas within the adjoining apartment development. Protection measures for riparian habitat on the south bank will be established in consultation with the biological monitor.

BIO 2 – Conduct Biological Monitoring During Construction. A qualified biologist shall monitor construction for compliance with best management practices outlined in LRDP EIR MMRP Programs and Practices (PP) 4.4-1(b) (reduce disturbance to Natural Open Space areas). Such measures may include minimizing vehicular access and parking in undisturbed areas or drainages; avoiding removal of native shrub or disturbance of drainages, except where necessary; avoiding overwatering; and not harassing wildlife species, as provided in full detail in Appendix C. Considering the nature of the work area and proximity of protected resources to the work limits, monitoring shall be continuous during the initial preparation and excavation phases. Once work transitions to placement of rip-rap, the frequency of monitoring may be reduced, as recommended by the monitoring biologist (taking into consideration the nature of the proposed work and time of year).

BIO 3 – Provide Worker Education Pamphlet. To ensure compliance with best management practices identified in LRDP EIR MMRP PP 4.4-1(b) (reduce disturbance to Natural Open Space areas), a biologist shall provide the construction contractor field supervisor with a worker education pamphlet to be provided to all construction personnel prior to personnel initiating ground disturbance activities. The education pamphlet will include a discussion of the importance of the stream and associated riparian habitat, areas to be avoided (including during parking and staging of equipment), a discussion of native wildlife with the potential to occur, and education on not harassing native wildlife.

BIO 4 – Remove Exotic Species. During the construction phase, exotic plant species shall be removed from the riparian zone, including the protected south bank area. Exotic plant material shall be properly handled to prevent sprouting or regrowth. Construction equipment shall be cleaned of mud or other debris that may contain invasive plants/seed and inspected to reduce the potential of spreading noxious

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>weeds before mobilizing to the work area and before leaving the work area. Cleaning of equipment shall occur outside the work area where the wastewater stream is contained so as to prevent any invasive plant material from entering natural areas. During project operations, exotic species shall be removed periodically in accordance with the HMMP and agency approval subject to the conditions established by the approved permits.</p>				
<p><u>BIO 5 – Monitor Post-construction Revegetation.</u> Native riparian vegetation shall be allowed to reestablish through natural recruitment within the work limits. Prior to initiation of ground disturbance activities, a monitoring plan shall be prepared and submitted to the relevant agencies (i.e., U.S. Army Corps of Engineers [USACE], California Department of Fish and Wildlife [CDFW]). Prior to removal of vegetation, a qualified biologist shall conduct an assessment of functions and values for the stream and associated riparian habitat. The assessment will focus upon characterization of existing functions and values as a benchmark for evaluation of success of the post-construction effort. The performance criteria shall include functions and values that are of equal or greater value than existing conditions. During project operations, exotic species shall be removed periodically in accordance with the HMMP and agency approval subject to the conditions established by the approved permits. The plan should be sufficient to meet agency requirements and at a minimum shall include the following:</p>				
<ul style="list-style-type: none"> • a map and acreage of vegetation to be temporarily affected, • location of monitoring area, • functions and values assessment of pre-construction condition, • performance criteria, • monitoring guidelines, and • contingency measures. 				
<p><u>BIO 6 – Purchase Mitigation Bank Credits to Replace Residual Mitigation Obligation under Prior Permits.</u> The University shall purchase credits from the Santa Ana River Mitigation Bank operated by Riverside County Regional Parks and Open Space District (RCRPOSD), or other bank or in-lieu fee program approved by the permitting agencies (i.e., USACE and CDFW). Based upon the anticipated difference in riparian cover in the post-construction condition (0.2 acre) and minimum purchase requirements for this bank, a minimum purchase of 0.25-acre credit from the RCRPOSD bank would be required. The final credit purchase requirement will be determined through the regulatory permit process with the USACE and CDFW.</p>				

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>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?</p> <p>A delineation of jurisdictional waters and wetlands was conducted for the subject stream feature, in accordance with LRDP EIR MMRP MM 4.4-3(a) (jurisdictional delineation assessment) (Appendix G). The on-site drainage does not meet the criteria to be classified as wetlands. With the resource of concern absent, the proposed Project does not present the potential for adverse impacts in this regard.</p> <p>See item IV.b above regarding potential impacts on the on-site stream feature, which is protected under the broader category of “waters of the United States” under Section 404 of the Clean Water Act.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>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?</p> <p>The riparian stream feature that is the subject of the proposed stabilization work is confined between buried storm drains at each end and is closely constrained by development. These conditions constrain the value of this stream for wildlife movement or nursery functions. While the extent of riparian habitat on site would be diminished as a result of the proposed improvements, the finished site conditions would retain a flowing channel with riparian canopy and would not substantially affect any limited movement or nursery functions that may exist. The resulting impacts would be less than significant.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
---------------------------------	--------------------------------	--	------------------------------	-----------

- | | | | | |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|
| e. Conflict with any applicable policies protecting biological resources? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|

See items IV.a and IV.b, above, relative to policies protecting sensitive species and riparian habitat, and item IV.f, below, regarding regional conservation plans.

The proposed Project would remove riparian vegetation and ruderal vegetation and would involve construction activity close to remaining riparian vegetation, ruderal vegetation, and residential landscaping that provides nesting habitat for bird species protected under the federal Migratory Bird Treaty Act and the California Fish and Game Code. Disturbance of active nests as a result of vegetation removal or construction activity would be in conflict with these state and federal biological resources protection policies. LRDP EIR MMRP provisions MM 4.4-4(a) (nesting special status avian species surveys during construction) and MM 4.4-4(b) (delay construction if active nests for avian species are found) establish standard campus practices to comply with these protection programs by avoiding impacts to active nests. The following mitigation measure (**Mitigation Measure BIO 7**) for the proposed Project reflects the requirements of these LRDP EIR MMRP provisions and would serve to reduce potential impacts in this regard on protected bird species to below a level of significance.

BIO 7 – re-construction Nesting Bird Surveys. Prior to the onset of construction activities that would result in vegetation removal between February 15 and September 15, nesting bird surveys shall be conducted by a qualified biologist a maximum of 7 days prior to initiation of ground disturbance activities. The survey area shall include the direct disturbance limits and a 250-foot buffer zone. If nesting birds are encountered within the survey area, the qualified biologist will flag an avoidance buffer zone around the nest. No ground disturbance activities shall occur within the avoidance buffer zone until the qualified biologist has determined that the nest is no longer active and the young are not dependent on the nest.

- | | | | | |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|
| f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|

The project site is within the plan areas of two regional conservation efforts—the Western Riverside County MSHCP and the Long-term Habitat Conservation Plan for the SKR. Implementation of the SKR plan is at a stage in which all conservation lands have been acquired. For projects outside the reserve areas, plan conformance is achieved through payment of mitigation fees that support ongoing management of the reserve lands. The project site is not within an SKR reserve and the University is exempt from payment of SKR mitigation fees.

The project site is outside of the MSHCP Criteria Area, which identifies areas potentially subject to acquisition for long-term conservation. Beyond the evaluation of potential involvement of Criteria Area lands, determination that a particular activity is consistent with the MSHCP also entails consideration of a variety of plan policies directed at protection of specific species and resources. Plan policies potentially applicable to consistency evaluation for the project site are those related to burrowing owl and riparian/riverine/vernal pool resources. The biological survey conducted in support of this initial study (Appendix D) documents the absence of habitat suitable for burrowing owls and the absence of vernal pools, so these MSHCP provisions do not apply.

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
---------------------------------	--------------------------------	--	------------------------------	-----------

However, the stream feature and associated riparian habitat are subject to the plan provisions for riverine and riparian resources. For riparian habitat, the plan requires consideration of suitability for three protected bird species—LBV, southwestern willow flycatcher, and western yellow-billed cuckoo. The biological survey conducted in support of this initial study (Appendix D) documents the absence of suitable habitat for southwestern willow flycatcher and western yellow-billed cuckoo. A focused survey was conducted for LBV (Appendix F). No individuals of these species were identified, and it is assumed to be absent.

The MSHCP stipulates that riparian habitat is to be avoided to the greatest extent practicable. If riparian habitat is affected, mitigation must demonstrate equal or superior functions and values. The proposed stabilization improvements would affect a highly constrained stream feature that is removed from MSHCP reserve areas. **Mitigation Measures BIO 1 through BIO 4** (see item IV.b, above) provide for implementation of various measures during construction to ensure impacts on the stream and riparian habitat are minimized. **Mitigation Measures BIO 5 and BIO 6** (see item IV.b, above) provide for post-construction monitoring and purchase of mitigation bank credits to ensure that riverine and riparian habitat functions and values are equal or superior to pre-project conditions. With implementation of **Mitigation Measures BIO 1 through BIO 6**, proposed activities and improvements would not conflict with MSHCP provisions for riparian and riverine resources.

As the proposed Project, including **Mitigation Measures BIO 1 through BIO 6**, would not conflict with applicable provisions of the two adopted habitat conservation plans that apply within the project area, potential impacts in this regard would be less than significant with mitigation incorporated.

V. Cultural Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
------------------------------	--------------------------------	--	------------------------------	-----------

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

The proposed work limits and adjacent areas have been previously disturbed with construction of the existing apartments (in the 1980s) and the Creekside Terrace residential tract (in the early 2000s). There are no standing historic structures within or near the project limits. A cultural resource assessment prepared for the Creekside Terrace project in June 2003 determined that no historic resources were evident in site surveys and that no further evaluation was warranted. Considering the existing setting, prior survey results, and prior disturbances, there is no reasonable potential for the proposed improvements to cause a substantial adverse change in the significance of an historical resource.

LRDP EIR MMRP PP 4.5-3 (procedures and when to survey and perform measures related to archaeological resources) and established campus construction contracting procedure provide for a standard provision in construction contracts requiring the contractor to report any unexpected discoveries of buried resources. In the event of unexpected discoveries, work must be halted until an archaeologist is retained to assess the significance of any find and to develop and implement appropriate measures to protect or collect the find. This campus procedure is consistent with City of Riverside practices under General Plan EIR Mitigation Measure Cultural 4 (discovery of archaeological resources and Native American human remains), provided in Appendix C.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

The proposed work limits and adjacent areas have been previously disturbed with construction of the existing apartments (in the 1980s) and the Creekside Terrace residential tract (in the early 2000s). A cultural resource assessment prepared for the Creekside Terrace project in June 2003 determined that no archaeological resources were evident in site surveys and that no further evaluation was warranted. Considering the existing setting, prior survey results, and prior disturbances, there is no reasonable potential for the proposed improvements to cause a substantial adverse change in the significance of an archaeological resource.

LRDP EIR MMRP PP 4.5-3 (procedures and when to survey and perform measures related to archaeological resources) and established campus construction contracting procedure provide for a standard provision in construction contracts requiring the contractor to report any unexpected discoveries of buried resources. In the event of unexpected discoveries, work must be halted until an archaeologist is retained to assess the significance of any find and to develop and implement appropriate measures to protect or collect the find. This campus procedure is consistent with City of Riverside practices under General Plan EIR Mitigation Measure Cultural 4 (discovery of archaeological resources and Native American human remains).

V. Cultural Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The proposed work limits and adjacent areas have been previously disturbed with construction of the existing apartments (in the 1980s) and the Creekside Terrace residential tract (in the early 2000s). Considering the existing setting and prior disturbances, there is no reasonable potential for the proposed improvements to cause a substantial adverse change in the significance of a paleontological resource or unique geologic feature.</p> <p>LRDP EIR MMRP PP 4.5-5 (discovery of buried human remains) and established campus construction contracting procedure provide for a standard provision in construction contracts requiring the contractor to report any unexpected discoveries of buried resources. In the event of unexpected discoveries, work must be halted until a paleontologist is retained to assess the significance of any find and to develop and implement appropriate measures to protect or collect the find. This campus procedure is consistent with City of Riverside practices under General Plan EIR Mitigation Measure Cultural 4 (discovery of archaeological resources and Native American human remains).</p>				

d. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The proposed improvement limits have been previously disturbed. There is no reasonable basis to anticipate that the proposed construction would disturb human remains.</p> <p>LRDP EIR MMRP PP 4.5-5 (discovery of buried human remains) and established campus procedure require a halt to excavation or grading in the event of the discovery of a burial, human bone, or suspected human bone. The procedure requires that the area of the find is protected and the University is to immediately notify authorities for evaluation as to whether the find is human remains and determination as to any ensuing course of action pursuant to California Health and Safety Code (for all human remains) and/or Public Resources Code (for Native American human remains). This campus procedure is consistent with City of Riverside practices under General Plan EIR Mitigation Measure Cultural 4 (discovery of archaeological resources and Native American human remains).</p>				

VI. Geology and Soils

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

Would the project:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. 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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

The project site is not within a mapped earthquake fault zone (City of Riverside 2007c). The proposed improvements would stabilize an eroded stream bank by reconstructing the bank and establishing a non-erodible surface. Considering the absence of known faults and the nature of the proposed improvements, the proposed Project would not alter conditions that expose people or structures to adverse effects in this regard.

- | | | | | |
|-----------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. Strong seismic ground shaking? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|-----------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|

There are several active earthquake faults within Southern California that could affect the project area in terms of ground shaking. The San Andreas, San Jacinto, and Elsinore faults are the more prominent due to their proximity and relatively high seismic potential (City of Riverside 2007c). The proposed improvements would stabilize an eroded stream bank by reconstructing the bank and providing a non-erodible surface treatment. The proposed improvements would not involve new structures and, therefore, would not alter exposure of people or structures to potential adverse effects in this regard.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

The due diligence investigations conducted prior to the University's purchase of the Creekside Terrace residential development identified potentially liquefiable soils at the foot of the existing retaining walls along the north side of the stream (C.H.J. Incorporated 2007b and 2008a). Pressure grouting, as recommended by the geotechnical engineer (C.H.J. Incorporated 2008b), was completed in 2009 (John R. Byerly Incorporated 2009) to alleviate the risk of damage due to this condition. The proposed improvements would stabilize an eroded stream bank by reconstructing the bank and providing a non-erodible surface. The proposed improvements would not alter the exposure of people or structures to potential adverse effects in this regard.

- | | | | | |
|----------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 4. Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|----------------|--------------------------|--------------------------|--------------------------|-------------------------------------|

The proposed work is directed at protection of the Creekside Terrace retaining walls from potential stability hazards resulting from erosion of the north channel bank by water flowing within the stream. The proposed improvements would not alter the exposure of people or structures to potential adverse effects in this regard.

VI. Geology and Soils	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The proposed improvements may present the potential for soil erosion during construction. Soils within the work limits and temporary stockpiles may be prone to erosion due to exposure to both wind and rain. Established programs of the SCAQMD and the California Regional Water Quality Control Board (RWQCB) require implementation of known best management practices (BMPs) during construction. The Stormwater Pollution Prevention Plan (SWPPP) required under the RWQCB regulations details applicable measures, location of application, timing of application, and responsibility for monitoring and maintenance of erosion control measures. UCR LRDP EIR MMRP measures PP 4.4-2(b) (National Pollutant Discharge Elimination System [NPDES] compliance) and PP 4.8-1 (compliance with applicable water quality requirements) state the campus commitment to compliance with all applicable requirements of the RWQCB, including incorporation of BMPs in project design and construction. Established campus programs and procedures ensure that SWPPP requirements are incorporated into construction bid specifications, the SWPPP is prepared and notices are filed prior to start of construction, and that BMPs are implemented during construction.</p> <p>In the operation phase, the proposed Project would incorporate rip-rap cover on the north bank (to match existing conditions on the south bank) and at the existing storm drain inlet and outlet at each end of the stream. These design features would minimize potential for soil erosion in the operation phase and support the conclusion that impacts in this regard would be less than significant. Established campus procedures ensure that such design features are incorporated into project plans and that improvements are constructed in accordance with the plans.</p>				

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	-------------------------------------	--------------------------

The proposed work is directed at correcting a stability hazard identified in the course of the University’s acquisition of the Creekside Terrace development. The proposed improvements would protect the existing retaining walls from potential stability hazards due to erosion of the north channel bank by water flowing within the stream. The existing wall improvements include a series of 34 small-diameter pipes that extend from the north stream bank and discharge small quantities of water from the soil behind the retaining walls. These existing pipes would be protected in place during reconstruction of the north bank. The proposed improvements would not alter the exposure of people or property to stability hazards in a manner that presents the potential for new or more severe adverse impacts.

VI. Geology and Soils	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>The proposed work is directed at protection of the Creekside Terrace retaining walls from potential stability hazards resulting from erosion of the north channel bank by water flowing within the stream. Materials testing as part of the 2008 geotechnical investigation (C.H.J. Incorporated 2008a) characterized site soils as having “very low” potential for expansion. The proposed reconstruction of the north stream bank and covering of the bank with rip-rap would not alter the exposure of people or structures to potential adverse effects in this regard.</p>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>The proposed stabilization improvements would not generate waste water or affect any existing septic or alternative waste water disposal system. There is no potential for impacts of this nature.</p>				

VII. Greenhouse Gas Emissions	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>Would the project:</p>				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Project greenhouse gas (GHG) emissions were estimated using the CalEEMod emissions estimation model (Appendix B). The Project’s contribution to GHG emissions would be limited to the construction phase and is estimated to be 102 metric tons (MT) of carbon dioxide (CO₂) equivalent (CO₂e).</p>				
<p>The SCAQMD has not adopted quantitative GHG emissions thresholds for non-industrial development projects. However, in its <i>Interim CEQA [California Environmental Quality Act] GHG Significance Threshold for Stationary Sources, Rules and Plans</i> documentation, SCAQMD suggests that a screening-level threshold of 1,400 MT per year of CO₂e emissions for commercial projects is appropriate. While the proposed Project is not technically a commercial project, the suggested screening-level thresholds for all other land use types are higher than 1,400 MT CO₂e per year. As such, the 1,400 MT CO₂e per year significance criteria was used for this analysis. Estimated CO₂e emissions resulting from project construction would be temporary and substantially below this threshold. Impacts would be less than significant.</p>				

VII. Greenhouse Gas Emissions	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The State of California has identified a year 2020 target level for statewide GHG emissions of 427 million metric tons (MMT) of CO₂e, which is approximately 28.5% less than the year 2020 business as usual (BAU) emissions estimate of 596 MMT CO₂e. ARB has adopted the Assembly Bill (AB) 32 Scoping Plan, which details specific GHG emission reduction measures for specific GHG emissions sources. The Scoping Plan considers a range of actions including regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms. This small construction Project would not conflict with any AB 32 Scoping Plan measures, nor be inconsistent in any way with the AB 32 goal of reducing statewide GHG emissions to 1990 levels by year 2020.

Both UCR and the City of Riverside have adopted programs to reduce GHG emissions. Because emissions for the proposed Project would be limited to the construction phase, relevant aspects of both the UCR and City GHG emission reduction programs are limited to those establishing objectives for substantial diversion of construction waste. Goal 6 of the UCR Sustainability Action Plan (University of California, Riverside 2009) requires that all new construction projects recover construction waste and divert materials from entering landfills, at a minimum diversion rate of 75% for all campus projects. The campus operates a very successful landscape waste recycling program that diverts 99% of green waste from landfills, with much of the green waste generated on the main campus composted at Agricultural Operations, a field station dedicated to plant sciences research on the West Campus. For the proposed Project, much of the construction waste would involve green waste and removal of existing vegetation to stabilize the slope. No operational waste, aside from the periodic removal of small amounts of exotic species of vegetation, would be required. Standard campus contracting provisions, to be included in contract specifications for implementation by the construction contractor, include green waste recycling and other requirements for implementation and monitoring of waste diversion practices in all campus construction projects. These campus provisions address both City and County GHG reduction policies in this regard.

On this basis, the proposed Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions.

VIII. Hazards and Hazardous Materials	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>The proposed construction may include short-term use of petroleum-based fuels, lubricants, pesticides, and other similar materials. Transport and use of similar materials for ongoing maintenance would be unchanged from current conditions. LRDP EIR MMRP PP 4.7-1 (hazardous materials safety plans) acknowledges established campus programs to administer federal, state, and local laws regulating the management and use of hazardous materials. Considering the limited duration of construction activity and established programs governing transport, use, and disposal of hazardous materials, the proposed Project does not present the potential for a significant hazard to the public or to the environment through the routine transport, use, or disposal of hazardous materials.</p>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Refer to item VIII.a, above.				
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
There are no existing or proposed schools within 0.25 mile of the site.				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

A Preliminary Environmental Site Assessment was conducted for the Creekside Terrace project as part of the University’s acquisition process (C.H.J. Incorporated 2007a). This assessment included a site inspection, records search, interviews, and review of similar documentation prepared for the homebuilder that developed the Creekside Terrace tract. The assessment documents that the site is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and that there is no evidence of recognized hazardous conditions affecting the property.

VIII. Hazards and Hazardous Materials	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>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?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>The project site is within the land use planning area for the airport operations at March Air Reserve Base/Inland Port. The proposed stream bank stabilization work does not present the potential for any change with respect to airport safety hazards for people residing or working in the project area.</p>				
<p>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?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>There are no private airstrips in the project vicinity.</p>				
<p>g. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Central Avenue is designated as an arterial evacuation route in the City of Riverside Emergency Operations Plan (City of Riverside 2007c, Figure PS-8.1, Evacuation Routes). While it is expected that Central Avenue may be utilized for construction deliveries and access, there is no reason to expect that project activities would block through-traffic or require a road closure. On this basis, the proposed Project does not present the potential to impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.</p>				
<p>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?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>The project site is in a developed area of the City of Riverside not affected by wildland fire hazard (City of Riverside 2007c, Figure PS-7, Fire Hazard Area). Considering the absence of contributing factors for such risk, the proposed Project would not present potential impacts in this regard.</p>				

IX. Hydrology and Water Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

The proposed Project would entail clearing, grading, and construction activity within and adjacent to a perennial stream channel. Temporary stockpiling of excavated soil material and construction materials may occur within the bench area along the north side of the stream area or at other nearby locations, most likely within previously graded lots within the Creekside Terrace development or within the parking lot and landscape areas of the adjacent apartments. Without proper safeguards, project construction could result in a discharge of pollutants into the stream or the local storm drain system.

As required under the State General Permit for Discharge of Storm Water Associated with Construction Activity, the campus Stormwater Management Plan, and LRDP EIR MMRP PP 4.4-2(b) (NPDES compliance) and PP 4.8-1 (compliance with applicable water quality requirements), project contractors would prepare and implement a SWPPP detailing project-specific BMPs to limit the potential for the discharge of polluted water during construction. Typical BMPs anticipated to be included in the SWPPP include stream flow diversion, preservation of existing vegetation, temporary soil stabilization, track-out control, street sweeping, storm drain inlet protections, and general good housekeeping practices to separate sources of pollutants from runoff. Additional standard SWPPP provisions include requirements for implementation of control measures 48 hours prior to predicted rain events (i.e., 50% or greater chance of precipitation) and both visual monitoring and stormwater quality monitoring to ensure that BMPs are functioning properly throughout construction.

Considering the limited scale and duration of construction activity and established state and campus programs governing construction-period storm water discharges, the proposed Project does not present the potential to violate any water quality standards or waste discharge requirements. Potential impacts would be less than significant.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 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)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

The proposed bank stabilization improvements, by their scale and nature, do not present the potential to affect groundwater recharge or deplete groundwater supplies. No impacts would occur.

IX. Hydrology and Water Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>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?</p> <p>The Project would involve a previously channelized, remnant drainage feature confined by two major roads (Chicago Avenue and Central Avenue), an established apartment development, and a residential subdivision within a developed area of the City of Riverside. Temporary diversion of the existing stream within the work limits would be required for the approximately 120-day construction period. See item IX.a, above, regarding the standard requirement for a SWPPP to minimize potential for erosion and siltation due to this temporary alteration of the stream.</p> <p>The completed improvements would not alter the existing inlet, outlet, or basic channel configuration and capacity. Tributary area limits and characteristics would not be altered. Added rip-rap protection on the north bank, channel bottom, and at the inlet and outlet are expected to reduce any erosion and resultant siltation that may occur under existing conditions.</p> <p>Considering the limited scale and duration of construction activity, established state and campus programs governing construction-period storm water discharges, and the stabilized finished conditions, the proposed Project does not present the potential for substantial erosion or siltation. Potential impacts would be less than significant.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>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?</p> <p>The completed improvements would not alter the basic channel configuration and capacity. The existing inlet and outlet would remain as is and the tributary area limits and characteristics would not be altered. With essentially no change from relevant pre-project conditions, the proposed finished conditions do not present the potential to increase the rate or amount of surface runoff in a manner that would result in flooding, on or off site.</p> <p>Temporary diversion of the existing stream would be required for the approximately 120-day construction period. Considering the proposed work limits, the constrained nature of the stream, and the proximity of developed private property and public improvements, the options for diversion are limited. It is expected that diversion would involve a contained method, such as pipes or hoses, extending from the existing inlet to the existing outlet and placed along the south bank or within adjacent landscaped areas.</p> <p>With the assumed contained diversion, there is potential for flooding due to an upset condition involving a breach in the pipe or hose. An approximately 0.92-acre area that contains the existing stream channel has been zoned as Watercourse by the City of Riverside. This roughly corresponds to the fenced area between the apartment site parking lot and the Creekside Terrace development. As long as the potential overflow boundaries are confined to the existing Watercourse-zoned area,</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IX. Hydrology and Water Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

there would be no change in anticipated inundation boundaries and, therefore, no potential for significant impacts due to flooding from the temporary change in the stream course. **Mitigation Measure HYD 1** provides a means to ensure that the temporary diversion does not result in flooding on or off site:

HYD 1 – Temporary Diversion Design. The temporary diversion works shall be designed such that the inundation limits (including those resulting from an inadvertent breach of flows contained in a pipe or hose) are confined to the existing Watercourse overlay zone boundary. The University shall ensure that construction contracts provide sufficient detail for the design and method of temporary diversion.

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------

The proposed improvements would stabilize an existing stream bank with ungrouted rip-rap. There are no aspects of the construction process or the finished improvements that would increase runoff volumes. On this basis, there is no potential impact in this regard with respect to stormwater drainage system capacity.

See item IX.a, above, regarding potential construction-period impacts associated with polluted runoff.

f. Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	-------------------------------------

The proposed improvements would stabilize an existing stream bank with ungrouted rip-rap. There are no apparent aspects of the construction process or the finished improvements that present the potential for substantial degradation of water quality.

See item IX.a, above, for discussion of potential water quality concerns during the construction period.

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	-------------------------------------

The proposed Project does not involve housing.

IX. Hydrology and Water Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?</p> <p>The existing stream channel is within the 100-year floodplain (FIRM Panel 06065C0728G, Zone AE, Base Flood Elevations determined). In the finished condition, the proposed channel configuration would be essentially unchanged. The proposed finished improvements would not present the potential to impede or redirect flood flows.</p> <p>The construction process would entail temporary placement of structures within the 100-year flood hazard zone to divert stream flows from the construction area. With implementation of Mitigation Measure HYD 1 (see item IX.d, above), the temporarily diverted stream flows would be confined to an area already recognized as susceptible to flood hazard. With this requirement, impacts in this regard would be less than significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>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?</p> <p>The project site is within the dam inundation area for the Sycamore Canyon Dam (City of Riverside 2007c, Figure PS-4, Flood Hazard Areas) and is also within the 100-year floodplain (see item IX.h, above). The proposed Project would alter the existing setting by grading the stream bank and placing rip-rap on the finished surface. This nominal change in the existing setting would not alter the existing exposure to risk of loss, injury, or death associated with the existing 100-year floodplain and dam inundation limits.</p> <p>The construction process would require temporary diversion of stream flows, which presents limited potential for exposure of people and structures in the immediate vicinity to risk of loss or injury due to flooding (see item IX.d, above). With implementation of Mitigation Measure HYD 1, the temporarily diverted stream flows would be confined to an area already recognized as susceptible to flood hazard. With this requirement, impacts in this regard would be less than significant.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>j. Inundation by seiche, tsunami, or mudflow?</p> <p>The project site is at an inland location and there are no confined water bodies in the project vicinity; therefore, there is no potential for impacts related to seiche or tsunami. The surrounding area consists of relatively level paved and landscaped surfaces and retaining walls. Conditions contributing to mudflow hazard are similarly absent, with no potential for impacts in this regard.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

X. Land Use and Planning	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The Project would stabilize one bank of a stream situated within a fenced easement between two existing residential developments. There is no potential for impacts in this regard.				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

While the University is exempt from local land use controls pursuant to its constitutional authority, the University has nonetheless analyzed the Project’s consistency with local zoning and permitting requirements. The City of Riverside provides a zoning designation for the Creekside Terrace residential development of R-1-8500 for single family residential, and the apartment complex is designated as R-3-3000 for multi-family residential. The drainage channel and adjacent lands totaling 0.92 acre are within the Watercourse overlay zone (roughly corresponds to the existing fenced area along the stream at the interface of the apartments and the Creekside Terrace development). This zoning designation is in recognition of the existing stream channel and periodic flooding hazards. Such areas are to be kept free of particular structures or improvements that may endanger life or property or significantly restrict the carrying capacity of the designated floodway or stream channel (Riverside Municipal Code, Chapter 19.230.010). Riverside Municipal Code Section 19.230.020.C provides that grading within the Watercourse overlay zone is subject to a Conditional Use Permit (CUP).

The proposed improvements would stabilize the north stream bank and maintain the existing channel capacity; the Project would not compromise the water course protection objectives of the Municipal Code zoning provisions. On this basis, there is no potential for conflict with this land use policy adopted to avoid effects on water courses and associated flood zones.

University coordination with the City to date has indicated that a CUP would not be required in this case—ostensibly due to the limited nature of the proposed grading and temporary nature of changes in channel flow conditions. Should the City’s position change regarding the need for such an approval, the University is amenable to processing the necessary application. Such a requirement is an administrative matter that does not alter the conclusion regarding potential impacts or the magnitude thereof.

X. Land Use and Planning	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Refer to item IV.f, above, for discussion of project conformance to the Western Riverside County MSHCP and the Long-term Habitat Conservation Plan for the SKR. With implementation of recommended Mitigation Measures BIO 1 through BIO 6, the proposed Project would not conflict with applicable provisions of the two adopted habitat conservation plans that apply within the project area.</p>				

d. Create other land use impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>The proposed stabilization work would not involve a change in land use. There are no apparent aspects of the proposed construction or finished conditions that present the potential for creation of other land use impacts.</p>				

XI. Mineral Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>The project site and surrounding area are committed to development that precludes the potential for loss of availability of a known mineral resource of value to the region and the residents of the state.</p>				
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no locally important mineral resource recovery sites in the City of Riverside (General Plan 2025 Draft EIR (City of Riverside 2007d, page 5.10-6).

XII. Noise	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
-------------------	--------------------------------	--	------------------------------	-----------

Would the project result in:

- | | | | | |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|
| 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? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|

Potential noise impacts of the proposed Project would be limited to the construction phase. The City of Riverside Municipal Code (Section 7.35.10(b)(5)) addresses construction noise and identifies timeframes in which operation of construction equipment would be considered to result in excessive noise levels. On the basis of this City Municipal Code provision, noise emanating from construction activity adhering to hours of 7:00 a.m. to 9:00 p.m. on weekdays, and 8:00 am to 6:00 p.m. on Saturdays is not considered excessive or in violation of the Municipal Code.

Chapter 7.25 of the Riverside Municipal Code establishes exterior and interior performance standards for residential properties. During the daytime (7 a.m. to 10 p.m.), the noise level standard is 55 decibels for exterior use areas and 45 decibels for interior locations. During nighttime hours (10 p.m. to 7 a.m.), these limits are lowered to 45 decibels for exterior use areas and 35 decibels for interior locations. Section 7.25.010 further defines a series of time periods for which the noise standard may be exceeded without violating the ordinance—ranging from 15 minutes per hour for noise exceeding the performance standard by 5 decibels to 1 minute for noise levels exceeding the performance standard by 15 decibels. An exceedance of 20 decibels or more for any duration is considered a violation. Since construction noise during certain hours of the day is not considered to be in violation of the Municipal Code, these noise limits apply to construction noise between the hours of 9 p.m. and 7 a.m. on weekdays and 6 p.m. and 8 a.m. on Saturdays.

Campus standard practices for minimizing construction noise are detailed in the following LRDP EIR MMRP provisions and will be included for the proposed Project:

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. Contract 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 to be placed to direct noise away from sensitive receptors.

PP 4.10-8 – The campus shall continue to conduct meetings, as needed, with off-campus constituents that are affected by campus construction to provide advance notice of construction activities and ensure that mutual needs of the particular construction project and of those impacted by construction noise are met, to extent feasible.

An analysis of projected noise levels resulting from project construction is presented as Appendix H. The predicted maximum combined sound level of simultaneously operating equipment is 83 decibels at 50 feet. Sensitive receptors that may be affected by construction noise are nearby residences within the adjacent apartment project and the Creekside Terrace development, as well as recreation areas within Andulka Park. Accounting for attenuation provided by the distance to the nearest residential uses in the adjacent apartment complex, the maximum exterior noise level is predicted to be 79 decibels. Accounting for the distance and vertical separation to the nearest residential uses in the Creekside Terrace development, the maximum exterior noise level is predicted to be 70 decibels. Construction noise levels at Andulka Park would up to 66 decibels, but

XII. Noise	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
-------------------	--------------------------------	--	------------------------------	-----------

in most outdoor use locations in the park, construction noise would be overshadowed by noise from traffic on Chicago Avenue.

The noise analysis also considers noise from operation of a generator and pump for the temporary stream diversion. It is anticipated that the pump would need to be situated at the upstream end of the project limits near the existing inlet culvert. This location is approximately 50 feet from the nearest residences within the apartment site; the predicted exterior noise level at these sensitive receptors is approximately 82 decibels. The nearest receptors within the Creekside Terrace development are farther away and separated vertically from the noise source; the predicted maximum exterior noise level at the nearest receptor is 66 decibels. Accounting for attenuation provided by the buildings, interior noise levels could be as high as 57 decibels at adjacent apartment units and 41 decibels at residences in Creekside Terrace.

For all noise sources except the generator/pump for the stream diversion, construction activity may be limited to adhere to the provisions of Riverside Municipal Code Section 7.35.10(b)(5). Recommended **Mitigation Measure NOI 1** provides a means to enforce this restriction and, with implementation of this measure, impacts in this regard would be less than significant. This measure is consistent with the construction hour limits typically applied to campus projects under LRDP EIR MMRP PP 4.10.2 (hour limits for construction activities).

Continuous operation of a generator and/or pump for streamflow diversion during the construction period would result in noise levels exceeding the standards within Riverside Municipal Code Chapter 7.25, which would constitute a significant impact. Recommended **Mitigation Measure NOI 2** requires implementation of attenuation features to achieve noise levels not exceeding the Municipal Code standards. With implementation of this measure, impacts in this regard would be less than significant.

NOI 1 – Restrict Construction Hours. The University will ensure that the construction contractor limits construction activities to occurring between 7:00 a.m. and 9:00 p.m. Monday through Friday and 8:00 a.m. and 6:00 p.m. on Saturday. An exception is made as to operation of a generator and/or pump for temporary stream diversion, subject to Mitigation Measure NOI 2, below.

NOI 2 – Attenuation for diversion pump and generator. The University will ensure construction contracts specify that any generator or diversion pump will be equipped with mufflers, silencers, shrouds, shields, or other noise-reducing features so as to achieve a maximum exterior operational noise level not exceeding 45 A-weighted decibels (dBA) (one-hour equivalent sound level [L_{eq}]) at exterior locations of nearby noise-sensitive land uses. Measures that can be implemented to achieve this include but are not limited to:

- enclosing equipment in solid wall structures,
- using low-noise equipment, and
- placing sound barriers (earth berms or constructed barriers) around equipment.

XII. Noise	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?</p> <p>The proposed Project would entail stabilization of the slopes of a drainage feature that has previously been channelized along its natural alignment. Project construction activities may result in some minor amount of ground vibration. However, the proposed stabilization work would not include use of equipment or processes that are significant sources of groundborne noise and vibration. Additionally, vibration from these activities would be short term and would end when construction is completed. Because construction activity would not involve high-impact activities, such as blasting and pile driving, this potential impact is considered less than significant.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?</p> <p>The finished bank stabilization improvements would not entail any new permanent sources of noise.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (including construction)?</p> <p>See item XII.a, above.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>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?</p> <p>The project site is within the land use planning area for airport operations at March Air Reserve Base/Inland Port. The proposed stream bank stabilization does not present the potential for any change with respect to exposure to aircraft noise for people residing or working in the project area.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>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?</p> <p>There are no private airstrips in the project vicinity.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIII. Population and Housing	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The proposed Project would not involve new homes or businesses and would not extend new infrastructure to an undeveloped area.				
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The proposed Project would not displace any existing housing.				
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The proposed Project would not displace any existing housing.				

XIV. Public Services	Potentially Significant Impact	Less-than-Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The proposed Project would entail stabilization of the slopes of a drainage feature situated within an area of existing residential development. There are no aspects of the construction process or the finished improvements that would alter demand for fire protection services or affect existing physical facilities associated with provision of fire protection services.				

XIV. Public Services	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>The proposed Project would entail stabilization of the slopes of a drainage feature situated within an area of existing residential development. There are no aspects of the construction process or the finished improvements that would alter demand for police protection services or affect existing physical facilities associated with provision of police protection services.</p>				
c. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>The proposed Project would entail stabilization of the slopes of a drainage feature situated within an area of existing residential development. There are no aspects of the construction process or the finished improvements that would alter demand for school services or affect existing physical facilities associated with provision of school services.</p>				
d. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>The proposed Project would entail stabilization of the slopes of a drainage feature situated within an area of existing residential development. The project site is separated from nearby Andulka Park by an existing major thoroughfare, Chicago Avenue, and, in the finished condition, the Project would not alter the volume or nature of flows that are received in existing downstream storm drain improvements along the park boundary. There are no aspects of the construction process or the finished improvements that would alter demand for park services or affect existing physical facilities associated with provision of park services.</p>				
e. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Considering the location and the general nature and limited scale of the proposed improvements, improvements, the proposed Project does not present the potential for substantial adverse impacts associated with increased demand for public services or the need for additional public facilities.</p>				
f. Create other public service impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Considering the location and the general nature and limited scale of the proposed improvements, the proposed Project does not present the potential for substantial adverse impacts associated with increased demand for public services or the need for additional public facilities.</p>				

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

XV. Recreation

Would the project:

- a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed Project would entail stabilization of the slopes of a drainage feature situated within an area of existing residential development. There are no aspects of the construction process or the finished improvements that would alter demand for parks or recreational facilities services or affect existing physical facilities due to increased use of existing parks or recreational facilities.

The subject drainage feature outlets through an existing 72-inch concrete storm drain pipe that passes under Chicago Avenue and discharges to an open channel along the perimeter of Andulka Park. The proposed bank stabilization improvements would not alter stream flow or tributary area conditions and, therefore, do not present the potential for changes in discharge characteristics that could contribute to physical deterioration of the existing downstream improvements.

- 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?

The proposed Project would not include recreational facilities and would not require the construction or expansion of recreational facilities.

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

XVI. Transportation/Traffic

Would the project:

- 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?

Both Chicago Avenue and Central Avenue are fully improved as four-lane, divided arterials. The City of Riverside service standard for arterials is Level of Service D (City of Riverside 2007a, page CCM-11). Level of Service D corresponds to a volume to capacity ratio not exceeding 1.0; therefore,

XVI. Transportation/Traffic	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
------------------------------------	--------------------------------	--	------------------------------	-----------

roadways in the City of Riverside are considered to operate over capacity when the daily traffic volume exceeds the daily capacity value (City of Riverside 2007e, page 12). The most recent traffic counts (City of Riverside 2013) available from the City’s website indicate daily traffic volumes of approximately 17,000 to 25,000 vehicles per day on the segments of Chicago Avenue and Central Avenue near the project site. The General Plan EIR traffic study indicates a daily capacity of 33,000 per day for 110-foot arterials such as Central Avenue and Chicago Avenue. Under existing conditions, there is capacity to add an additional 8,000 to 16,000 daily trips before reaching the City’s service standard for arterials and exceeding the allowed volume to capacity ratio.

Temporary construction-related trips would result in an increase in trips on the surrounding roadway network. Specifically, construction-related trips would include daily trips for construction workers, delivery of equipment, delivery of materials, and removal of debris and excavated soil. No more than 18 construction worker trips are anticipated on any given day during the 4-month construction period. A total of 15 pieces of off-road equipment would be used throughout the four phases of construction, and no more than six pieces would be delivered during any given phase. As such, the number of construction trips related to the delivery of equipment would be minimal. A total of 4,360 cubic yards (cy) of materials would be delivered or removed from the project site, including 1,460 cy of rip-rap delivered to the site and 300 cy of excavated soil and 2,600 cy of vegetation debris taken from the site. At a capacity of about 16 cy of materials per truck trip, a total of about 545 round trips would account for material delivery and removal of debris and excavated soil over the 4-month construction period. The adjacent roadway network would be able to accommodate the additional short-term construction trips, and a less-than-significant impact would result.

Upon completion of construction, long-term traffic associated with ongoing maintenance would not differ from the current situation. While the proposed Project would temporarily increase the number of vehicle trips in the immediate vicinity, the proposed Project does not present the potential to conflict with City of Riverside policy regarding performance of the circulation system.

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	-------------------------------------	--------------------------

See item XVI.a, above.

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	-------------------------------------

The project site is within the land use planning area for the airport operations at March Air Reserve Base/Inland Port. The proposed stream bank stabilization work would not present the potential for any change with respect to air traffic patterns.

