

SHUTE MIHALY  
& WEINBERGER LLP

396 HAYES STREET, SAN FRANCISCO, CA 94102  
T: (415) 552-7272 F: (415) 552-5816  
www.smwlaw.com

KEVIN P. BUNDY  
Attorney  
bundy@smwlaw.com

October 8, 2020

**Via E-Mail**

San Bernardino County  
Board of Supervisors  
385 N. Arrowhead Ave #2  
San Bernardino, CA 92415  
Attn: Lynna Monell  
[COB@sbcounty.gov](mailto:COB@sbcounty.gov)

Re: Church of the Woods Project Appeal Hearing  
Project Number P201700270/CUP

Dear Members of the Board of Supervisors:

On behalf of Save Our Forest Association (“SOFA”) and Sierra Club – San Bernardino Mountains Group (“Sierra Club”) we are writing to respectfully request that you uphold the appeal and reverse the Planning Commission’s approval of the Church of the Woods project (“Project” or “COTW”). Put simply, the Rimforest community does not need a massive development on this pristine forested site. This Project would irreparably destroy habitat for sensitive wildlife species, degrade water quality, including that of Lake Arrowhead, bring hundreds of people to a Very High Fire Hazard Severity zone, threaten the ability of the community to evacuate during a wildfire, and increase hazards on area roadways. There is simply too much at stake.

The Board should determine that the Project’s significant and unavoidable impacts outweigh its claimed benefits. The California Environmental Quality Act (“CEQA”) provides the County with explicit authority to disapprove the Project on these grounds. CEQA Guidelines section 15042 states: “A public agency may disapprove a project if necessary in order to avoid one or more significant effects on the environment that would occur if the project were approved as proposed.” Here, the environmental impact report (“EIR”) discloses that the Project would have numerous significant environmental impacts, fully justifying the County’s disapproval of the Project. Moreover, as discussed below, the EIR underestimates the Project’s significant environmental impacts and fails to comply with CEQA in other respects and, therefore, cannot serve as a basis for Project

approval in any event. Finally, the Project conflicts with fundamental, mandatory policies of the San Bernardino County General Plan and the Lake Arrowhead Community Plan. Thus, approval of the Project would violate not only CEQA, but also the California Planning and Zoning Law, Gov't Code § 65000 *et seq.*

On behalf of SOFA and the Sierra Club and the hundreds, if not thousands, of other members of the public potentially affected by this Project, we urge you to approach your decision with a long term view: think about what is best for the Rimforest Community, Lake Arrowhead, and San Bernardino County. As you will hear in the appeal hearing on this Project, the answer is clear: this Project is incompatible with San Bernardino County's commitments to protecting its residents' safety, quality of life, and the environment.

## **I. Introduction**

The proposed Project entails construction of almost 70,000 square feet of buildings; 225,000 square feet of parking areas, driveways, and other paved surfaces; and approximately 64,000 square feet of sports fields and courts. All of this development would occur on a steep, forested hilltop site adjacent to State Route 18, a highway designated as a Scenic Byway by the United States Forest Service. The Project would convert half of the site to developed area, necessitating the removal of all trees and vegetation and movement of approximately 315,000 cubic yards of soil. DREIR at 3.A-10 and 2-22. The Project's substantial increase in impervious surfaces would cause stormwater to discharge into and contaminate Little Bear Creek. Little Bear Creek flows into Lake Arrowhead, an important drinking water supply and a regional recreational resource.

The Draft Revised EIR ("DREIR") for the Project failed to adequately disclose, analyze, or mitigate the Project's environmental impacts as required by CEQA. Our February 25, 2019 letter to the County, which by this reference is incorporated herein in its entirety, addressed the DREIR's numerous flaws. The Final EIR ("FEIR") was similarly inadequate, as discussed in Part II below.<sup>1</sup> As we explained in our January 22, 2020 letter to the Planning Commission, which is likewise incorporated herein by reference, the FEIR neither adequately responds to the public's comments nor cures the DREIR's deficiencies. Rather than revise the DREIR to comprehensively analyze the Project's impacts on biological resources, wetland and riparian habitats, drainage and

---

<sup>1</sup> Unless specifically referencing the DREIR or the FEIR this letter generally refers to the EIR.

hydrology, traffic, evacuation and emergency response, the FEIR merely seeks to defend the erroneous conclusions of the prior document. Further, the FEIR fails to adequately describe the Project's relationship to the Rimforest Storm Drain Project and fails to adopt feasible mitigation measures for the Project's myriad significant impacts.