XVI. Transportation/Traffic	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?</p> <p>Access to the work area is by way of a gated entry off Chicago Avenue immediately south of the entrance drive to the Creekside Terrace development. There is a continuous raised median separating the northbound and southbound travel lanes along this section of Chicago Avenue, which has a posted speed limit of 45 miles per hour and a striped bike lane adjacent to the outside curb. The signalized intersection at Central Avenue is approximately 1,100 feet to the south. Two driveways serving the apartment complex are located between Central Avenue and the work area access point.</p> <p>It is not expected that temporary closures of the traffic lanes on Chicago Avenue between the northern apartment driveway and the Creekside Terrace entrance would be required during the anticipated 120-day construction period. However, in the event that traffic lane closures may be required during construction, at least one through lane of traffic would be maintained at all times, consistent with LRDP PP 4.14-5 (maintaining access during construction), which requires the campus to maintain at least one unobstructed lane in both directions on campus roadways; in this case, the measure would apply to off-campus streets to be affected by the proposed campus Project. Standard provisions of the required City encroachment permit would also ensure that appropriate signage and traffic control measures are implemented to provide for safety of vehicles, bikes, and pedestrians.</p> <p>Once construction is complete, the road and access conditions would be unchanged. With no change from existing conditions, there is no potential for increased hazards due to design features or incompatible uses.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>e. Result in inadequate emergency access?</p> <p>See item XVI.d, above. As stated previously, at least one through lane would be maintained at all times, consistent with LRDP PP 4.14-5 (maintaining access during construction), and no lane closures on Chicago Avenue are anticipated. In the finished condition, there would be no change potentially affecting emergency access.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>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?</p> <p>See items XVI.d and XVI.e, above. The bus stop on the east side of Chicago Avenue just north of Central Avenue is several hundred feet south of the proposed Project and would not be adversely affected by proposed construction activity with compliance with LRDP PP 4.14-5 (maintaining access during construction). In the finished condition, there would be no change potentially affecting public transit, bicycle, or pedestrian facilities.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The proposed bank stabilization improvements would not generate wastewater or require wastewater treatment services.				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The proposed bank stabilization improvements would not generate new demand for water or wastewater services or otherwise require or result in the construction of expansion of water or wastewater treatment facilities.				
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>The proposed Project would modify a segment of open channel that functions as a component of the City’s storm water drainage system. The proposed bank stabilization improvements would entail temporary disturbance of the existing stream channel and associated riparian vegetation, which presents the potential for significant environmental effects related to biological resources, temporary flooding, and noise, as discussed in preceding sections of this checklist (see sections IV, IX and XII). Mitigation Measures BIO 1 through BIO 7, HYD 1, NOI 1, and NOI 2 have been identified to reduce these potential impacts to below a level of significance. In addition, the environmental analysis presented throughout this initial study acknowledges established campus and City programs and practices that contribute to avoidance and minimization of potential environmental effects, including those related to construction-period air emissions, discovery of unknown cultural resources, erosion, construction-period noise, construction-period hazardous materials use and transport, and construction-period traffic safety (see sections II, V, VI, VII, VII, IX, XII, and XVI, above). With implementation of the recommended mitigation measures and implementation of City and campus standard practices, the potential environmental effects of the proposed storm water facility improvements would be less than significant.</p>				

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Refer to item XVII.a, above. The proposed Project would require comparatively limited volumes of water only during the construction phase. There are no known circumstances with existing water supplies that suggest such temporary demand would require new or expanded entitlements or resources.				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The proposed bank stabilization improvements would not require wastewater service.				
f. Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Project construction activities would generate a one-time volume of demolition waste, consisting of approximately 2,600 cubic yards of vegetation and 300 cubic yards of soil. As stated previously in item VII.b., both UCR and the City of Riverside have adopted programs requiring substantial diversion of construction waste. Standard campus contracting provisions include requirements for implementation and monitoring of waste diversion practices in all campus construction projects. These campus provisions address both City and County reduction policies in this regard. For the proposed Project, much of the construction waste would involve green waste and removal of existing vegetation to stabilize the slope. No operational waste, aside from the periodic removal of small amounts of exotic species of vegetation, would be required. Standard campus contracting provisions, to be included in contract specifications for implementation by the construction contractor, include green waste recycling and other requirements for implementation and monitoring of waste diversion practices in all campus construction projects. Ongoing operation would generate limited volumes of waste consisting of vegetation cleared from the north bank and adjacent access area.

Solid waste from the City of Riverside is disposed of at one of three local landfills—Badlands, El Sobrante, and Lamb Canyon. The Riverside General Plan 2025 (City of Riverside 2007b, page PF-21) reports local landfill capacity of more than 56 million tons, correlating to a 9 to 15 year lifespan, with opportunity for expansion at both the Badlands and Lamb Canyon landfills. Considering the limited nature of project waste generation and established practices for substantial diversion from landfill disposal, the Project does not present the potential to generate solid waste in excess of local landfill capacity.

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
g. Comply with applicable federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Applicable statutes related to solid waste are those addressing reduction of the volume of waste sent to landfills. As stated previously in items VII.b and XVII.f., above, both UCR and the City of Riverside have adopted programs and established standard implementation programs for substantial diversion of waste. Considering the limited nature of project waste generation and established programs for diversion from landfill disposal, the proposed Project would comply with all applicable federal, state, and local statutes and regulations related to solid waste, and there would be no impact in this regard.</p>				
h. Create other utility and service system impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Considering the location and the general nature and limited scale of the proposed improvements, the proposed Project does not present the potential for adverse impacts on utility and service systems.

XVIII. Mandatory Findings of Significance	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per Section 15065 of the State CEQA Guidelines):

- | | | | | |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|
| a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|

The proposed Project would stabilize the slopes of highly constrained, previously channelized drainage feature in an area of residential development. The recommended mitigation measures (**Mitigation Measures BIO-1, BIO 2, and BIO 3**) establish requirements to minimize impacts on the stream and associated riparian habitat and provide a framework for implementation of on-site and off-site riparian habitat restoration (**Mitigation Measures BIO 4, BIO 5 and BIO 6**). In the finished condition, the overall quality of the environment and the value of the channel as habitat would not be substantially altered from pre-project conditions.

Project-specific surveys have documented the limited presence of wildlife within the work limits and the absence of rare, threatened, or endangered species. Mitigation measures (**Mitigation Measures BIO 2 and BIO 7**) have been recommended to avoid significant impacts should any sensitive or otherwise protected bird species be identified within the work limits as construction proceeds.

The project site is previously disturbed and supports a perennial stream. No cultural resources were discovered in conjunction with prior development and there is no reasonable expectation that cultural resources would be discovered in the course of the proposed work.

XVIII. Mandatory Findings of Significance	Potentially Significant Impact	Less-than-Significant with 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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impacts resulting from the proposed bank stabilization improvements as identified in the discussion of checklist sections I through XVII would be isolated to the work limits or immediately surrounding environs within an established residential neighborhood in the City of Riverside. Potential impacts would be substantially limited to the approximately 120-day construction period. The review and analysis contained herein recognizes compliance with established local, state, and federal regulations and UCR standard procedures as the basis for a determination that impacts are less than significant for aesthetics, agricultural and forest resources, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, and transportation/traffic. The environmental review and analysis contained herein also indicates that the proposed Project presents the potential for project-level environmental impacts related to biological resources, hydrology and water quality, land use and planning, noise, and utilities and service systems, and mitigation is proposed to reduce those impacts. All identified direct impacts of the proposed improvements would be mitigated to below a level of significance with implementation of the recommended mitigation measures and standard City and University programs and practices. Therefore, no significant cumulatively considerable impacts would result under the proposed Project.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------

Aspects of the Project presenting the potential for adverse impacts on human beings are associated with construction-related air emissions, flooding, noise, traffic, and hazardous materials use and transport. The discussion presented in the respective sections of this checklist (see discussion under sections III, VIII, IX, XII, and XVI) supports the conclusion that the proposed Project would not cause substantial adverse effects on human beings.

Fish and Wildlife Determination

Based on consultation with the California Department of Fish and Wildlife, 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

Unless noted, all documents are available for review at the University of California Riverside, Capital Resource Management, University Village, 1223 University Avenue, Suite 200, Riverside California, 92507

C.H.J. Incorporated. 2007a. Preliminary Environmental Site Assessment Tract No. 31671 Creekside Terrace Riverside California, Prepared for University of California, Riverside (Job No. 07616-9). August 10. Colton, CA.

_____. 2007b. Summary of Preliminary Findings Due Diligence Investigation, Tract No. 31671, Chicago Avenue, North of Central Avenue, Riverside California, Prepared for University of California, Riverside (Job No. 07615-3). November 14. Colton, CA.

_____. 2008a. Due Diligence Investigation Tract No. 31671 Creekside Terrace Riverside California, Prepared for University of California, Riverside (Job No. 07615-3). February 7. Colton, CA.

_____. 2008b. Supplemental Investigation Tract No. 31671 Creekside Terrace Riverside California, Prepared for University of California, Riverside (Job No. 07615-3). March 14. Colton, CA.

John R. Byerly Incorporated. 2009. Geotechnical Observation of Compaction Grouting. June 8. Bloomington, CA.

Riverside, City of. 2007. *City of Riverside General Plan 2025*, Riverside, CA. November. Available: <http://riversideca.gov/planning/gp2025program/general-plan.asp>.

_____. 2007a. Circulation and Community Mobility Element.

_____. 2007b. Public Facilities and Infrastructure Element.

_____. 2007c. Public Safety Element.

_____. 2007d. City of Riverside General Plan 2025 Program Documents, Final Programmatic Environmental Impact Report, Volume 2, Section 5.10 – Mineral Resources.. Riverside, CA. November. Available: http://www.riversideca.gov/planning/2008-0909/FPEIR/Volume_2/5-10_Mineral_Resources.pdf.

_____. 2007e. City of Riverside General Plan 2025 Program Documents, Final Programmatic Environmental Impact Report, Volume 3, Appendix H – Transportation Study. Riverside, CA. November. Available: http://www.riversideca.gov/planning/2008-0909/FPEIR/Volume_3/Appendix_H.pdf

_____. 2013. City of Riverside Traffic Counts. Available: <http://www.riversideca.gov/traffic/pdf/2011-05-24hrVolumeCounts.pdf>

Riverside County Regional Parks and Open Space District (RCRPOSD). 2014. Personal communication with Rhonda Long, August 14.

South Coast Air Quality Management District (SCAQMD). 2013. SCAQMD Rules and Regulations. Available: <http://www.aqmd.gov/rules/rulesreg.html>.

University of California, Riverside. 2009. UCR Sustainability Action Plan. Available: <http://sustainability.ucr.edu/docs/plan.pdf>.

U.S. Geological Survey (USGS). 1967. 7.5-minute, Riverside East quadrangle map. Photorevised 1980.

Documents Incorporated by Reference

California Department of Conservation, Division of Land Resources Protection. 2012. Farmland Mapping and Monitoring Program. Riverside County Important Farmland 2010, Sheet 1 of 3. January. Available: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2010/riv10_west.pdf

Federal Emergency Management Agency. Flood Insurance Rate Map FIRM Map Number 06065C0728G. August 28. Available: <http://map1.msc.fema.gov>. Accessed: December 2, 2013.

Rick Engineering Company. 2008. Preliminary Due Diligence Investigation for Tract 31671, Creekside Terrance, City of Riverside California, (Job No. 15707), February 5. Riverside, CA.

Riverside, City of. 2013. City of Riverside Municipal Code, Chapter 7.25. Riverside, CA. Available: <http://www.riversideca.gov/municode/pdf/07/7-25.pdf>.

_____. 2013. City of Riverside Municipal Code, Section 7.3510(b)(5). Riverside, CA. Available: <http://www.riversideca.gov/municode/pdf/07/7-35.pdf>.

_____. 2013. City of Riverside Municipal Code. Section 19.230. Water Course Overlay Zone. Riverside, CA. Available: <http://www.riversideca.gov/municode/pdf/19/article-6/19-230.pdf>

University of California, Riverside. 2005. Long Range Development Plan Final Environmental Impact Report Mitigation Monitoring and Reporting Program. Available: <http://lrpd.ucr.edu/UCR%20LRDP%20Volume%20III%20FEIR%20November.pdf> (MMRP is Chapter D of Volume III, Final EIR)

University of California, Riverside. 2005. Long Range Development Plan Amendment 2 Final Environmental Impact Report Mitigation Monitoring and Reporting Program. Available: <http://lrpd.ucr.edu/Final%20EIR%20Volume%20III.pdf> (MMRP is Chapter 4 of Volume III, Final EIR)

VII. Initial Study Preparers

Kathleen Dale, Project Manager and Regulatory Specialist (former)

Debra Leight, Project Manager and Environmental Planner

Steve Bossi, Environmental Planner

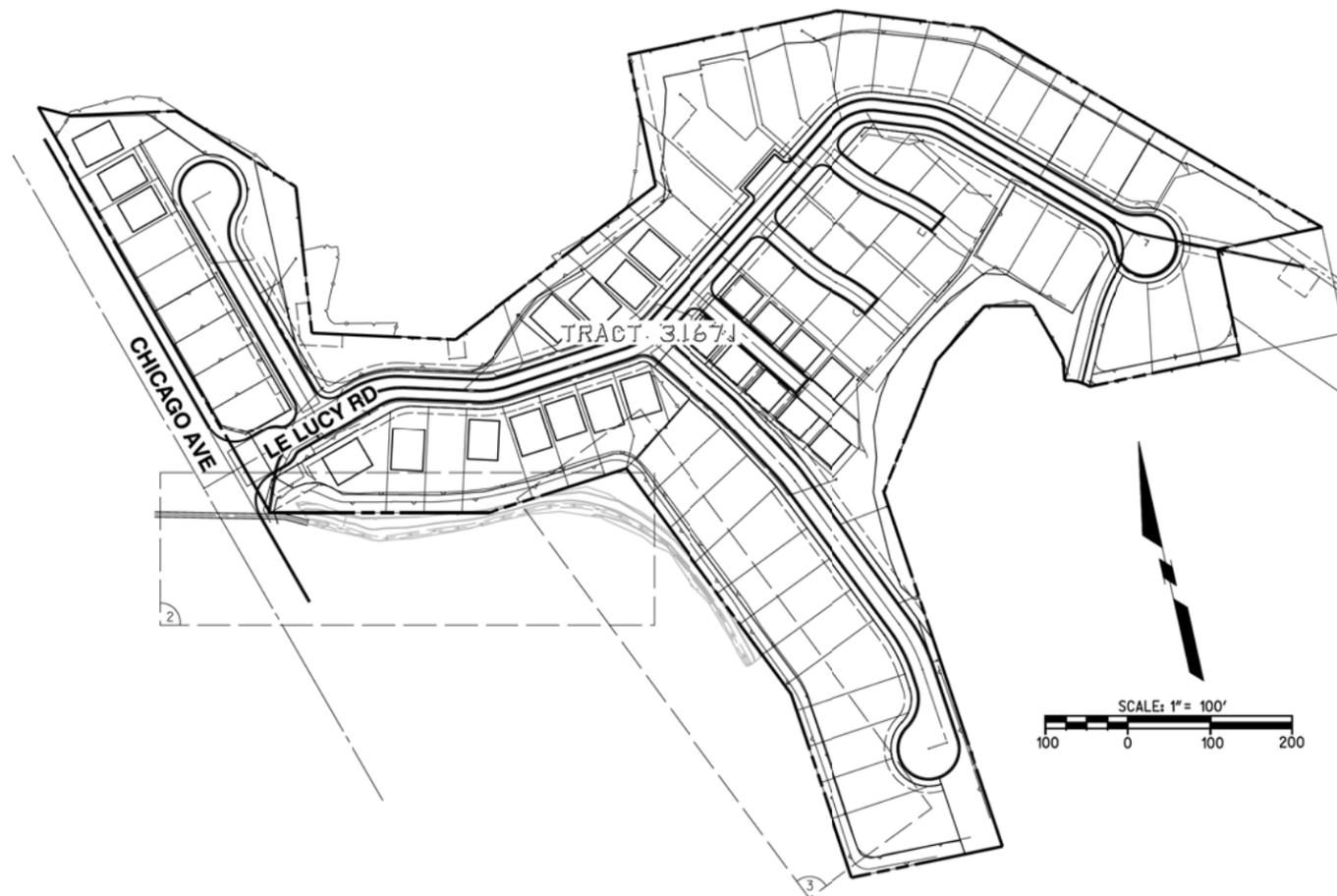
Tamseel Mir, Environmental Planner

Appendix A
Project Plans

GENERAL NOTES

- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAR THE RIGHT-OF-WAY IN ACCORDANCE WITH THE PROVISIONS OF LAW AS IT AFFECTS EACH UTILITY INCLUDING IRRIGATION LINES AND APPURTENANCES.
- CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RIVERSIDE DEPARTMENT OF PUBLIC WORKS, STANDARD DRAWINGS, ITS SUPPLEMENTAL NOTES AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CURRENT EDITION.
- ALL FLAGGED ELEVATIONS SHOWN ON THE PLANS SHALL BE STAKED IN THE FIELD EXCEPT FOR ELEVATIONS SHOWN IN PARENTHESIS WHICH DENOTE EXISTING GRADES.
- NO PERSON SHALL PERFORM ANY CONSTRUCTION ACTIVITY OR INSTALL ANY OBJECTS WITHIN THE PUBLIC RIGHT OF WAY OR EASEMENTS OF THE CITY OF RIVERSIDE WITHOUT A VALID CONSTRUCTION PERMIT OR A STREET OPENING PERMIT OR AN ENCROACHMENT PERMIT ISSUED BY THE CITY'S PUBLIC WORKS DEPARTMENT.
- THE CONTRACTOR SHALL CALL IN A LOCATION REQUEST TO UNDERGROUND SERVICE ALERT (USA), PHONE # 1-800-227-2600, TWO WORKING DAYS BEFORE STARTING CONSTRUCTION. NO CONSTRUCTION PERMIT WILL BE ISSUED BY THE PUBLIC WORKS DEPARTMENT UNLESS THE APPLICANT HAS BEEN PROVIDED AN INQUIRY IDENTIFICATION NUMBER BY U.S.A.
- QUANTITIES SHOWN ARE FOR INFORMATION ONLY AND THE CITY OF RIVERSIDE IS NOT RESPONSIBLE FOR THEIR ACCURACY.
- THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.
- THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE WORK HEREON. IN THE EVENT OF DISCREPANCIES ARISING DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY.
- THE DEVELOPER SHALL BE RESPONSIBLE FOR PRESERVING OR RE-ESTABLISHING AND REFERENCING SURVEY MONUMENTS DESTROYED, DISTURBED OR BURIED AS A RESULT OF CONSTRUCTION SHOWN HEREON.
- ALL EMBANKMENT FILL SHALL BE COMPACTED TO A MINIMUM 90% MAXIMUM DRY DENSITY AND SHALL BE OF AN APPROVED QUALITY.
- BEFORE THE RIP-RAP IS ACCEPTED BY THE CITY, AS PLACED, AT THE OUTLET OF ANY DRAINAGE STRUCTURE, IT SHALL BE TESTED UNDER FLOWS CLOSE AS POSSIBLE TO THE DESIGN CONDITIONS WITH WATER OBTAINED FROM FIRE HYDRANTS IN THE IMMEDIATE AREA.
- CONTRACTOR IS TO VERIFY EXISTING STORM DRAIN ELEVATIONS PRIOR TO CONSTRUCTION.

IN THE CITY OF RIVERSIDE, CALIFORNIA
CREEK IMPROVEMENT PLANS
 TRACT 31671 CHANNEL IMPROVEMENTS



WORK TO BE DONE

THESE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS, THE CURRENT ***COUNTY/CITY*** STANDARDS AND SPECIFICATIONS, AND THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION ("GREEN BOOK").

PRIVATE ENGINEER'S NOTE TO CONTRACTOR

ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH REGULATIONS OF THE U.S. DEPARTMENT OF LABOR AND THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS CONSTRUCTION SAFETY ORDERS. THE CIVIL ENGINEER SHALL NOT BE RESPONSIBLE IN ANY WAY FOR THE CONTRACTOR'S AND SUBCONTRACTOR'S COMPLIANCE WITH SAID REGULATIONS AND ORDERS.

CONTRACTOR FURTHER AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB-SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND CIVIL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

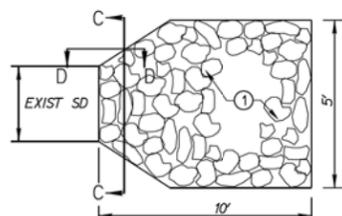
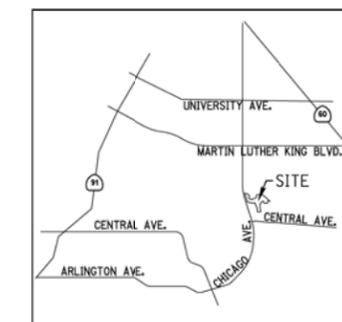
THE EXISTENCE AND APPROXIMATE LOCATIONS OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. THE CIVIL ENGINEER ASSUMES NO LIABILITY AS TO THE EXACT LOCATION OF SAID LINES NOR FOR UTILITY OR IRRIGATION LINES WHOSE LOCATIONS ARE NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY AND IRRIGATION COMPANIES PRIOR TO WORK OR EXCAVATION TO DETERMINE THE EXACT LOCATIONS OF ALL LINES AFFECTING THIS WORK, WHETHER OR NOT SHOWN HERE ON, AND FOR ANY DAMAGE OR PROTECTION TO THESE LINES.

OWNER/DEVELOPER

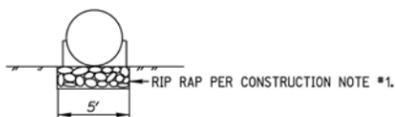
UNIVERSITY OF CALIFORNIA, RIVERSIDE
 326 SURGE BUILDING
 900 UNIVERSITY AVE.
 RIVERSIDE, CA 92521

CIVIL ENGINEER

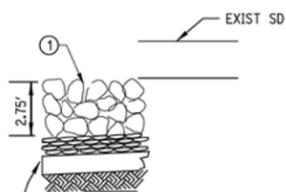
RICK ENGINEERING COMPANY
 1770 IOWA AVE., SUITE 100
 RIVERSIDE, CA 92507
 ATTN: RICHARD O'NEILL
 951-782-0707



TYPICAL RIP RAP PAD
 N.T.S.

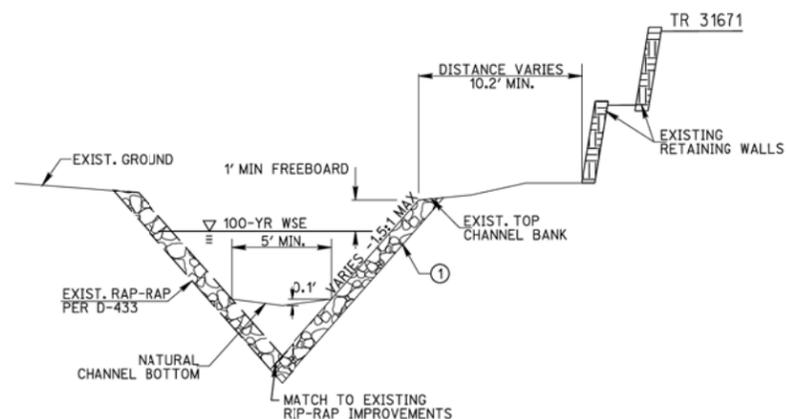


SECTION C-C
 N.T.S.



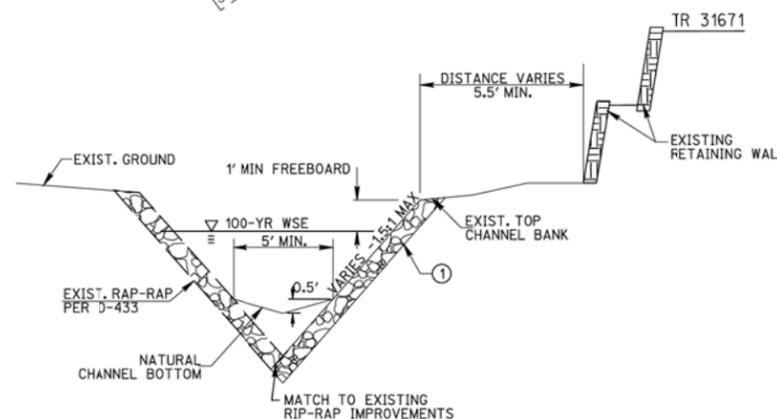
SECTION D-D
 N.T.S.

ALL RIP RAP SHALL BE PLACED ON MIRAFI 1100N/15/300 FILTER FABRIC OR EQUAL IN ACCORDANCE WITH CALTRANS STANDARD SPECIFICATION SECTION 88.



TYPICAL CREEK CROSS SECTION
 10+40.39 TO 14+20.55

INSTALL RIP-RAP ALONG CREEK BANK. REMOVE VEGETATION AND TEMPORARILY DISTURB CHANNEL BOTTOM.



TYPICAL CREEK CROSS SECTION
 14+55.75 TO 16+31.79

INSTALL RIP-RAP ALONG CREEK BANK. REMOVE VEGETATION AND TEMPORARILY DISTURB CHANNEL BOTTOM.

LEGEND

- 100-YR WATER SURFACE
- EXISTING STORM DRAIN
- RIP-RAP
- EXISTING RIP-RAP

CONSTRUCTION NOTES

- PLACE 1/4-TON RIPRAP AT 2.75" THICKNESS. 1460 CY ALL RIP RAP SHALL BE PLACED ON MIRAFI 1100N/15/300 FILTER FABRIC OR EQUAL IN ACCORDANCE WITH CALTRANS STANDARD SPECIFICATION SECTION 88. PLACE RIPRAP PER SECTION 72, AND AS APPROVED BY THE GEOTECHNICAL ENGINEER.

CAUTION:
 EXACT LOCATION OF EXISTING UNDERGROUND FACILITIES IS UNKNOWN. CONTRACTOR TO VERIFY IN FIELD.

DIG ALERT
 CALL BEFORE YOU DIG!
 1-800-227-2600
 UNDERGROUND SERVICE ALERT
 Call at least 2 working days prior to excavating.

REGISTERED PROFESSIONAL ENGINEER
 ROBERT A. STOCKTON
 No. C033591
 Exp. 6-30-12
 CIVIL
 STATE OF CALIFORNIA

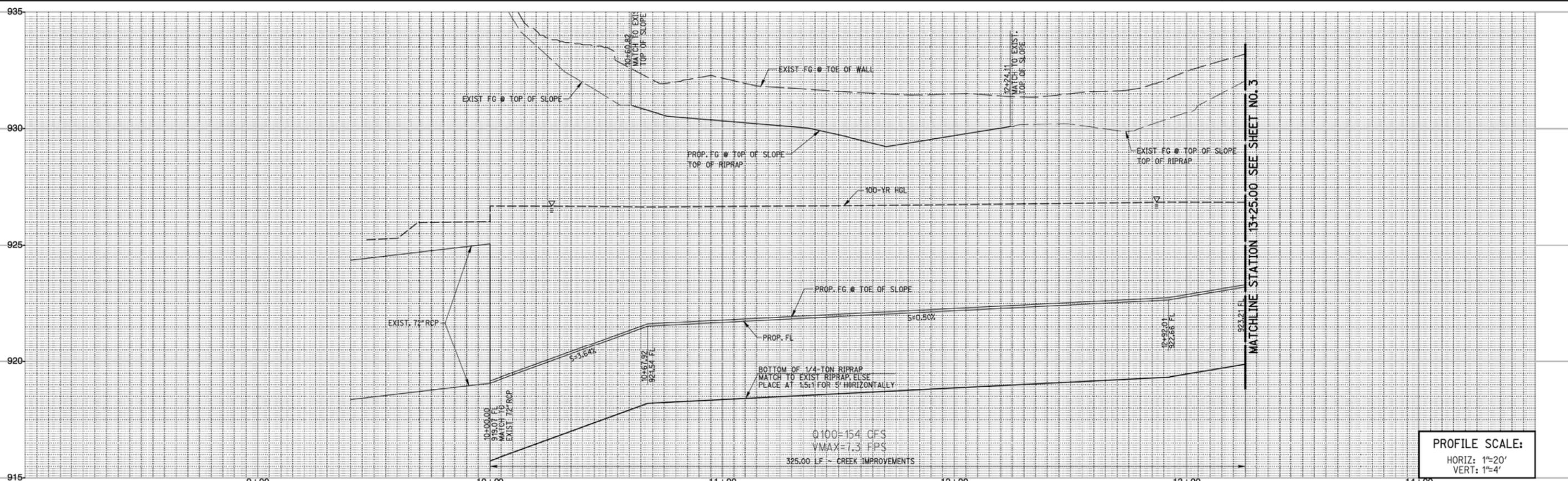
PREPARED UNDER THE DIRECTION OF
 ROBERT A. STOCKTON
 REGISTERED CIVIL ENGINEER NO. 33591
 EXPIRATION DATE 6-30-12
 APPROVED BY

RICK ENGINEERING COMPANY
 1770 IOWA AVENUE-SUITE 100
 RIVERSIDE, CA 92507
 951.782.0707
 FAX 951.782.0723
 rickengineering.com
 San Diego - Chicago - San Luis Obispo - Bakersfield - Sacramento - Phoenix - Tucson
 CITY BUSINESS TAX CERTIFICATE NO. 35225 EXP. 7-20-12
 BENCH MARK REFERENCE NUMBER F887/64 ELEVATION=984.9 ONVC 290
 BRASS DISK IN CONCRETE ON A SMALL RAISED EARTH MOUND ON THE WESTERLY SIDE OF CHICAGO AVE. AT LE CLUTE AVE. POINT IS 35 FEET SOUTHERLY OF A POB. #1953 J AND 35.4 FEET WESTERLY OF THE EXISTING BERM OF CHICAGO AVE.
 SCALE: H: 1"=100'
 DATE: 10-NOV-2011

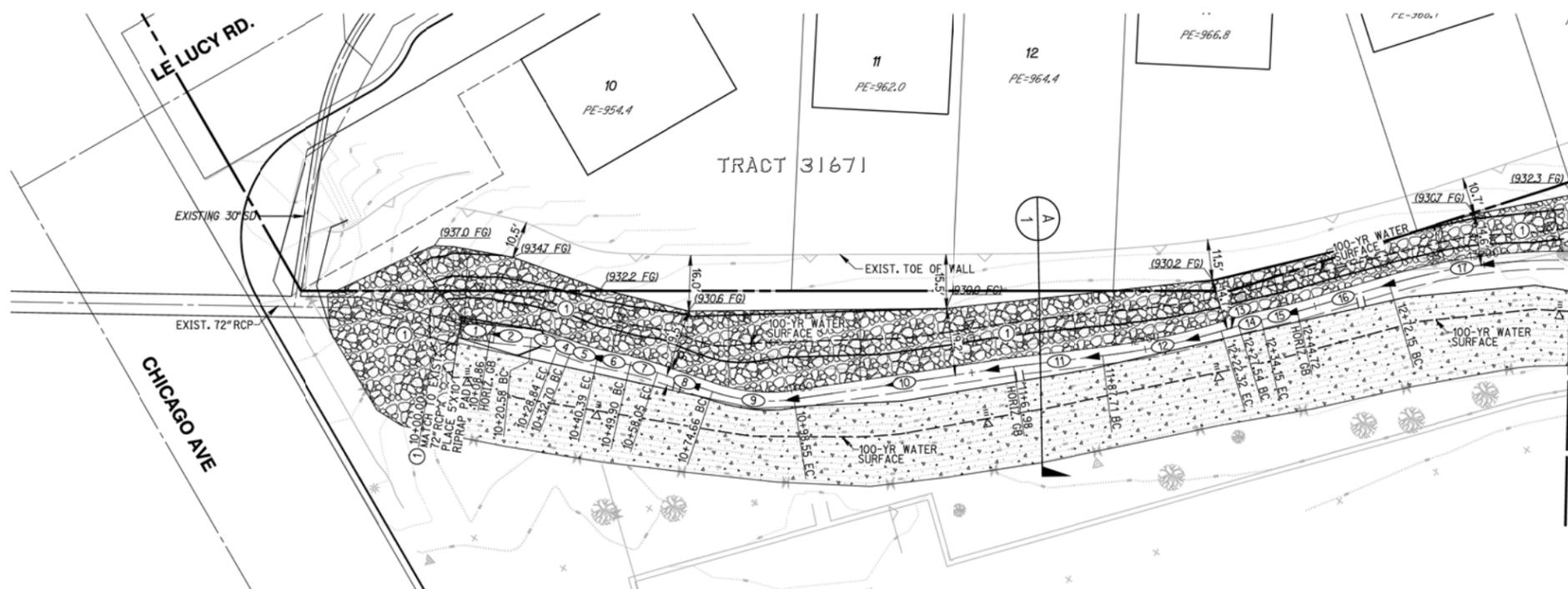
DESIGNED BY REC. DRAWN BY REC. CHECKED BY RAS

CITY OF RIVERSIDE
 PUBLIC WORKS DEPARTMENT
 APPROVED BY: [Signature] DATE: []
 PRINCIPAL ENGINEER
 PARK DEPARTMENT
 TRAFFIC DIVISION
 CHIEF R/W ENGR.

PRELIMINARY
 NOT FOR CONSTRUCTION
 TRACT 31671
 CREEK IMPROVEMENT PLANS
 PROJECT NO. []
 SHEET 1 OF 3
 HORIZ. SCALE 1"=100' VERT. SCALE N/A
 FILE NO. []
 PLOT DATE: 10-NOV-2011 JN 15707A

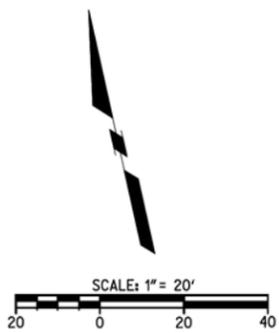


PROFILE SCALE:
 HORIZ: 1"=20'
 VERT: 1"=4'



CENTERLINE DATA				
NO.	DELTA OR BRG.	RADIUS	LENGTH	TANGENT
1	N 68°23'48" W		8.86'	
2	N 71°47'02" W		11.71'	
3	15°47'13"	30.00'	8.27'	4.16'
4	N 55°59'50" W		3.86'	
5	8°48'34"	50.00'	7.69'	3.85'
6	N 64°48'24" W		9.51'	
7	6°13'22"	75.00'	8.15'	4.08'
8	N 58°35'02" W		16.61'	
9	27°22'34"	50.00'	23.89'	12.18'
10	N 85°57'36" W		63.44'	
11	N 84°17'56" W		25.73'	
12	9°54'54"	200.00'	34.61'	17.35'
13	N 85°47'10" E		5.22'	
14	3°47'16"	100.00'	6.61'	3.31'
15	N 89°34'26" E		10.57'	
16	N 86°03'01" E		27.43'	
17	17°38'50"	171.60'	52.85'	26.64'

CONSTRUCTION NOTES
 ① PLACE 1/4-TON RIPRAP AT 2.75' THICKNESS. ALL RIP RAP SHALL BE PLACED ON MIRAFI 1100N/15/300 FILTER FABRIC OR EQUAL IN ACCORDANCE WITH CALTRANS STANDARD SPECIFICATION SECTION 88. PLACE RIPRAP PER SECTION 72 AND AS APPROVED BY THE GEOTECHNICAL ENGINEER.



DIG ALERT
 CALL BEFORE YOU DIG!
 1-800-227-2600
 UNDERGROUND SERVICE ALERT
 Call at least 2 working days prior to excavating.

REGISTERED PROFESSIONAL ENGINEER
 ROBERT A. STOCKTON
 No. C033591
 Exp. 6-30-12
 CIVIL
 STATE OF CALIFORNIA

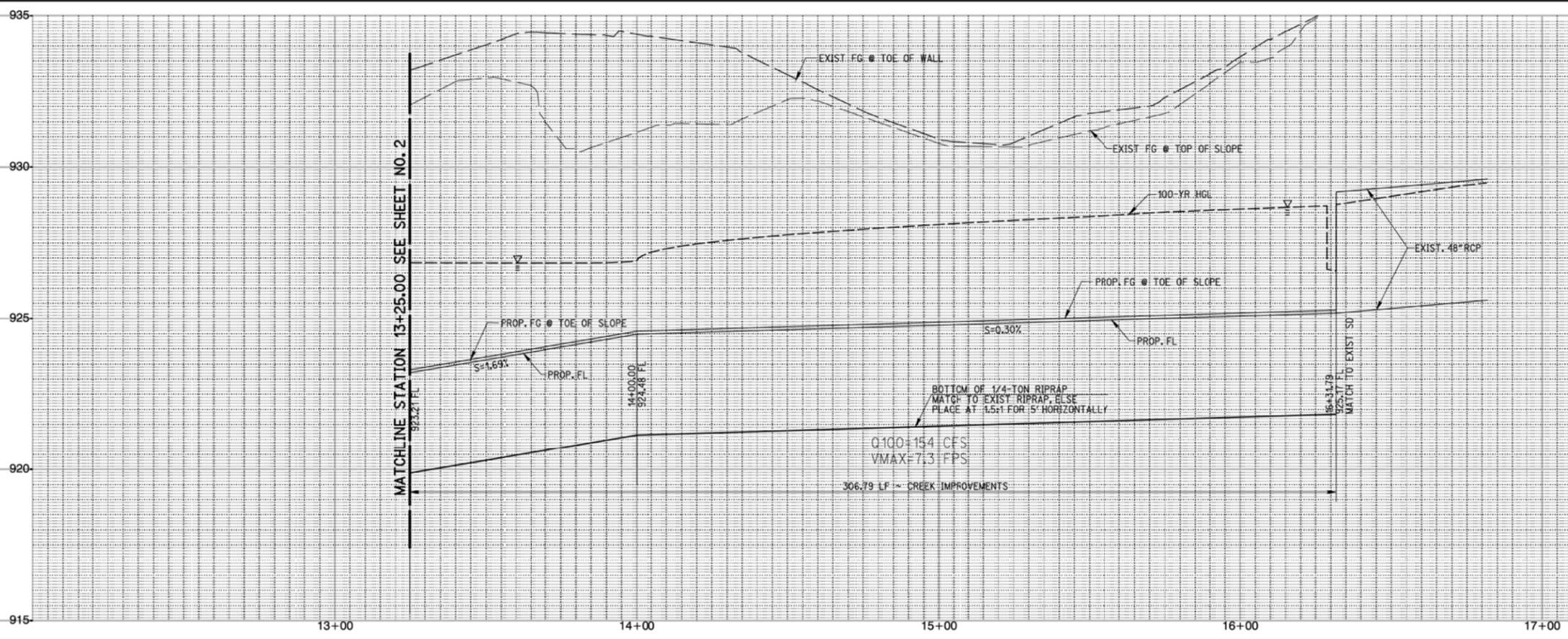
PREPARED UNDER THE DIRECTION OF
 ROBERT A. STOCKTON
 REGISTERED CIVIL ENGINEER NO. 33591
 EXPIRATION DATE 6-30-12
 APPROVED BY

RICK ENGINEERING COMPANY
 1770 KIMIA AVENUE-SUITE 100
 RIVERSIDE, CA 92507
 951.782.0707
 FAX 951.782.0723
 rickengineering.com
 San Diego - Chicago - San Luis Obispo - Bakersfield - Sacramento - Phoenix - Tucson
 CITY BUSINESS TAX CERTIFICATE NO. 35225 EXP. 7-20-12
 BENCH MARK REFERENCE NUMBER F857/64 ELEVATION=984.9 ONVC 291
 BRASS DISK IN CONCRETE ON A SMALL RAISED EARTH MOUND ON THE WESTERLY SIDE OF CHICAGO AVE. AT LE CENTER AVE. POINT IS 35 FEET SOUTHERLY OF A POINT #1957 J AND 38.4 FEET WESTERLY OF THE EXISTING BERM OF CHICAGO AVE.
 SCALE: H: 1"=20'
 V: 1"=4'
 DATE: 10-NOV-2011

MARK REVISIONS APPR. DATE
 DESIGNED BY REC DRAWN BY REC CHECKED BY RAS

CITY OF RIVERSIDE
 PUBLIC WORKS DEPARTMENT
 APPROVED BY BY DATE
 PRINCIPAL ENGINEER
 PARK DEPARTMENT
 TRAFFIC DIVISION
 CHIEF R/W ENGR.
 APPROVED BY
 DIRECTOR OF PUBLIC WORKS
 DATE

PRELIMINARY
 NOT FOR CONSTRUCTION
 TRACT 31671
 CREEK
 IMPROVEMENT PLANS
 PROJECT NO.
 SHEET 2 OF 3
 FILE NO.
 HORIZ. SCALE 1"=20' VERT. SCALE 1"=4'
 PLOT DATE: 10-NOV-2011 JUN 15707A

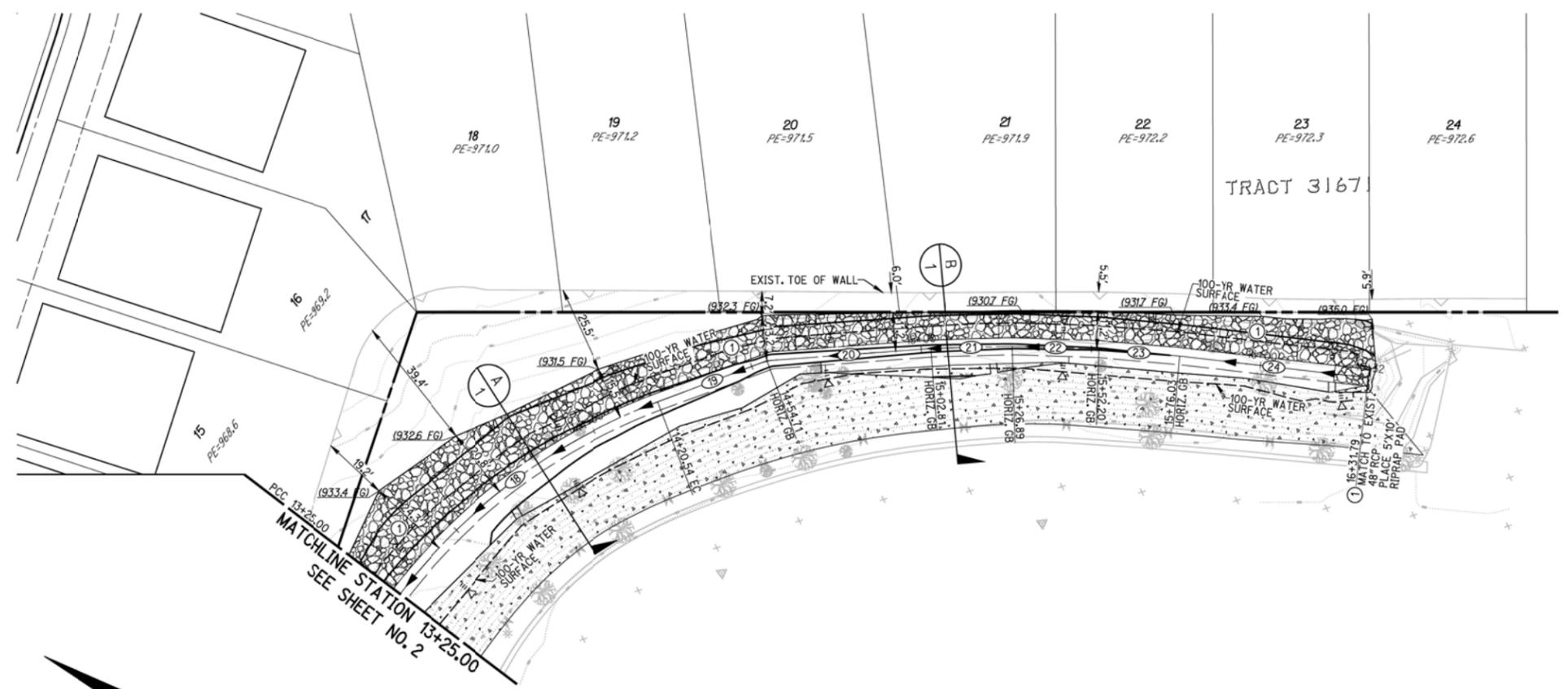


PROFILE SCALE:
 HORIZ: 1"=20'
 VERT: 1"=4'

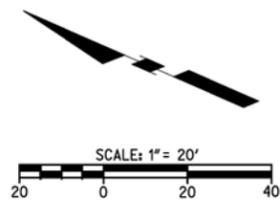
CENTERLINE DATA				
NO.	DELTA OR BRG.	RADIUS	LENGTH	TANGENT
18	31° 54' 00"	171.60'	95.54'	49.04'
19	N 44° 18' 18" W		34.17'	
20	N 27° 54' 58" W		48.10'	
21	N 25° 16' 43" W		24.08'	
22	N 21° 47' 23" W		25.31'	
23	N 18° 39' 13" W		23.83'	
24	N 17° 08' 35" W		55.76'	

CONSTRUCTION NOTES

- 1 PLACE 1/4-TON RIPRAP AT 2.75' THICKNESS. ALL RIP RAP SHALL BE PLACED ON MIRAFI 1100N/15300 FILTER FABRIC OR EQUAL IN ACCORDANCE WITH CALTRANS STANDARD SPECIFICATION SECTION 88. PLACE RIPRAP PER SECTION 72 AND AS APPROVED BY THE GEOTECHNICAL ENGINEER.



PRELIMINARY
 NOT FOR CONSTRUCTION



DIG ALERT
 CALL BEFORE YOU DIG!
 1-800-227-2600
 UNDERGROUND SERVICE ALERT
 Call at least 2 working days prior to excavating.

REGISTERED PROFESSIONAL ENGINEER
 ROBERT A. STOCKTON
 No. C033591
 Exp. 6-30-12
 CIVIL
 STATE OF CALIFORNIA

PREPARED UNDER THE DIRECTION OF
 ROBERT A. STOCKTON
 REGISTERED CIVIL ENGINEER NO. 33591
 EXPIRATION DATE 6-30-12
 APPROVED BY

RICK ENGINEERING COMPANY
 1770 KOWA AVENUE-SUITE 100
 RIVERSIDE, CA 92507
 951.782.0707
 FAX 951.782.0723
 rickengineering.com
 San Diego • Chgo • San Luis Obispo • Bakersfield • Sacramento • Phoenix • Tucson
 CITY BUSINESS TAX CERTIFICATE NO. 35225 EXP. 7-20-12
 SCALE: H: 1"=20'
 V: 1"=4'
 DATE: 10-NOV-2011
 BENCH MARK REFERENCE NUMBER F887/64 ELEVATION=984.9 INVC 291
 BRASS DISK IN CONCRETE ON A SMALL RAISED EARTH MOUND ON THE WESTERLY SIDE OF CHICAGO AVE. AT LE. CORNER AVE. POINT IS 35 FEET SOUTHERLY OF A POINT 4"X3" I AND 36.4 FEET WESTERLY OF THE EXISTING BERM OF CHICAGO AVE.

DESIGNED BY REC DRAWN BY REC CHECKED BY RAS

CITY OF RIVERSIDE
 PUBLIC WORKS DEPARTMENT
 APPROVED BY DATE
 PRINCIPAL ENGINEER
 PARK DEPARTMENT
 TRAFFIC DIVISION
 CHIEF R/W ENGR.
 APPROVED BY DATE
 DIRECTOR OF PUBLIC WORKS

TRACT 31671
 CREEK
 IMPROVEMENT PLANS
 PROJECT NO.
 SHEET 3 OF 3
 HORIZ. SCALE 1"=20' VERT. SCALE 1"=4'
 FILE NO.
 PLOT DATE: 10-NOV-2011 JUN 15707A

Appendix B
**Air Quality and Greenhouse Gas
Technical Memorandum**



Technical Memorandum

Air Quality and Greenhouse Gas Emissions Impact Analysis

Date:	November 25, 2013
To:	Kathleen Dale
From:	Keith Cooper
Subject:	UCR Creekside Terrace Slope Protection Project

Introduction and Results Summary

This memorandum provides an analysis of criteria pollutant and greenhouse gas (GHG) emissions resulting from implementation of the UCR Creekside Terrace Slope Protection project, or proposed project. This air quality and GHG emissions assessment includes a discussion of applicable significance criteria and analysis methodologies outlined in the following South Coast Air Quality Management District (SCAQMD) guidance documents:

- CEQA Air Quality Handbook (1993),¹
- Localized Significance Threshold Methodology for CEQA Evaluations (2003), and
- Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology (2006).

Based on these above-referenced guidance documents, this assessment evaluates the construction-period impacts to regional and local air quality that would result with construction of the proposed improvements.

The SCAQMD has not adopted quantitative GHG emissions thresholds for non-industrial development projects. However, in its *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* documentation, SCAQMD suggests that a screening-level threshold of 1,400 metric tons (MT) per year of carbon dioxide equivalent (CO₂e) emissions for commercial projects is appropriate. While the proposed project is not technically a commercial project, the suggested screening-level thresholds for all other land use types are higher than 1,400 MT CO₂e per year. As such, the 1,400 MT CO₂e per year significance criteria was used for this analysis.

The impact analyses demonstrates that (1) criteria pollutant emissions during construction would remain below SCAQMD regional and localized daily mass emissions thresholds; and (2) GHG emissions during construction would be less-than-significant.

¹ Used subject to the limitations described on the SCAQMD website (www.aqmd.gov/ceqa/oldhdbk.html).

Air Quality Impact Assessment

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact. SCAQMD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the Basin is in nonattainment (i.e., O₃, PM₁₀, and PM_{2.5}). The project would be subject to SCAQMD's AQMP, which contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards.

With respect to the proposed project, there would be no emissions following conclusion of construction activity. As such, only AQMP strategies directed at reducing construction-period emissions would apply to the proposed. As a matter of law, all project construction activities must comply with AQMP regulatory measures, including SCAQMD rules pertaining to fugitive dust control (Rules 403, 404, and 405), visibility of emissions (Rule 401), nuisance activities (Rule 402), and limiting VOC content in both asphalt and architectural coatings (Rules 1108 and 1113). The proposed project would not conflict with or obstruct implementation of the AQMP .

b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less-than-Significant Impact. The proposed project would contribute to regional air pollutant emissions during construction. Mass daily combustion emissions and fugitive dust (PM₁₀ and PM_{2.5}.) emissions were compiled using CalEEMod, which is an emissions estimation/evaluation model developed in collaboration with SCAQMD, among other air quality management districts of California.

Assumptions regarding construction phasing and equipment use were developed based on information provided by the project applicant. Key assumptions included the following: excavation volume would be 300 cubic yards (CY), rip rap materials in the amount of 1,460 CY would be hauled in and placed within the channel, and construction duration would be four months. A complete listing of the construction equipment by phase, construction phase duration assumptions, and changes to modeling default values used in this analysis is included within the CalEEMod printout sheets that are attached to this technical memorandum.

Summarized in Table 1, construction-period emissions would not exceed the SCAQMD local or regional significance thresholds.

Table 1. Conservative Estimate of Maximum Daily Construction Emissions

	Criteria Pollutant Emissions (pounds per day)					
	ROG	NO _x	CO	SO _x	PM ₁₀ ^a	PM _{2.5}
Regional Emissions						
Project Emissions	5	48	31	<1	4	3
Regional Significance Threshold	75	100	550	150	150	55
Exceed Regional Significance Threshold?	No	No	No	No	No	No
Localized Emissions						
Project Emissions	5	42	26	<1	3.5	2.9
Localized Significance Threshold ^b	n/a	118	602	n/a	4	3
Exceed Localized Significance Threshold?	No	No	No	No	No	No
Notes: Construction emission calculation worksheets are attached to this technical memorandum. These estimates of maximum daily emissions are for all construction phases (i.e., highest emissions from all phases for each pollutant presented). ^a PM ₁₀ emissions estimates take into account compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries. ^b Localized thresholds derived from SCAQMD Localized Significance Threshold Tables and are based on the project location (Source Receptor Area [SRA] 23, Metropolitan Riverside County), project area disturbed in any given day (1 acre), and the distance to the nearest sensitive receptor (25 meters).						

- c. **Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?**

Less-than-Significant Impact. The SCAQMD’s approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. As discussed earlier, the proposed project would be consistent with the AQMP, which is intended to bring the Basin into attainment for all criteria pollutants.² In addition, the mass regional emissions calculated for the proposed project presented earlier in Table 1 are less than the applicable SCAQMD daily significance thresholds. As such, cumulative impacts would be less than significant and no mitigation measures are necessary.

² CEQA Guidelines Section 15064(h)(3) states “A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency.”

d. *Would the project expose sensitive receptors to substantial pollutant concentrations?*

Less-than-Significant Impact. Diesel Particulate Matter (DPM), which is classified as a carcinogenic Toxic Air Contaminant (TAC) by CARB, is the primary pollutant of concern with respect to health risks to sensitive receptors. Cancer health risks associated with exposures to diesel exhaust are typically associated with chronic exposure, in which a 70-year exposure period is assumed. Because construction would be of short duration (approximately 4 months), project construction is not anticipated to result in an elevated cancer risk to exposed sensitive receptors. In addition, localized construction emissions would not exceed SCAQMD localized emissions thresholds for any criteria pollutant. Impacts would be less than significant and no mitigation measures are necessary.

e. *Would the project create objectionable odors affecting a substantial number of people?*

No Impact. According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors and therefore would not produce objectionable odors.

Greenhouse Gas Emissions Impact Assessment

a. *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less-than-Significant Impact. Project GHG emissions were estimated using the CalEEMod emissions estimation/evaluation model. Modeling assumptions regarding construction phasing and equipment use were developed based on information provided by the project applicant. Key assumptions included the following: excavation volume would be 300 cubic yards (CY), rip rap materials in the amount of 1,460 CY would be hauled in and placed within the channel, and construction duration would be four months. A complete listing of the construction equipment by phase, construction phase duration assumptions, and changes to modeling default values used in this analysis is included within the CalEEMod printout sheets that are attached to this technical memorandum.

The proposed project's contribution to GHG emissions is estimated to be 102 MT of CO₂e, total. To put this number into perspective, statewide CO₂ equivalent emissions for year 2011 were estimated to be 448.1 million metric tons. In addition, total CO₂e emissions resulting from project development would be far less than the 1,400 MT CO₂e per year significance criteria identified above. Impacts would be less than significant and no mitigation measures are necessary.

b. *Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Less-than-Significant Impact. With Assembly Bill (AB) 32, the State of California identified a year 2020 target level for state-wide GHG emissions of 427 million metric tons (MMT) of CO₂e, which is

approximately 28.5% less than the year 2020 business as usual (BAU) emissions estimate of 596 MMT CO₂e. To achieve these GHG reductions there will have to be widespread reductions of GHG emissions across California. Some of those reductions will need to come in the form of changes in vehicle emissions and mileage standards, changes in the sources of electricity, and increases in energy efficiency by existing facilities. The remainder will need to come from requiring new facility development to have lower carbon intensity than BAU conditions. Therefore, this analysis uses a threshold of significance that is in conformance with the state's goals.

On December 12, 2008, California Air Resources Board (ARB) adopted the AB 32 Scoping Plan, which details specific GHG emission reduction measures that target specific GHG emissions sources. The Scoping Plan considers a range of actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market based mechanisms (e.g., cap-and-trade system. Some examples include the following:

- Mobile-source GHG emissions reduction measures
 - Pavley emissions standards (19.8% reduction)
 - Low carbon fuel standard (7.2% reduction)
 - Vehicle efficiency measures (2.8% reduction)
- Energy production related GHG emissions reduction measures
 - Natural gas transmission and distribution efficiency measures (7.4% reduction)
 - Natural gas extraction efficiency measures (1.6% reduction)
 - Renewables (electricity) portfolio standard (33.0% reduction)

The proposed project would not frustrate any AB 32 Scoping Plan measures, nor be inconsistent in any way with the AB 32 goal of reducing state-wide GHG emissions to 1990 levels by year 2020. Both UCR and the City of Riverside have prepared plans to reduce greenhouse gas emissions. Because emissions for the proposed project are limited to the construction phase, relevant aspects of both the UCR and City GHG emission reduction programs are limited to those establishing objectives for substantial diversion of construction waste. Standard campus contracting provisions include requirements for implementation and monitoring of waste diversion practices in all campus construction projects. These campus provisions address both City and County GHG reduction policies in this regard. As such, the proposed project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

References

- California Climate Change Center (CCCC). 2006. *Our Changing Climate: Assessing the Risks to California*. July.
- California Air Resources Board (ARB). 2013. Inventory of California Greenhouse Gas Emissions and Sinks 2000 to 2011. August. Available at: http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-11_2013-08-01.pdf
- City of Riverside. General Plan 2025. Air Quality Element. Adopted November 7, 2007. Available at http://riversideca.gov/planning/gp2025program/GP/13_Air_Quality_Element.pdf
- City of Riverside Green Action Plan. 2012. Available at http://www.greenriverside.com/userfiles/Green_Action_Plan-2012.pdf
- South Coast Air Quality Management District. 1993. *CEQA air quality handbook*. November.
- . 2008. Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. December
- . 2003. *Localized significance threshold methodology for CEQA evaluations*. June.
- . 2006. *Particulate matter (PM) 2.5 significance thresholds and calculation methodology*. October.
- University of California Riverside. 2010. *Climate Action Plan*. December. Available at http://sustainability.ucr.edu/docs/ucr_cap_12_2010.pdf

UCR Creekside Terrace Slope Protection Project
Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.00	1000sqft	0.50	2,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2015
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Construction Only

Construction Phase - Establish Diversion: 1/1/2014 - 1/14/2014

Vegetation Removal: 1/15/2014 - 1/22/2014

Excavation: 1/23/2014 - 2/22/2014

Riprap Placement: 2/23/2014 - 4/22/2014

Remove Diversion: 4/23/2014 - 4/30/2014

Off-road Equipment - Establish Diversion

1 generator for diversion pump 24 hrs/day

1 tractor/loader/backhoe 6 hrs/day

1 off-highway tractor 6 hrs/day

Off-road Equipment - Vegetation Removal

1 generator for diversion pump 24 hours/day, plus

Default Site Prep

Off-road Equipment - Excavation

1 generator for diversion pump 24 hours/day, plus

Default Excavation

Off-road Equipment - Riprap Placement

1 generator for diversion pump 24 hours/day

4 tractor/loader/backhoes 8 hrs/day

Off-road Equipment - Remove Diversion

2 tractor/loader/backhoes 6 hrs/day

Grading - 300 CY excavation export

1,460 CY riprap import

Trips and VMT - 38 total excavation truck trips

183 total rewrap import trips

Construction Off-road Equipment Mitigation - Rule 403 only

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	NumDays	1.00	6.00
tblConstructionPhase	NumDays	1.00	22.00
tblConstructionPhase	NumDays	1.00	42.00
tblConstructionPhase	PhaseEndDate	2/21/2014	2/22/2014
tblGrading	AcresOfGrading	3.00	0.50
tblGrading	AcresOfGrading	21.00	0.50
tblGrading	MaterialExported	0.00	300.00
tblGrading	MaterialImported	0.00	1,460.00
tblLandUse	LotAcreage	0.05	0.50
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripNumber	38.00	0.00
tblTripsAndVMT	HaulingTripNumber	183.00	38.00
tblTripsAndVMT	HaulingTripNumber	0.00	183.00
tblTripsAndVMT	WorkerTripNumber	15.00	13.00
tblTripsAndVMT	WorkerTripNumber	8.00	5.00

2.0 Emissions Summary

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	0.0523	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0523	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004

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	0.0523	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0523	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Riprap Replacement	Site Preparation	1/1/2014	1/14/2014	5	10	
2	Excavation	Site Preparation	1/15/2014	1/22/2014	5	6	
3	Remove Diversion	Site Preparation	1/23/2014	2/22/2014	5	22	
4	Vegetation Removal	Site Preparation	2/23/2014	4/22/2014	5	42	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Vegetation Removal	Generator Sets	1	24.00	84	0.74
Excavation	Graders	1	8.00	174	0.41
Excavation	Generator Sets	1	24.00	84	0.74
Riprap Replacement	Generator Sets	1	24.00	84	0.74
Remove Diversion	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Riprap Replacement	Graders	1	8.00	174	0.41
Vegetation Removal	Graders	1	8.00	174	0.41
Remove Diversion	Graders	1	8.00	174	0.41
Riprap Replacement	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Excavation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Vegetation Removal	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Vegetation Removal	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	3	8.00	0.00	38.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Riprap Replacement	6	13.00	0.00	183.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove Diversion	3	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Riprap Replacement - 2014

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	4.9109	42.0077	26.2780	0.0385		2.9908	2.9908		2.8528	2.8528		3,857.4960	3,857.4960	0.8014		3,874.3248
Total	4.9109	42.0077	26.2780	0.0385	0.5303	2.9908	3.5210	0.0573	2.8528	2.9101		3,857.4960	3,857.4960	0.8014		3,874.3248

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	0.3543	6.3292	3.5562	0.0131	0.3192	0.1377	0.4569	0.0874	0.1266	0.2141		1,349.1361	1,349.1361	0.0106		1,349.3585
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0622	0.0741	0.9207	1.7500e-003	0.1453	1.0200e-003	0.1463	0.0385	9.3000e-004	0.0395		155.9413	155.9413	7.5600e-003		156.1000
Total	0.4165	6.4032	4.4768	0.0149	0.4645	0.1387	0.6032	0.1260	0.1276	0.2535		1,505.0773	1,505.0773	0.0182		1,505.4585

3.2 Riprap Replacement - 2014

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					0.2068	0.0000	0.2068	0.0223	0.0000	0.0223			0.0000			0.0000
Off-Road	4.9109	42.0077	26.2780	0.0385		2.9908	2.9908		2.8528	2.8528	0.0000	3,857.4960	3,857.4960	0.8014		3,874.3248
Total	4.9109	42.0077	26.2780	0.0385	0.2068	2.9908	3.1976	0.0223	2.8528	2.8751	0.0000	3,857.4960	3,857.4960	0.8014		3,874.3248

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	0.3543	6.3292	3.5562	0.0131	0.1982	0.1377	0.3359	0.0577	0.1266	0.1844		1,349.1361	1,349.1361	0.0106		1,349.3585
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0622	0.0741	0.9207	1.7500e-003	0.0822	1.0200e-003	0.0832	0.0230	9.3000e-004	0.0240		155.9413	155.9413	7.5600e-003		156.1000
Total	0.4165	6.4032	4.4768	0.0149	0.2804	0.1387	0.4191	0.0808	0.1276	0.2083		1,505.0773	1,505.0773	0.0182		1,505.4585

3.3 Excavation - 2014

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					0.1192	0.0000	0.1192	0.0142	0.0000	0.0142			0.0000			0.0000
Off-Road	3.8054	31.4099	19.0102	0.0291		2.1583	2.1583		2.0869	2.0869		2,864.3008	2,864.3008	0.5079		2,874.9661
Total	3.8054	31.4099	19.0102	0.0291	0.1192	2.1583	2.2774	0.0142	2.0869	2.1011		2,864.3008	2,864.3008	0.5079		2,874.9661

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	0.1226	2.1904	1.2307	4.5400e-003	0.1105	0.0477	0.1581	0.0303	0.0438	0.0741		466.9141	466.9141	3.6700e-003		466.9911
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0383	0.0456	0.5666	1.0800e-003	0.0894	6.3000e-004	0.0901	0.0237	5.7000e-004	0.0243		95.9639	95.9639	4.6500e-003		96.0616
Total	0.1609	2.2360	1.7973	5.6200e-003	0.1999	0.0483	0.2482	0.0540	0.0444	0.0984		562.8780	562.8780	8.3200e-003		563.0526

3.3 Excavation - 2014**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					0.0465	0.0000	0.0465	5.5400e-003	0.0000	5.5400e-003			0.0000			0.0000
Off-Road	3.8054	31.4099	19.0102	0.0291		2.1583	2.1583		2.0869	2.0869	0.0000	2,864.3008	2,864.3008	0.5079		2,874.9661
Total	3.8054	31.4099	19.0102	0.0291	0.0465	2.1583	2.2047	5.5400e-003	2.0869	2.0924	0.0000	2,864.3008	2,864.3008	0.5079		2,874.9661

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	0.1226	2.1904	1.2307	4.5400e-003	0.0686	0.0477	0.1163	0.0200	0.0438	0.0638		466.9141	466.9141	3.6700e-003		466.9911
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0383	0.0456	0.5666	1.0800e-003	0.0506	6.3000e-004	0.0512	0.0142	5.7000e-004	0.0148		95.9639	95.9639	4.6500e-003		96.0616
Total	0.1609	2.2360	1.7973	5.6200e-003	0.1192	0.0483	0.1674	0.0342	0.0444	0.0786		562.8780	562.8780	8.3200e-003		563.0526

3.4 Remove Diversion - 2014

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000				0.0000
Off-Road	1.6183	16.2480	8.6049	0.0109		1.0308	1.0308		0.9483	0.9483		1,160.7296	1,160.7296	0.3430			1,167.9328
Total	1.6183	16.2480	8.6049	0.0109	0.5303	1.0308	1.5610	0.0573	0.9483	1.0055		1,160.7296	1,160.7296	0.3430			1,167.9328

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0239	0.0285	0.3541	6.7000e-004	0.0559	3.9000e-004	0.0563	0.0148	3.6000e-004	0.0152		59.9774	59.9774	2.9100e-003			60.0385
Total	0.0239	0.0285	0.3541	6.7000e-004	0.0559	3.9000e-004	0.0563	0.0148	3.6000e-004	0.0152		59.9774	59.9774	2.9100e-003			60.0385

3.4 Remove Diversion - 2014

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					0.2068	0.0000	0.2068	0.0223	0.0000	0.0223			0.0000			0.0000
Off-Road	1.6183	16.2480	8.6049	0.0109		1.0308	1.0308		0.9483	0.9483	0.0000	1,160.7296	1,160.7296	0.3430		1,167.9328
Total	1.6183	16.2480	8.6049	0.0109	0.2068	1.0308	1.2376	0.0223	0.9483	0.9706	0.0000	1,160.7296	1,160.7296	0.3430		1,167.9328

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0239	0.0285	0.3541	6.7000e-004	0.0316	3.9000e-004	0.0320	8.8600e-003	3.6000e-004	9.2200e-003		59.9774	59.9774	2.9100e-003		60.0385
Total	0.0239	0.0285	0.3541	6.7000e-004	0.0316	3.9000e-004	0.0320	8.8600e-003	3.6000e-004	9.2200e-003		59.9774	59.9774	2.9100e-003		60.0385

3.5 Vegetation Removal - 2014

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					0.0135	0.0000	0.0135	1.5000e-003	0.0000	1.5000e-003			0.0000			0.0000
Off-Road	3.8054	31.4099	19.0102	0.0291		2.1583	2.1583		2.0869	2.0869		2,864.3008	2,864.3008	0.5079		2,874.9661
Total	3.8054	31.4099	19.0102	0.0291	0.0135	2.1583	2.1718	1.5000e-003	2.0869	2.0884		2,864.3008	2,864.3008	0.5079		2,874.9661

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0383	0.0456	0.5666	1.0800e-003	0.0894	6.3000e-004	0.0901	0.0237	5.7000e-004	0.0243		95.9639	95.9639	4.6500e-003		96.0616
Total	0.0383	0.0456	0.5666	1.0800e-003	0.0894	6.3000e-004	0.0901	0.0237	5.7000e-004	0.0243		95.9639	95.9639	4.6500e-003		96.0616

3.5 Vegetation Removal - 2014

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					5.2800e-003	0.0000	5.2800e-003	5.9000e-004	0.0000	5.9000e-004			0.0000				0.0000
Off-Road	3.8054	31.4099	19.0102	0.0291		2.1583	2.1583		2.0869	2.0869	0.0000	2,864.3008	2,864.3008	0.5079			2,874.9661
Total	3.8054	31.4099	19.0102	0.0291	5.2800e-003	2.1583	2.1635	5.9000e-004	2.0869	2.0875	0.0000	2,864.3008	2,864.3008	0.5079			2,874.9661

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0383	0.0456	0.5666	1.0800e-003	0.0506	6.3000e-004	0.0512	0.0142	5.7000e-004	0.0148		95.9639	95.9639	4.6500e-003			96.0616
Total	0.0383	0.0456	0.5666	1.0800e-003	0.0506	6.3000e-004	0.0512	0.0142	5.7000e-004	0.0148		95.9639	95.9639	4.6500e-003			96.0616

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.463772	0.070121	0.176196	0.171120	0.044771	0.007404	0.012633	0.041363	0.000985	0.001063	0.006436	0.000905	0.003230

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive 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	0.0523	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Unmitigated	0.0523	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004

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	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0396					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Total	0.0523	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004

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					
Consumer Products	0.0396					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.0523	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.6000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Vegetation

UCR Creekside Terrace Slope Protection Project
Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.00	1000sqft	0.50	2,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.4	Precipitation Freq (Days)	28
Climate Zone	10			Operational Year	2015
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Construction Only

Construction Phase - Establish Diversion: 1/1/2014 - 1/14/2014

Vegetation Removal: 1/15/2014 - 1/22/2014

Excavation: 1/23/2014 - 2/22/2014

Riprap Placement: 2/23/2014 - 4/22/2014

Remove Diversion: 4/23/2014 - 4/30/2014

Off-road Equipment - Establish Diversion

1 generator for diversion pump 24 hrs/day

1 tractor/loader/backhoe 6 hrs/day

1 off-highway tractor 6 hrs/day

Off-road Equipment - Vegetation Removal

1 generator for diversion pump 24 hours/day, plus

Default Site Prep

Off-road Equipment - Excavation

1 generator for diversion pump 24 hours/day, plus

Default Excavation

Off-road Equipment - Riprap Placement

1 generator for diversion pump 24 hours/day

4 tractor/loader/backhoes 8 hrs/day

Off-road Equipment - Remove Diversion

2 tractor/loader/backhoes 6 hrs/day

Grading - 300 CY excavation export

1,460 CY riprap import

Trips and VMT - 38 total excavation truck trips

183 total rewrap import trips

Construction Off-road Equipment Mitigation - Rule 403 only

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	50
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	NumDays	1.00	6.00
tblConstructionPhase	NumDays	1.00	22.00
tblConstructionPhase	NumDays	1.00	42.00
tblConstructionPhase	PhaseEndDate	2/21/2014	2/22/2014
tblGrading	AcresOfGrading	3.00	0.50
tblGrading	AcresOfGrading	21.00	0.50
tblGrading	MaterialExported	0.00	300.00
tblGrading	MaterialImported	0.00	1,460.00
tblLandUse	LotAcreage	0.05	0.50
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblTripsAndVMT	HaulingTripNumber	38.00	0.00
tblTripsAndVMT	HaulingTripNumber	183.00	38.00
tblTripsAndVMT	HaulingTripNumber	0.00	183.00
tblTripsAndVMT	WorkerTripNumber	15.00	13.00
tblTripsAndVMT	WorkerTripNumber	8.00	5.00

2.0 Emissions Summary

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	9.5500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.5500e-003	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.5500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.5500e-003	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Riprap Replacement	Site Preparation	1/1/2014	1/14/2014	5	10	
2	Excavation	Site Preparation	1/15/2014	1/22/2014	5	6	
3	Remove Diversion	Site Preparation	1/23/2014	2/22/2014	5	22	
4	Vegetation Removal	Site Preparation	2/23/2014	4/22/2014	5	42	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Vegetation Removal	Generator Sets	1	24.00	84	0.74
Excavation	Graders	1	8.00	174	0.41
Excavation	Generator Sets	1	24.00	84	0.74
Riprap Replacement	Generator Sets	1	24.00	84	0.74
Remove Diversion	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Riprap Replacement	Graders	1	8.00	174	0.41
Vegetation Removal	Graders	1	8.00	174	0.41
Remove Diversion	Graders	1	8.00	174	0.41
Riprap Replacement	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Excavation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Vegetation Removal	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Vegetation Removal	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	3	8.00	0.00	38.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Riprap Replacement	6	13.00	0.00	183.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove Diversion	3	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Riprap Replacement - 2014

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					2.6500e-003	0.0000	2.6500e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0246	0.2100	0.1314	1.9000e-004		0.0150	0.0150		0.0143	0.0143	0.0000	17.4973	17.4973	3.6300e-003	0.0000	17.5736
Total	0.0246	0.2100	0.1314	1.9000e-004	2.6500e-003	0.0150	0.0176	2.9000e-004	0.0143	0.0146	0.0000	17.4973	17.4973	3.6300e-003	0.0000	17.5736

3.2 Riprap Replacement - 2014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8400e-003	0.0334	0.0197	7.0000e-005	1.5700e-003	6.9000e-004	2.2600e-003	4.3000e-004	6.3000e-004	1.0700e-003	0.0000	6.1133	6.1133	5.0000e-005	0.0000	6.1143
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.1000e-004	4.1400e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6553	0.6553	3.0000e-005	0.0000	0.6560
Total	2.1200e-003	0.0338	0.0238	8.0000e-005	2.2800e-003	7.0000e-004	2.9800e-003	6.2000e-004	6.3000e-004	1.2600e-003	0.0000	6.7686	6.7686	8.0000e-005	0.0000	6.7704

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					1.0300e-003	0.0000	1.0300e-003	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0246	0.2100	0.1314	1.9000e-004		0.0150	0.0150		0.0143	0.0143	0.0000	17.4973	17.4973	3.6300e-003	0.0000	17.5736
Total	0.0246	0.2100	0.1314	1.9000e-004	1.0300e-003	0.0150	0.0160	1.1000e-004	0.0143	0.0144	0.0000	17.4973	17.4973	3.6300e-003	0.0000	17.5736

3.2 Riprap Replacement - 2014**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8400e-003	0.0334	0.0197	7.0000e-005	9.8000e-004	6.9000e-004	1.6700e-003	2.9000e-004	6.3000e-004	9.2000e-004	0.0000	6.1133	6.1133	5.0000e-005	0.0000	6.1143
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	4.1000e-004	4.1400e-003	1.0000e-005	4.0000e-004	1.0000e-005	4.1000e-004	1.1000e-004	0.0000	1.2000e-004	0.0000	0.6553	0.6553	3.0000e-005	0.0000	0.6560
Total	2.1200e-003	0.0338	0.0238	8.0000e-005	1.3800e-003	7.0000e-004	2.0800e-003	4.0000e-004	6.3000e-004	1.0400e-003	0.0000	6.7686	6.7686	8.0000e-005	0.0000	6.7704

3.3 Excavation - 2014**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					3.6000e-004	0.0000	3.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.0942	0.0570	9.0000e-005		6.4700e-003	6.4700e-003		6.2600e-003	6.2600e-003	0.0000	7.7954	7.7954	1.3800e-003	0.0000	7.8244
Total	0.0114	0.0942	0.0570	9.0000e-005	3.6000e-004	6.4700e-003	6.8300e-003	4.0000e-005	6.2600e-003	6.3000e-003	0.0000	7.7954	7.7954	1.3800e-003	0.0000	7.8244

3.3 Excavation - 2014

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	3.8000e-004	6.9300e-003	4.0900e-003	1.0000e-005	3.3000e-004	1.4000e-004	4.7000e-004	9.0000e-005	1.3000e-004	2.2000e-004	0.0000	1.2694	1.2694	1.0000e-005	0.0000	1.2696
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	1.5000e-004	1.5300e-003	0.0000	2.6000e-004	0.0000	2.7000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2420	0.2420	1.0000e-005	0.0000	0.2422
Total	4.8000e-004	7.0800e-003	5.6200e-003	1.0000e-005	5.9000e-004	1.4000e-004	7.4000e-004	1.6000e-004	1.3000e-004	2.9000e-004	0.0000	1.5114	1.5114	2.0000e-005	0.0000	1.5119

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					1.4000e-004	0.0000	1.4000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.0942	0.0570	9.0000e-005		6.4700e-003	6.4700e-003		6.2600e-003	6.2600e-003	0.0000	7.7953	7.7953	1.3800e-003	0.0000	7.8244
Total	0.0114	0.0942	0.0570	9.0000e-005	1.4000e-004	6.4700e-003	6.6100e-003	2.0000e-005	6.2600e-003	6.2800e-003	0.0000	7.7953	7.7953	1.3800e-003	0.0000	7.8244

3.3 Excavation - 2014**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	3.8000e-004	6.9300e-003	4.0900e-003	1.0000e-005	2.0000e-004	1.4000e-004	3.5000e-004	6.0000e-005	1.3000e-004	1.9000e-004	0.0000	1.2694	1.2694	1.0000e-005	0.0000	1.2696
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	1.5000e-004	1.5300e-003	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.2420	0.2420	1.0000e-005	0.0000	0.2422
Total	4.8000e-004	7.0800e-003	5.6200e-003	1.0000e-005	3.5000e-004	1.4000e-004	5.0000e-004	1.0000e-004	1.3000e-004	2.3000e-004	0.0000	1.5114	1.5114	2.0000e-005	0.0000	1.5119

3.4 Remove Diversion - 2014**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					5.8300e-003	0.0000	5.8300e-003	6.3000e-004	0.0000	6.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0178	0.1787	0.0947	1.2000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	11.5830	11.5830	3.4200e-003	0.0000	11.6548
Total	0.0178	0.1787	0.0947	1.2000e-004	5.8300e-003	0.0113	0.0172	6.3000e-004	0.0104	0.0111	0.0000	11.5830	11.5830	3.4200e-003	0.0000	11.6548

3.4 Remove Diversion - 2014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	3.5000e-004	3.5000e-003	1.0000e-005	6.0000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5545	0.5545	3.0000e-005	0.0000	0.5551
Total	2.4000e-004	3.5000e-004	3.5000e-003	1.0000e-005	6.0000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5545	0.5545	3.0000e-005	0.0000	0.5551

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					2.2700e-003	0.0000	2.2700e-003	2.5000e-004	0.0000	2.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0178	0.1787	0.0947	1.2000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	11.5829	11.5829	3.4200e-003	0.0000	11.6548
Total	0.0178	0.1787	0.0947	1.2000e-004	2.2700e-003	0.0113	0.0136	2.5000e-004	0.0104	0.0107	0.0000	11.5829	11.5829	3.4200e-003	0.0000	11.6548

3.4 Remove Diversion - 2014

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	3.5000e-004	3.5000e-003	1.0000e-005	3.4000e-004	0.0000	3.5000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.5545	0.5545	3.0000e-005	0.0000	0.5551
Total	2.4000e-004	3.5000e-004	3.5000e-003	1.0000e-005	3.4000e-004	0.0000	3.5000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.5545	0.5545	3.0000e-005	0.0000	0.5551

3.5 Vegetation Removal - 2014

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					2.8000e-004	0.0000	2.8000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0799	0.6596	0.3992	6.1000e-004		0.0453	0.0453		0.0438	0.0438	0.0000	54.5675	54.5675	9.6800e-003	0.0000	54.7706
Total	0.0799	0.6596	0.3992	6.1000e-004	2.8000e-004	0.0453	0.0456	3.0000e-005	0.0438	0.0439	0.0000	54.5675	54.5675	9.6800e-003	0.0000	54.7706

3.5 Vegetation Removal - 2014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.0600e-003	0.0107	2.0000e-005	1.8500e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6938	1.6938	9.0000e-005	0.0000	1.6956
Total	7.3000e-004	1.0600e-003	0.0107	2.0000e-005	1.8500e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6938	1.6938	9.0000e-005	0.0000	1.6956

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					1.1000e-004	0.0000	1.1000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0799	0.6596	0.3992	6.1000e-004		0.0453	0.0453		0.0438	0.0438	0.0000	54.5674	54.5674	9.6800e-003	0.0000	54.7706
Total	0.0799	0.6596	0.3992	6.1000e-004	1.1000e-004	0.0453	0.0454	1.0000e-005	0.0438	0.0438	0.0000	54.5674	54.5674	9.6800e-003	0.0000	54.7706

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.463772	0.070121	0.176196	0.171120	0.044771	0.007404	0.012633	0.041363	0.000985	0.001063	0.006436	0.000905	0.003230

5.0 Energy Detail

~~4.4 Fleet Mix~~

Historical Energy Use: N

5.1 Mitigation Measures Energy

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Land Use	kBTU/yr	tons/yr										MT/yr						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000								

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive 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	9.5500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Unmitigated	9.5500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005

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	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.2300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Total	9.5500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005

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					
Consumer Products	7.2300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Architectural Coating	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.5500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Vegetation

Appendix C

**Standard Practices from the LRDP EIR MMRP Measures
and City of Riverside General Plan**

Appendix C: Standard Practices from the UCR Long Range Development Plan
Mitigation Monitoring and Reporting Programs and the City of Riverside General Plan that are
Applicable to the Creekside Terrace Slope Stabilization Project

UCR Long Range Development Plan

Air Quality

Programs and Practices (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 South Coast Air Quality Management District (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 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.

Mitigation Measure (MM) 4.3-1a For each construction project on campus, the project contractor will implement Programs and Practices 4.3-2(a) and 4.3-2(b). In addition, the following PM10 and PM2.5 control measure shall be implemented for each construction project.

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

**Appendix C: Standard Practices from the UCR Long Range Development Plan
Mitigation Monitoring and Reporting Programs and the City of Riverside General Plan that are
Applicable to the Creekside Terrace Slope Stabilization Project**

MM 4.3-1b 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.
- 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.
- 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 4.3-2 Programs and Practices 4.3-2(a), (b), and (c), or their equivalent, shall be included in construction contract specifications. The contract specifications shall require the use of low NOx diesel fuel and construction equipment to the extent that is readily available at the time of development.

Appendix C: Standard Practices from the UCR Long Range Development Plan
Mitigation Monitoring and Reporting Programs and the City of Riverside General Plan that are
Applicable to the Creekside Terrace Slope Stabilization Project

Biological Resources

Planning Strategy (PS) Conservation 1 Protect natural resources, including native habitat; remnant arroyos, and mature trees, identified as in good health as determined by a qualified arborist, to the extent feasible.

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

PP 4.4-1(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.

PP 4.4-1(a) To reduce impacts to the Natural Open Space Reserve area:

- (i) If any construction is proposed within the Open Space Reserve, conduct surveys for threatened and endangered species at an appropriate time of year. If these species are located in this area, the site or sites shall be protected from damage by either protective fencing or some other means of restricting access.
- (ii) Landscaping around development areas adjacent to the Open Space Reserve shall emphasize native or historically significant plant material that provides wildlife value and a sensitive transition from developed areas to natural open spaces. A qualified native landscape specialist shall be retained to develop an appropriate native landscape plan for the development areas.

PP 4.4-2(a) Impacts to riparian and wetland habitats shall be avoided, wherever feasible. If avoidance is not feasible, then the impacts will be evaluated as part of the Clean Water Act section 404 and California Fish and Game Code section 1602 permit application process. If mitigation is required, the University of California will develop and implement a resource mitigation program to be reviewed and approved by the ACOE and CDFG through the State and federal permit process. The permit shall mitigate the habitats such that they are consistent with the Clean Water Act and CDFG policy of “no net loss” of wetland. Furthermore, impacted wetlands and/or riparian vegetation that cannot be avoided would be replaced at a ratio approved by the ACOE and CDFG. If replacement within the area is not feasible, then an approved mitigation bank or other off-site area will be used. The revegetation of impacted areas or mitigation parcels will be performed by a qualified restoration specialist and shall be conducted only on sites where soils, hydrology, and microclimate conditions are suitable for riparian habitat. First priority will be given to areas that are adjacent to existing patches of native habitat.