In addition to the EIR's CEQA violations, the Project clearly disregards numerous provisions in the San Bernardino County General Plan and the Lake Arrowhead Community Plan. Perhaps most egregiously, the Project would cause several intersections to operate at level of service ("LOS") E or F. The Project thus squarely conflicts with County General Plan Policy M/CI 1.1 and Community Plan Policy LA/CI 1.1, which *require* the County to *ensure* that all new development proposals do not degrade LOS on State Routes and Major Arterials below LOS C during non-peak hours or below LOS D during peak hours in the Mountain Region. The FEIR identifies this inconsistency as a significant and unavoidable impact of the Project. As a result of this clear conflict with fundamental, mandatory policies, the County cannot rationally find the Project consistent with the General Plan or Lake Arrowhead Community Plan.

The Project also would destroy a stream and wetland to construct parking, driveways and sports fields, eliminating riparian habitat and negatively impacting water quality and stormwater runoff. This is inconsistent with County General Plan Policy CI 13.2(c), which calls for the County to reduce the water quality impacts of stormwater runoff by preserving wetlands and riparian corridors and maintaining buffer zones around those areas.

In short, approval of the Project would violate both CEQA and the California Planning and Zoning Law. Furthermore, the County lacks evidence to support the findings necessary to approve the conditional use permit for the Project, including the finding of General Plan consistency.

For these reasons, as well as those identified in SOFA and the Sierra Club's prior letters and numerous other public and expert comments, SOFA and Sierra Club respectfully request that the Board uphold the appeal, reverse the Planning Commission's decision, and reject this ill-conceived Project. Following are additional comments for the Board's consideration which elaborate on and supplement the comments raised in our prior letters.

## **II. The EIR Does Not Comply With CEQA.**

As described in our prior letters, the EIR (1) fails to provide an adequate description of the Project; (2) defers analysis of critical environmental impacts and fails to adequately analyze those impacts it does address; (3) fails to support its conclusions with substantial evidence; and (4) fails to propose adequate mitigation measures for the Project's numerous significant environmental impacts. This letter elaborates on a few of the issues we previously raised including impacts on biological resources (including sensitive species, wetlands and riparian habitat), water quality, emergency evacuation, and traffic safety.

### **A. The EIR Fails to Adequately Analyze or Mitigate the Project's Impacts on Biological Resources.**

#### **1. Southern Rubber Boa**

The site provides habitat for the Southern Rubber Boa ("SRB"), a species listed as threatened by the State of California due to its very limited range and potential threats from human activity and climate change.<sup>2</sup> Previously we commented that the EIR failed to adequately analyze or mitigate impacts to this threatened species. Because the County dismissed these comments, we retained biologist Robert Hamilton, together with Brian Hinds with The North American Herpetological Education and Research Project and the North American Field Herping Association, to review the EIR's SRB impact analysis. *See* Report from Hamilton Biological, August 10, 2020, ("Hamilton Report"), attached as Exhibit B and incorporated by reference into this letter. A summary of the Hamilton Report follows; we direct the County to the entire report for a detailed accounting of Hamilton and Hinds' comments.

As an initial matter, the EIR understates the Project's impacts on the SRB because it mischaracterizes the quality of SRB habitat on the Project site and the acreage of habitat that would be lost as a result of Project development. The EIR incorrectly asserts that the Project site contains only 1.65 acres of high-quality SRB habitat in the northeast corner of the site and 2.18 acres of moderate quality habitat in the western portion, and claims that all of this habitat lies outside the Project's development footprint. DREIR at 3.C-20; Hamilton Report at 7. The EIR also incorrectly asserts that the remaining portions of the Project site, including the development footprint, contain 18.21 acres of

---

<sup>2</sup> *See* S. Loe and R. Stauber, Habitat Management Guide for Southern Rubber Boa on the San Bernardino National Forest (May 1985), attached as Exhibit A.



supposedly “low quality” habitat and 5.08 acres of “unsuitable” SRB habitat. Hamilton Report at 7.