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

Appendix C: Standard Practices from the UCR Long Range Development Plan
Mitigation Monitoring and Reporting Programs and the City of Riverside General Plan that are
Applicable to the Creekside Terrace Slope Stabilization Project

- (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

MM 4.4-3(a) When habitat that could be regulated by the Clean Water Act (Section 404) would be impacted, either directly or indirectly, the University shall perform a jurisdictional and/or wetland delineation to assess the extent of the jurisdictional area(s).

MM 4.4-3(b) If wetland or riparian habitat would be removed as a result of project development, the University shall restore or enhance wetland or riparian habitat as required by the applicable State and/or federal resource agencies.

MM 4.4-3(c) Any proposal for wetland creation or enhancement (pursuant to MM 4.4-3(b) above) will be based upon the completion of soils, hydrologic and other studies confirming the feasibility of the creation or enhancement proposal and shall include United States Army Corps of Engineers (USACE)-approved measures intended to promote occupancy by special status and other wetland-dependent species (e.g., plantings, collection of topsoil and inoculation of target areas).

Cultural Resources

PP 4.5-3 If construction would occur within the southeast hills or within the portion of the West Campus north of Martin Luther King Boulevard, a surface field survey shall be conducted in conjunction with a project specific environmental analysis in accordance with CEQA. Depending on the results of the survey, the following measures shall be implemented:

- a. If no evidence of surface archaeological resources is discovered, or if development would occur in areas not designated as sensitive for archaeological resources:
 - › Prior to site preparation or grading activities, construction personnel shall be informed of the potential for encountering unique archaeological resources and taught how to identify these resources if encountered. This shall include the provision of written materials to familiarize personnel with the range of resources that might be expected, the type of activities that may result in impacts, and the legal framework of cultural resources protection. Construction specifications shall require that all construction personnel shall be instructed to stop work in the vicinity of a potential discovery until a qualified, non-University archaeologist assesses the significance of the find and implements appropriate measures to protect or scientifically remove the find. Construction personnel shall also be informed that unauthorized collection of archaeological resources is prohibited.
 - › The campus shall require the site project contractor to report any evidence of archaeological resources unearthed during development excavation to the campus.
 - › The archaeologist shall then be present during the grading and shall have the authority to halt disturbance of any archaeological resources long enough to assess the situation, conduct testing, and implement mitigation measures that would reduce impacts in accordance with Section 21083.2 of CEQA.
- b. If any evidence of archaeological materials is discovered on the surface during field survey, then:

Appendix C: Standard Practices from the UCR Long Range Development Plan
Mitigation Monitoring and Reporting Programs and the City of Riverside General Plan that are
Applicable to the Creekside Terrace Slope Stabilization Project

- › A qualified archaeologist shall prepare a recovery plan for the resources.
- › An archaeologist shall also be present during grading and shall have the authority to halt disturbance of any archaeological resources long enough to assess the situation, conduct testing, and implement mitigation measures that would reduce impacts in accordance with Section 21083.2 of CEQA.

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.

Geology and Soils

PP 4.4-2(b) provided previously.

PP 4.8-1 The campus will continue to comply with all applicable water quality requirements established by the SARWQCB.

Hazards and Hazardous Materials

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.

Hydrology and Water Quality

PP 4.4-2(b) and PP 4.8-1 provided previously.

Noise

PP 4.10-2 The UCR campus shall limit the hours of exterior construction activities from 7:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 6:00 p.m. 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.

Appendix C: Standard Practices from the UCR Long Range Development Plan
Mitigation Monitoring and Reporting Programs and the City of Riverside General Plan that are
Applicable to the Creekside Terrace Slope Stabilization Project

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. Contract 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 to be placed to direct noise away from sensitive receptors.

PP 4.10-8 The campus shall continue to conduct meetings, as needed, with off-campus constituents that are affected by campus construction to provide advance notice of construction activities and ensure that mutual needs of the particular construction project and of those impacted by construction noise are met, to extent feasible.

Traffic and Transportation

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.

City of Riverside General Plan

Mitigation Measure Cultural 4: The following mitigation measures should be implemented to reduce project-related adverse impacts to archaeological resources and sites containing Native American human remains that may be inadvertently discovered during construction of projects proposed in the City's General Plan Update:

- a. In areas of archaeological sensitivity, including those that may contain buried Native American human remains, a registered professional archaeologist and a representative of the culturally affiliated Native American Tribe, with knowledge in cultural resources, should monitor all project-related ground disturbing activities that extend into natural sediments in areas determined to have high archaeological sensitivity.
- b. If buried archaeological resources are uncovered during construction, all work must be halted in the vicinity of the discovery until a registered professional archaeologist can visit the site of discovery and assess the significance and origin of the archaeological resource. If the resource is determined to be of Native American origin, the Tribe shall be consulted. If the archaeological resource is determined to be a potentially significant cultural resource, the City, in consultation with the project archaeologist and the Tribe, shall determine the course of action which may include data recovery, retention in situ, or other appropriate treatment and mitigation depending on the resources discovered.
- c. In the event of an accidental discovery of any human remains in a location other than a dedicated cemetery, the steps and procedures specified in Health and Safety Code 7050.5, State CEQA Guidelines 15064.5(e), and Public Resources Code 5097.98 must be implemented. Specifically, in accordance with Public Resources Code (PRC) Section 5097.98, the Riverside County Coroner must be notified within 24 hours of the discovery of potentially human remains. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with PRC Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains within 48 hours of notification. The MLD then has the opportunity to

Appendix C: Standard Practices from the UCR Long Range Development Plan
Mitigation Monitoring and Reporting Programs and the City of Riverside General Plan that are
Applicable to the Creekside Terrace Slope Stabilization Project

recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods within 24 hours of notification. Whenever the NAHC is unable to identify a MLD, or the MLD fails to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the MLD and the mediation provided for in subdivision (k) of PRC Section 5097.94 fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall re-inter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.

Appendix D
Biological Resources Assessment

BIOLOGICAL RESOURCES ASSESSMENT FOR THE UCR CREEKSIDE TERRACE SLOPE PROTECTION PROJECT

**CITY OF RIVERSIDE
RIVERSIDE COUNTY, CALIFORNIA**

PREPARED FOR:

Rick Engineering
1770 Iowa Avenue, Suite 100
Riverside, CA 92507

PREPARED BY:

ICF International
3550 Vine Street, Suite 100
Riverside, CA 92507
Contact: Kathy Dale, Project Manager
(951) 683-2741

November 2011



ICF International. 2011. *Biological Resources Assessment for the UCR Creekside Terrace Slope Protection Project*. City of Riverside, Riverside County, CA. November. (ICF 00310.11.) Riverside, CA.

Contents

Chapter 1	Project Information	1
1.1	Project Location.....	1
1.2	Project Description.....	1
1.3	Project History.....	1
1.4	WRC MSHCP.....	2
1.4.1	Project Relationship to the WRC MSHCP.....	3
Chapter 2	Methodology	4
2.1	Literature Review.....	4
2.2	Field Visit.....	4
2.3	Vegetation Mapping.....	5
2.4	Habitat Assessments.....	5
2.4.1	Burrowing Owl.....	5
2.4.2	Riparian/Riverine Bird Species.....	6
Chapter 3	Results and Impact Analysis	8
3.1	Results of Literature Search.....	8
3.2	Existing Conditions.....	8
3.3	Results of Vegetation Mapping.....	9
3.4	Results of Habitat Assessments.....	10
3.4.1	Burrowing Owl.....	10
3.4.2	Least Bell's Vireo.....	11
3.4.3	Southwestern Willow Flycatcher.....	11
3.4.4	Western Yellow-billed Cuckoo.....	11
3.4.5	Additional Species Observed or Identified with Potential to Occur.....	11
3.5	Nesting Birds.....	13
Chapter 4	WRC MSHCP Consistency Analysis	15
4.1	Relationship of the Project Site to the WRC MSHCP.....	15
4.2	Protection of Species Associates with Riparian/Riverine Areas and Vernal Pools.....	15
4.3	Protection of Narrow Endemic Plant Species.....	16
4.4	Guidelines Pertaining to the Urban/Wildlands Interface.....	17
4.5	Additional Survey Needs and Procedures.....	17
4.6	Fuels Management.....	17
Chapter 5	References	18

APPENDICES

Appendix A WRC MSHCP Conservation Report

Appendix B Photographs

Appendix C Species Lists

Appendix D Special Status Species

This report is intended to provide information about existing biological resources within the proposed UCR Creekside Terrace Slope Protection project footprint and surrounding areas and analysis of temporary and permanent impacts to those resources in the context of federal, State, and local regulatory compliance programs. Additionally, this report includes an evaluation of significance pursuant to the California Environmental Quality Act (CEQA), and recommends mitigation measures to offset potential impacts.

1.1 Project Location

The UCR Creekside Terrace Slope Protection project (herein referred to as “Project”) is located within the City of Riverside, Riverside County, California (Figure 1). Specifically, the project site consists of a drainage feature located approximately 0.20 miles north of the intersection of Chicago and Central Avenues (Figure 2). The project is located within Section 31, Township 2 South, Range 4 West of the Riverside East U.S. Geological Survey (USGS) quadrangle dated 1967, photorevised 1980 (USGS 1967). The project site is at approximately 940 feet above mean sea level (MSL) as depicted on the Riverside East USGS topographic map. The coordinates (decimal degrees) for the project site are latitude 33.958882° and longitude 117.346076°. The primary Assessor’s Parcel Number (APN) associated with the project site is 254-370-003.

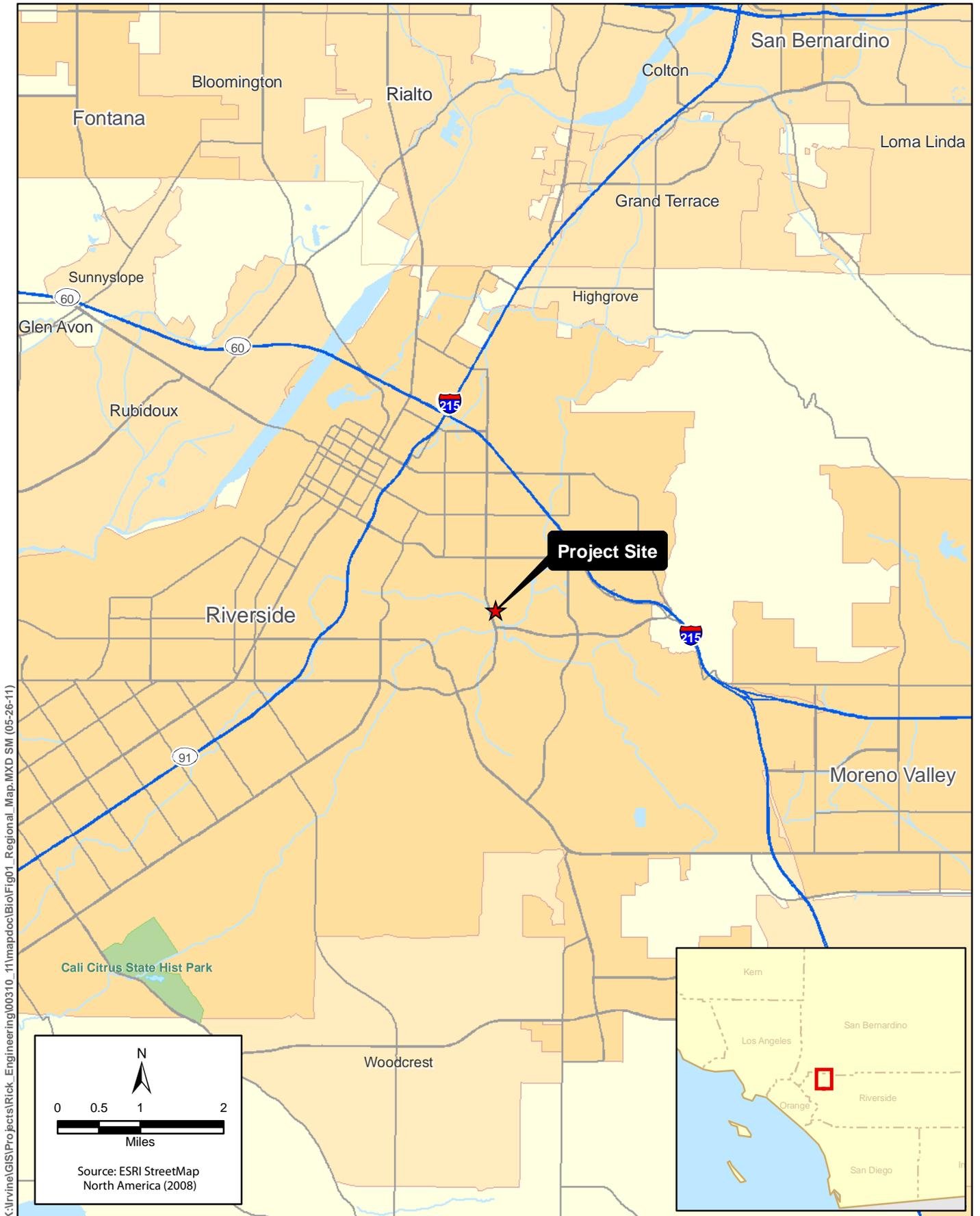
1.2 Project Description

The proposed project involves stabilization of approximately 650 feet of the north and east banks of the existing drainage. Specifically, the channel will be reshaped and rip-rap will be placed on the north and east banks and the channel bottom to match existing conditions present on the south and west banks. Construction will require the removal of all vegetation within the impact area on the north and east banks and across the channel bottom. The proposed design provides for reestablishment of soil over the rip-rap on the channel bottom. Ongoing maintenance will involve clearing of vegetation on the north and east banks; riparian vegetation will be allowed to reestablish naturally on the channel bottom. Existing vegetation on the south and west banks will remain in place.

1.3 Project History

The proposed project involves stabilization of the existing stream banks due to concerns regarding the stability of massive retaining walls adjoining the north and east edges of the stream within the Creekside Terrace residential development. Cause for such concern is evidenced by damage to the east bank in the winter storms of 2010/2011.

The partially completed Creekside Terrace development was approved by the City of Riverside in September 2004, following the adoption of a Mitigated Negative Declaration pursuant to CEQA. The



K:\Irvine\GIS\Projects\Risk_Engineering\00310_11\mapdoc\Bio\Fig01_Regional_Map.MXD SM (05-26-11)



Figure 1
Regional Vicinity Map
UCR Creekside Terrace Slope Protection Project

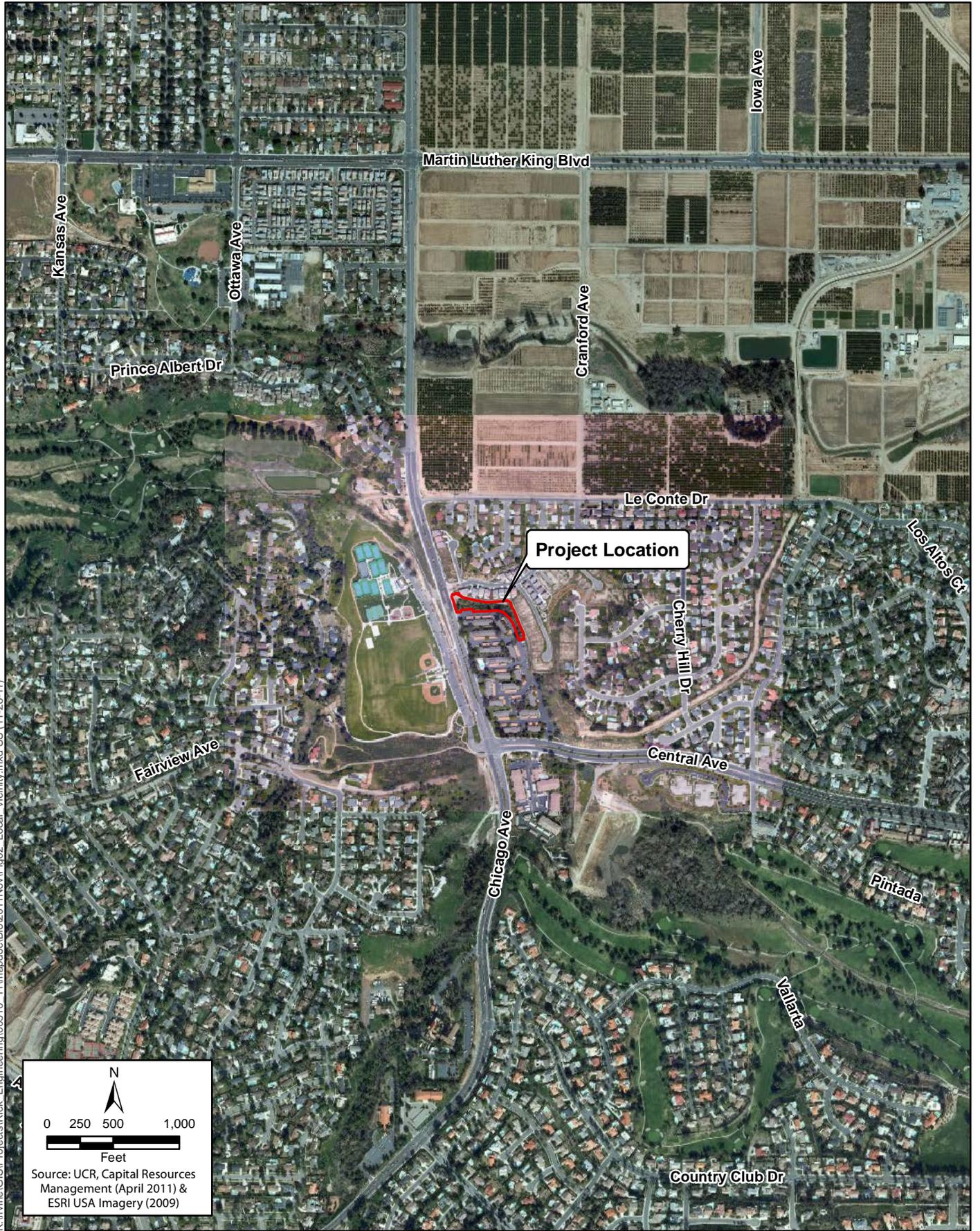


Figure 2
Local Vicinity Map
UCR Creekside Terrace Slope Protection Project

approved Creekside Terrace project required the undergrounding of a tributary to the stream that is the subject of this report. The Creekside Terrace developer obtained permits from appropriate regulatory agencies for undergrounding of the tributary feature (USACE/RWQCB Reference Number 200400635-DPS and CDFG 1600 Agreement 1600-2005-0093-R6, Revision 1). These permits included a condition requiring a riparian restoration program and long-term conservation of the stream area that is the subject of this report. Implementation of the restoration program was delayed due to obstacles with obtaining cooperation of the neighboring apartment landowner (the riparian area was not owned by the Creekside Terrace developer, but lies primarily within the legal parcels associated with the apartments bordering the south and west banks) and then was suspended when the Creekside Terrace developer lost their project in foreclosure. The Creekside Terrace property was acquired by UCR for use as staff and faculty housing in 2008.

The existing channelized condition of the stream was effected in conjunction with development of the adjoining apartment complex (sometime between 1977 and 1989 based upon historic aerial photographs; permitting history unknown). The plans prepared for the apartment project depict full rip-rap lining of the channel. The chain of events resulting in the current condition in which rip-rap is present on the south and west banks only, is not known.

The University has recently reached agreement with the neighboring apartment owners to work cooperatively on the channel improvements described in Section 1.2. The University has also been in contact with the regulatory agencies, the local resource conservation agency, and Riverside County Parks and Open Space District to explore options to authorize and compensate for the currently proposed improvements, while also fulfilling the permits conditions for the Creekside Terrace project requiring a riparian restoration program and long-term conservation within the subject riparian area.

1.4 WRC MSHCP

The Western Riverside County Multiple Species Habitat Conservation plan (WRC MSHCP) (Dudek & Associates 2003) is a comprehensive, multi-jurisdictional habitat-conservation planning program for western Riverside County, California. The purpose of the WRC MSHCP is to preserve native habitats, and to this end, the plan focuses on the habitat needs of multiple species rather than one species at a time. The WRC MSHCP provides coverage/take authorization for some species listed under the federal or State Endangered Species Act as well as non-listed special-status plant and wildlife species. It also provides mitigation for impacts on special-status species and their associated habitats.

Through agreements with the U.S. Fish and Wildlife Service (FWS) and California Department of Fish and Game (CDFG), 146 listed and special-status plant and animal species receive some level of coverage under the WRC MSHCP. Of the 146 covered species, the majority of these species have no additional survey needs or conservation requirements. Furthermore, the WRC MSHCP provides mitigation for project-specific impacts on these species, thereby reducing the degree of impact to below a level of significance, pursuant to the California Environmental Quality Act (CEQA).

Several of the species covered under the WRC MSHCP have additional survey requirements. These include the riparian communities and associated species addressed in Section 6.1.2 of the WRC MSHCP document (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools),

plants identified in Section 6.1.3 (Narrow Endemic Plant Species); and plants and animal species addressed in Section 6.3.2 (Additional Survey Needs and Procedures).

1.4.1 Project Relationship to the WRC MSHCP

The project site is located within the plan area for the WRC MSHCP. UCR is not a permittee under the WRC MSHCP and, therefore, is not afforded coverage under the State or federal Endangered Species Acts for impacts upon listed species covered by the plan. Even though the University is not a participant in the WRC MSHCP, it is necessary to address project consistency with the provisions of the plan in the context of the California Environmental Quality Act significance criteria regarding project consistency with adopted habitat conservation plans. Additionally, while the University is exempt from local planning and building regulations, the Creekside Terrace project requires improvements adjacent to but outside of the campus property and, therefore, may be subject to additional review by the City of Riverside. If this is the case, the City would be required to document consistency with the WRC MSHCP in conjunction with any City discretionary approval for the project. As such, this report was prepared to provide all necessary information required to determine project consistency with the WRC MSHCP.

The project site is located within the “Cities of Riverside and Norco Area Plan” of the WRC MSHCP. The project site is not located within a criteria cell, a linkage area, or public-quasi public (PQP) lands. The project is not located within any plan-defined areas requiring surveys for narrow endemic plant species, criteria area plant species, amphibian species, or mammalian species.

The project site is within the WRC MSHCP burrowing owl (*Athene cunicularia*) survey area. A habitat assessment has determined that the site does not provide suitable habitat for burrowing owl.

The stream and associated riparian habitat meet the definition of WRC MSHCP riparian/riverine resources; however, no vernal pool or seasonal pool resources (fairy shrimp habitat) are located on site. The on-site riparian habitat has been evaluated with respect to WRC MSHCP provisions related to focused survey requirements for the associated covered riparian bird species: least Bell’s vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax trailii extimus*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). On the basis of the habitat assessment, focused surveys for least Bell’s vireo were completed.

Projects adversely impacting WRC MSHCP riparian/riverine resources as they benefit the 34 covered plant and animal species identified in the plan documents (under Section 6.1.2, “Purpose”, on pages 6-20 and 6-21) are subject to preparation of a Determination of Biologically Equivalent or Superior Preservation (DBESP) report. The DBESP details project impacts to the WRC MSHCP riparian/riverine resources and identifies measures to ensure replacement of any lost functions and values as they relate to the 34 focus species. The DBESP is subject to review by the local permittee and concurrence by the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

Chapter 2

METHODOLOGY

2.1 Literature Review

A comprehensive literature review was conducted to evaluate the environmental setting of the project site and identify potential special-status species that may be found on the site. The review included a search of the California Natural Diversity Database (CNDDDB) (CDFG 2011) and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2011) for the Riverside East, San Bernardino South, Redlands, Sunnymead, Perris, Steele Peak, Lake Mathews, Riverside West and Fontana, 7.5-minute USGS quadrangles. Additionally, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2011) for the project area, literature detailing the habitat requirements of special-status species; Volumes I and II of the WRC MSHCP document, and the most recent FWS critical habitat maps were reviewed.

2.2 Field Visit

The field visit was conducted on May 2, 2011 by ICF biologists Paul Schwartz and Dale Ritenour. The field visit was conducted between 0820 and 1250 hours. Weather conditions during the field visit consisted of temperatures ranging from 19.4 to 29.4 °C (67 to 85°F), winds ranging from 0-3 kilometers per hour (km/h)[0-2 miles per hour (mph)] with clear skies with 0% cloud cover. The field visit focused on mapping vegetation and conducting habitat assessments for special status plants and wildlife. In addition, a jurisdictional delineation was conducted for the project area. Results of the jurisdictional delineation are presented under separate cover (ICF 2011a).

All plant and wildlife species observed during the site visit were recorded in field notes. Plants were detected and identified through direct sight. Plants were identified to species based on previous experience with the species or identified to species using the *Jepson Manual, Higher Plants of California* (Hickman 1993). Nomenclature and common names were taken from *The Vascular Plants of Western Riverside County, California: An Annotated Checklist* (Roberts et al., 2004). Special-status rankings for plant species were identified through a review of the CDFG *Special Plants, Bryophytes and Lichens List* (CDFG 2011b).

Wildlife species were detected by sight, calls, tracks, scat, or other sign. Field guides were used to assist with identification of species during the site visit and included the *National Geographic Birds of North America, 4rd ed.* (National Geographic 2002), *Butterflies Through Binoculars, The West* (Glassberg 2001), *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003), and the *Field Guide to the Mammals of North America* (Reid 2006). Special-status rankings for wildlife were identified through a review of the CDFG *Special Animals List* (CDFG 2011c).

2.3 Vegetation Mapping

Vegetation mapping was conducted in the field using a map with the scale of 1":60'. WRC MSHCP vegetation types were used to the greatest extent possible. During the vegetation mapping, areas of special-status habitat pursuant to CDFG and the U.S. Army Corps of Engineers (USACE) were noted. Additionally, the study area was evaluated for the presence of WRC MSHCP riparian/riverine areas and vernal pools subject to Section 6.1.2 of the WRC MSHCP.

The WRC MSHCP defines riparian/riverine areas as:

"Lands which contain habitat dominated by trees, shrubs, persistent emergent mosses and lichens, which occur close to or which depend upon soils moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year."

The WRC MSHCP defines vernal pools as:

"Seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season."

The existing drainage feature falls within the MSHCP definition of riparian/riverine resources. The site does not; however, support any conditions that would be characterized as vernal pools.

2.4 Habitat Assessments

Habitat assessments were conducted for all special status species documented as historically occurring in the vicinity of the project site in the CNDDDB and CNPS Inventory of Rare and Endangered Plants, as well as for burrowing owl, and all riparian/riverine species discussed under "Purpose" in Section 6.1.2 of the MSHCP including least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax trailii extimus*) and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). The project site lacks basins or ponded areas that would provide habitat for the fairy shrimp species protected under the WRC MSHCP. Habitat assessments for all special status species known to historically occur in the general vicinity are provided in Appendix D.

2.4.1 Burrowing Owl

The burrowing owl in southern California occurs in a variety of habitats including grasslands, scrub, agricultural areas and desert areas. The burrowing owl requires sparsely vegetated open expanses of gently rolling or relatively level terrain that has an abundance of active small mammal burrows. In southern California this species requires the use of rodent or other burrows for roosting and nesting cover. They may also use pipes, culverts, rip-rap and any other structures that provide suitable cover.

The WRC MSHCP conservation report generator identifies all associated parcels as potentially subject to plan provisions for burrowing owl (Appendix A). A Step I burrowing owl habitat assessment was conducted pursuant to the WRC MSHCP Burrowing Owl Survey Instructions

(County of Riverside, 2005). Specifically, the entire site was walked and inspected for the presence of suitable burrowing owl habitat and potential burrow features.

2.4.2 Riparian/Riverine Bird Species

Least Bell's Vireo

The least Bell's vireo primarily occupies riparian habitat that features low, dense growth. This species is associated with a variety of riparian communities including southern willow scrub, cottonwood forest, mule fat scrub and coast live oak riparian forest below 460 meters (1,500 feet) in elevation.

The least Bell's vireo primarily nests within vegetation typically dominated by willows (*Salix* sp.) and mule fat (*Baccharis salicifolia*) but has also been recorded nesting in a variety of shrubs, trees, and vines. The most critical habitat component for nesting least Bell's vireo appears to be areas with a dense shrub layer and nests which are typically built 1-2 meters (3-6 feet) off the ground.

The project site contains southern willow scrub and disturbed southern willow scrub riparian habitat which meets the criteria of a WRC MSHCP riparian/riverine area. As such, a qualified biologist walked the entire project site to determine the suitability for least Bell's vireo.

Southwestern Willow Flycatcher

The southwestern willow flycatcher typically occupies riparian woodlands along streams and rivers that support mature, dense stands of willow and cottonwood (*Populus fremontii*). This species has also been observed occupying smaller, spring fed or boggy areas that support willows or alders (*Alnus* sp.). Favored breeding habitat for this species includes areas with extensive riparian habitat along low gradient streams with fairly wide floodplains. Specifically, the southwestern willow flycatcher is known to breed in relatively even-aged structurally homogenous dense riparian habitat and builds nests in thickets of trees approximately 4 to 7 meters (13 to 23 feet) in height with a high percentage of canopy cover. Nests are typically built within 4 meters (13 feet) of the ground.

Several subspecies of willow flycatcher are known to occur in southern California, however, only one (*Empidonax trailii extimus*) is known to breed. The remaining subspecies are considered migrants. As such, timing of observation and observed breeding behavior is key in identifying *E. trailii extimus*.

The project site contains southern willow scrub and disturbed southern willow scrub riparian habitat which meets the criteria of a WRC MSHCP riparian/riverine area. As such, a qualified biologist walked the entire project site to determine the suitability for southwestern willow flycatcher.

Western Yellow-billed Cuckoo

In California, the western yellow-billed cuckoo occurs in dense, extensive riparian woodlands with well-developed understory vegetation. Breeding habitat for this species is restricted to larger river

bottoms with wide floodplain areas supporting a dense understory adjacent to slow-moving watercourses. Willows are a primary component of the vegetation. In Riverside County, this species is historically known to occur within the Prado Basin or adjacent reaches of the Santa Ana River.

The project site contains southern willow scrub and disturbed southern willow scrub riparian habitat which meets the criteria of a WRC MSHCP riparian/riverine area. As such, a qualified biologist walked the entire project site to determine the suitability for western yellow-billed cuckoo.

Chapter 3

RESULTS and IMPACT ANALYSIS

3.1 Results of Literature Search

The CNDDDB and CNPS Inventory of Rare and Threatened Plants was reviewed for the project site and surrounding quadrangles. All special status plants, wildlife and vegetation communities recorded for the project site and surrounding quadrangles were evaluated for their potential to occur on the project site. Additionally, the 34 WRC MSHCP riparian/riverine species discussed under “Purpose” in Section 6.1.2 of the WRC MSHCP document were reviewed for their potential to occur on the project site. Habitat assessments for all special status species and WRC MSHCP riparian/riverine species historically occurring or potentially occurring in the vicinity of the project site are presented in Appendix D.

The USDA NRCS Web Soil Survey was reviewed for the project site. The following soil types are mapped within the project area: Hanford Coarse Sandy Loam, 2 to 8 percent slopes (HcC) and Terrace Escarpments (TeG). None of these soils are known to support sensitive plants or designated as WRC MSHCP sensitive soils.

As indicated above, the WRC MSHCP was also reviewed to determine if the project site is within any areas proposed for conservation. It was determined that the project site is not within any criteria cells, criteria cell groups, special linkage areas or PQP lands proposed for conservation. In addition, U.S. Fish and Wildlife Service critical habitat maps were reviewed for the project site and general vicinity. No critical habitat is mapped within or in the immediate vicinity of the project site.

The project site is subject to a unique conservation requirement in conjunction with previously issued permits for the Creekside Terrace project as they relate to commitments to enhance and conserve the stream and associated riparian vegetation.

3.2 Existing Conditions

The project site consists of an area between two residential complexes and contains a small terrace area and drainage that supports riparian vegetation. The terrace area is dominated by non-native ruderal (weedy) vegetation. The drainage contains areas meeting the definition of Southern Willow Scrub. Portions of the Southern Willow Scrub contain substantial cover of non-native invasive plants and were mapped as Disturbed Southern Willow Scrub. Additional vegetation communities/land uses mapped within the project site include Exotic, Open Water and Disturbed. Appendix B contains photographs of the project site. Appendix C contains a list of all plant and animal species observed during the site visit.

3.3 Results of Vegetation Mapping

Five vegetation types were mapped within the 1.11 acre project site: Disturbed, Exotic, Southern Willow Scrub, Disturbed Southern Willow Scrub, and Open Water. These vegetation types are described below and depicted in Figure 3.

Disturbed

Approximately 0.28 acre of disturbed land was mapped within the project site. Disturbed lands include the flat terrace areas and the exposed rip-rap sides of the channel adjacent to Chicago Avenue. The exposed rip-rap areas of the channel contain little to no vegetation. Vegetation on the flat terrace area consists of non-native ruderal plants and is dominated by wild lettuce (*Lactuca serriola*), yellow sweet clover (*Melilotus indicus*), sand bur (*Ambrosia acanthicarpa*), common horseweed (*Conyza canadensis*), cheeseweed (*Malva parviflora*), pineapple weed (*Chamomilla suaveolens*), black mustard (*Brassica nigra*), as well as non-native grasses such as red brome (*Bromus madritensis* ssp. *rubens*), ripgut brome (*Bromus diandrus*) and Mediterranean grass (*Schismus barbatus*).

With the exception of the rip-rap area adjacent to Chicago Avenue, the areas of disturbed vegetation will be temporarily impacted through project implementation. This area is expected to be used for equipment access to the channel and possibly for storage of construction equipment. No mitigation is required to offset impacts to areas of disturbed habitat. Activity in areas of disturbed vegetation that entail removal of vegetation or use of heavy construction equipment would be subject to recommendations in Section 3.5, below, regarding nesting birds.

Exotic

Approximately 0.23 acre of exotic vegetation was mapped within the project site. These include areas located on the south side of the drainage and consist of non-native eucalyptus trees (*Eucalyptus* sp.) and areas of lawn associated with the adjacent apartment complex.

At this time it is anticipated that all work will be conducted from the north and east sides of the channel and that areas containing exotic vegetation would not be directly impacted. In the event disturbance of these areas is necessary, no mitigation is required to offset impacts to areas of exotic vegetation. Activity in areas of exotic vegetation that entail removal of vegetation or use of heavy construction equipment would be subject to recommendations in Section 3.5, below, regarding nesting birds.

Southern Willow Scrub

Approximately 0.48 acre of Southern Willow Scrub was mapped within the project site. These areas are dominated by arroyo willow (*Salix lasiolepis*), Gooding's willow (*Salix goodingii*), mulefat (*Baccharis salicifolia*), sycamore (*Platanus racemosa*), elderberry (*Sambucus mexicana*), and stinging nettle (*Urtica dioica*). Southern Willow Scrub is designated as a sensitive community by CDFG. Additionally, this vegetation community meets the definition of a WRC MSHCP riparian/riverine area.

Based upon work limits involving the entire creek bottom, approximately 0.32 acre of Southern Willow Scrub will be impacted through project implementation. Impacts to this habitat will be addressed during the regulatory permitting process under the Clean Water Act and California Fish



and Game Code. Based upon current CDFG practice, mitigation can be expected at a minimum of 3:1. Ramifications of the existing restoration and conservation obligations under the previous authorizations for the Creekside Terrace development may also affect the ultimate mitigation requirements. Several options for off-site mitigation are available through the Riverside-Corona Resource Conservation (RCD) District, Riverside County Regional Parks and Open Space District, and the Santa Ana Watershed Trust for Arundo Eradication (under Santa Ana Watershed Association - SAWA).

Disturbed Southern Willow Scrub

Approximately 0.11 acre of Disturbed Southern Willow Scrub was mapped within the project site. This area contains the same vegetation as areas mapped as Southern Willow Scrub but also contains a high percentage of non-native vegetation such as ornamental ash (*Fraxinus* sp.), castor bean (*Ricinus communis*), Mexican fan palm (*Washingtonia robusta*), date palm (*Phoenix canariensis*), pepper tree (*Schinus molle*), tamarisk (*Tamarix ramosissima*) and tree tobacco (*Nicotiana glauca*). Disturbed Southern Willow Scrub is designated as a sensitive community by CDFG. Additionally, this vegetation community meets the definition of a WRC MSHCP riparian/riverine area.

Based upon work limits involving the entire creek bottom, approximately 0.07 acre of Disturbed Southern Willow Scrub will be impacted through project implementation. Impacts to this habitat will be addressed through the permitting process as discussed in conjunction with impacts to Southern Willow Scrub, above.

Open Water

Approximately 0.01 acre of open water was mapped at the culvert inlet immediately east of Chicago Avenue. No vegetation is associated with this area.

Areas of Open Water may need to be impacted in order to access the creek bottom to install rip-rap. Impacts to Open Water habitat will be addressed through the permitting process as discussed in conjunction with impacts to Southern Willow Scrub, above.

3.4 Results of Habitat Assessments

Habitat assessments were conducted for all special status species recorded as historically occurring in the project vicinity, burrowing owl and all riparian/riverine species discussed under "Purpose" in Section 6.1.2 of the WRC MSHCP.

3.4.1 Burrowing Owl

A Step I burrowing owl habitat assessment was conducted for the entire project site. The site was walked and it was determined that the project site does not contain the potential for burrowing owl to occur due to a lack of suitable burrowing owl habitat (i.e., open sparsely vegetated areas) and the lack of potential burrow features (i.e., small mammal burrows).

3.4.2 Least Bell's Vireo

The project site was evaluated for the suitability to support least Bell's vireo. It was determined that the Southern Willow Scrub on the project site does have the potential to support this species due to suitable canopy structure. Protocol surveys for least Bell's vireo were conducted between May 9, 2011 and July 25, 2011. No vireos were observed during the protocol surveys. This species can be considered absent at this time. The methods and results of the least Bell's vireo surveys are reported under separate cover (ICF 2011b).

3.4.3 Southwestern Willow Flycatcher

The project site was evaluated for the suitability to support southwestern willow flycatcher. It was determined that the project site does not contain suitable habitat for the southwestern willow flycatcher due to the relatively small size of the riparian habitat, the lack of extensive riparian vegetation with dense canopy within wide floodplain areas, and the fairly isolated nature of the riparian community.

3.4.4 Western Yellow-billed Cuckoo

The project site was evaluated for the suitability to support western yellow-billed cuckoo. It was determined that the project site does not contain suitable habitat for the western yellow-billed cuckoo due to the small size of the riparian habitat, the lack of extensive areas of riparian vegetation within large floodplain areas, and the fairly isolated nature of the riparian community.

3.4.5 Additional Species Observed or Identified with the Potential to Occur

Special Status Species and WRC MSHCP Covered Species Observed

One special status species was observed at the project site during several of the least Bells' vireo surveys: yellow warbler (*Dendroica petechia*). Yellow warbler is designated as a CDFG Species of Special Concern (SSC) and is a species considered to be adequately conserved and covered under the WRC MSHCP. Two other MSHCP covered species were observed during least Bell's vireo surveys conducted for the site: downy woodpecker (*Picoides pubescens*) and Cooper's hawk (*Accipiter cooperii*). Cooper's hawk is designated as a CDFG watch list species. Downy woodpecker is not afforded any non-MSHCP sensitive status. These two species are considered adequately conserved and covered under the WRC MSHCP.

Regional conservation efforts focused on areas located outside of the project site have, and will, conserve sufficient habitat for these species. As such, in a regional context, impacts to these species would be considered less than significant.

Species Identified as Having a Low Potential to Occur

Through the review of the CNDDDB and CNPS data, six additional special status species were identified as having some potential to occur. Four species were determined to have a low potential to occur in the project area: California satintail (*Imperata brevifolia*), western pond turtle (*Actinemys marmorata*), San Diego desert woodrat (*Neotoma lepida intermedia*) and long-eared owl (*Asio otus*).

California Satintail

California satintail is designated as a CNPS List 2.1 species. This species is not designated as a State or federal listed species or a species receiving coverage under the WRC MSHCP. No individuals of California satintail were observed during site visits. It was determined that this species has a low potential to occur on the site, however if it does occur on site it occurs in low numbers and project related impacts would be considered less than significant.

Western Pond Turtle

Western pond turtle is designated as a CDFG Species of Special Concern (SSC) as well as a WRC MSHCP species considered adequately conserved. This species is not a State or federal listed species. The western pond turtle was determined to have a low potential to occur on the site due to the presence of stream habitat, however, it is not expected to occur on site due to a lack of sufficient suitable basking sites. No individuals or any sign of presence of this species was detected during the site visits.

Regional conservation efforts focused on areas located outside of the project site have conserved sufficient habitat for this species. As such, in a regional context, impacts to this species would be considered less than significant.

San Diego Desert Woodrat

The San Diego desert woodrat is designated as a CDFG SSC as well as a WRC MSHCP species considered adequately conserved. This species is not a State or federal listed species. The San Diego desert woodrat was determined to have a low potential to occur on site due to the presence of riparian habitat, however, it is not expected due to a lack of substantial shrub cover and the narrow nature of the riparian corridor on the site. No individuals or any sign of presence of this species was detected during the site visits.

Regional conservation efforts focused on areas located outside of the project site have conserved sufficient habitat for this species to be considered adequately conserved in the region. As such, in a regional context, impacts to this species would be considered less than significant.

Long-eared Owl

The long-eared owl is designated as a CDFG SSC as well as a WRC MSHCP species considered adequately conserved. Additionally, this species is not a State or federal listed species. The long-eared owl was determined to have a low potential to occur on site due to the presence of riparian habitat, however, it is not expected due to a lack of substantial riparian coverage on the project site. No individuals or any sign of presence of this species was detected during the site visits.

Regional conservation efforts focused on areas located outside of the project site have conserved sufficient habitat for this species to be considered adequately conserved in the region. As such, in a regional context, impacts to this species would be considered less than significant.

Species Identified as Having a Moderate Potential to Occur

In addition to least Bell's vireo, the western yellow bat was identified as having a moderate potential to occur on the project site.

The western yellow bat is designated as a CDFG SSC. The western yellow bat is not covered under the WRC MSHCP nor is it designated as a State or federal listed species. This species is known to roost in the dead fronds of palm trees within palm oases or residential areas and forages over water and among trees. Due to the lack of extensive palm coverage within the project site it was determined that the project site lacks suitable communal roosting habitat for this species. However, due to the presence of a few individual palm trees it was determined that the site does have the potential to support individual roosting western yellow bats. As such it was determined that this species has a moderate potential for individual western yellow bats to roost and forage on site.

Project related impacts to roosting western yellow bats would be considered less than significant given that the project site only contains a few large palm trees with the potential to provide habitat for non-communal, individual roosting western yellow bats. Additionally, the amount of individual roosting habitat on site is relatively insignificant compared to the relatively large amount of habitat for individual roosting western yellow bats in the general project vicinity. As such, project impacts to individual roosting western yellow bats would be considered less than significant.

Due to the large amount of palm trees and additional potential roosting areas in the vicinity of the project site it was determined that there is a moderate potential for this species to forage within the project site. Due to the relatively small amount of potential foraging habitat the project site provides in relation to the relatively large amount of potential foraging habitat in the general vicinity, potential project impacts to foraging activities for western yellow bat would also be considered less than significant.

3.5 Nesting Birds

In addition to the species-specific analysis provided above, vegetation within the project site provides habitat for a variety of nesting birds that are protected under State and federal laws. Migratory nongame native bird species are protected under the federal Migratory Bird Treaty Act. Additionally, Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests. If vegetation removal and other ground disturbance activities can be conducted outside of the recognized nesting bird season (February 15 through September 15), compliance with these regulations is not an issue.

If work cannot be avoided during the nesting bird season, prior to initiation of project activities that would remove vegetation or otherwise disturb nesting activity (for instance, mobilization of heavy equipment), a qualified biologist should conduct a pre-construction nesting bird survey within all areas of breeding/nesting habitat within and adjacent to the project site. Surveys should be conducted not more than 7 days prior to initiation of activities. If nesting birds are encountered, the qualified biologist will flag an avoidance buffer zone around the nest (buffer zones vary according to species involved and shall be determined by the qualified biologist). No activities that would

adversely affect the nest shall occur within the buffer zone until the qualified biologist has determined the nest is no longer active and the young are not dependent on the nest.

Chapter 4

WRC MSHCP CONSISTENCY ANALYSIS

4.1 Relationship of the Project Site to the WRC MSHCP

The project site is located within the plan area for the WRC MSHCP. As previously noted in Section 1, UCR is not a permittee under the WRC MSHCP. Even though the University is not a participant in the WRC MSHCP, it is necessary to address project consistency with the provisions of the plan in the context of the California Environmental Quality Act significance criteria dealing with project consistency with adopted habitat conservation plans. Also, the proposed project may entail a discretionary approval from the City of Riverside. As a permittee, the City would be required to make a formal determination of project consistency with the WRC MSHCP. As such, this report was prepared to provide all necessary information required to determine WRC MSHCP consistency.

The project site is located within the “Cities of Riverside and Norco Area Plan” of the WRC MSHCP. The project site is not located within a criteria cell, a linkage area, or public-quasi public (PQP) lands; therefore, the project is not subject to the Habitat Acquisition Negotiation Process (HANS). In addition, the project is not located within plan-defined areas requiring surveys for narrow endemic plant species, criteria area plant species, amphibian species, or mammalian species. The project site is within the WRC MSHCP burrowing owl survey area pursuant to Section 6.3.2 of the WRC MSHCP. In addition, the project site contains areas meeting the definition of a WRC MSHCP riparian/riverine area pursuant to Section 6.1.2 of the WRC MSHCP.

4.2 Protection of Species Associated With Riparian/Riverine Areas and Vernal Pools

The project site contains 0.48 acre of Southern Willow Scrub, 0.11 acre of Disturbed Southern Willow Scrub and 0.01 acre of Open Water areas which meet the WRC MSHCP definition of a riparian/riverine area pursuant to Section 6.1.2 of the WRC MSHCP. The project site does not support vernal pools or seasonal pools, or associated species.

The WRC MSHCP policies for the protection of riparian/riverine resources are intended to ensure that the biological functions and values of such resources throughout the MSHCP plan area are maintained such that habitat values for species inside the MSHCP Conservation area are maintained. For locations such as the subject site that are well-removed from the Conservation Area, the assessment of impacts upon riparian/riverine resources is focused upon functions and values with respect to conservation of covered species within the Conservation Area. The MSHCP defines functions and values as including hydrologic regime, flood storage and flood flow modification, nutrient retention and transformation, sediment trapping and transport, toxicant trapping, public use, wildlife habitat, and aquatic habitat.

The subject stream feature is a highly constrained, previously channelized surface feature in an urban setting. The upstream tributary area encompasses more than 15 square miles in the Canyon Crest and Sycamore Canyon communities within the City of Riverside that are characterized by residential commercial, and industrial development, and Sycamore Canyon Wilderness Park. The immediate upstream reaches of the historic drainage feature (Sycamore Canyon) are occupied by the Riverside County Flood Control and Water Conservation District Sycamore Dam and Canyon Crest Country Club golf course. The immediate downstream reaches of the historic drainage feature (Tequesquite Arroyo) consist of a concrete-lined ditch along the edge of the City's Andulka Park and a maintained feature through the Victoria Country Club golf course. A short segment of disturbed surface drainage exists within the Tequesquite Arroyo downstream of Victoria Golf Course to State Route 91 (approximately one-half mile). Continuing downstream, the historic drainage feature is conveyed in buried storm drains through developed areas in the City of Riverside, emerging at the Santa Ana River approximately 3 miles downstream.

Considering the project setting, the nature of the proposed improvements, and the results of the current surveys, the function and values that are relevant to the current evaluation are the hydrologic regime and wildlife habitat. Aside from any temporary diversions that may be required to complete the proposed improvements, the existing hydrologic regime will not be altered – flows will continue to enter through the upstream culvert and exit through the downstream culvert and tributary area limits or characteristics will not be altered.

With respect to wildlife habitat, the proposed improvements will remove approximately 0.60 acres of southern willow scrub habitat at an isolated location outside the Conservation Area that is constrained by existing developed edge conditions. The limited consequences of removal of this habitat is supported by the comparatively limited number and range of species observed in the current surveys. The nearest Conservation Area lands lie within the Santa Ana River, Sycamore Canyon and the Box Springs Mountains, all of which are separated from the project site by areas of established urban development within the City of Riverside. Offsets for loss of riparian habitat as a result of the proposed improvements will be required in conjunction with the regulatory permits under the Clean Water Act and Fish and Game Code. The campus has identified the Riverside County Parks and Open Space District mitigation bank for riparian enhancement in the Santa Ana River as the mitigation vehicle for the proposed improvements, including replacement mitigation for the previously-issued regulatory permits for the Creekside Terrace development. It is anticipated that mitigation required under these permitting programs will also be deemed “biologically superior or equivalent” under the MSHCP provisions.

In the event a discretionary approval from the City of Riverside is required, a formal DBESP report will have to be prepared and reviewed by FWS and CDFG. Approval of the DBESP, if required, will provide an official record of project consistency with the MSHCP Riparian/Riverine policies.

4.3 Protection of Narrow Endemic Plant Species

The project site is not located within the WRC MSHCP Narrow Endemic Plant Species Survey Area (NEPSSA) pursuant to *Section 6.1.3* of the MSHCP. Therefore, the NEPSSA requirements are not applicable to the project and the project is consistent with the WRC MSHCP Narrow Endemic Plant Species policies.

4.4 Guidelines Pertaining to the Urban/Wildlands Interface

The project site is not located within or adjacent to a WRC MSHCP Conservation Area, therefore the project site is not required to address Section 6.1.4 (Guidelines Pertaining to the Urban/Wildlands Interface) of the WRC MSHCP.

In addition to the direct application under this WRC MSHCP provision, the Urban/Wildlands Interface policies also apply to riparian/riverine areas as part of the avoidance and minimization process for areas not to be included in the MSHCP Conservation Area. Considering the existing developed nature of surrounding properties and the highly constrained nature of the subject stream feature, there is limited opportunity for application of the majority of the recommended treatments. Project activities should take into consideration provisions related to invasive, non-native plant species in the context of any revegetation element, or opportunities to remove invasive species from riparian areas that will not be disturbed.

4.5 Additional Survey Needs and Procedures

The project site is not located within the WRC MSHCP Criteria Area Plant Species Survey Area (CAPSSA) pursuant to *Section 6.3.2* of the WRC MSHCP. Therefore, the CAPSSA requirements are not applicable to the project.

In addition, the project site is not located within the WRC MSHCP Additional Survey Areas for Amphibians, Survey Areas for Mammals, or any Special Linkage Areas; however, the project site is located within the WRC MSHCP burrowing owl survey area (see Section 3.4.1 above). It was determined that the project site does not have the potential to support burrowing owl. As such, no focused burrowing owl surveys are required and the project is consistent with the WRC MSHCP Additional Survey Needs and Procedures policies for this species.

4.6 Fuels Management

The project site is not located within or adjacent to the WRC MSHCP Conservation Area, therefore the project site is not required to address Section 6.4 (Fuels Management) of the WRC MSHCP, and the project is consistent with the WRC MSHCP Fuels Management policies.

Chapter 5

REFERENCES

- [CDFG 2011] California Department of Fish and Game. 2011. *California Natural Diversity Database*. Sacramento, CA: Riverside East, San Bernardino South, Redlands, Sunnymead, Perris, Steele peak, Lake Mathews, Riverside West and Fontana California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch. Element reports for the, *Riverside East, California*, and immediately surrounding USGS 7.5-minute quadrangle maps. Data date: May 2011.
- [CDFG 2011b] California Department of Fish and Game. 2011. Special Vascular, Bryophytes and Lichens List, April 2011. Sacramento, CA.,
- [CDFG 2011c] California Department of Fish and Game. 2011. Special Animals List, January 2011. Sacramento, CA.
- [CNPS 2011] California Native Plant Society. 2011. *Inventory of Rare and Endangered Plants* (online edition, v7-11). Sacramento, CA. Accessed: May 2011.
- County of Riverside. 2005. Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area. 24 October 2005.
- Dudek & Associates. 2003. *Western Riverside County Multiple Species Habitat Conservation Plan*. Volumes 1–5. Prepared for the Transportation and Land Management Agency, County of Riverside, California, as part of the Riverside County Integrated Project. Adopted June 2003. Available: <<http://www.rcip.org/conservation.htm>>.
- [ICF 2011a] ICF International. 2011. *Preliminary Wetland Delineation Report for the UCR Creekside Terrace Slope Protection Project*. Prepared for Rick Engineering. Riverside County, California.
- [ICF 2011b] ICF International. 2011. *Results of Least Bell's Vireo Survey for the University of California, Riverside Creekside Terrace Slope Protection Project*. Prepared for Rick Engineering. Riverside County, California.
- Glassberg, J. *Butterflies Through Binoculars: A Field Guide to Butterflies of Western North America*. New York, NY, Oxford University Press Inc.
- Hickman, J. C. (ed.). 1993. *The Jepson Manual: Higher Plants of California*. Berkeley, CA: University of California Press. 1,400 pp.
- National Geographic. 2002. *Field Guide to the Birds of North America*, 4th edition. Washington, D.C. National Geographic Society.
- [NRCS 2011]. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/> accessed May 24, 2011.
- Reid, F. A. 2006. *A Field Guide to Mammals of North America*, 4th edition. Boston, MA: Houghton Mifflin Co.
- [USGS] Riverside East. 1967. *Riverside East, California* [7.5-minute topographic map]. Reston, VA: U.S. Geological Survey. Color, revised 1980, scale 1:24,000.

- Roberts, F.M., Jr., S.D. White, A.C. Sanders, D.E. Bramlett, & S. Boyd. 2004. *The Vascular Plants of Western Riverside County, California: An Annotated Checklist*. San Luis Rey, CA., F.M. Roberts Publications.
- Stebbins, R. C. 2003. *A Field Guide to Western Reptiles and Amphibians*, 3rd edition. Boston, MA: Houghton Mifflin Co.

Appendix A
WRC MSHCP Conservation Report

 Riverside County Transporation and Land Management Agency - TLMA

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

APN	Cell	Cell Group	Acres	Area Plan	Sub Unit
254020054	Not A Part	Independent	0.28	Cities of Riverside and Norco	Not a Part
254020055	Not A Part	Independent	0.14	Cities of Riverside and Norco	Not a Part
254020056	Not A Part	Independent	0.14	Cities of Riverside and Norco	Not a Part
254020057	Not A Part	Independent	0.2	Cities of Riverside and Norco	Not a Part
254020058	Not A Part	Independent	0.13	Cities of Riverside and Norco	Not a Part
254020059	Not A Part	Independent	0.13	Cities of Riverside and Norco	Not a Part
254020060	Not A Part	Independent	0.13	Cities of Riverside and Norco	Not a Part
254020061	Not A Part	Independent	0.1	Cities of Riverside and Norco	Not a Part
254351033	Not A Part	Independent	0.13	Cities of Riverside and Norco	Not a Part
254351034	Not A Part	Independent	0.13	Cities of Riverside and Norco	Not a Part
254351035	Not A Part	Independent	0.15	Cities of Riverside and Norco	Not a Part
254351036	Not A Part	Independent	0.16	Cities of Riverside and Norco	Not a Part
254351037	Not A Part	Independent	0.14	Cities of Riverside and Norco	Not a Part
254351038	Not A Part	Independent	0.14	Cities of Riverside and Norco	Not a Part
254351039	Not A Part	Independent	0.14	Cities of Riverside and Norco	Not a Part
254370003	Not A Part	Independent	6.88	Cities of Riverside and Norco	Not a Part

HABITAT ASSESSMENTS

Habitat assessment shall be required and should address at a minimum potential habitat for the following species:

APN	Amphibia Species	Burrowing Owl	Criteria Area Species	Mammalian Species	Narrow Endemic Plant Species	Special Linkage Area
254020054	NO	YES	NO	NO	NO	NO
254020055	NO	YES	NO	NO	NO	NO
254020056	NO	YES	NO	NO	NO	NO
254020057	NO	YES	NO	NO	NO	NO
254020058	NO	YES	NO	NO	NO	NO
254020059	NO	YES	NO	NO	NO	NO
254020060	NO	YES	NO	NO	NO	NO
254020061	NO	YES	NO	NO	NO	NO
254351033	NO	YES	NO	NO	NO	NO
254351034	NO	YES	NO	NO	NO	NO
254351035	NO	YES	NO	NO	NO	NO
254351036	NO	YES	NO	NO	NO	NO
254351037	NO	YES	NO	NO	NO	NO

254351038	NO	YES	NO	NO	NO	NO
254351039	NO	YES	NO	NO	NO	NO
254370003	NO	YES	NO	NO	NO	NO

Burrowing Owl

Burrowing owl.

If potential habitat for these species is determined to be located on the property, focused surveys may be required during the appropriate season.

Background

The final MSHCP was approved by the County Board of Supervisors on June 17, 2003. The federal and state permits were issued on June 22, 2004 and implementation of the MSHCP began on June 23, 2004.

For more information concerning the MSHCP, contact your local city or the County of Riverside for the unincorporated areas. Additionally, the Western Riverside County Regional Conservation Authority (RCA), which oversees all the cities and County implementation of the MSHCP, can be reached at:

Western Riverside County Regional Conservation Authority
3403 10th Street, Suite 320
Riverside, CA 92501

Phone: 951-955-9700
Fax: 951-955-8873

www.wrc-rca.org

[Go Back To Previous Page](#)

[GIS Home Page](#)

[TLMA Home Page](#)

Appendix B

Photographs



Photo 1: This photograph depicts the riparian habitat within the western portion of the project site. Also depicted is the access road located on the north side of the drainage. Photograph looking southeast from Chicago Avenue. Photograph taken on 05-02-2011.



Photo 2: This photograph depicts the access road located on the north side of the drainage. The access road is dominated by non-native ruderal vegetation. Photograph looking southeast. Photograph taken on 05-02-2011.

K:\In\ine\GIS\Projects\Rick_Engineering\00310_11\mapdoc\Bio\AppendixB_Site_Photos_1_2.ai 5M (08-22-11)



Photo 3: This photograph depicts a portion of the drainage that is considered disturbed southern willow scrub. Non-native species depicted in the photograph consist of castor bean (*Ricinus communis*), tamarix (*Tamarix ramosissima*), and an ornamental ash (*Fraxinus* sp.). Photograph looking southeast. Photograph taken on 05-02-2011.



Photo 4: This photograph depicts the southeastern portion of the project site. Photograph taken from behind the apartment complex located south of the project site. Photograph looking north. Photograph taken on 05-02-2011.

K:\In\ine\GIS\Projects\Rick_Engineering\00310_11\mapdoc\Bio\AppendixB_Site_Photos_3_4.ai 5M (08-22-11)

Appendix C

Species Lists

Appendix C. Wildlife Species Detected

Scientific Name	Common Name	Special Status
INVERTEBRATES		
Moths, Skippers and Butterflies		
<i>Papilio zelicaon</i>	Anise Swallowtail	
<i>Pontia protodice</i>	Checkered White	
* <i>Pieris rapae</i>	Cabbage White	
<i>Nymphalis antiopa</i>	Mourning Cloak	
<i>Vanessa atalanta</i>	Red Admiral	
<i>Vanessa annabella</i>	West Coast Lady	
<i>Junonia coenia</i>	Common Buckeye	
VERTEBRATES		
Birds		
<i>Accipiter cooperii</i>	Cooper's Hawk	
<i>Buteo jamaicensis</i>	Red-tailed Hawk	
<i>Falco sparverius</i>	American Kestrel	
* <i>Columba livia</i>	Rock Pigeon	
<i>Zenaidura macroura</i>	Mourning Dove	
<i>Archilochus alexandri</i>	Black-chinned Hummingbird	
<i>Calypte anna</i>	Anna's Hummingbird	
<i>Selasphorus sasin</i>	Allen's Hummingbird	
<i>Picoides nuttallii</i>	Nuttall's Woodpecker	
<i>Picoides pubescens</i>	Downy Woodpecker	
<i>Contopus sordidulus</i>	Western Wood-Pewee	
<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	
<i>Sayornis nigricans</i>	Black Phoebe	
<i>Tyrannus verticalis</i>	Western Kingbird	
<i>Corvus brachyrhynchos</i>	American Crow	
<i>Corvus corax</i>	Common Raven	
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	
<i>Hirundo rustica</i>	Barn Swallow	
<i>Psaltiriparus minimus</i>	Bushtit	
<i>Thryomanes bewickii</i>	Bewick's Wren	

Scientific Name	Common Name	Special Status
<i>Turdus migratorius</i>	American Robin	
<i>Mimus polyglottos</i>	Northern Mockingbird	
<i>Dendroica petechia</i>	Yellow Warbler	CSC
<i>Melospiza crissalis</i>	California Towhee	
<i>Melospiza melodia</i>	Song Sparrow	
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird	
<i>Icterus cucullatus</i>	Hooded Oriole	
<i>Carpodacus mexicanus</i>	House Finch	
<i>Carduelis psaltria</i>	Lesser Goldfinch	
<i>Carduelis tristis</i>	American Goldfinch	
* <i>Passer domesticus</i>	House Sparrow	
Mammals		
* <i>Felis catus</i>	Domestic Cat	

Legend

*= Non-native or invasive species

Special Status:

Federal:

FE = Endangered

FT = Threatened

State:

SE = Endangered

ST =Threatened

CSC = California Species of Special Concern

CFP = California Fully Protected Species

Appendix C. Plant Species Detected

Scientific Name	Common Name
Dicot	
Anacardiaceae - Sumac Or Cashew Family	
* <i>Schinus molle</i>	Peruvian Pepper Tree
Asteraceae - Sunflower Family	
<i>Ambrosia acanthicarpa</i>	Annual Bur-Sage
<i>Artemisia douglasiana</i>	Douglas Sagewort
<i>Baccharis salicifolia</i>	Mule-Fat, Seep-Willow
* <i>Chamomilla suaveolens</i>	Common Pineapple-weed
* <i>Cirsium vulgare</i>	Bull Thistle
<i>Conyza canadensis</i>	Horseweed
<i>Gnaphalium californicum</i>	California Everlasting
* <i>Gnaphalium luteo-album</i>	Fragrant Everlasting
* <i>Lactuca serriola</i>	Prickly Lettuce
* <i>Senecio vulgaris</i>	Common Groundsel
* <i>Sonchus asper</i>	Spiny Sow-Thistle
<i>Xanthium strumarium</i>	Cocklebur
Brassicaceae - Mustard Family	
* <i>Brassica nigra</i>	Black Mustard
<i>Lepidium didymus</i>	Lesser Wartcress
<i>Rorippa nasturtium-aquaticum</i>	Water-Cress
* <i>Sisymbrium irio</i>	London Rocket
Capripoliaceae - Honeysuckle Family	
<i>Sambucus mexicana</i>	Blue Elderberry
Caryophyllaceae - Pink Family	
* <i>Spergularia bocconii</i>	Boccone's Sand Spurry
Chenopodiaceae - Goosefoot Family	
* <i>Chenopodium album</i>	Lamb's Quarters
* <i>Salsola tragus</i>	Prickly Russian-Thistle
Crassulaceae - Stonecrop Family	
<i>Crassula connata</i>	Sand Pygmyweed
Cucurbitaceae - Gourd Family	
<i>Marah macrocarpus</i>	Wild Cucumber

Scientific Name	Common Name
Euphorbiaceae - Spurge Family	
<i>Chamaesyce albomarginata</i>	Whitemargin Sandmat
* <i>Euphorbia peplus</i>	Petty Spurge
* <i>Ricinus communis</i>	Castor Bean
Fabaceae - Legume Family	
* <i>Medicago polymorpha</i>	California Burelover
* <i>Melilotus indicus</i>	Annual Yellow Sweetclover
Geraniaceae - Geranium Family	
* <i>Erodium cicutarium</i>	Red-Stemmed Filaree
<i>Geranium dissectum</i>	Cut-leaved Geranium
Hydrophyllaceae - Waterleaf Family	
<i>Phacelia ramosissima</i>	Branching Phacelia
Lamiaceae - Mint Family	
<i>Stachys ajugoides</i>	Hedge Nettle
Malvaceae - Mallow Family	
* <i>Malva parviflora</i>	Cheeseweed
Moraceae - Mulberry Family	
* <i>Ficus carica</i>	Edible Fig
Myrtaceae - Myrtle Family	
* <i>Eucalyptus sp.</i>	Gum
Oleaceae - Olive Family	
<i>Fraxinus sp.</i>	Ash
Papaveraceae - Poppy Family	
<i>Eschscholzia californica</i>	California Poppy
Platanaceae - Plane Tree, Sycamore Family	
<i>Platanus racemosa</i>	Western Sycamore
Polygonaceae - Buckwheat Family	
<i>Polygonum arenastrum</i>	Common knotweed
* <i>Rumex crispus</i>	Curly Dock
Salicaceae - Willow Family	
<i>Populus fremontii ssp. fremontii</i>	Freemont's Cottonwood
<i>Salix gooddingii</i>	Goodding's Black Willow
<i>Salix laevigata</i>	Red Willow
<i>Salix lasiolepis</i>	Arroyo Willow
Scrophulariaceae - Figwort Family	
<i>Mimulus guttatus</i>	Seep Monkey Flower

Scientific Name	Common Name
* <i>Veronica anagallis-aquatica</i>	Water Speedwell
Solanaceae - Nightshade Family	
<i>Datura wrightii</i>	Western Jimson Weed
* <i>Nicotiana glauca</i>	Tree Tobacco
<i>Solanum americanum</i>	White Nightshade
Tamaricaceae - Tamarisk Family	
* <i>Tamarix ramosissima</i>	Tamarisk
Urticaceae - Nettle Family	
<i>Urtica dioica ssp. gracilis</i>	American Stinging Nettle
Zygophyllaceae - Caltrop Family	
* <i>Tribulus terrestris</i>	Puncture Vine
Monocot	
Areaceae - Palm Family	
* <i>Phoenix canariensis</i>	Canary Island Date Palm
* <i>Washingtonia robusta</i>	Mexican Fan Palm
Cyperaceae - Sedge Family	
* <i>Cyperus involucratus</i>	Umbrella Plant
Poaceae - Grass Family	
<i>Bromus carinatus</i>	California Brome
* <i>Bromus diandrus</i>	Ripgut Grass
* <i>Bromus madritensis ssp. rubens</i>	Foxtail Chess, Red Brome
* <i>Cynodon dactylon</i>	Bermuda Grass
* <i>Hordeum vulgare</i>	Common Barley
* <i>Piptatherum miliaceum</i>	Smilo Grass
* <i>Schismus barbatus</i>	Common Mediterranean Grass
Typhaceae - Cattail Family	
<i>Typha domingensis</i>	Southern Cattail

Scientific Name**Common Name**

Legend

*= Non-native or invasive species

Appendix D
Special Status Species

Appendix D

Special-Status Species Information

This appendix addresses all species with applicable special regulatory or management status whose general range includes the study area or whose habitat occurs within or near the study area and/or vicinity. Information provided includes: 1) definitions of terms to describe likelihood of occurrence, 2) a table of special-status codes and their meanings, and 3) a species information table listing the English and scientific names, current special-status, likelihood of occurrence within the project site, and specific notes relevant to likelihood of occurrence.

Conclusions provided in this report are limited to biology, and do not address regulatory or management issues. For interpretation of this information under applicable laws, regulations, and court precedent, see the relevant portion(s) of the report. Judgments regarding likelihood of occurrence are based on evaluation of available biological information regarding regional and local conditions, species biology, available evaluations of the study area and vicinity, and professional experience conducting field investigations across California over many years. Though professional, such judgments are necessarily subjective at least in part.

Specific factors substantially affect likelihood of occurrence for individual species on any particular study area. These factors are relevant at multiple scales, including regionally, locally, and within the study area. These factors include the presence or absence of other particular species (e.g., predators, prey), climate, ongoing disturbances, historical land use, and other past disturbances such as fire history, surface and subsurface hydrology, soil texture and chemistry, study area and habitat size and topology (i.e., shape and fragmentation), past population fluctuations of the species in response to random and nonrandom events, and many other factors, including many not readily visible. Note that some species, including some amphibians and many birds and bats, can occur in multiple roles. Thus, likelihood of occurrence, habitat use, and abundance may vary accordingly.

Finally, note that likelihood of occurrence for a given species refers to a time scale of a few years up to perhaps 10 years under current or assumed resources and conditions.

Terms for Likelihood of Occurrence in the Study Area

Confirmed Absent

If the likelihood of occurrence is *confirmed absent*, the species is confirmed to be absent on the study area as a formal and/or practical matter. Most often, this is a determination based on negative results of a focused survey for the species conducted in appropriate habitat at appropriate time(s) of year, using biologically sound methods and qualified personnel. In the remaining cases, it may be based on a simple study area examination, where it is easily determined that the species is absent because of the study area context. For example, a tidal marsh insect would not occur in a dry mountainside study area, or a disturbance-intolerant chaparral shrub would not occur in a long-standing, degraded grassland study area located far from chaparral. When a species is confirmed absent, the relevant fieldwork in all cases was conducted within a time frame sufficiently recent to conclude that the species remains absent, based on study area conditions and the species' known ecology. In most cases a specific, established survey protocol and/or guidelines have been followed.

Less than Reasonable

If the potential to occur is *less than reasonable*, the likelihood of occurrence, although remotely possible, is less than that required for any potentially applicable regulatory threshold. Further, the likelihood that the site is meaningfully valuable to any population(s) of this taxon is less than reasonable. The species may or may not include the study area within its current, general range. However, no appropriate, or adequately extensive, or effectively connected habitat is present. Neither the species nor any indication of its presence was detected. In some cases, based on the best available information, this likelihood may indicate that, the study area has a very high probability of being outside of the species' current range. In all of the above cases, the species may not be definitively ruled out but is strongly believed to be absent based on professional evaluation of all available evidence. In some cases, the species may occur on rare occasions and in low numbers, but with no more than brief, incidental use of the study area; that is, the site is also judged to lack any important function for the species. Certainly, there are no substantial populations directly utilizing the study area at any time of year. Further evaluation should not normally be required.

Low

If the potential to occur is *low*, occurrence of the species is reasonable but unlikely because of some combination of facts. For example, 1) the study area was the subject of unsuccessful searches conducted under relevant and reasonable circumstances, 2) potential habitat present is marginal or minimal in extent, 3) the best available information suggests the species is absent from the

study area, and/or 4) available information sheds no clear light on the species likelihood on the study area, but it is known to be rare at best in the vicinity. Neither the species nor any indication of its presence was detected. Although individuals may have been missed, it is unlikely that substantial populations are present. Further evaluation should usually not be required for individual species except, in most cases, for biologically threatened or endangered species. Note however, that where several non-listed species hold this status, a higher likelihood of occurrence for “one or more” will generally hold. This is due both to the increased number of species and the fact that an array of possibilities often correlates with greater site biodiversity and lower relevant (but not readily detected) disturbance levels.

Moderate

If the potential to occur is *moderate*, the study area is within the range of the species, and contains potentially appropriate habitat. Neither individuals nor diagnostic sign were detected. It is nevertheless reasonable that some individuals may have been overlooked. The best available information on the species with regard to the study area is either very uncertain, or may be equally weighted for and against occurrence. Depending upon local and special legal status, extent of habitat, and the nature and sensitivity of the project, focused surveys for the species may be warranted or presence may be assumed.

High

If the potential to occur is *high*, the study area is known to be within the range of the species, and contains potential habitat with a high likelihood of occupancy. Although no individuals or diagnostic sign were detected during current fieldwork by a qualified observer, the species is likely to be present to some degree given the best available information. Depending upon regulatory status, local rarity, public interest, extent of habitat on the study area, and the nature of potential project impacts, a substantial basis may exist for either conducting focused surveys for the species or for assuming presence.

Confirmed Present

If the likelihood of occurrence is *confirmed present*, a qualified biologist or other reliable source has confirmed the presence of the species and there is no specific evidence that the species has subsequently become absent. Depending on the species and other information available, it may or may not be possible to determine, without further studies, what portions of the study area are currently in use.

Sensitive Plant Species

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
Lichens						
<i>Texosporium sanctijacobi</i>	Woven-spored lichen	None	Found on soil, typically associated with rootballs of <i>Poa secunda</i> . Mainly found in sage scrub communities that have not been disturbed for 20 years or more. Restricted to growing on organic material, including small mammal scat.	HA	No	Less than reasonable potential to occur. The project site lacks sage scrub community.
Plants						
<i>Abronia villosa</i> var. <i>aurita</i>	Chaparral sand-verbena	CNPS 1B.1	Sandy areas in chaparral and coastal sage scrub.	HA	No	Less than reasonable potential to occur. The project site lacks chaparral and sage scrub communities.
<i>Allium munzii</i>	Munz' onion	FE, ST, CNPS 1B.1	Moist grassy to bare openings within chaparral, coastal sage scrub, and cismontane woodland. Typically found associated at or near vernal pools, swales, or drainages. Generally associated with mesic clay and gabbroic outcrops.	HA	Yes (Narrow Endemic Plant Species)	Less than reasonable potential to occur. The project site lacks chaparral, sage scrub, vernal pool and/or cismontane woodland habitats. The project site also lacks clay or gabbroic outcrops.
<i>Ambrosia pumila</i>	San Diego Ambrosia	FE, CNPS 1B.1	Open habitats with coarse substrates near drainages, and in upland areas on clay slopes or on the margins of vernal pools.	HA	Yes (Narrow Endemic Plant Species)	Less than reasonable potential to occur. Although the project site consists of a drainage, it lacks suitable clay and alkaline soils and vernal pools.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
<i>Arenaria paludicola</i>	Marsh sandwort	FE, SE, CNPS 1B.1	Freshwater marshes and swamps. Last known southern California record is from 1899.	HA	No	Less than reasonable potential to occur. The project site lacks freshwater marshes and swamp habitat.
<i>Astragalus hornii</i> var. <i>hornii</i>	Horn's milk-vetch	CNPS 1B.1	Meadows and seeps, alkaline areas adjacent to lake margins.	HA	No	Less than reasonable potential to occur. The project site lacks meadow and seep and alkaline lake margin habitat.
<i>Atriplex coronata</i> var. <i>notatior</i>	San Jacinto Valley Crownscale	FE, CNPS 1B.1	Playas, alkaline flats, chenopod scrub, valley and foothill grasslands and vernal pools. Known from the San Jacinto River basin, Riverside County, CA.	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site lacks alkaline flats, chenopod scrub, valley and foothill grasslands and vernal pool habitats.
<i>Atriplex pacifica</i>	South coast saltscale	CNPS 1B.2	Alkaline soils of coastal sage scrub, playas, coastal bluff scrub, coastal dunes and chenopod scrub.	HA	No	Less than reasonable potential to occur. The project site lacks coastal sage scrub, playas, coastal bluff scrub, coastal dunes and chenopod scrub.
<i>Atriplex parishii</i>	Parish's saltscale	CNPS 1B.1	Alkaline meadows, vernal pools, chenopod scrub and playas. Usually on drying alkaline flats with fine soils.	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site lacks alkaline meadows, vernal pools, chenopod scrub and playas.
<i>Berberis nevinii</i>	Nevin's barberry	FE, SE, CNPS 1B.1	Gravelly wash margins in alluvial scrub or coarse soils in chaparral.	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site lacks gravelly wash margins, alluvial scrub and chaparral.
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	FT, SE, CNPS 1B.1	Clay loamy sand or alkaline soils within open grasslands at edges or vernal pools or floodplains.	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site lacks open grasslands, vernal pools or floodplain habitat.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
<i>Brodiaea orcuttii</i>	Orcutt's brodiaea	CNPS 1B.1	Clay and serpentine soils within grasslands near vernal pools and streams, also known from cismontane woodlands, chaparral, and coniferous woodlands.	HA	Yes	Less than reasonable potential to occur. The project site lacks, grassland, cismontane woodland, chaparral and coniferous woodland habitat.
<i>California macrophylla</i>	Round-leaved filaree	CNPS 1B.1	Clay soils in cismontane woodland and valley and foothill grassland communities	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site lacks cismontane woodland and valley and foothill grassland habitats.
<i>Calochortus plummerae</i>	Plummer's mariposa lily	CNPS 1B.2	Sandy or rocky sites of granitic or alluvial material in valley and foothill grassland, coastal scrub, chaparral, cismontane woodland and lower coniferous forests.	HA	No (Species specific objectives must be met prior to being considered adequately conserved)	Less than reasonable potential to occur. The project site lacks valley and foothill grassland, coastal sage scrub, chaparral, cismontane woodlands and coniferous forest habitats.
<i>Carex comosa</i>	Bristly sedge	CNPS 2.1	Coastal prairie, marshes and swamps and valley and foothill grasslands.	HA	No	Less than reasonable potential to occur. The project site lacks coastal prairie, marsh and swamp and valley and foothill grassland habitats.
<i>Caulanthus simulans</i>	Payson's jewel-flower	CNPS 4.2	Pinyon-juniper woodland, chaparral and coastal sage scrub communities with sandy and granitic soils. Typically associated with north-facing slopes and ridgelines.	HA	Yes	Less than reasonable potential to occur. The project site lacks pinyon-juniper woodland, chaparral and coastal sage scrub habitats.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
<i>Centromadia pungens</i> ssp. <i>laevis</i>	Smooth tarplant	CNPS 1B.1	Occurs in alkali soils in seasonally wet chenopod scrub, meadows and seeps, playas, riparian woodland, fallow fields, drainage ditches, and moist situations in grasslands below approximately 1,575 feet. Tolerates some disturbance, nonnative plants, and moderate soil compaction.	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site contains southern willow scrub, however, it does not contain alkaline soils.
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	CNPS 1B.1	Sandy openings in coastal scrub, alluvial fan sage scrub, juniper woodland, and chaparral communities.	HA	No (Species specific objectives must be met prior to being considered adequately conserved)	Less than reasonable potential to occur. The project site lacks coastal sage scrub, alluvial fan sage scrub, juniper woodlands and chaparral habitats.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	Long-spined spineflower	CNPS 1B.2	Grasslands, coastal sage scrub, and chaparral communities, often with clay soils.	HA	Yes	Less than reasonable potential to occur. The project site lacks grasslands, coastal sage scrub and chaparral habitats..
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>	Salt marsh birds' beak	FE, SE, CNPS 1B.2	Coastal dunes and salt marshes.	HA	No	Less than reasonable potential to occur. The project site lacks coastal dunes and salt marshes.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
<i>Dienandra mohavensis</i>	Mojave tarplant	SE, CNPS 1B.3	Sand bars and riparian areas in river beds, ephemeral grassy areas, riparian scrub and mesic chaparral. Known from above 2,800 feet.	HA	No (Species specific objectives must be met prior to being considered adequately conserved)	Less than reasonable potential to occur. The project site does contain riparian scrub habitat, however, the project site does not contain sand bars, grassy areas or other in stream habitat requirements. Additionally, the project site is below the known elevational range of the species.
<i>Dodecahema leptoceras</i>	Slender-horned spineflower	FE, SE, CNPS 1B.1	Gravelly soils (arkose deposits) in openings of chamise chaparral in the Vail Lake area or in sandy soils in openings of alluvial late seral stage scrub on floodplain terraces and benches that receive overbank deposits every 50 to 100 years.	HA	Yes (Narrow Endemic Plant Species)	Less than reasonable potential to occur. The project site lacks chamise chaparral and alluvial late seral stage scrub.
<i>Dudleya multicaulis</i>	Many-stemmed dudleya	CNPS 1B.2	Often on clay soils around granitic outcrops in chaparral, coastal sage scrub and grasslands.	HA	Yes (Narrow Endemic Plant Species)	Less than reasonable potential to occur. The project site lacks chaparral, coastal sage scrub and grassland habitats.
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woollystar	FE, SE, CNPS 1B.1	Sandy soils of floodplains and terraced fluvial deposits of the Santa Ana River and larger tributaries.	HA	Yes	Less than reasonable potential to occur. The project site lacks terraced fluvial deposits and the drainage is not considered a larger tributary to the Santa Ana River.
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button celery	FE, SE, CNPS 1B.1	Vernal pools.	HA	Yes	Less than reasonable potential to occur. The project site lacks vernal pool habitat.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
<i>Galium californicum</i> ssp. <i>primum</i>	Alvin Meadow bedstraw	CNPS 1B.2	Chaparral and sandy openings within lower montane coniferous woodlands.	HA	No	Less than reasonable potential to occur. The project site lacks chaparral and lower montane coniferous woodland.
<i>Harpagonella palmeri</i>	Palmer's grapplinghook	CNPS 4.2	Dry slopes and clay soils in valley grasslands, coastal sage scrub and chaparral communities	HA	Yes	Less than reasonable potential to occur. The project site lacks dry slopes, clay soils, valley and foothill grasslands and chaparral habitats.
<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Los Angeles sunflower	CNPS 1A	Saltwater and freshwater marshes and swamps.	HA	No	Less than reasonable potential to occur. The project site lacks saltwater or freshwater marshes and swamps.
<i>Holocarpha virgata</i> ssp. <i>elongata</i>	Graceful tarplant	CNPS 4.2	Mesic habitat or seasonally wet habitats within chaparral, cismontane woodland, vernal pools in coastal scrub or valley and foothill grasslands.	HA	No	Less than reasonable potential to occur. The project site does not contain chaparral, cismontane woodlands or vernal pool habitat.
<i>Hordeum intercedens</i>	Vernal barley	CNPS 3.2	Coastal dunes, coastal sage scrub, saline flats and depressions within valley and foothill grasslands, and vernal pools.	HA	Yes	Less than reasonable potential to occur. The project site does not contain coastal dunes, coastal sage scrub, or vernal areas with the potential to osupport this species.
<i>Horkelia cuneata</i> ssp. <i>puberula</i>	Mesa horkelia	CNPS 1B.1	Sandy or gravelly soils in chaparral or rarely in cismontane woodlands or coastal scrub.	HA	No	Less than reasonable potential to occur. The project site lacks chaparral, cismontane woodlands or coastal sage scrub.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
<i>Imperata brevifolia</i>	California satintail	CNPS 2.1	Chaparral, coastal sage scrub, Mojavean desert scrub, meadows and seeps and riparian scrub.	HP	No	Low potential to occur. The project site does contain southern willow scrub habitat. As such it was determined that this species has a low potential to occur on site.
<i>Juglans californica</i> var. <i>californica</i>	California walnut	CNPS 4.2	Chaparral, cismontane woodland, coastal scrub, riparian areas.	HP	Yes	Confirmed Absent. The project site contains riparian scrub, However, this tree species was not detected during the site visit.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	CNPS 1B.1	Marshes, playas, vernal pools and grasslands. Usually associated with alkaline soils.	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site lacks marshes, playas, vernal pools and grasslands.
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	CNPS 1B.2	Dry soils in coastal sage scrub and chaparral.	HA	No	Less than reasonable potential to occur. The project site lacks coastal sage scrub and chaparral.
<i>Lilium Humboldtii</i> ssp. <i>ocellatum</i>	Ocellated Humboldt lily	CNPS 4.2	Chaparral, cismontane woodland, coastal scrub and valley and foothill grasslands.	HA	No (MOU with Forest Service is required prior to be considered adequately conserved)	Less than reasonable potential to occur. The project site lacks chaparral, cismontane woodlands, coastal sage scrub and valley and foothill grasslands.
<i>Lilium parryi</i>	Lemon lily	CNPS 1B.2	Meadows, riparian forest, lower montane coniferous woodland, upper montane coniferous forest. Known to be above 4,300 feet in elevation.	HA	No (MOU with Forest Service is required prior to be considered adequately conserved)	Less than reasonable potential to occur. The project site contains riparian woodland, however, the site is below the known elevation range of the species.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
<i>Limnanthes gracilis</i> ssp. <i>parishii</i>	Parish's meadowfoam	CNPS 1B.2	Seasonally wet meadows lower cismontane forest and vernal pools.	HA	Yes	Less than reasonable potential to occur. The project site lacks meadow, cismontane forest and vernal pool habitat.
<i>Lycium parishii</i>	Parish's desert-thorn	CNPS 2.3	Coastal sage scrub and Sonoran desert scrub.	HA	No	Less than reasonable potential to occur. The project site lacks coastal sage scrub and Sonoran desert scrub.
<i>Malacothamnus parishii</i>	Parish's bush mallow	CNPS 1A	Chaparral and coastal sage scrub.	HA	No	Less than reasonable potential to occur. The project site lacks chaparral and coastal sage scrub.
<i>Monardella pringlei</i>	Pringle's monardella	CNPS 1A	Sandy areas within coastal sage scrub.	HA	No	Less than reasonable potential to occur. The project site lacks coastal sage scrub.
<i>Myosurus minimus</i> var. <i>apus</i>	Little mousetail	CNPS 3.1	Wet habitats in valley and foothill grasslands with alkaine affinities, alkali playas and alkaline vernal pools.	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site lacks valley and foothill grasslands, playas and vernal pools.
<i>Nama stenocarpum</i>	Mud nama	CNPS 2.2	Muddy banks of lakes, river banks and seasonally wet places.	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site lacks suitable muddy shoreline and river bank habitat required for this species.
<i>Nasturtium gambelii</i>	Gambel's water cress	FE, SE, CNPS 1B.1	Freshwater and brackish marshes and swamps.	HA	No	Less than reasonable potential to occur. The project site lacks freshwater and brackish marshes and swamps.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
<i>Navarretia fossalis</i>	Spreading navarretia	FT, CNPS 1B.1	Vernal pools, chenopod scrub, marshes, swamps and playas.	HA	Yes (Narrow Endemic Plant Species)	Less than reasonable potential to occur. The project site lacks vernal pools, chenopod scrub, marsh, swamp and playa habitat.
<i>Navarretia prostrata</i>	Prostrate navarretia	CNPS 1B.1	Vernal pools.	HA	Yes (Criteria Area Plant Species)	Less than reasonable potential to occur. The project site lacks vernal pool habitat.
<i>Orcuttia californica</i>	Orcutt's grass	FE, SE, CNPS 1B.1	Vernal pools.	HA	Yes (Narrow Endemic Plant Species)	Less than reasonable potential to occur. The project site lacks vernal pool habitat.
<i>Phacelia stellaris</i>	Brand's phacelia	CNPS 1B.1	Sandy openings, sandy benches, dunes, sandy river washes or river floodplains in coastal sage scrub.	HA	Yes (Narrow Endemic Plant Species)	Less than reasonable potential to occur. The project site lacks suitable sandy or floodplain habitat.
<i>Polygala cornuta</i> var. <i>fishiae</i>	Fish's milkwort	CNPS 4.3	Shaded rocky areas in canyons, chaparral and oak woodlands.	HA	No (Species specific objectives must be met prior to being considered adequately conserved)	Less than reasonable potential to occur. The project site lacks canyon, chaparral and oak woodland habitat.
<i>Quercus engelmannii</i>	Engelmann oak	CNPS 4.2	Chaparral, cismontane woodland, riparian woodland and valley and foothill grasslands.	HP	Yes	Confirmed absent. The project site does contain riparian woodlands, however, this tree species was not detected during the site visit.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	WRC MSHCP Covered Species	Rationale
<i>Ribes divaricatum</i> var. <i>parishii</i>	Parish's gooseberry	CNPS 1A	Riparian woodlands.	HP	No	Less than reasonable potential to occur. The project site does contain southern willow scrub, however, this species is considered extirpated from California.
<i>Romneya coulteri</i>	Coulter's matilija poppy	CNPS 4.2	Dry washes and canyons, chaparral and coastal sage scrub.	HP	No (Species specific objectives must be met prior to being considered adequately conserved)	Confirmed absent. This perennial species was confirmed to be absent from the project site during the site visit.
<i>Satureja chandleri</i>	San Miguel Savory	CNPS 1B.2	Rocky areas in chaparral or oak woodland or at the margins of these communities with coastal sage scrub and grassland habitat.	HA	Yes(Narrow Endemic Plant Species)	Less than reasonable potential to occur. The project site lacks chaparral, oak woodland, coastal sage scrub and grassland habitat.
<i>Senecio aphanactis</i>	Chaparral ragwort	CNPS 2.2	Chaparral, cismontane woodland, and coastal sage scrub. Usually affiliated with alkaline soils.	HA	No	Less than reasonable potential to occur. The project site lacks chaparral, cismontane woodland and coastal sage scrub.
<i>Sidalcea neomexicana</i>	Salt spring checkerbloom	CNPS 2.2	Chaparral, coastal sage scrub, lower montane coniferous forest, Mojavean desert scrub and playas.	HA	No	Less than reasonable potential to occur. The project site lacks chaparral, coastal sage scrub, lower montane coniferous forest, Mojavean desert scrub and playas.
<i>Sphenopholis obtusata</i>	Prairie wedge grass	CNPS 2.2	Cismontane woodlands and meadows and seeps.	HA	No	Less than reasonable potential to occur. The project site lacks cismontane woodlands and meadows and seeps.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	WRC MSHCP Covered Species	Rationale
<i>Symphytotrichum defoliatum</i>	San Bernardino aster	CNPS 1B.2	Cismontane woodland, sage scrub, coniferous forest, meadows and seeps, marshes and swamps, and mesic grassland near water.	HA	No	Less than reasonable potential to occur. The project site lacks cismontane woodlands, coniferous forest, meadows, seeps, swamps and marsh and grasslands habitat.
<i>Trichocoronis wrightii</i> var. <i>wrightii</i>	Wright's trichocoronis	CNPS 2.1	Meadows, vernal pools and alkaline soils. Known from Riverside County.	HA	Yes (Narrow Endemic Plant Species)	Less than reasonable potential to occur. The project site lacks meadows and vernal pools.
Abbreviations/Notes:						
U.S. Fish and Wildlife Service:		California Department of Fish and Game:		California Native Plant Society:		CH Critical Habitat
FE	Federal Endangered	SE	State Endangered	1A	Plants presumed extinct in California.	P Species is present
FT	Federal Threatened	ST	State Threatened	1B	Plants rare, threatened, or endangered in California and elsewhere.	A Habitat absent
PE	Proposed Endangered	SR	State Rare	1	Seriously endangered in California	HP Habitat is, or may be present
PT	Proposed Threatened	SSC	California Species of Concern	2	Plants rare, threatened, or endangered in California, but more common elsewhere.	
FC	Federal Candidate			3	Plants about which we need more information.	
				4	Plants of limited distribution.	