The EIR ultimately concludes that the Project’s grading footprint would impact only 8.64 acres of “low quality” SRB habitat, and wrongly dismisses the remaining 4.96 acres of the Project’s grading footprint as “unsuitable” habitat. DREIR at 3.C-20; *see* Hamilton Report at 4. On the contrary, as the Hamilton Report explains, all 13.6 acres of the Project’s grading area constitutes highly suitable SRB habitat. Hamilton Report at 4. Furthermore, proposed fuel modification impacts, which would also affect the SRB, would extend an additional 0.66 acres beyond the grading area. Hamilton Report at 4. Thus, the total area of the Project’s impacts to SRB habitat is 14.26 acres. *Id.* Notably, the EIR prepared for the Rimforest Storm Drain Project identifies the entire 10-acre storm drain Project site as “suitable” SRB habitat; finds that the boa has “high” potential to occur throughout the site; and would require an Incidental Take Permit from the California Department of Fish and Wildlife (“CDFW”) for all impacts to suitable habitat. *See* Storm Drain DREIR at 3.3-26 and Addendum attached as Exhibits C and D. Portions of the Storm Drain Project would be constructed on a 10-acre site that protrudes into the middle of the COTW site (which surrounds it on three sides), and contains similar riparian and forest habitats to the COTW site.

As CDFW informed the County, the 2010 Draft EIR for the COTW Project failed to recognize that development of the Project may render the entire site unsuitable habitat for the SRB. *See* Letter from J. Brandt, California Department of Fish and Game (“CDFW”) to M. Slowik, June 2, 2010 at 3, attached as Exhibit G; Hamilton Report at 7. The current EIR suffers from the same defect. Evaluation of the Project site by Hamilton and Hind confirms that no part of the site is “unsuitable” habitat for the SRB. *Id.* The biologists’ investigation found that several areas within the Project’s proposed development footprint are high-value SRB habitat, containing important habitat features like rock structures and moist drainage areas. *Id.* at 8. Similar to the Storm Drain EIR’s findings, Hamilton and Hind’s investigation determined that “all 27 acres of the project site represent high-value habitat likely occupied by the Southern Rubber Boa,” and that “[i]n the absence of an adequate survey effort for this species,” which has not been conducted, “the County should consider all 27 acres of the Project site to represent high-value habitat” occupied by the SRB. Hamilton Report at 10.

The EIR errs further because the methodology relied on for the SRB habitat surveys was directly inconsistent with CDFW’s guidance. The habitat assessment was conducted on January 25, 2018, during the middle of winter, a time of year when SRBs are hibernating and therefore undetectable. Hamilton Report at 7. CDFW explicitly stated

that the assessment of SRB habitat must be based on species-specific surveys, conducted at the time of year when the sensitive species are active or identifiable, and developed in consultation with CDFW and the United States Fish and Wildlife Service (“USFWS”). CDFW 2010 letter at 4; *see also* Hamilton Report at 6, 7. There is no evidence that the applicant consulted with CDFW or USFWS regarding appropriate survey protocols.

Based on its flawed habitat assessment, the EIR wrongly concludes that the SRB “is not likely to occur within the development footprint of the Project site.” COTW EIR at 3.C-20; *see* Hamilton Report at 4. Contrary to this claim, the EIR’s technical appendix explicitly acknowledges that SRB has been reliably reported to occur along the eastern boundary of the Project site. EIR Appendix D, LBC report, at 4, Fig. 3. As the Hamilton Report explains, the church component of the Project would be developed in this eastern area. Hamilton Report at 9. Moreover, the SRB regularly forages across a 300-yard radius and can disperse up to a 500-yard radius from its hibernation sites. *Id.* at 9-10. It is therefore likely that the SRB also occupies the western portion of the site, where the applicant proposes to build sports fields and parking lots. Finally, although the EIR does not disclose it, as discussed below, the Project’s parking lot and sports field would destroy riparian habitat. Streams, seeps and other riparian areas are important SRB habitat. *Id.* at 9. The EIR’s failure to acknowledge the loss of habitat caused by the Project is an egregious flaw. Because the EIR does not accurately disclose habitat loss or recognize that development of the Project may render the entire site unsuitable habitat for SRB, it fails to identify appropriate mitigation for these impacts.

The EIR proposes mitigation measures to address SRB impacts (EIR at 3.C-26), including a preconstruction clearance survey (Mitigation Measure 3.C1(a)) and habitat conservation (Mitigation Measure 3.C1(B)), but provides no evidence in support of its conclusion that these measures would reduce impacts to a less than significant level. The EIR finds, without citing any evidence, that the Project’s impact to the SRB would be adequately mitigated by preserving 13.40 acres of the Project site as open space.<sup>3</sup> DREIR at 3.C-26 (Mitigation Measure 3.C1(B)); *see* Hamilton Report at 5.