Sensitive Wildlife Species

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Covered Species	Rationale
Invertebrates						
Branchipods**						
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	FT	Vernal pools and swales within grasslands. Known from the Santa Rosa Plateau and Skunk Hollow areas of Western Riverside County.	HA	Yes (Vernal Pool Species)	Less than reasonable potential to occur. The project site does not contain vernal pools.
<i>Linderiella santarosae</i>	Santa Rosa Plateau fairy shrimp	---	Vernal pools known to contain water for extended periods of time. Known only from the Santa Rosa Plateau area of Western Riverside County.	HA	Yes (Vernal Pool Species)	Less than reasonable potential to occur. The project site does not contain vernal pools.
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	FE	Large, deep warm water pools that retain water into the warm season.	HA	Yes (Vernal Pool Species)	Less than reasonable potential to occur. The study area lacks large, deep warm pools that retain water into the rainy season.
Insects						
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	FE	Generally associated with vernal pools, sage scrub, chaparral, native and non-native grasslands, and open oak and juniper woodland communities. Both phases linked to presence of host species and topography. Larvae feed on <i>Plantago erecta</i> , <i>Plantago patagonia</i> , <i>Antirrhinum coulterianum</i> , <i>Cordylanthis rigidus</i> and other <i>Plantago</i> species. Adults require small annuals. The species seems to require varying topography (including	HA	Yes	Less than reasonable potential to occur. The project site lacks vernal pools, sage scrub, chaparral, grasslands and oak woodland habitats.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Covered Species	Rationale
			ridges and hilltops), loamy soils with moderate to high clay quantities.			
<i>Rhaphiomidas terminatus abdominalis</i>	Delhi sands flower-loving fly	FE	Found on fine, sandy soils often with wholly or partially consolidated sand dunes generally classified within the "Delhi" series. Restricted to Riverside and San Bernardino Counties.	HA	Yes	Less than reasonable potential to occur. The project site lacks "Delhi" soils or fine, sandy soils.
Vertebrates						
Fish						
<i>Catostomus santaanae</i>	Santa Ana Sucker	FT, SSC	Inhabits shallow, cool, running waters with coarse gravelly to muddy substrates and developed pools. Known from the Santa Ana River in western Riverside County	HA	Yes	Less than reasonable potential to occur. The project site lacks suitable pool habitat for this species. Additionally, the site is located outside of the currently known waters occupied by the species.
<i>Gila orcuttii</i>	Arroyo chub	SSC	Warm fluctuating streams with slow moving back water sections with sandy and/or muddy substrates.	HA	Yes	Less than reasonable potential to occur. The project site lacks slow moving back water areas required for this species.
<i>Rhinichthys osculus</i> ssp. 3	Santa Ana speckled dace	SSC	Found within the cool clear headwater streams of the Santa Ana and San Gabriel rivers.	HA	No	Less than reasonable potential to occur. This species is known to occur both upstream and downstream of the project site. However, these populations are isolated from the project site due to flood control structures, i.e. dams, and fully channeled above and below ground sections of stream that do not support habitat for this species. As such, it was determined that under the current conditions, this species would have a less than reasonable potential to occur on the project site.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	Covered Species	Rationale
Amphibians						
<i>Anaxyrus californicus</i>	Arroyo toad	FE, SSC	Washes and arroyos with open water, sand and gravel beds for breeding and pools with sparse overstory vegetation	HA	Yes (Amphibian Survey Area)	Less than reasonable potential to occur. The project site lacks sand and gravel beds, and pool habitat required for this species.
<i>Rana draytonii</i>	California red-legged frog	FT, SSC	Streams with slow moving flows, deep pools and dense shrubby riparian vegetation at pool edges	HA	Yes (Amphibian Survey Area)	Less than reasonable potential to occur. The project site lacks suitable stream habitat for this species.
<i>Rana muscosa</i>	Sierra Madre yellow-legged frog	FE, SSC	Streams and small pools within ponderosa-pine, montane hardwood-conifer and montane riparian habitat types.	HA	Yes (Amphibian Survey Area)	Less than reasonable potential to occur. The project site lacks suitable pine and montane woodland habitats.
<i>Spea hammondi</i>	Western spadefoot	SSC	Open habitats including low grasslands, open chaparral, and pine-oak woodlands, where soils are sandy or gravelly. Requires temporary rain pools that last at least three weeks. Pools must lack predators of eggs and tadpoles.	HA	Yes	Less than reasonable potential to occur. The project site lacks the required temporary rain pools for this species.
Reptiles						
<i>Actinemys marmorata</i>	Western pond turtle	SSC	Inhabits permanent or nearly permanent waters. Requires basking sites i.e. partially submerged logs, rocks or open banks.	HP	Yes	Low potential to occur. The drainage appears to maintain flows throughout the year, however, the drainage does not contain sufficient suitable micro habitat i.e. basking sites such as submerged logs, rocks and open banks. As such, it was determined that this species has a low potential to occur on the site.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	Covered Species	Rationale
<i>Anniella pulchra pulchra</i>	Silvery legless lizard	SSC	Sandy or loose soils under sparse vegetation on beaches, within chaparral, pine-oak woodlands, sycamore and cottonwood woodland or oaks near stream terraces.	HA	No	Less than reasonable potential to occur. The project site lacks suitable soils for this species.
<i>Aspidoscelis hyperythra beldingi</i>	Belding's orange-throated whiptail	SSC	Mostly occurs on or adjacent to floodplains or terraces of streams in, or by, open sage scrub and chaparral communities.	HA	Yes	Less than reasonable potential to occur. The project site consists of a drainage and a terrace, however, the site lacks suitable upland habitats to support this species.
<i>Crotalus ruber ruber</i>	Red-diamond rattlesnake	SSC	Tolerates a wide variety of environments from desert to dense chaparral. Prefers dense brush, including chamise chaparral. Also can occur in open areas, however generally in lower numbers. Rocky outcrops also common in occupied habitat. Prey density and availability of dens (for hibernation and gravid females) may be a great limiting factor.	HA	Yes	Less than reasonable potential to occur. The project site lacks suitable habitat to support this species.
<i>Phrynosoma coronatum blainvillei</i>	Coast (San Diego) horned lizard	SSC	Occurs in a variety of open plant communities where suitable soils (sandy, friable), prey, and basking areas are available.	HA	Yes	Less than reasonable potential to occur. The project site lacks suitable soils to support this species.
Birds						
<i>Agelaius tricolor</i>	Tricolored blackbird	SSC	Breeds near fresh water within emergent wetland habitat supporting dense, tall stands of cattails and tule and sometimes willow.	HA	Yes	Less than reasonable potential to occur. The project site lacks suitable dense cattail and tule stands preferred by this species.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	Covered Species	Rationale
<i>Asio otus</i> (nesting)	Long-eared owl	SSC	Roosts in substantial riparian and oak forests with adjacent open habitats.	HP	No	Low potential to occur. The project site contains a small amount of riparian vegetation, however, this species is normally associated with larger riparian communities. As such, it was determined that this species has a low potential to occur on site.
<i>Athene cunicularia</i>	Burrowing owl	SSC	Uses large rodent burrows or other burrows in grasslands, prairies and agricultural areas.	HA	Yes (Burrowing Owl Survey Area)	Less than reasonable potential to occur. The project site lacks suitable open grassland, prairie or agricultural habitat for this species.
<i>Coccyzus americanus occidentalis</i>	Western yellow billed cuckoo	SE	Breeds and nests in extensive stands of cottonwood/willow riparian forest within large rivers with broad flood prone bottoms	HA	Yes (Riparian/Riverine Species)	Less than reasonable potential to occur. The project site lacks extensive stands of cottonwood/willow riparian forests with broad flood prone bottoms.
<i>Dendroica petechia</i>	Yellow warbler	SSC	Inhabits riparian scrub, woodland and forest habitat.	HP	Yes	Confirmed present. This species was detected during least Bell's vireo surveys.
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	FE SE	Restricted to riparian woodlands along streams and rivers with mature, dense stands of willows, cottonwoods or smaller spring fed or boggy areas with willows or alders.	HA	Yes (Riparian/Riverine Species)	Less than reasonable potential to occur. The project site contains riparian habitat, however, the riparian habitat is isolated and does not contain suitable canopy structure to support this species.
<i>Falco peregrinus anatum</i>	American peregrine falcon	SFP	Wetlands near high cliffs, tall buildings.	HA	Yes	Less than reasonable potential to occur. The project site and vicinity lack suitable nesting sites for this species.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	Covered Species	Rationale
<i>Haliaeetus leucocephalus</i>	Bald eagle	SE	Primarily found near the seacoast or along rivers, swamps, and large lakes. Requires large trees or snags with heavy limbs or broken tops for perching and nesting. In southern California, the species is nearly always recorded at large deep waters.	HA	Yes	Less than reasonable potential to occur. The study area lacks large bodies of water.
<i>Icteria virens</i>	Yellow-breasted chat	SSC	Occurs in low, dense thickets in riparian habitats.	HP	Yes	Less than reasonable potential to occur. The project site contains southern willow scrub habitat. However, the species was not detected during least Bell's vireo surveys and is assumed to be absent from the site.
<i>Lanius ludovicianus</i>	Loggerhead shrike	SSC	Inhabits open fields with scattered trees, open woodland and scrub.	HA	Yes	Less than reasonable potential to occur. The project site does not contain areas of open habitat suitable to support this species.
<i>Polioptila californica californica</i>	Coastal California gnatcatcher	FT, SSC	May be found in coastal sage scrub below 2,500 ft; prefers low, coastal sage scrub in arid washes, mesas, and slopes	HA	Yes	Less than reasonable potential to occur. The project site does not contain coastal sage scrub habitat.
<i>Vireo bellii pusillus</i>	least Bell's vireo	FE, SE	Prefers dense riparian habitats but can also be found in more open riparian habitats such as mule fat scrub.	HP	Yes (Riparian/ Riverine Species)	Confirmed absent. The project site contains suitable riparian habitat for this species. This species was not detected during protocol level surveys conducted during the 2011 survey season.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Covered Species	Rationale
Mammals						
<i>Antrozous pallidus</i>	Pallid bat	SSC	Arid regions with suitable roosting habitat adjacent to large bodies of water to forage over. Suitable roosting habitat consists of rocky outcrops, caves, tunnels, mines, eaves and tree hollows.	HA	No	Less than reasonable potential to occur. The project site lacks suitable roosting habitat adjacent or near to large bodies of water.
<i>Chaetodipus fallax fallax</i>	Northwestern San Diego pocket mouse	SSC	Open, sandy areas in coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities.	HA	Yes	Less than reasonable potential to occur. The project site lacks coastal sage scrub, grassland and chaparral habitats.
<i>Dipodomys merriami parvus</i>	San Bernardino kangaroo rat	FE, SSC	Sandy soils within mature alluvial sage scrub, riversidean sage scrub and chaparral.	HA	Yes (Mammal Survey Area)	Less than reasonable potential to occur. The project site lacks sandy soils within suitable alluvial sage scrub, sage scrub and chaparral habitat.
<i>Dipodomys stephensi</i>	Stephen's kangaroo rat	FE, ST	Open grasslands or sparse shrubs with less than 50% cover during the summer. Requires sandy and/or loamy soils with low clay and gravel content on flat slopes (<30%).	HA	Yes (County SKR Survey Area)	Less than reasonable potential to occur. The project site lacks grassland or other suitable habitat required for this species.
<i>Eumops perotis californicus</i>	Western mastiff bat	SSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral. Roosts in crevices in cliff faces, high buildings, trees & tunnels.	HA	No	Less than reasonable potential to occur. The project site and general vicinity lacks woodlands coastal sage scrub, grasslands, chaparral and suitable foraging habitat for this species.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/ Absent	Covered Species	Rationale
<i>Lasiurus xanthinus</i>	Western yellow bat	SSC	Inhabits palm oasis and residential areas with palm trees. Roosts primarily in trees, especially in the dead fronds of palm trees. Forages over open water and among trees.	HP	No	Moderate potential for individual roosting. Moderate potential for foraging. The project site lacks substantial communal roosting habitat for this species, however the site does contain a few individual palm trees suitable for individual bat roosting. The site contains suitable foraging habitat for this species.
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	SSC	Requires extensive open space, including grasslands and open sage scrub on flat ground.	HA	Yes	Less than reasonable potential to occur. The project site lacks suitable open habitat for this species.
<i>Neotoma lepida ssp. intermedia</i>	San Diego desert woodrat	SSC	Variety of shrub and desert habitats, typically with rock outcrops, boulders, cacti and/or areas of dense undergrowth.	HP	Yes	Low potential to occur. The riparian area within the project site provides marginal habitat for this species. As such it was determined that the species has a low potential to occur on the project site.
<i>Nyctinomops femorosaccus</i>	Pocketed free-tailed bat	SSC	Rocky areas with high cliffs in a variety of arid areas including pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian.	HA	No	Less than reasonable potential to occur. The project site and general vicinity lacks suitable roosting sites for this species.
<i>Onychomys torridus ramona</i>	Southern grasshopper mouse	SSC	Inhabits arid areas, especially scrub habitat; i.e. coastal scrub and mixed chaparral, with friable soils.	HA	No	Less than reasonable potential to occur. The project site lacks coastal sage scrub and chaparral habitat.
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	SSC	Prefers sandy soils within coastal sage scrub. Less often found in gravelly washes, and rocky soils.	HA	Yes (Mammal survey area)	Less than reasonable potential to occur. The project site lacks coastal sage scrub and gravelly wash habitat.

Scientific Name	Common Name	Status	General Habitat Description	Habitat Present/Absent	Covered Species	Rationale
<i>Taxidea taxus</i>	American badger	SSC	Open plains and fields, particularly in grasslands.	HA	No	Less than reasonable potential to occur. The project site lacks open plains, fields and grasslands.
Abbreviations/Notes:						
U.S. Fish and Wildlife Service		California Department of Fish and Game		P	Species is present	
FE	Federal Endangered	SE	State Endangered	A	Habitat absent	
FT	Federal Threatened	ST	State Threatened	HP	Habitat is, or may be present	
PE	Proposed Endangered	SR	State Rare	CH	Critical Habitat	
PT	Proposed Threatened	SSC	California Species of Special Concern			
FC	Federal Candidate	SFP	State Fully Protected			
		WL	Watch List			

Sensitive Vegetation Communities

Vegetation Community	Status	General Habitat Description	Present/Absent	Rationale
Riversidean Alluvial Fan Sage Scrub	CDFG Sensitive	An open scrub community within alluvial fans and floodplains, Dominated by drought-deciduous species and evergreen woody shrubs, including <i>Lepidospartum squamatum</i> and <i>Artemisia californica</i> . Vegetation within the community is adapted for periodic flooding and erosion. Distribution: The southern base of the Transverse and Peninsular ranges of southern California	CA	Does not occur on site. The vegetation present at the project site is not consistent with the Riversidean Alluvial Fan Sage Scrub community.

Vegetation Community	Status	General Habitat Description	Present/ Absent	Rationale
Southern California Arroyo Chub/Santa Ana Sucker Stream	CDFG Sensitive	<p>A permanent stream flowing through steep and rocky canyons. These streams provide suitable habitat for arroyo chub and Santa Ana sucker.</p> <p>Distribution: Includes portions of the Los Angeles, San Gabriel, San Luis Rey, Santa Ana, and Santa Margarita rivers, and Malibu and San Juan creeks.</p>	CA	<p>Does not occur on site. While the on-site stream feature supports perennial stream flows, the topography and isolated nature are not consistent with this sensitive community.</p>
Southern Coast Live Oak Riparian Forest	CDFG Sensitive	<p>An open to dense evergreen sclerophyllous riparian forest. Dominated by <i>Quercus agrifolia</i> with a rich herb layer and poor shrub understory compared with other riparian communities. Occurs in bottomlands and outer floodplains along larger streams, on fine-grained, rich alluvium.</p> <p>Distribution: Canyons and valleys of coastal southern California, south of Point Conception in Santa Barbara County</p>	CA	<p>Does not occur on site. The vegetation present at the project site is not consistent with the Southern Coast Live Oak Riparian Forest community.</p>

Vegetation Community	Status	General Habitat Description	Present/ Absent	Rationale
Southern Cottonwood Willow Riparian Forest	CDFG Sensitive	<p>Tall, open, broadleaved winter-deciduous riparian forests dominated by <i>Populus fremontii</i>, <i>P. trichocarpa</i>, and several tree willows. Similar to Central Coast Cottonwood-Sycamore Riparian Forest, although apparently with less <i>Q.agrifolia</i> or <i>Alnus rhombifolia</i> (this merits further study). Understories usually are shrubby willows. Occurs on sub-irrigated and frequently overflowed lands along rivers and streams. The dominant species require moist, bare mineral soil for germination and establishment. This is provided after flood waters recede, leading to uniform-aged stands in this seral type.</p> <p>Distribution: Along perennially wet stream reaches of the Transverse and Peninsular ranges, from Santa Barbara County south to Baja California Norte and east to the edge of the deserts</p>	CA	Does not occur on site. The vegetation present at the project site is not consistent with the Southern Cottonwood Willow Riparian Forest community.

Vegetation Community	Status	General Habitat Description	Present/ Absent	Rationale
Southern Riparian Forest	CDFG Sensitive	<p>Dominated by a combination of scattered <i>Q. agrifolia</i>, <i>Platanus racemosa</i>, <i>Juglans californica</i>, <i>Salix</i> species, <i>Sambucus mexicana</i>, <i>Vitis girdiana</i>, and <i>Toxicodendron diversilobum</i>. Found in valley and foothill riparian areas from sea level to the lower margins of the montane coniferous forest of cismontane California.</p> <p>Distribution: In southern California, found from Ventura County south to San Diego County and west to Riverside and San Bernardino counties</p>	CA	Does not occur on site. The vegetation present at the project site is not consistent with the Southern Riparian Forest community.
Southern Riparian Scrub	CDFG Sensitive	<p>A dense, broad-leafed, winter-deciduous association dominated by several species of willow to an herbaceous scrub dominated by mulefat. Typical willow species include black willow (<i>Salix gooddingii</i>), arroyo willow (<i>Salix lasiolepis</i>), and sandbar willow (<i>Salix exigua</i>) and there can be a component of mulefat and/or invasive species such as giant reed (<i>Arundo donax</i>) and tamarisk (<i>Tamarix</i> spp.). Understory vegetation is typically lacking or composed of nonnative species.</p> <p>Distribution: Canyons and valleys of southern California</p>	CA	Does not occur on site. The vegetation present at the project site is not consistent with the Southern Riparian Scrub community.

Vegetation Community	Status	General Habitat Description	Present/ Absent	Rationale
Southern Sycamore Alder Riparian Woodland	CDFG Sensitive	<p>A tall, open, broadleaved, winter-deciduous streamside woodland dominated by <i>Platanus racemosa</i> and <i>A. rhombifolia</i>. Seldom form closed canopy forests, and may appear as trees scattered in a shrubby thicket of sclerophyllous and deciduous species. Lianas include <i>Rubus ursinus</i> and <i>Toxicodendron diversilobum</i>. Distinctions between this type and Sycamore Alluvial Woodland merit additional study.</p> <p>Found on very rocky streambeds to seasonally high-intensity flooding. <i>Alnus</i> increases in abundance on more perennial streams, while <i>Platanus</i> favors more intermittent hydrographs.</p> <p>Distribution: Transverse and Peninsular ranges from Point Conception south to Baja California Norte</p>	CA	<p>Does not occur on site. The vegetation present at the project site is not consistent with the Southern Sycamore Alder Riparian Woodland community.</p>

Vegetation Community	Status	General Habitat Description	Present/ Absent	Rationale
Southern Willow Scrub	CDFG Sensitive	<p>Dense, broadleaved, winter-deciduous riparian thickets dominated by several <i>Salix</i> species, with scattered emergent <i>Populus fremontii</i> and <i>Platanus racemosa</i>. Most stands are too dense to allow much understory development. Occurs on loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. This early seral type requires repeated flooding to prevent succession to Southern Cottonwood-Sycamore Riparian Forest.</p> <p>Distribution: Formerly extensive along the major rivers of coastal southern California, but now reduced by urban expansion, flood control and channel improvements.</p>	CP	Confirmed Present. The Southern Willow Scrub community was mapped within the drainage located on the project site.
<p>Abbreviations/Notes: CA Vegetation Community Absent CP Vegetation Community Present</p>				

Appendix E

Biological Resources Assessment Update



December 5, 2013

Tricia D. Thrasher, ASLA, LEED AP
University of Riverside
Capital Resources Management
1223 University Avenue, Suite 200
Riverside, CA 92507

Subject: Biological Resources Update for the UCR Creekside Terrace Slope Protection Project

In November 2011, a biological resources assessment report was prepared in order to provide information about existing biological resources within the proposed UCR Creekside Terrace Slope Protection project footprint and surrounding areas and an analysis of temporary and permanent impacts to those resources in the context of federal, State, and local regulatory compliance programs, including the Western Riverside County Multiple Species Habitat Conservation plan (WRC MSHCP).

This purpose of this memo is to present the findings of a subsequent general biological survey conducted for the proposed UCR Creekside Terrace Slope Protection project. This survey was conducted in order to update the biological findings for this Project due to the more than 2-year lapse since the last studies were performed in May 2011. Updated focused surveys for least Bell's vireo were not required due to the negative findings of focused surveys conducted in 2011, the distance of the project site from known occurrences of this species (approximately 4 miles to the nearest known occurrence), and because the mitigation measures proposed in the biological resources assessment report would effectively avoid impacts to this species.

Project Information

The UCR Creekside Terrace Slope Protection project (herein referred to as "Project") is located within the City of Riverside, Riverside County, California (Figure 1). Specifically, the project site consists of a drainage feature located approximately 0.20 miles north of the intersection of Chicago and Central Avenues (Figure 2). The project is located within Section 31, Township 2 South, Range 4 West of the Riverside East U.S. Geological Survey (USGS) quadrangle dated 1967, photorevised 1980 (USGS 1967). The project site is at approximately 940 feet above mean sea level (MSL) as depicted on the Riverside East USGS topographic map. The coordinates (decimal degrees) for the project site are latitude 33.958882° and longitude 117.346076°. The primary Assessor's Parcel Number (APN) associated with the project site is 254-370-003.

The proposed project involves stabilization of approximately 650 feet of the north and east banks of the existing drainage. Specifically, the channel will be reshaped and rip-rap will be placed on the north and east banks and the channel bottom to match existing conditions present on the south and west banks. Construction will require the removal of all vegetation within the impact area on the north and east banks and across the channel bottom. The proposed design provides for reestablishment of soil over the rip-rap on the channel bottom. Ongoing maintenance will involve clearing of vegetation on the north and east banks; riparian vegetation will be allowed to reestablish naturally on the channel bottom. Existing vegetation on the south and west banks will remain in place.

Survey Methods

The biological survey was conducted on November 20, 2013 by ICF biologist Erika Eidson. The survey was conducted between the hours of 1030 and 1200 and weather conditions consisted of air temperature ranging from 61 to 64 °F, 0 to 1 mile per hour winds, and overcast skies. During the survey all plant species and wildlife species detected within the project boundary were recorded. The map of vegetation communities was updated to reflect changes in vegetation composition.

Survey Results

Southern willow scrub has expanded in the northwestern portion of the project boundary which previously supported open water. Southern willow scrub has increased from 0.48 acre to 0.49 acre and open water has decreased from 0.01 to 0.001. All other acreages for vegetation communities within the project boundary have remained unchanged since the 2011 survey (Table 1).

Table 1. Vegetation Communities within the Project Boundary

Vegetation Types	Current Acreage	Previous Acreage	Difference
Disturbed	0.28	0.28	0.0
Exotic	0.23	0.23	0.0
Southern Willow Scrub	0.49	0.48	+0.01
Disturbed Southern Willow Scrub	0.11	0.11	0.0
Open Water	0.001	0.01	-0.009
Total	1.11	1.11	

Plant species composition has remained mostly unchanged. Several annual plant species that were detected in the May 2011 survey were not present during the November 2013 survey due to the seasonality of the species. Common tule (*Schoenoplectus acutus* var. *occidentalis*) was the only plant species that was detected during the November 2013 survey that had not been detected during the May 2011 survey. The nomenclature and phylogeny of a few plant species have changed since 2011. The scientific name for blue elderberry (*Sambucus nigra* ssp. *caerulea*) as well as the families for branching phacelia (*Phacelia ramosissima*) and blue elderberry have changed.

The 2013 survey was conducted in the fall when migratory bird species are no longer present in southern California; consequently, the wildlife list is shorter than the 2011 wildlife list which included

Ms. Tricia D. Thrasher
December 5, 2013
Page 3 of 3

birds detected during the spring. Similarly, yellow-rumped warbler (*Dendroica coronata*), a species that would only occur on site during the fall and winter, was only detected during the 2013 survey.

The habitat assessments for special-status species and WRC MSHCP-covered species presented in the November 2011 report are still accurate. The WRC MSHCP consistency analysis presented in the November 2011 report is also still accurate.

Please contact me at (858) 444-3915, or Kathleen Dale at (951) 683-2741 if you have any questions.

Sincerely,



Erika Eidson
Senior Biologist

Enclosures:

Figures

Figure 1: Regional Location

Figure 2: Project Location

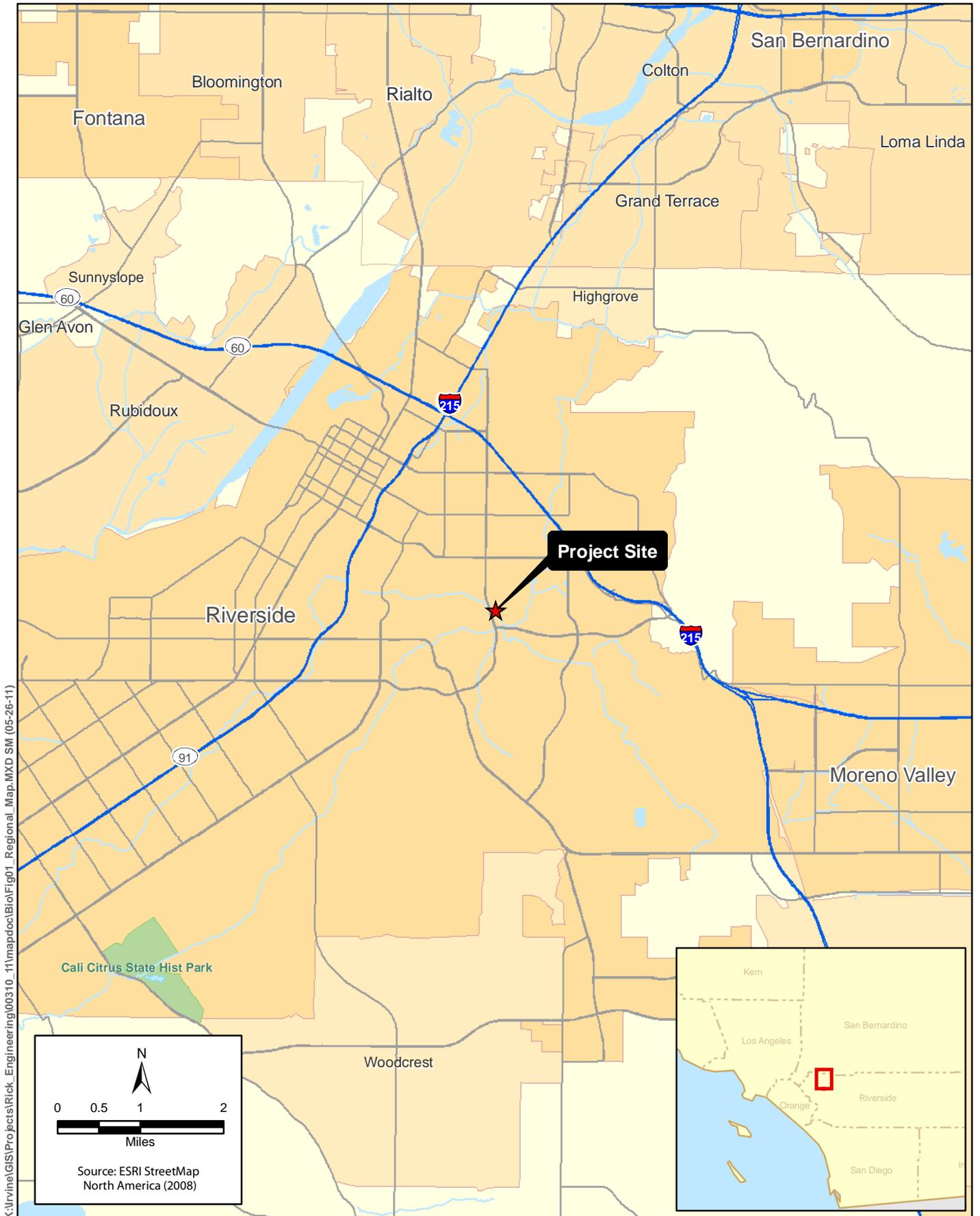
Figure 3: Vegetation Map

Photo Log

Plants Species Detected in the Work Area

Wildlife Species Detected in the Work Area

Figures



K:\Irvine\GIS\Projects\Rick_Engineering\00310_11\mapdoc\Bio\Fig01_Regional_Map.MXD SM (05-26-11)



Figure 1
Regional Vicinity Map
UCR Creekside Terrace Slope Protection Project

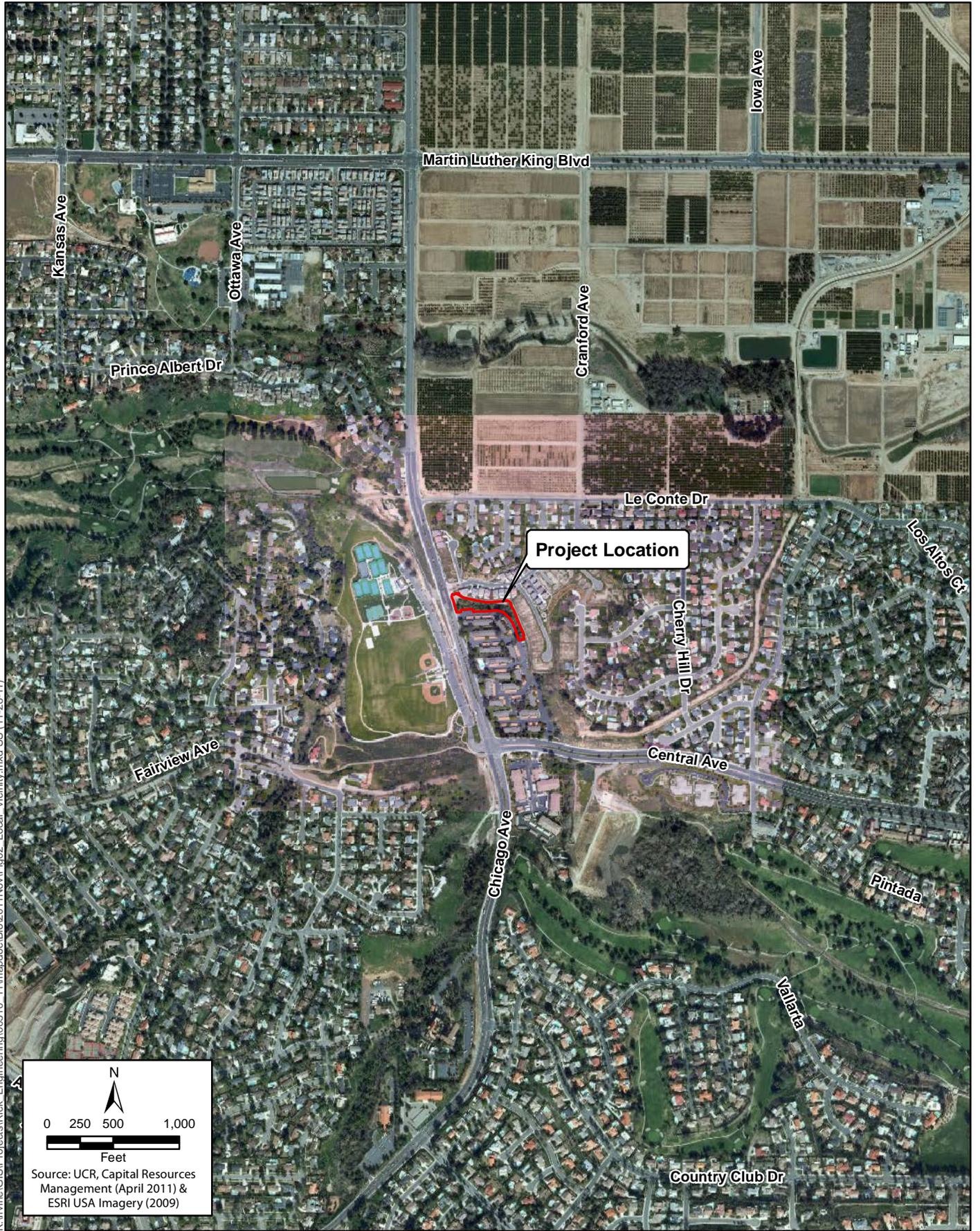


Figure 2
Local Vicinity Map
UCR Creekside Terrace Slope Protection Project



K:\Irvine\GIS\Projects\Rick_Engineering\00310_11\mapdoc\Bio\2013\Dec\Fig03_veg_map.mxd Date: 12/2/2013 2:43:47



Figure 3
Vegetation Map
UCR Creekside Terrace Slope Protection Project

Photo Log



Photo 1
Riparian habitat within
the western portion of
the project site, facing
southeast

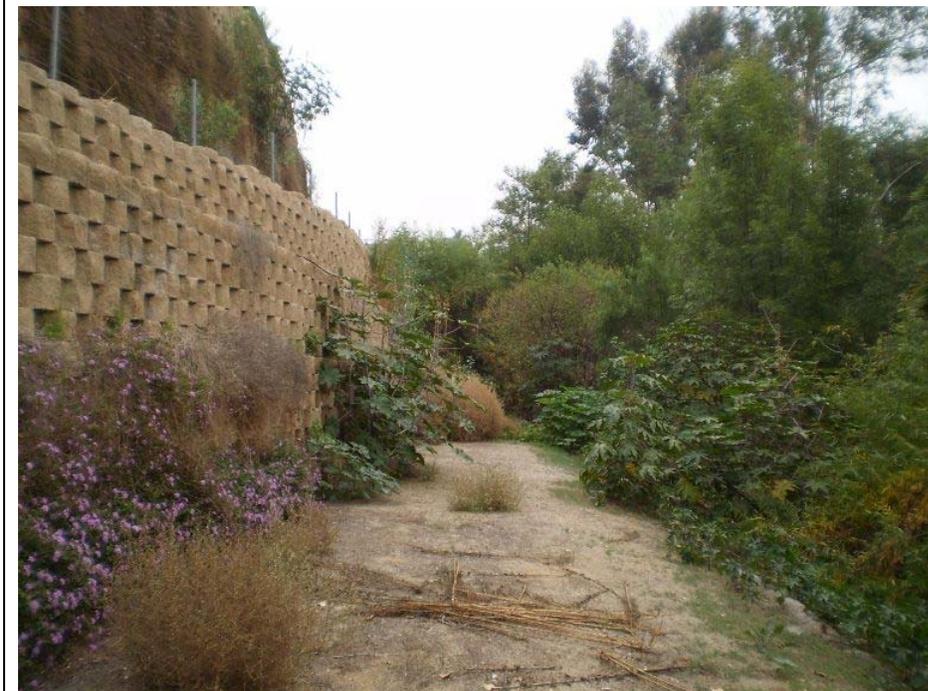


Photo 2
Access road located on
the north side of the
drainage, facing
southeast



Photo 3
Portion of the drainage
that is considered
disturbed southern
willow scrub. facing
southeast

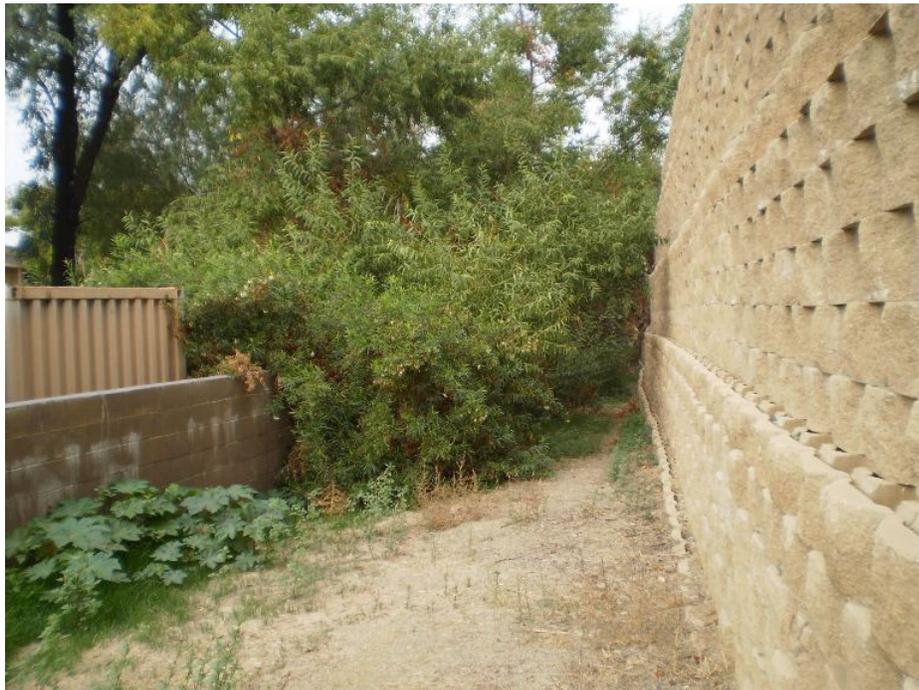


Photo 4
Southeastern portion
of the project site,
facing north

Plant Species Detected On Site

Attachment B. Plant Species Detected On Site

Scientific Name	Common Name	Special Status
EUDICOTS		
Adoxaceae - Muskroot family		
<i>Sambucus nigra ssp. caerulea</i>	Blue elderberry	
Amaranthaceae - Amaranth family		
* <i>Amaranthus albus</i>	Tumbleweed	
Anacardiaceae - Sumac Or Cashew family		
* <i>Schinus molle</i>	Pepper tree	
Asteraceae - Sunflower family		
<i>Baccharis salicifolia ssp. salicifolia</i>	Mule fat	
<i>Erigeron canadensis</i>	Horseweed	
* <i>Lactuca serriola</i>	Prickly lettuce	
* <i>Sonchus asper ssp. asper</i>	Prickly sow thistle	
<i>Stephanomeria sp.</i>	Wire lettuce	
<i>Xanthium strumarium</i>	Cocklebur	
Boraginaceae - Borage family		
<i>Phacelia ramosissima</i>	Branching phacelia	
Brassicaceae - Mustard family		
* <i>Brassica nigra</i>	Black mustard	
* <i>Hirschfeldia incana</i>	Shortpod mustard	
<i>Nasturtium officinale</i>	Water cress	
Chenopodiaceae - Goosefoot family		
* <i>Salsola tragus</i>	Russian thistle	
Euphorbiaceae - Spurge family		
<i>Chamaesyce albomarginata</i>	Rattlesnake weed	
* <i>Ricinus communis</i>	Castorbean	
Geraniaceae - Geranium family		
* <i>Erodium cicutarium</i>	Redstem filaree	
* <i>Erodium moschatum</i>	Greenstem filaree	
Malvaceae - Mallow family		
* <i>Malva parviflora</i>	Cheeseweed, little mallow	
Moraceae - Mulberry family		
* <i>Ficus carica</i>	Edible fig	
Myrtaceae - Myrtle family		
<i>Eucalyptus sp.</i>	Gum	
Oleaceae - Olive family		
<i>Fraxinus sp.</i>	Ash	
Platanaceae - Plane Tree, Sycamore family		

Scientific Name	Common Name	Special Status
<i>Platanus racemosa</i>	Western sycamore	
Salicaceae - Willow family		
<i>Populus fremontii ssp. fremontii</i>	Fremont cottonwood	
<i>Salix gooddingii</i>	Goodding's black willow	
<i>Salix laevigata</i>	Red willow	
<i>Salix lasiolepis</i>	Arroyo willow	
Solanaceae - Nightshade family		
<i>Datura wrightii</i>	Sacred thorn-apple	
* <i>Nicotiana glauca</i>	Tree tobacco	
<i>Solanum americanum</i>	American black nightshade	
Tamaricaceae - Tamarisk family		
* <i>Tamarix ramosissima</i>	Saltcedar	
Urticaceae - Nettle family		
<i>Urtica dioica</i>	Stinging nettle	
<i>Urtica dioica ssp. gracilis</i>	American stinging nettle	
MONOCOTS		
Arecaceae - Palm family		
* <i>Phoenix canariensis</i>	Canary Island palm	
* <i>Washingtonia robusta</i>	Mexican fan palm	
Cyperaceae - Sedge family		
* <i>Cyperus involucratus</i>	Umbrella plant	
<i>Schoenoplectus acutus var. occidentalis</i>	Common tule	
Poaceae - Grass family		
* <i>Bromus diandrus</i>	Ripgut grass	
* <i>Hordeum murinum</i>	Wall barley	
* <i>Pennisetum setaceum</i>	Crimson fountain grass	
* <i>Stipa miliacea var. miliacea</i>	Smilo grass	
Typhaceae - Cattail family		
<i>Typha domingensis</i>	Southern cattail	

Scientific Name	Common Name	Special Status
-----------------	-------------	----------------

Legend

*= Non-native or invasive species

Wildlife Species Detected On Site

Attachment C. Wildlife Species Detected On Site

Scientific Name	Common Name	Special Status
INVERTEBRATES		
Moths, Skippers and Butterflies		
<i>Pyrgus albescens</i>	White Checkered-Skipper	
VERTEBRATES		
Birds		
<i>Zenaida macroura</i>	Mourning Dove	
<i>Calypte anna</i>	Anna's Hummingbird	
<i>Picoides nuttallii</i>	Nuttall's Woodpecker	
<i>Sayornis nigricans</i>	Black Phoebe	
<i>Psaltriparus minimus</i>	Bushtit	
<i>Mimus polyglottos</i>	Northern Mockingbird	
<i>Setophaga coronata</i>	Yellow-rumped Warbler	
<i>Melospiza crissalis</i>	California Towhee	
<i>Melospiza melodia</i>	Song Sparrow	
<i>Haemorhous mexicanus</i>	House Finch	
<i>Carduelis tristis</i>	American Goldfinch	

Appendix F
Least Bell's Vireo Survey

RESULTS OF LEAST BELL'S VIREO SURVEYS FOR THE UNIVERSITY OF CALIFORNIA, RIVERSIDE CREEKSIDE TERRACE SLOPE PROTECTION PROJECT

PREPARED FOR:

Rick Engineering Company
1770 Iowa Avenue, Suite 100
Riverside CA 92507
Contact: Nate Smith, P.E.

PREPARED BY:

ICF International
9775 Businesspark Avenue
San Diego, CA 92131
Contact: Erika Eidson
(858) 578-8964

August 2011



ICF International. 2011. Results of Least Bell's Vireo Surveys for the UC Riverside Creekside Terrace Slope Protection Project. August. (ICF 00310.11.) San Diego, CA. Prepared for Rick Engineering Company, Riverside, CA.

Contents

	Page
Summary	1
Chapter 1 Introduction	1-1
Project Description	1-1
Environmental Setting	1-1
Species Description	1-2
Least Bell's Vireo	1-2
Chapter 2 Methods	2-1
Chapter 3 Results	3-1
Least Bell's Vireo	3-1
Other Special-Status Species	3-1
Chapter 4 Certification	4-1
Chapter 5 References	5-1
Appendix A – Wildlife Species Detected On Site	

Tables and Figures

Table	Page
1. Survey Conditions.....	2-1

Figure	Follows Page
1 Regional Vicinity	1-1
2 Project Location.....	1-1
3 Survey Area	1-1

Summary

ICF International was retained by Rick Engineering to conduct focused surveys for least Bell's vireo (*Vireo bellii pusillus*) at the site of the University of California, Riverside (UCR) Creekside Terrace Slope Protection project. The project site is located within the City of Riverside, Riverside County, California. Specifically, the project site consists of a drainage feature located approximately 0.20 miles north of the intersection of Chicago and Central Avenues. This drainage supports southern willow scrub and disturbed southern willow scrub.

The focused surveys for least Bell's vireo followed the USFWS (2001) protocol. Eight separate surveys were conducted along the entire survey area at least 10 days apart between April 10 and July 31, 2011, and during suitable weather conditions. The survey area was comprised of all areas of southern willow scrub and disturbed southern willow scrub in the project site. Surveys were conducted on May 9, 19, June 3, 15, and 25, and July 5, 15, and 25, 2011. All visits were performed during morning hours prior to 1100, when vireos are most active and included frequent stops to look and listen for least Bell's vireo vocalizations (songs and/or scolds). Surveys were not conducted during inclement weather, such as extreme hot or cold temperatures, fog, high winds, or rain. At this time, no special permits are required to perform focused surveys for least Bell's vireo in accordance with the recommended guidelines.

No least Bell's vireo individuals were detected during the eight focused surveys. The southern willow scrub within the survey area represents moderate quality habitat for least Bell's vireo and the disturbed southern willow scrub habitat represent low quality habitat. The southern willow scrub is predominated by arroyo willow and Goodding's willow and has a shrubby midstory, which is required by least Bell's vireo for foraging and nesting. The understory for this habitat type ranges from dense to sparse. The disturbed southern willow scrub, which is predominated by edible fig, castor bean, and blue elderberry, lacks the shrubby midstory and dense understory required by the species. Least Bell's vireo typically occupy habitat with large amounts of shrub and tree cover, a large degree of vertical stratification, and small amounts of aquatic and herbaceous cover.

Project Description

ICF International was retained by Rick Engineering to conduct focused surveys for least Bell's vireo (*Vireo bellii pusillus*) at the site of the University of California, Riverside (UCR) Creekside Terrace Slope Protection project. A habitat assessment conducted by ICF Biologists on May 2, 2011 determined the need for focused surveys for least Bell's vireo at the project site.

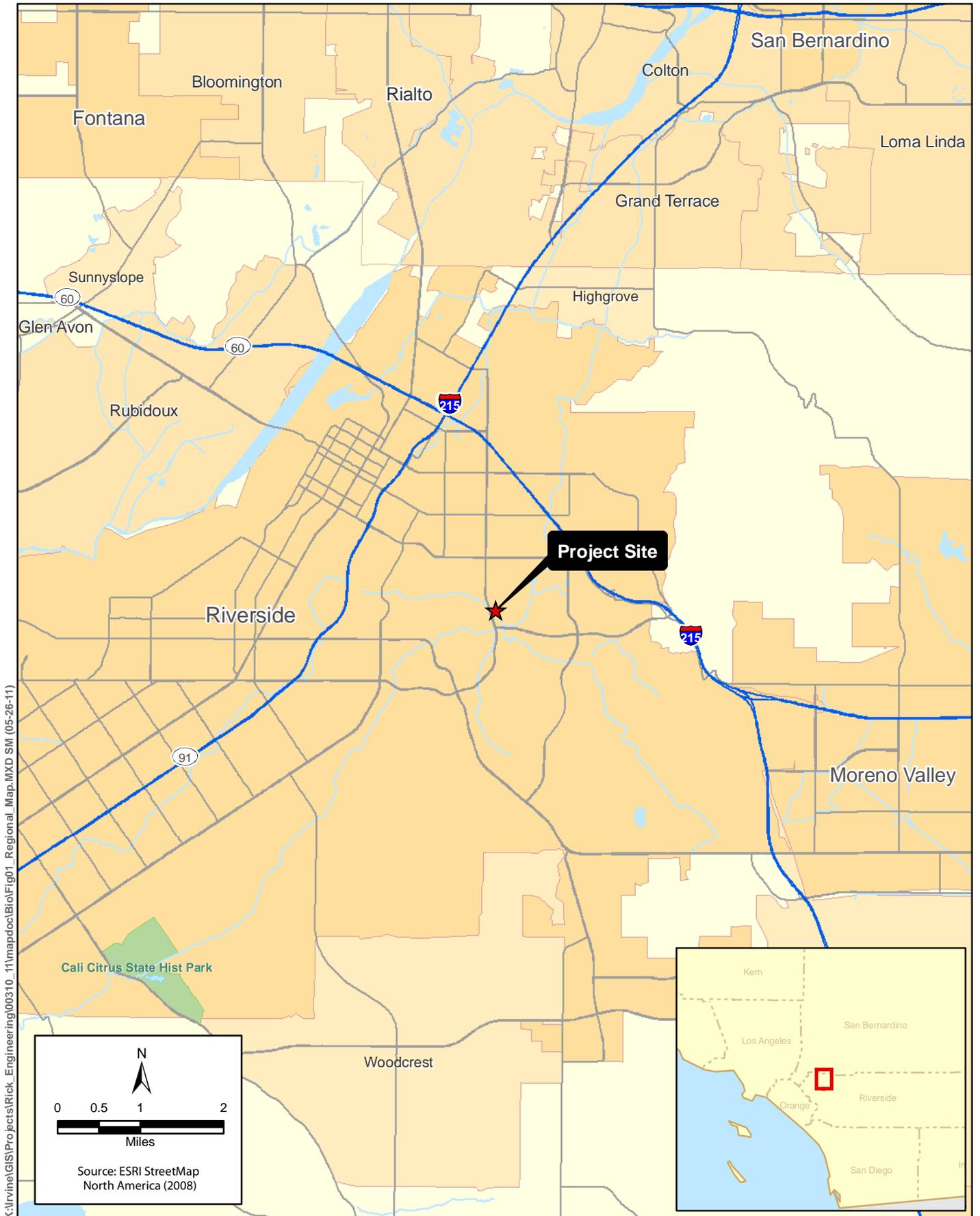
The project site is located within the City of Riverside, Riverside County, California (Figure 1). Specifically, the project site consists of a drainage feature located approximately 0.20 miles north of the intersection of Chicago and Central Avenues (Figure 2).

The proposed project involves stabilization of the north and east banks associated with the drainage. Rip-rap will be placed on the north and east slopes of the drainage to match the existing conditions of the south and west slopes.

Environmental Setting

The project site consists of a drainage that supports riparian vegetation. The drainage is situated between two residential complexes and is isolated from other riparian habitats. The flow of water enters the drainage through a culvert in the southeast corner of the site and exits through a culvert on the northwest side of the site. The drainage supports southern willow scrub and disturbed southern willow scrub (Figure 3). Southern willow scrub on site supports arroyo willow (*Salix lasiolepis*), Goodding's willow (*Salix gooddingii*), mule fat (*Baccharis salicifolia*), western sycamore (*Platanus racemosa*), Mexican elderberry (*Sambucus mexicana*), Mexican fan palm (*Washingtonia robusta*) and hoary nettle (*Urtica dioica*). Disturbed southern willow scrub supports similar species in addition to ornamental ash (*Fraxinus* sp.), castor-bean (*Ricinus communis*), edible fig (*Ficus carica*), Peruvian pepper tree (*Schinus molle*), Mediterranean tamarisk (*Tamarix ramosissima*) and tree tobacco (*Nicotiana glauca*).

Areas immediately adjacent to the drainage support disturbed areas dominated by non-native herbaceous species and exotic areas dominated by ornamental species (Figure 3). Elevation at the site is approximately 940 feet above mean sea level (MSL). The following soil types are mapped within the project site: Hanford Coarse Sandy Loam, 2 to 8 percent slopes (HcC) and Terrace escarpments (TeG) (NRCS 2011).



K:\Irvine\GIS\Projects\Risk_Engineering\00310_11\mapdoc\Bio\Fig01_Regional_Map.MXD SM (05-26-11)



Figure 1
Regional Vicinity Map
UCR Creekside Terrace Slope Protection Project

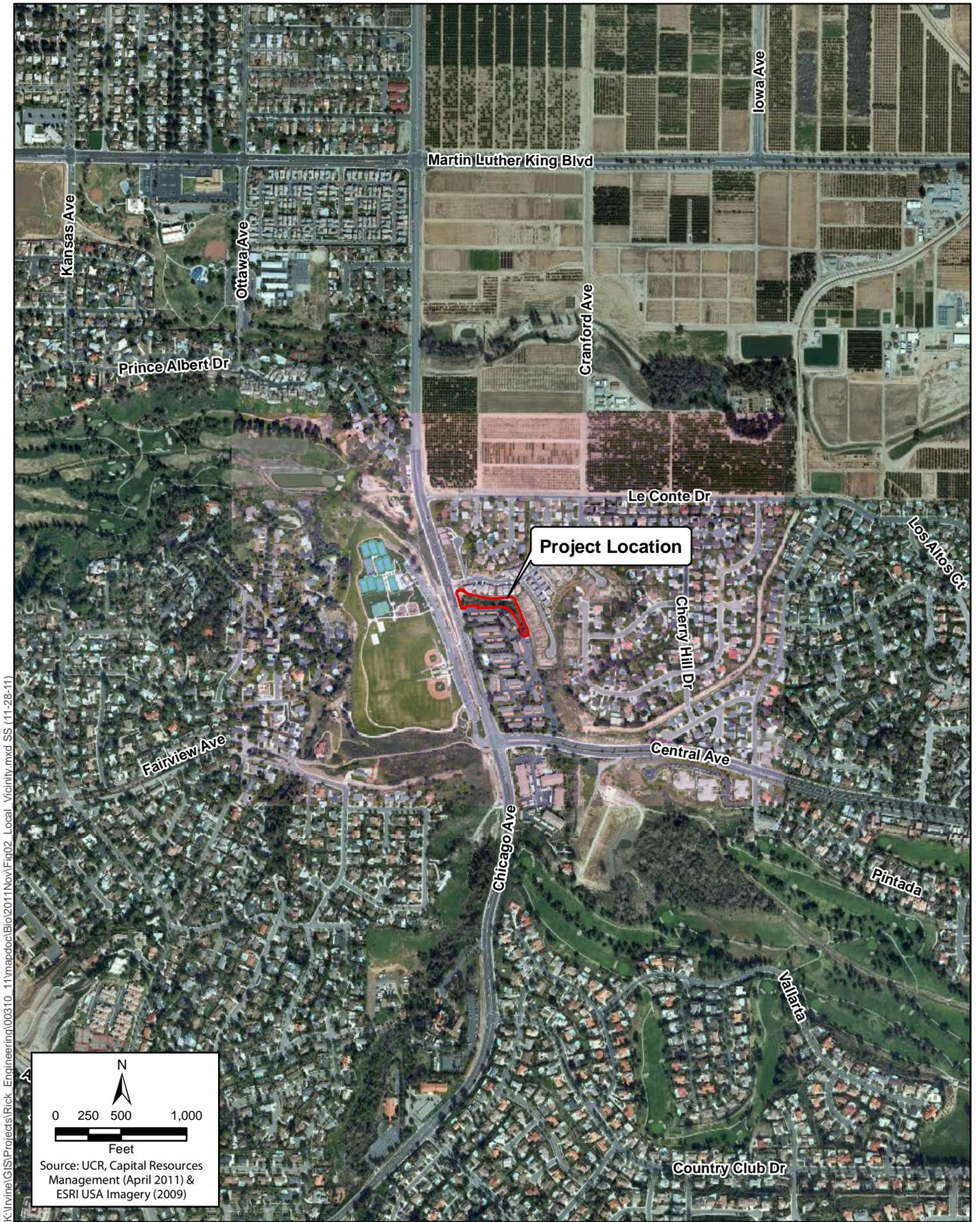


Figure 2
Local Vicinity Map
UCR Creekside Terrace Slope Protection Project



K:\Irvine\GIS\Projects\Rick_Engineering\00310_11\mapdoc\Biol2011\Nov\Fig03_veg_map.mxd SS (11-28-11)

Figure 3
Vegetation Map
UCR Creekside Terrace Slope Protection Project

Species Description

Least Bell's Vireo

There are four subspecies of the Bell's vireo (*Vireo bellii*); the westernmost—the least Bell's vireo (*V.b. pusillus*)—breeds in California and northern Baja California. The least Bell's vireo is a small, migratory insectivore that prefers dense riparian vegetation for foraging and nesting. The California Department of Fish and Game (CDFG) listed the least Bell's vireo as endangered in 1980. The U. S. Fish and Wildlife Service (USFWS) followed suit in 1986. Critical habitat was designated for this subspecies in 1994 along the southwestern coastline of California below Santa Barbara (USFWS 1994).

Historically, least Bell's vireo was a common to locally abundant species found in lowland riparian habitats between northern California and coastal southern California. However, loss of riparian habitats and brown-headed cowbird (*Molothrus ater*) parasitism led to a large population decline. When USFWS first listed the bird in 1986, the population was estimated to be a mere 300 pairs. The latest Five Year Review, dated September 2006, reported an almost 10-fold increase in population size since the time of its listing to an estimated 2,968 territories (USFWS 2006). Least Bell's vireo is found only in mid- to southern California, with the majority occurring in San Diego County.

Least Bell's vireos typically begin to arrive on their breeding grounds by mid to late March and begin to depart by late July; most having left by September. Males tend to arrive first and establish territories; females arrive a few days later. Site fidelity is high among adult least Bell's vireo, with many birds returning to the same territory each year and even using the same shrub as previous years (Salata 1983, Kus 2002). Nests are typically placed within 1 meter of the ground in dense shrubby riparian habitat, and a diverse canopy height is required for foraging, with willows often dominating the canopy layer (Salata 1983). In southern California, least Bell's vireo nest sites were most frequently located in riparian stands between 5 and 10 years old (SANDAG and RECON 1990). Based on rigorous statistical analysis of least Bell's vireo habitat structure and composition, this species appears to preferentially select sites with large amounts of shrub and tree cover, a large degree of vertical stratification, and small amounts of aquatic and herbaceous cover (SANDAG and RECON 1990).

Chapter 2 Methods

A record search of the California Natural Diversity Database (CNDDDB 2011) was conducted in order to review historical occurrence of least Bell's vireo in the area. The search parameters included the Riverside East quadrangle as well as the eight surrounding quadrangles (Riverside East, Riverside West, Fontana, San Bernardino South, Redlands, Sunnymead, Perris, Steele Peak, and Lake Mathews).

The focused surveys for least Bell's vireo followed the USFWS (2001) protocol. Eight separate surveys were conducted along the entire survey area at least 10 days apart between April 10 and July 31, 2011, and during suitable weather conditions. The survey area was comprised of all areas of southern willow scrub and disturbed southern willow scrub in the project site. Surveys were conducted on May 9, 19, June 3, 15, and 25, and July 5, 15, and 25, 2011 (Table 1). All visits were performed during morning hours prior to 1100, when vireos are most active and included frequent stops to look and listen for least Bell's vireo vocalizations (songs and/or scolds). Surveys were not conducted during inclement weather, such as extreme hot or cold temperatures, fog, high winds, or rain. At this time, no special permits are required to perform focused surveys for least Bell's vireo in accordance with the recommended guidelines.

Table 1. Survey Conditions

Survey No.	Date	Start Time	End Time	Temp. (°F)	Wind Speed (mph)	Sky Condition	Surveyor
1	May 9, 2011	0845	0955	61-65	0-3	80% cloud cover	Erika Eidson
2	May 19, 2011	0915	1030	65-68	0-5	50% cloud cover	Erika Eidson
3	June 3, 2011	0900	1035	68-74	0-1	Clear skies	Erika Eidson
4	June 15, 2011	0915	1045	75-80	0-1	Clear skies	Erika Eidson
5	June 25, 2011	0900	1025	75-80	0-1	Clear skies	Erika Eidson
6	July 5, 2011	0900	1030	86-90	0-1	Clear skies	Erika Eidson
7	July 15, 2011	0900	1030	68-75	0-5	90% cloud cover	Erika Eidson
8	July 25, 2011	0915	1030	75-78	0-2	10% cloud cover	Erika Eidson

Least Bell's Vireo

No least Bell's vireo individuals were detected during the eight focused surveys. The southern willow scrub within the survey area represents moderate quality habitat for least Bell's vireo and the disturbed southern willow scrub habitat represent low quality habitat. The southern willow scrub is predominated by arroyo willow and Goodding's willow and has a shrubby midstory, which is required by least Bell's vireo for foraging and nesting. The understory for this habitat type ranges from dense to sparse. The disturbed southern willow scrub, which is predominated by edible fig, castor bean, and blue elderberry, lacks the shrubby midstory and dense understory required by the species. Least Bell's vireo typically occupy habitat with large amounts of shrub and tree cover, a large degree of vertical stratification, and small amounts of aquatic and herbaceous cover.

The closest occurrences reported by the CNDDDB were from 2007 from the Santa Ana River approximately 4 miles northwest of the survey area and from Poorman's Reservoir approximately 5 miles east of the survey area. Three other occurrences were reported between 2004 and 2008 from the Santa Ana River, all of these were approximately 6 miles from the survey area (CNDDDB 2011).

Other Special-Status Species

In total, 36 wildlife species were detected during the surveys, including five invertebrates, 30 birds, and one mammal. Yellow warbler (*Dendroica petechia*), a State species of special concern, was detected in the survey area. A complete list of wildlife species detected during the surveys is presented in Appendix A.

Chapter 4 Certification

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.



Erika Eidson
Biologist – *Field Surveys, Primary Author*

August 3, 2011
Date

Chapter 5 References

- California Natural Diversity Data Base (CNDDB). 2011. Database RareFind 4 Report. Accessed June 22, 2011.
- Kus, B. 2002. Least Bell's Vireo (*Vireo bellii pusillus*). In The riparian bird conservation plan: a strategy for reversing the decline of riparian-associated birds in California. *California Partners in Flight*. Available: http://www.prbo.org/calpif/htmldocs/riparian_v-2.html.
- Natural Resources Conservation Service (NRCS). 2011. General Soil Map for California (STATSGO2). U.S. Department of Agriculture. Available: <<http://soildatamart.nrcs.usda.gov>>. Accessed: July 7, 2011.
- Robertson, D., S. F. Bailey, and D. S. Singer. 1997. Middle Pacific Coast. *Field Notes* 51:924–925.
- Salata, L. 1983. Status of the least Bell's vireo on Camp Pendleton, California. U.S. Fish and Wildlife Service, Laguna Niguel, CA. Unpublished Report.
- San Diego Association of Governments and Regional Environmental Consultants (SANDAG and RECON). 1990. Draft Comprehensive Species Management Plan for the Least Bell's Vireo (Draft). San Diego Assoc. of Governments, San Diego, CA. 244 pp.
- U.S. Fish and Wildlife Service (USFWS). 1994. Designation of critical habitat for the least Bell's vireo. 59 FR 4845 4867
- USFWS. 2001. Least Bell's vireo survey guidelines. Report from Carlsbad, California Field Office. January 19, 2001. 3 pp.
- USFWS. 2006. Least Bell's Vireo Five Year Review Summary and Evaluation. Report from Carlsbad, California Field Office. September 2006.

Appendix A
Wildlife Species Detected On Site

Appendix A. Wildlife Species Detected On Site

Scientific Name	Common Name	Special Status
INVERTEBRATES		
Moths, Skippers and Butterflies		
<i>Papilio zelicaon</i>	Anise Swallowtail	
<i>Pontia protodice</i>	Checkered White	
* <i>Pieris rapae</i>	Cabbage White	
<i>Vanessa atalanta</i>	Red Admiral	
<i>Junonia coenia</i>	Common Buckeye	
VERTEBRATES		
Birds		
<i>Accipiter cooperii</i>	Cooper's Hawk	
<i>Buteo jamaicensis</i>	Red-tailed Hawk	
<i>Falco sparverius</i>	American Kestrel	
* <i>Columba livia</i>	Rock Pigeon	
<i>Zenaida macroura</i>	Mourning Dove	
<i>Archilochus alexandri</i>	Black-chinned Hummingbird	
<i>Calypte anna</i>	Anna's Hummingbird	
<i>Selasphorus sasin</i>	Allen's Hummingbird	
<i>Picoides nuttallii</i>	Nuttall's Woodpecker	
<i>Picoides pubescens</i>	Downy Woodpecker	
<i>Contopus sordidulus</i>	Western Wood-Pewee	
<i>Sayornis nigricans</i>	Black Phoebe	
<i>Tyrannus verticalis</i>	Western Kingbird	
<i>Corvus brachyrhynchos</i>	American Crow	
<i>Corvus corax</i>	Common Raven	
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	
<i>Hirundo rustica</i>	Barn Swallow	
<i>Psaltiriparus minimus</i>	Bushtit	
<i>Thryomanes bewickii</i>	Bewick's Wren	
<i>Mimus polyglottos</i>	Northern Mockingbird	
<i>Dendroica petechia</i>	Yellow Warbler	CSC
<i>Melospiza crissalis</i>	California Towhee	

Scientific Name	Common Name	Special Status
<i>Melospiza melodia</i>	Song Sparrow	
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird	
<i>Icterus cucullatus</i>	Hooded Oriole	
<i>Carpodacus mexicanus</i>	House Finch	
<i>Carduelis psaltria</i>	Lesser Goldfinch	
<i>Carduelis tristis</i>	American Goldfinch	
* <i>Passer domesticus</i>	House Sparrow	
Mammals		
* <i>Felis catus</i>	Domestic Cat	

Legend

*= Non-native or invasive species

Special Status:

Federal:

FE = Endangered

FT = Threatened

State:

SE = Endangered

ST = Threatened

CSC = California Species of Special Concern

CFP = California Fully Protected Species

Appendix G
Jurisdictional Delineation

PRELIMINARY JURISDICTIONAL DELINEATION REPORT FOR THE UCR CREEKSIDE TERRACE SLOPE PROTECTION PROJECT

PREPARED FOR:

Rick Engineering
1770 Iowa Avenue, Suite 100
Riverside, CA 92057

PREPARED BY:

ICF International
9775 Businesspark Avenue, Suite 200
San Diego, CA 92131
Contact: Dale Ritenour, Senior Biologist
(858) 578-8964

November 2011



ICF International. 2011. Preliminary Jurisdictional Delineation Report for the UCR Creekside Terrace Slope Protection Project. (ICF 00310.11.) Prepared for Rick Engineering for University of California Riverside. November

Contents

Executive Summary	iv
Chapter 1 Introduction	1-1
Project Location	1-1
Project Description	1-1
Chapter 2 Regulatory Background	2-1
U.S. Army Corps of Engineers Regulated Activities	2-1
Waters of the U.S.	2-1
Wetlands	2-1
<i>Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers</i>	2-2
<i>Rapanos v. United States and Carabell v. U.S. Army Corps of Engineers</i>	2-2
Approved Jurisdictional Determinations.....	2-4
Preliminary Jurisdictional Determinations	2-4
State Water Resources Control Board Regulated Activities/Regional Water Quality Control Board	2-4
Section 401 of the Clean Water Act	2-5
Porter-Cologne Act	2-5
California Department of Fish and Game Regulated Activities	2-5
Section 1602 of the California Fish and Game Code	2-6
Western Riverside County MSHCP.....	2-6
Chapter 3 Methodology	3-1
Project Research	3-1
Field Investigation.....	3-1
Delineation Methods	3-1
Delineation of U.S. Army Corps of Engineers Jurisdictional Limits	3-2
Delineation of Regional Water Quality Control Board Jurisdictional Limits	3-3
Delineation of California Department of Fish and Game Jurisdictional Limits	3-3
Chapter 4 Results and Jurisdictional Impacts	4-1
Site Description	4-1
Sample Point	4-1
Connection to Navigable Water.....	4-2

Jurisdictional Limits..... 4-2

 U.S. Army Corps of Engineers Jurisdictional Limits 4-2

 Regional Water Quality Control Board Jurisdictional Limits 4-2

 California Department of Fish and Game Jurisdictional Limits 4-2

Impacts 4-3

Chapter 5 References.....5-1

- Appendix A Figures**
- Appendix B Data Form**
- Appendix C Feature Photographs**

Acronyms and Abbreviations

CDFG	California Department of Fish and Game
CFR	Code of Federal Regulations
CWA	federal Clean Water Act
EPA	U.S. Environmental Protection Agency
JDs	jurisdictional delineations
NRCS	Natural Resources Conservation Service
NWP	Nationwide Permit
OHWM	ordinary high-water mark
Porter Cologne	Porter-Cologne Water Quality Control Act
RGL	Regulatory Guidance Letter
RPW	Relatively permanent water
RWQCB	Regional Water Quality Control Board
SS	State streambeds
SWANCC	Solid Waste Agency of North Cook County
TNW	traditional navigable water
UCR	University of California Riverside
USC	United States Code
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WS	Waters of the State
WUS	Waters of the U.S.

Executive Summary

ICF International was retained by Rick Engineering to conduct a routine-level delineation of jurisdictional waters and wetlands potentially affected by the proposed University of California Riverside (UCR) Creekside Terrace Slope Protection Project. The delineation supports the regulatory permitting process under Sections 401 and 404 of the Clean Water Act (CWA) and Section 1602 of the California Fish and Game Code. The purpose of this delineation was to identify the extent of jurisdictional waters within the project site. Relevant jurisdictions include federal waters regulated by the United States Army Corps of Engineers (USACE) as Waters of the U.S. (WUS), State waters regulated by the Regional Water Quality Control Board (RWQCB) as Waters of the State (WS), and State streambeds (SS) regulated by the California Department of Fish and Game (CDFG).

The drainage was evaluated and determined to be to be a USACE non-wetland Waters of the United States (WUS), and contain CDFG and RWQCB jurisdictional features. The drainage did not meet the wetland criteria for USACE jurisdictional wetlands.

The project site supports approximately 0.4 acre of USACE jurisdictional non-wetland WUS and 0.6 acre of CDFG jurisdictional State streambed. The proposed project would temporarily impact approximately 0.25 acre of USACE jurisdictional resources and 0.4 acre of CDFG jurisdictional resources. Permanent impacts to USACE jurisdictional resources would be approximately 0.1 acre and permanent impacts to CDFG jurisdictional streambed would be approximately 0.2 acre.

This report documents a preliminary jurisdictional delineation performed for proposed slope protection for the University of California Riverside (UCR) Creekside Terrace development. The purpose of the delineation was to identify potential Section 404 wetlands, State Wetlands, Waters of the United States (WUS), Waters of the State (WS), and Streams and Lakes subject to California Fish and Game Code Section 1600 within and adjacent to the project site.

This jurisdictional delineation report describes the project site and existing conditions, discusses the regulations that govern the site, outlines the methodology used to conduct the delineation, and presents the results of the study. These results show the potentially jurisdictional resources found within the project site that may be subject to regulation by the U.S. Army Corps of Engineers (USACE), Regional Water Control Board (RWQCB), and California Department of Fish and Game (CDFG).

Project Location

The UCR Creekside Terrace Slope Protection project (herein referred to as the “Project”) is located within the City of Riverside, Riverside County, California (Figure 1, Appendix A). Specifically, the project site consists of a stream that is transitional below Sycamore Canyon to the Tequesquite Arroyo system and which is located approximately 0.20 miles north of the intersection of Chicago and Central Avenues (Figure 2, Appendix A). The project is located within Section 31, Township 2 South, Range 4 West of the Riverside East U.S. Geological Survey (USGS) quadrangle dated 1967, photorevised 1980. The project site is located at approximately 940 feet above mean sea level (MSL) as depicted on the Riverside East USGS topographic map. The coordinates (decimal degrees) for the project site are latitude 33.958882°W and longitude 117.346076°N. The primary Assessor’s Parcel Number (APN) associated with the project site is 254-370-003.

Project Description

The proposed project involves stabilization of the existing stream banks due to concerns regarding the stability of massive retaining walls adjoining the north and east edges of the stream within the Creekside Terrace development. This partially-constructed residential development was acquired by UCR for use as staff and faculty housing. The existing channelized condition of the stream was effected in conjunction with development of the adjoining apartment complex (sometime between 1977 and 1989 based upon historic aerial photographs; permitting history unknown). Subsequently, a riparian restoration program and long-term conservation program for this feature were established as a mitigation obligation of the Creekside Terrace development in 2006 (USACE/RWQCB Reference Number 200400635-DPS and CDFG 1600 Agreement 1600-2005-0093-R6 (Revision 1)).

The proposed improvements consist of reshaping the existing channel and establishment of rip-rap protection along the channel bottom and the north and east banks. This will establish a condition consistent with the original design plans and existing conditions on the south and west slopes,

which are characterized by rip-rap under a canopy of native and non-native riparian tree species. Construction will require the removal of all vegetation within the impact area on the north and east banks and across the channel bottom. The proposed design provides for reestablishment of soil over the rip-rap on the channel bottom. Ongoing maintenance will involve clearing of vegetation on the north and east banks; riparian vegetation will be allowed to reestablish naturally on the channel bottom. Impacts are not proposed for the south and west banks.

The following sections summarize the regulations imposed on each type of jurisdictional feature potentially present within the proposed project area.

U.S. Army Corps of Engineers Regulated Activities

USACE-regulated activities under Section 404 of the CWA involve a discharge of dredged or fill material into Waters of the U.S. (WUS). A discharge of fill material includes, but is not limited to, grading, placing rip-rap for erosion control, pouring concrete, laying sod, and stockpiling excavated material into WUS. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, performing some drainage channel maintenance activities, constructing temporary mining and farm/forest roads, and excavating without stockpiling.

Waters of the U.S.

WUS, as defined in the Code of Federal Regulations (CFR) Title 33, Section 328.3, include all waters or tributaries to waters, such as lakes, rivers, intermittent and perennial streams, mudflats, sand flats, natural ponds, wetlands, wet meadows, and other aquatic habitats.

Frequently, a WUS (with at least intermittently flowing water or tidal influences) is demarcated by the ordinary high-water mark (OHWM), defined in CFR 328.3(e) as:

that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Where an OHWM is present, waters may be defined as WUS when connectivity is determined to be present.

Wetlands

According to the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), three criteria must be satisfied to classify an area as a jurisdictional wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers

In 1986, in an attempt to clarify the reach of its jurisdiction, USACE stated that Section 404(a) extends to intrastate waters that:

(a) are or would be used as habitat by birds protected by migratory bird treaties, or (b) are or would be used as habitat by other migratory birds which cross state lines, or (c) are or would be used as habitat for endangered species, or (d) used to irrigate crops sold in interstate commerce (51 *Federal Register* 41217).

As a result of the 2001 *Solid Waste Agency of North Cook County (SWANCC)* case, the U.S. Supreme Court held that USACE may not rely on the Migratory Bird Rule to establish a significant nexus to interstate or foreign commerce. Although no formal guidance was issued by USACE interpreting the extent to which the *SWANCC* decision would limit jurisdictional determinations, in practice USACE considers intrastate waters as WUS where there is an appropriate connection to a navigable water or other clear interstate commerce connection. Therefore, WUS, including jurisdictional wetlands, must show connectivity with (be tributary to) traditionally navigable waters (TNW) for such a feature to be considered jurisdictional.

Rapanos v. United States and Carabell v. U.S. Army Corps of Engineers

In 2006, the U.S. Supreme Court again issued an opinion regarding the extent of USACE jurisdiction over certain waters under Section 404 of the CWA. The *Rapanos-Carabell* consolidated decisions addressed the question of jurisdiction over attenuated tributaries to WUS as well as wetlands adjacent to those tributaries. In a plurality decision, five of the nine justices remanded both cases to the lower courts for re-evaluation. However, those five justices disagreed as to what the test for determining jurisdiction should be.

The first approach (Justices Scalia, Roberts, Thomas, and Alito) held that “waters of the United States” include only those relatively permanent, standing, or continuously flowing bodies of water “forming geographic features” that are described in ordinary phrasing as “streams, oceans, river and lakes” (i.e., with surface water connection to navigable waters). This would not exclude streams, rivers, or lakes that might dry up in extraordinary circumstances, such as drought, or seasonal rivers that contain continuous flow during some months of the year but no flow during dry months (*Rapanos et ux. et al. v. United States*, 547 U.S. 04-1034 [2006]).

The second approach (Justice Kennedy) concluded that Congress enacted the CWA to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters” (33 United States Code [USC] Section 1250(a)). Therefore, if the tributaries and adjacent wetlands, alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters understood as navigable in the traditional sense, these waters come within the statutory phrase “navigable waters.” USACE’s jurisdiction under the CWA reaches tributaries and other waters and wetlands with a significant nexus to waters that are in fact navigable or could reasonably be made so. However, USACE must establish a significant nexus on a case-by-case basis when seeking to regulate wetlands based on adjacency to nonnavigable tributaries to avoid unreasonable applications of the CWA.

USACE and the U.S. Environmental Protection Agency (EPA) issued guidance related to the *Rapanos* decision on June 5, 2007. The guidance identifies those waters over which the agencies (USACE and EPA) will assert jurisdiction categorically and on a case-by-case basis, based on the reasoning of the *Rapanos* opinions. To summarize, USACE will continue to assert jurisdiction over:

1. traditional navigable waters (TNWs) and their adjacent wetlands;
2. nonnavigable tributaries of TNWs that are relatively permanent (e.g., tributaries that typically flow year-round or have a continuous flow at least seasonally) and wetlands that directly abut such tributaries (e.g., not separated by uplands, berm, dike, or similar feature) (note: relatively permanent waters [RPWs] do not include ephemeral tributaries, which flow only in response to precipitation, and intermittent streams, which do not typically flow year-round or have continuous flow at least seasonally [e.g., typically three months]); and
3. non-RPWs if determined (in a fact-specific analysis) to have a significant nexus with a TNW, including nonnavigable tributaries that do not typically flow year-round or have continuous flow at least seasonally, wetlands adjacent to such tributaries, and wetlands adjacent to but not directly abutting a relatively permanent nonnavigable tributary. Absent a significant nexus, jurisdiction is lacking.

A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical, and/or biological integrity of a TNW. Principal considerations when evaluating significant nexus include volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, plus hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands. Certain ephemeral waters in the arid west are distinguishable from the geographic features described above where such ephemeral waters are tributaries and have a significant nexus to downstream TNWs. For example, these ephemeral tributaries may serve as a transitional area between the upland environment and the TNW. Such ephemeral tributaries may provide habitat for wildlife and aquatic organisms in downstream TNWs and support nutrient cycling, sediment retention and transport, pollutant trapping and filtration, and improvement of water quality.

Swales or erosional features (e.g., gullies and small washes characterized by low volume and infrequent or short-duration flow) are generally not WUS because they are not tributaries or they do not have a significant nexus to downstream TNWs. In addition, ditches (including roadside ditches) excavated wholly in uplands and draining only uplands that do not carry a relatively permanent flow of water are generally not WUS because they are not tributaries or they do not have a significant nexus to downstream TNWs. Even when not jurisdictional under Section 404 of the CWA, these features may still be jurisdictional at State or local levels, such as under Section 401 of the CWA, the Porter-Cologne Water Quality Control Act (Porter-Cologne), and/or Section 1602 of the California Fish and Game Code.

Approved Jurisdictional Determinations

Prior to the *Rapanos* guidance, USACE required districts to request concurrence for only those jurisdictional delineations (JDs) where the district was planning to assert jurisdiction over a nonnavigable, intrastate, isolated water, and/or wetland. Under *Rapanos*, the agencies require that all determinations for nonnavigable, isolated waters be evaluated by USACE and EPA headquarters prior to USACE making a final decision on the JD (an “approved JD”).

An approved JD is an official USACE determination that jurisdictional or navigable WUS are either present or absent on a particular site. The approved JD precisely identifies the limits of those waters on the project site. Approved JDs are documented in accordance with Regulatory Guidance Letter (RGL) 07-01 and require the use of the approved JD form (*Rapanos* form). An approved JD form is completed for each reach of each tributary on the project site and is reviewed by USACE and EPA. Legally, an approved JD represents USACE official determination that the JD's findings are correct, is valid for 5 years, can be used and relied upon in a CWA citizen's lawsuit if its legitimacy is challenged (except under extraordinary circumstances), and can be immediately appealed (33 CFR Part 331).

Preliminary Jurisdictional Determinations

Under RGL 08-02, dated June 26, 2008, USACE established an alternative to the approved JD process: the "preliminary JD." A preliminary JD is a non-binding written indication that there may be WUS, including wetlands, on a project site and identifies the approximate location of these features. Preliminary JDs are used when a landowner, permit applicant, or other affected party elects to voluntarily waive or set aside questions regarding CWA jurisdiction over a particular site, usually in the interest of allowing the landowner to move ahead expeditiously to obtain 404 authorization where the party determines that it is in his or her best interest to do so. A preliminary JD is not an official determination regarding the jurisdictional status of potentially jurisdictional features and has no bearing on approved JDs. A preliminary JD cannot be used to confirm the absence of jurisdictional waters or wetlands, is advisory in nature, and cannot be appealed. It is considered "preliminary" because a recipient can later request an approved JD if one is necessary or appropriate.

Finally, although a preliminary JD may be chosen by the applicant, the district engineer reserves the right to use an approved JD where warranted. A preliminary JD is documented using the preliminary JD form, provided as Attachment 1 to RGP 08-02. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD treats all waters and wetlands that would be affected in any way except by the permitted activity as if they are jurisdictional.

State Water Resources Control Board Regulated Activities/Regional Water Quality Control Board

In California, the SWRCB and nine Regional Water Quality Control Boards (RWQCB) regulate activities within State and federal waters under Section 401 of the CWA and the State Porter-Cologne Act. The SWRCB is responsible for setting statewide policy, coordinating and supporting the RWQCB efforts, and reviewing petitions that contest RWQCB actions. Each semi-autonomous RWQCB sets water quality standards, issues 401 certifications and waste discharge requirements, and take enforcement action for projects occurring within their boundary. However, when a project crosses multiple RWQCB jurisdictional boundaries, the SWRCB becomes the regulating agency for both of these acts and issues project permits.

Section 401 of the Clean Water Act

Section 401 of the CWA requires that

any applicant for a federal permit for activities that involve a discharge to waters of the United States shall provide the federal permitting agency a certification from the state in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal Clean Water Act.

Therefore, in California, before USACE will issue a Section 404 permit, applicants must apply for and receive Section 401 water quality certification or waiver from the RWQCB or SWRCB, as applicable. Under Section 401 of the CWA, the SWRCB/RWQCB regulates at the State level all activities that are regulated at the federal level by USACE. Therefore, SWRCB/RWQCB jurisdiction usually matches the jurisdictional boundaries for WUS (mapped at the OHWM). However, if waters are determined not to be WUS, they may still be subject to SWRCB/RWQCB jurisdiction based on the Porter-Cologne Act.

Porter-Cologne Act

Under the Porter-Cologne Act, the SWRCB/RWQCB regulates all such activities—as well as dredging, filling, or discharging materials into Waters of the State (WS)—that are not regulated by USACE because of a lack of connectivity with a navigable water body or lack of an OHWM. The SWRCB/RWQCB regulates actions that would involve “discharging waste, or proposing to discharge waste, within any region that could affect waters of the state” (California Water Code 13260[a]), pursuant to provisions of the State Porter-Cologne Act. WS are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (California Water Code 13050 [e]). Such waters may include waters not subject to regulation under Section 404, such as swales or isolated vernal pools.

California Department of Fish and Game Regulated Activities

Under California Fish and Game Code, Sections 1600–1616, CDFG has the authority to regulate work that will substantially divert or obstruct the natural flow—or substantially change or use any material from the bed, channel, or bank—of any river, stream, or lake. CDFG also has the authority to regulate work that will deposit or dispose of debris, wastewater, or other material containing crumbled, flaked, or ground pavement that may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all work involving State or local government discretionary approvals.

Section 1602 of the California Fish and Game Code

The California Fish and Game Code mandates that

it is unlawful for any entity to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity.

CDFG jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. Furthermore, CDFG jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that function

hydrologically as part of the riparian system. Historical court cases have further extended CDFG jurisdiction to include watercourses that seemingly disappear but re-emerge elsewhere. Under the CDFG definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional.

Water features such as vernal pools and other seasonal swales where the defined bed and bank are absent and the feature is not contiguous or closely adjacent to other jurisdictional features are generally not asserted to fall within State jurisdiction under Section 1602. CDFG generally does not assert jurisdiction over human-made water bodies unless they are located where such natural features were previously located or (importantly) where they are contiguous with existing or prior natural jurisdictional areas.

Western Riverside County MSHCP

Riparian habitats are afforded protections in western Riverside County by the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). Section 6.1.2, "Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools," of the MSHCP defines *riparian/riverine* areas as:

lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year. With the exception of wetlands created for the purposes of providing wetlands habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions.

Implementing provisions of the MSHCP may require preparation of a Determination of Biologically Equivalent or Superior Preservation (DBESP) report for projects that involve impacts to riparian/riverine resources. The purpose of the DBESP report is to ensure replacement of any lost functions and values of habitat as it relates to specific animal species protected under the MSHCP.

Project Research

To prepare for a field visit, surveyors obtained an aerial photograph (1 inch = 100 feet) of the site and used it to identify potential site features such as vegetation types, topographic changes, or visible drainage patterns.

Additionally, the relevant U.S. Department of Agriculture (USDA) soil survey map was reviewed to identify the soil series that occur on the project site. These mapped soil series were compared with the Field Office Official List of Hydric Soil Map Units (U.S. Department of Agriculture 2011) and the pertinent USDA Natural Resources Conservation Service (NRCS) Soil Survey online map to determine the presence or absence, and location, of hydric soils within the project site (USDA 2011).

Field Investigation

ICF International biologists Dale Ritenour and Paul Schwartz performed the jurisdictional delineation on May 2, 2011. The entire project boundary was surveyed to determine the presence/absence of any potential jurisdictional features; any potential features identified were then investigated further to determine whether they met the criteria for federal, State, or local jurisdiction. All features were delineated following USACE, RWQCB, and CDFG guidance.

Delineated boundaries of all features identified within the project site were mapped on an aerial photograph. A Wetland Determination data form was completed for the sample point (Appendix B).

Delineation Methods

USACE, CDFG, and RWQCB have differing criteria for delineation of jurisdictional water features. The following sections describe the methods for delineation of jurisdictional limits for each agency.

Delineation of U.S. Army Corps of Engineers Jurisdictional Limits

ICF International methods for delineating USACE jurisdictional features follow the guidelines set forth in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Regional Supplement, USACE 2008a). USACE takes jurisdiction over wetlands with connectivity to relatively permanent and traditionally navigable waterways, and over non-wetland waters including streambeds, rivers, and open water.

Three criteria normally must be fulfilled in order to classify an area as a jurisdictional USACE wetland: (1) a predominance of hydrophytic vegetation, (2) the presence of hydric soils, and (3) the presence of wetland hydrology. Details of the application of these techniques are described below.

- **Hydrophytic Vegetation.** The hydrophytic vegetation criterion is satisfied at a location if greater than 50% of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) (USACE 1987). An *OBL indicator status* refers to plants that have a 99% probability of occurring in wetlands under natural conditions. A *FACW indicator status* refers to plants that usually occur in wetlands (67 to 99% probability) but are occasionally found elsewhere. A *FAC indicator status* refers to plants that are equally likely to occur in wetlands or elsewhere (estimated probability 34 to 66% for each). The wetland indicator status used for this report follows the *National List of Plant Species that Occur in Wetlands: California (Region 0)* (U.S. Fish and Wildlife Service 1988).
- **Hydric Soils.** The hydric soil criterion is satisfied at a location if soils in the area can be inferred or observed to have a high groundwater table, if there is evidence of prolonged soil saturation, or if there are any indicators suggesting a long-term reducing environment in the upper 18 inches of the soil profile. Reducing conditions are most easily assessed using soil color. Soil colors were evaluated using the *Munsell Soil Color Charts* (Kollmorgen Corporation 1975).
- **Wetland Hydrology.** The wetland hydrology criterion is satisfied at a location based upon conclusions inferred from field observations that indicate an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (U.S. Army Corps of Engineers 1987, 2006).

Areas meeting all three of these parameters are generally designated as USACE wetlands.

ICF International methods for the delineation of non-wetland WUS were based on the limits of indicators for OHWM, following established criteria outlined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Regional Supplement, USACE 2008a).

The field guide describes physical evidence that should be used to ascertain the lateral limits of jurisdiction; generally more than one physical indicator or other means for determining the OHWM is used. The following physical indicators of OHWM were used in the field:

- Presence of litter and debris
- Wracking
- Bed and banks

When documenting the OHWM width within the stream, surveyors took measurements of stream width at various locations using a survey measuring tape. Distinct changes in channel width or riparian vegetation width were recorded.

Delineation of Regional Water Quality Control Board Jurisdictional Limits

The RWQCB jurisdiction generally follows the delineation of USACE jurisdictional wetland or nonwetland waters of the U.S. Since this site has bed-and-bank OHWM and connectivity to RPW and TNW, the boundaries of the RWQCB jurisdiction will match that of USACE.

Delineation of California Department of Fish and Game Jurisdictional Limits

Evaluation of California Fish and Game Code jurisdiction followed the guidance of related CDFG materials and standard practices by CDFG personnel. CDFG generally exerts jurisdiction over streambeds and to habitats adjacent to watercourses, such as willow woodlands that function hydrologically as part of the riparian system. CDFG jurisdiction was delineated by measuring outer boundaries of the greater of either the top of bank measurement (bank full width) or the extent of associated riparian or wetland vegetation.

Site Description

The site consists of a stream and narrow riparian corridor in the eastern section of the City of Riverside. The streambed is confined between an apartment complex and the Creekside Terrace housing development. The upstream tributary area is characterized by Sycamore Canyon Wilderness Park and established residential neighborhoods, with the immediate upstream area characterized by Canyon Crest golf course and Sycamore Dam (with associated flood control basin). This stream is tributary to the Tequesquite Arroyo and Santa Ana River.

Onsite, the stream channel averages approximately 25 feet in width; the banks are steep and the channel is over ten feet deep. The stream enters the site through a culvert in the southeast corner of the site, proceeds 650 feet through the site with a gradient of less than 2 percent, and exits steeply through a 6-foot diameter culvert on the west side of the site. At the time of the current field work, approximately 2/3 of the culvert at the upstream end of the stream was filled with sediment. Rip-rap is present and partially buried by soil on the west/south bank. The east/north bank is primarily earthen and non-reinforced. A massive retaining wall exists to the north/east of the stream, supporting the Creekside Terrace development on the bluff above. An approximately 10-foot wide dirt access path exists on the north/east side of the stream, between the stream and retaining wall. A section of the east slope has been eroded by the stream, leaving a vertical stream bank and approximately 6-foot separation from stream and retaining wall. Representative photos of the site are presented in Appendix C.

Soils mapped within the study area include Hanford coarse sandy loam, 2 to 8 percent (HcC) and Terrace Escarpments (TeG). Neither of these soil types are listed as hydric soils (UDSA 2011).

Sample Point

One sample point was taken within the study area to evaluate potential presence of USACE wetlands. The location of the sample point is shown on Figure 3 (Appendix A) and was located immediately adjacent to the inundated channel at the west end of the site. While the open overstory was dominated by trees found normally in wetlands, including western cottonwood (*Populus fremontii*) and black willow (*Salix gooddingii*), only three of the six dominant plant species were hydrophytes (FAC or wetter), so the point did not meet the vegetation dominance test of over 50 percent wetland species. The point was adjacent to surface water (a primary hydrology indicator), and had two secondary riverine hydrology indicators including sediment deposits and drift deposits, so the point met the wetland hydrology criterion. The soil pit dug to 14 inches did not present any indicators of hydric soils. Since only one of three wetland indicators was met, the point is not a USACE wetland. The site has an OHWM and is connected to RPW, so the site is a USACE non-wetland Waters of the U.S.

Connection to Navigable Water

This stream is a perennial non-wetland WUS (RPW) which is tributary to the Santa Ana River (RPW), which is tributary to the Pacific Ocean (TNW). This connectivity provides a nexus for regulation of the non-wetland WUS by the USACE.

Jurisdictional Limits

Descriptions of onsite jurisdictional limits are provided below, and are mapped on Figures 3 and 4 (Appendix A).

U.S. Army Corps of Engineers Jurisdictional Limits

The streambed constitutes USACE jurisdictional non-wetland Waters of the U.S. The low-flow streambed varies from approximately 10 to 14 feet in width at the base of the channel, and the jurisdictional streambed channel (OHWM at top of bank) averages 25 feet in width. The linear distance along the flowline between the two culverts is approximately 650 feet. The total area of jurisdictional non-wetland WUS within the OHWM of the survey area is 0.377 acre.

Regional Water Quality Control Board Jurisdictional Limits

This streambed has an OHWM and connectivity to RPW, so the limits of RWQCB jurisdiction equal the limits of USACE jurisdiction. The total area of jurisdictional RWQCB Waters of the State within the survey area is 0.377 acre.

California Department of Fish and Game Jurisdictional Limits

CDFG jurisdictional limits extend beyond the OHWM and top of bank to the limits of associated riparian habitat. Jurisdictional limits onsite includes riparian associated southern willow scrub and disturbed southern willow scrub.

Southern willow scrub onsite is dominated by willows (*Salix gooddingii* and *S. lasiolepis*) and cottonwoods. The willows average 15 to 25 feet tall with trunk width (diameter at breast height) of 4 to 8 inches. Cottonwoods average 20 to 30 feet tall. The limits of southern willow scrub are regarded as CDFG jurisdiction, with 0.476 acre of southern willow scrub onsite.

Disturbed Southern Willow Scrub onsite consists of southern willow scrub (as described above) which has been invaded by exotic trees including edible fig (*Ficus carica*), Mexican fan palm (*Washingtonia robusta*), and salt-cedar (*Tamarix ramossissima*). The limits of disturbed southern willow scrub are regarded as CDFG jurisdiction and 0.115 acre occurs onsite.

CDFG jurisdictional State streambed totals 0.591 acre.

IMPACTS

The proposed project entails improvements to establish a channel configuration and reinforcement consistent with the original design plans. Construction is expected to require complete removal of the existing vegetation along the north/east bank and the channel bottom. Upon completion of construction, soil cover will be reestablished over the channel bottom and riparian vegetation will be allowed to reestablish naturally. To ensure stability of the banks at the foot of the retaining walls, the north and east banks will be regularly maintained to clear any vegetation.

Based upon construction limits encompassing the entire channel bottom and north/east bank, the proposed project would temporarily impact approximately 0.25 acre of the 0.4 acre of USACE jurisdictional non-wetland WUS and RWQCB jurisdictional WS present onsite. Considering natural reestablishment of riparian cover on the channel bottom, permanent impacts would be approximately 0.1 acre.

The project would temporarily impact approximately 0.4 acre of the 0.6 acre of CDFG jurisdictional resources present onsite. Considering natural reestablishment of riparian cover on the channel bottom, permanent impacts would be approximately 0.2 acres.

Impacts to riparian/riverine resources that adversely affect covered animal species are subject to a process under the MSHCP that documents offset of impacts (Determination of Biologically Equivalent or Superior Preservation, or DBESP). The DBESP is subject to review by the local permittee and concurrence by the USFWS and the CDFG. At this juncture a determination as to whether the project will be subject to formal compliance with the MSHCP is pending ongoing coordination with the City of Riverside regarding the need for discretionary action by the City. While the University is not a local permittee and is not subject to formal compliance with the riparian/riverine policies under the MSHCP, consistency with the MSHCP is addressed in conjunction with California Environmental Quality Act documentation for campus projects. The campus has identified the Riverside County Parks and Open Space District mitigation bank for riparian enhancement in the Santa Ana River as the mitigation vehicle for the proposed improvements, including replacement mitigation for the previously-issued regulatory permits for the Creekside Terrace development.

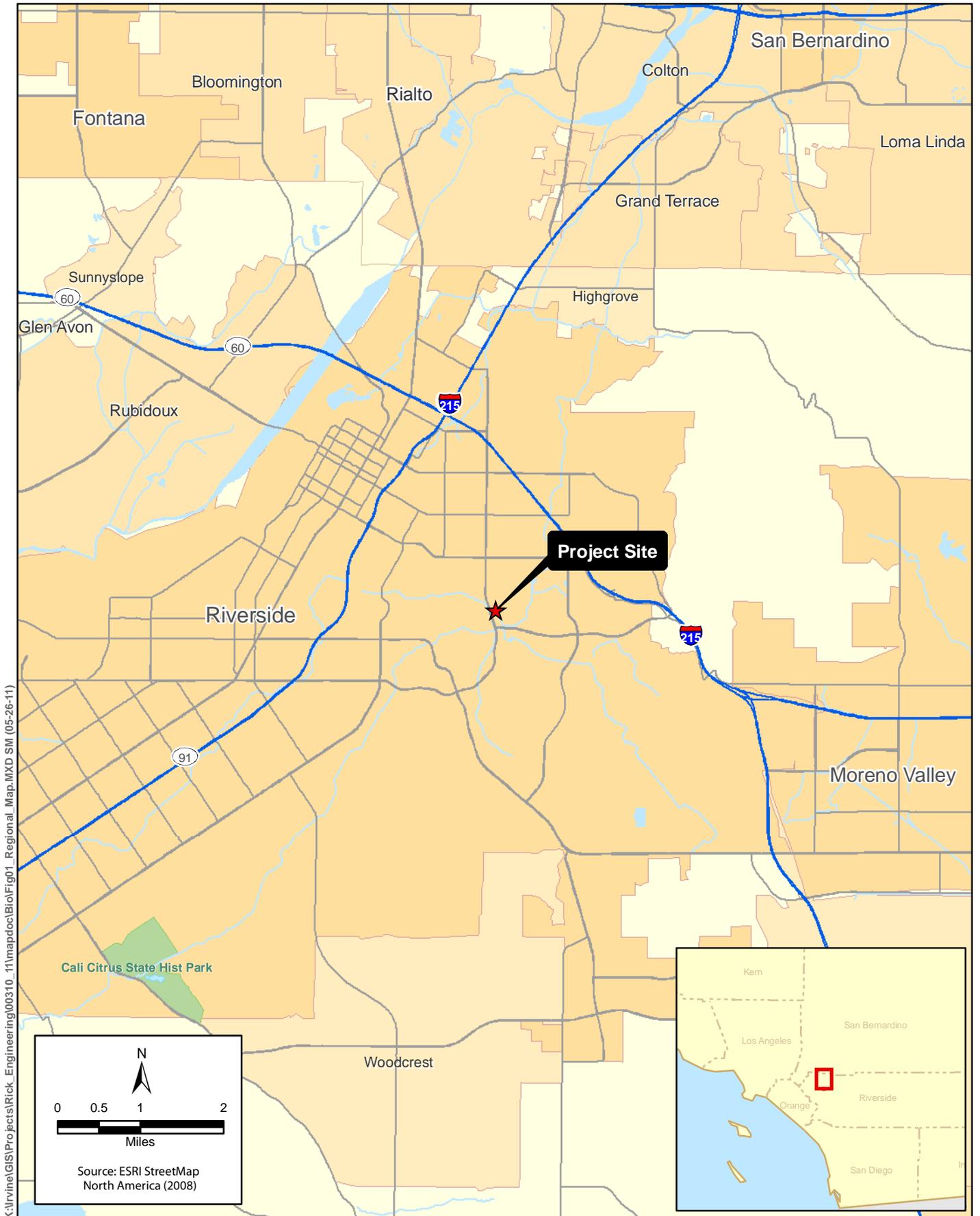
Chapter 5

References

- Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y087-1, Environmental Laboratory, Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi.
- Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency, Nongame Heritage Program, Department of Fish & Game, Sacramento, Calif. 156 pp.
- ICF International. 2011. *Biological Resources Assessment Report for the UCR Creekside Terrace Slope Protection Project*. Prepared for Rick Engineering. Riverside County, California.
- U.S. Army Corps of Engineers (USACE). 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. Edited by J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- . 2008b. *A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States: A Delineation Manual*. Available: <http://www.crrel.usace.army.mil/library/technicalreports/ERDC-CRREL-TR-08-12.pdf>. August.
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). 2011. *Web Soil Survey*. Available: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
- . 2010. *Field Indicators of Hydric Soils in the United States*, Version 7.0. L.M. Vaso;as, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils. Available: <http://soils.usda.gov/use/hydric/>
- U.S. Fish and Wildlife Service (USFWS). 1988. *National List of Wetlands Plants*. Available: <http://www.fws.gov/pacific/ecoservices/habcon/pdf/National%20List%20of%20Plant%20Species%201988.pdf>

Appendix A

Figures



K:\Irvine\GIS\Projects\Rick_Engineering\00310_11\mapdoc\Bio\Fig01_Regional_Map.MXD SM (05-26-11)



Figure 1
Regional Vicinity Map
UCR Creekside Terrace Slope Protection Project

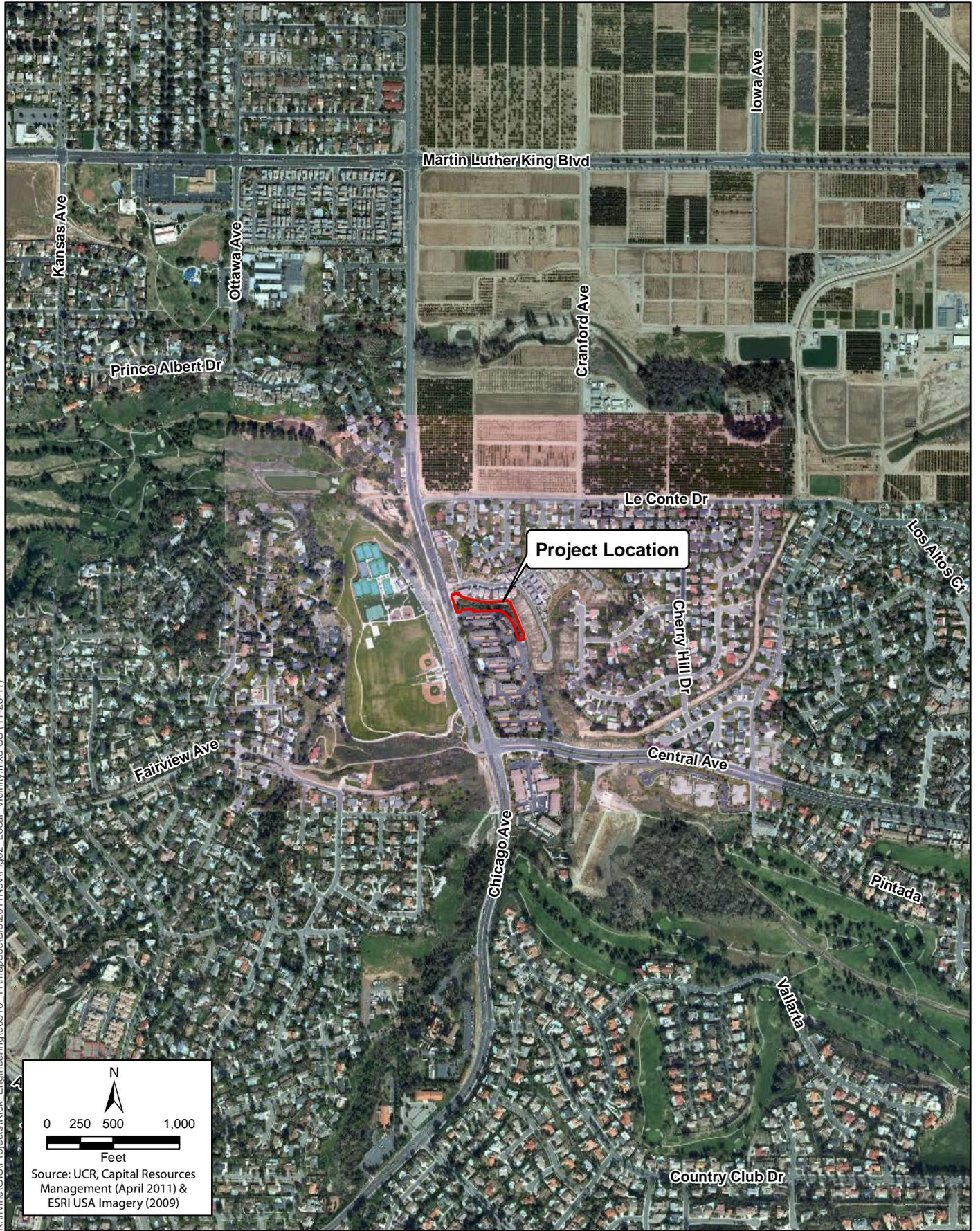


Figure 2
Local Vicinity Map
UCR Creekside Terrace Slope Protection Project



K:\r\ine\GIS\Projects\Rick_Engineering\00310_11\mapdoc\Bio\2011\Nov\Fig03_ID_USACE.mxd JFC & SS (11-28-11)

Figure 3
USACE Jurisdictional Features and Impacts
UCR Creekside Terrace Slope Protection Project



K:\Irvine\GIS\Projects\Rick_Engineering\00310_11\mapdoc\Bio\2011\Nov\Fig04_ID_CDFG.mxd JFC & SS (11-28-11)

Figure 4
CDFG Jurisdictional Features
UCR Creekside Terrace Slope Protection Project

Appendix B
Data Form

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: UCR Creekside Terrace City/County: Riverside Sampling Date: 5/2/2011
 Applicant/Owner: UC, Riverside State: CA Sampling Point: 1
 Investigator(s): Dale Ritenour, Paul Schwartz Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): drainage Slope (%): 2
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: HcC, TeG NWI classification: not hydric

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____	

VEGETATION

Tree Stratum (Use scientific names.) ^{30"}	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus fremontii</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. <u>Salix gooddingii</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. <u>Tamarix remossissima</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____				
Total Cover: <u>50</u>				
Sapling/Shrub Stratum ^{15"}	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Typha latifolia</u>	<u>40</u>	<u>Y</u>	<u>OBL</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Ricinus communis</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	OBL species <u>40</u> x 1 = <u>40</u>
3. <u>Urtica dioica</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	FACW species <u>20</u> x 2 = <u>40</u>
4. _____				FAC species <u>25</u> x 3 = <u>75</u>
5. _____				FACU species <u>12</u> x 4 = <u>48</u>
Total Cover: <u>47</u>				UPL species <u>20</u> x 5 = <u>100</u>
				Column Totals: <u>117</u> (A) <u>303</u> (B)
				Prevalence Index = B/A = <u>2.59</u>
Herb Stratum ^{"s"}	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Nasturium off. (Rorippa)</u>	<u>8</u>	<u>N</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Piptatherum milliaceum</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. <u>Ricinus communis</u>	<u>12</u>	<u>Y</u>	<u>FACU</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Bromus diandrus</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Bromus madritensis</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
6. _____				
7. _____				
8. _____				
Total Cover: <u>45</u>				
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes _____ No <input checked="" type="checkbox"/>
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____			
Remarks: _____				

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10 yr 3/2	100						
12-14	2.5 yr 3/1	100						

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) 	<ul style="list-style-type: none"> <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9) 	<p>Indicators for Problematic Hydric Soils³:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
---	---	---

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No N

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (any one indicator is sufficient)</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) 	<ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks) 	<p><u>Secondary Indicators (2 or more required)</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Water Marks (B1) (Riverine) <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) <input checked="" type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
--	---	--

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes Y No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Surface water within 2' but no saturation within pit.

Appendix C

Feature Photographs



Photograph 1 Overview of the west side of the project site from gate at Chicago Avenue. Looking East



Photograph 2 Overview of the east side of the Project from the southeast corner. Looking North.



Photograph 3 Sample point 1 beside the stream.



Photograph 4 Undercutting of slope by stream flows along eastern bank, immediately adjacent to retaining wall.



Photograph 5 Typical streamside riparian habitat. Area dominated by willows (*Salix* spp.) with exotic castor bean (*Ricinus communis*) and Mexican fan palm (*Washingtonia robusta*) in understory. Located near center of site.

Appendix H

Noise Impact Analysis Technical Memorandum



Technical Memorandum Noise Impact Analysis

Date:	May 7, 2013
To:	Kathleen Dale, Debra Leight
From:	Jason Volk
Subject:	UCR Creekside Terrace Project noise Analysis

This memorandum provides an analysis of construction noise resulting from implementation of the UCR Creekside Terrace Slope Protection project (Project, or proposed project).

Noise Terminology

The following are brief definitions of noise terminology used in this evaluation:

Sound. A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

Noise. Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

Decibel (dB). A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.

A-Weighted Decibel (dBA). An overall frequency-weighted sound level in decibels, which approximates the frequency response of the human ear.

Equivalent Sound Level (L_{eq}). The average of sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that occurs during the same period.

Maximum Sound Level (L_{max}). The maximum sound level measured during a measurement period.

In general, humans commonly hear a sound level increase of 3 dB as a perceptible increase in noise. Sound level increases of less than 3 dB are generally not noticeable. An increase of 5 dB is clearly noticeable, and an increase of 10 dB is perceived as twice as loud.

Existing Conditions

The existing noise environment in the project area is characteristic of a densely populated suburban environment (e.g., local traffic, aircraft overflights) with noise levels typically in the range of 50–60 dBA (Cowan 1984; Hoover and Keith 2000). Noise measurements were not conducted as part of this study.

Noise-Sensitive Land Uses

The northern boundary of the Project site adjoins the University-owned Creekside Terrace residential subdivision. The homes and yard areas sit atop a massive retaining wall at elevations approximately 20 to 40 feet above the ground elevation of the creek site.

There is a complex of apartment residences along the southern boundary of the project site. The nearest building façade is about 60 feet away. The apartment building is surrounded by an asphalt parking lot, and outdoor use areas are located behind apartment building structures relative to the project site.

The City of Riverside Andulka Park is located about 225 feet away from the project site across the four lanes of Chicago Avenue to the west, and includes outdoor recreational uses such as multi-use playing fields, playground and picnic areas, basketball courts and tennis courts.

Regulatory Setting

The project site is located within the City of Riverside. Applicable noise guidelines are provided in the City of Riverside Municipal Code and the General Plan EIR.

Riverside Municipal Code

Section 7.35.010(B)(5) of the Municipal Code governs construction noise, stating that construction noise under the following conditions would result in excessive noise in violation of the section: *“Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, grading or demolition work between the hours of 7:00 p.m. and 7:00 a.m. on weekdays and between 5 p.m. and 8 a.m. on Saturdays or at any time on Sunday or federal holidays such that the sound therefrom creates a noise disturbance across a residential or commercial property line or at any time exceeds the maximum permitted noise level for the underlying land use category, except for emergency work or by variance.”* On this basis, noise emanating from construction activity adhering to construction hours of 7:00 a.m. to 7:00 p.m. on weekdays, and 8:00 am to 5:00 p.m. on Saturdays is not considered excessive or in violation of the Municipal Code.

Chapter 7.25 of the City Municipal Code establishes exterior and interior performance standards for residential properties. During the daytime (7 a.m. to 10 p.m.), the noise level standard is 55 dBA $L_{eq(1h)}$ for exterior use areas and 45 dBA $L_{eq(1h)}$ for interior locations. During nighttime hours (10 p.m. to 7 a.m.) these limits are lowered to 45 dBA $L_{eq(1h)}$ for exterior use areas and 35 dBA $L_{eq(1h)}$ for

interior locations. Section 7.25.010 further defines a series of time periods for which the noise standard may be exceeded without violating the ordinance – ranging from 15 minutes per hour for noise exceeding the performance standard by 5 decibels to one minute for noise levels exceeding the performance standard by 15 decibels. An exceedance of 20 decibels or more for any duration is considered a violation. Since construction noise during certain hours of the day is not considered to be in violation of the Municipal Code, these noise limits apply to construction noise between the hours of 7 p.m. and 7 a.m. on weekdays, between the hours of 5 p.m. and 8 a.m. on Saturdays, and all day on Sundays and federal holidays.

Section 7.40.010 of the code defines a procedure for variances from noise limits described in the section: *“The Zoning Administrator is authorized to grant variances for exemption from any provision of this title, and may limit area of applicability, noise levels, time limits, and other terms and conditions determined appropriate to protect the public health, safety, and welfare. The provisions of this section shall in no way affect the duty to obtain any permit or license required by law for such activities.”*

Riverside General Plan EIR

The City General Plan EIR findings conclude that enforcement of the Municipal Code provisions for noise emanating from construction activities would lessen noise impacts to below a level of significance. In circumstances where construction activity cannot adhere to the “non-nuisance” hours specified in the Municipal Code, the Mitigation Monitoring and Reporting Program for the General Plan EIR (Mitigation Measure Noise 4) specifies that additional measures shall be applied, to the extent feasible, to reduce noise impacts to sensitive receptors. These measures may include locating nighttime work as far away as possible from noise-sensitive receptors, limiting the duration of work during variance periods, and ensuring equipment is fitted with mufflers (City of Riverside 2007b, pages 33 and 34).

Projected Construction Noise Levels

Mobile Construction Equipment

Construction noise sources at the Project site will include a small-format excavator and loader for the immediate creek access and typical on-road delivery trucks at the access point on the road edge. The loudest equipment type specified for the project is a truck (assumed rating of 201-400 hp), which typically produces a maximum sound level of 86 dBA at 50 feet. Small excavator/loaders (assumed rating of 40-115 hp) typically produce a maximum sound level of 80 dBA at 50 feet (Hoover and Keith 2000). Accounting for typical equipment utilization factors (i.e. each piece of would typically equipment operates for 40% of a given hour) (Thalheimer 2000), the predicted combined sound level of the equipment operating simultaneously is 83 dBA $L_{eq}(1\text{ hr})$ at 50 feet. This provides a reasonable worst-case estimate of the operating construction noise levels anticipated to occur at the project site.

Construction noise levels at exterior locations adjacent to the apartment buildings to the south are predicted to be up to 79 dBA $L_{eq(1\text{ hr})}$ at a distance of 75 feet from the source. Noise levels at exterior locations of adjacent residential properties in the Creekside Terrace subdivision would be acoustically shielded from noise at the Project site by the shielding effect of the elevation differential, with predicted noise levels of about 70 dBA $L_{eq(1\text{ hr})}$ at exterior use locations (about 50 to 75 feet away, assuming attenuation of 5 to 12 dB depending on receptor line-of-sight to operating construction equipment). Construction noise levels at Andulka Park would be up to 66 dBA $L_{eq(1\text{ hr})}$ at locations nearest to the Project site, but in most outdoor use locations in the park construction noise would be overshadowed by noise from traffic on Chicago Avenue.

Stationary Equipment

For project site dewatering and temporary diversion of drainage flows within the construction area, it is assumed that a generator-driven pump will operate continuously (24 hours a day, 7 days a week) during project construction. Actual equipment types for the Project have not been specified. This analysis is based upon typical noise levels for generators (81 dBA) and pumps (76 dBA), based on FTA guidance (Federal Transit Administration 2006). The combined sound level of the generator and pump operating simultaneously would be 82 dBA $L_{eq(1\text{ hr})}$ at 50 feet.

The location of the generator and pump is assumed to be at the upstream limits of the Project site. The nearest apartments would be about 50 feet away from the noise source, and noise levels from the generator and pump would be up to 82 dBA $L_{eq(1\text{ h})}$ at exterior locations. Creekside Terrace residences would be 200 to 300 feet away from the noise source and noise levels from the generator and pump would be up to 66 dBA $L_{eq(1\text{ h})}$ at exterior locations.

Interior building spaces would also be affected. Assuming 25 dB of exterior-to-interior noise reduction, interior noise levels could be as high as about 57 dBA at adjacent apartment units, and 41 dBA at residences in Creekside Terrace. Residential interior sound levels exceeding the City nighttime standard of 35 dBA $L_{eq(1\text{ h})}$ could potentially result in sleep disturbance during nighttime hours (Nelson 1987).

Recommendations

The following mitigation measures are recommended to conform to City standards for construction hours and nighttime noise levels. Implementation of these measures would reduce noise impacts to a less than significant level.

Mitigation Measure NOI-1: Restrict Construction Hours

The University will ensure that the construction contract limits construction activities to occurring between 7:00 a.m. and 7:00 p.m. Monday through Friday and 8 a.m. and 5 p.m. on Saturday. Construction will not be allowed on Sunday or Federal holidays. This project is anticipated to

require diversion of stream flows for the duration of construction. Operation of stationary equipment outside of these hours for the diversion is addressed in Mitigation Measure NOI-2.

Mitigation Measure NOI-2: Attenuation for diversion pump and generator

The University will ensure construction contracts specify that any generator or diversion pump will be equipped with mufflers, silencers, shrouds, shields or other noise reducing features so as to achieve a maximum exterior operational noise level not exceeding 45 dBA (one-hour L_{eq}) at exterior locations of nearby noise-sensitive land uses. Measures that can be implemented to achieve this include but are not limited to:

- enclosing equipment in solid wall structures;
- using low-noise equipment,
- placing sound barriers (earth berms or constructed barriers) around equipment

References

Cowan, J. P. 1984. *Handbook of Environmental Acoustics*. New York, NY: Van Nostrand Reinhold.

Federal Transit Administration. 2006. Transit Noise and Vibration Impact Assessment. (FTA-VA-90-1003-06.) May. Washington, D.C.: Federal Transit Administration Office of Planning and Environment.

Hoover, R. M., and R. H. Keith. 2000. *Noise Control for Buildings, Manufacturing Plants, Equipment and Products*. Houston, TX: Hoover & Keith, Inc.

Nelson, P.M. 1987. *Transportation Noise Reference Book*. 1st Edition. Butterworth & Co Publishers, Ltd., University Press, Cambridge, UK.

Riverside, City of. 2007a. General Plan 2025 Noise Element, Adopted November 2007.

Riverside, City of. 2007b. City of Riverside General Plan EIR Findings. The General Plan, Magnolia Avenue Specific Plan, Zoning Code, Subdivision Code, Noise Code, and Citywide Design and Sign Guidelines. Adopted November 2007.

Thalheimer, Erich. 2000. Construction Noise Control Program and Mitigation Strategy at the Central Artery/Tunnel Project. September. *Noise Control Engineering Journal*.