The EIR’s habitat conservation mitigation measure also overstates the area that would be conserved, as it improperly considers the 0.66-acre fuel modification zone as part of the area conserved under the mitigation measure. However, fuel modification activities also will disturb habitat. Accordingly, the fuel modification area also must be

---

<sup>3</sup> Elsewhere the EIR asserts that 13.50 acres of open space would be retained. FEIR at 0-1.

counted towards the Project's total impact area of 14.26 acres. Hamilton Report at 5. This leaves only 12.86 acres of undisturbed open space on the site as SRB mitigation. *Id.*

Regardless of the acreage conserved, the proposed conservation of the remaining area of the Project site would not effectively mitigate impacts to the SRB. As discussed above, high density development is not compatible with the SRB. *See* Hamilton Report at 8. The entire Project site may be rendered unsuitable for the species because of its proximity to the Project's development, so the conserved area may no longer be suitable habitat and cannot mitigate Project impacts. Moreover, preservation of some of the Project site does not replace or offset the permanent loss of habitat on the rest of the site. *Cf. King and Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 872-76. It merely reflects that much of the habitat on the site will be destroyed.

Adequate mitigation for the Project's destruction of high-value SRB habitat and degradation of surrounding habitat would require the off-site conservation and permanent protection of high-value SRB habitat at a ratio of 3:1, for a total of 42.8 acres. Hamilton Report at 12. In addition to this off-site habitat conservation, the EIR errs further because it fails to include the protective measures identified in the Storm Drain EIR for direct impacts to the SRB. These measures include, for example, the requirement that the applicant obtain an Incidental Take Permit ("ITP") under the California Endangered Species Act ("CESA"), Fish & Game Code §§ 2050 et seq. *Id.* Here, CDFW explicitly informed the County that an ITP would be required for the COTW Project. *See* Ex. G(Letter from J. Brandt) at 2, 6. However, we can find no requirement in the EIR that the applicant obtain an ITP. Absent a properly issued ITP, the proposed Project may cause a prohibited "take" of the SRB in violation of CESA. Fish & Game Code §§ 2080, 2081.

## **2. Other Wildlife Species**

The EIR entirely ignores the Project's potential impacts on several sensitive wildlife species which the Storm Drain EIR acknowledges are likely present on the site or in the area. As discussed above, the Storm Drain EIR identifies impacts to a 10-acre site that protrudes into the middle of the COTW site (which surrounds it on three sides), and contains similar riparian and forest habitats to the COTW site.

### **(a) Andrew's Marble Butterfly**

The Storm Drain EIR determines that Andrew's Marble Butterfly, a CDFW Special Animal, has a "high potential for occurrence" on the Project site, and that absent mitigation, the storm drain project's impacts on the butterfly would be significant. Storm

Drain RDEIR at 3.3-27. The Storm Drain EIR identifies several mitigation measures which would purportedly reduce impacts on the Butterfly (MM BIO-1c (Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss), BIO-1d (Prevent Invasive Weed Introduction), BIO-1e (Speed Limit), BIO-1f (Fugitive Dust Control), MM BIO-1f (Personnel Training)). *Id.* The COTW EIR does not even acknowledge the likely presence of the butterfly, let alone analyze how implementation of the Project would impact this CDFW Special Animal or propose any mitigation measures.

**(b) Bald Eagle**

The COTW also overlooks impacts to the Bald Eagle, a state-listed endangered species. The Storm Drain EIR concludes that the eagle is present on the Project site and would be affected by habitat loss, habitat disturbance, Project-related noise, dust and vibrations. Storm Drain RDEIR at 3.3-27. By contrast, the COTW EIR simply asserts, without any factual basis, that the Project site has “a low potential to support” the Bald Eagle, and thus fails to provide any analysis of Project impacts to this endangered species. COTW EIR 3.C-12. It is noteworthy that the COTW EIR’s technical appendix reaches the opposite conclusion, finding that the Project site “has a high potential to support” the Bald Eagle (DREIR Appendix C at 29), and that the bald eagle has a “high” “potential to occur” on the Project site, noting that “[s]uitable nesting habitat can be found throughout the project site” and that “this species has been observed nesting and foraging within the vicinity of Lake Arrowhead.” Storm Drain RDEIR Appendix C, Table C-1.

**(c) Peregrine Falcon**

The COTW EIR fares no better with the American Peregrine Falcon, a state Fully Protected Species. The Storm Drain EIR determines that the Peregrine Falcon has been seen regularly in the Project vicinity and has a moderate potential for occurrence on the Project site. Storm Drain RDEIR at 3.3-28; 3.3-29. The Storm Drain EIR concludes that the Falcon could be impacted by habitat loss and disturbance from fugitive dust, noise, and vibration. *Id.* Here too, neither the COTW EIR nor its appendices include any mention at all of the American Peregrine Falcon.

**(d) American Badger**

The Storm Drain EIR finds that suitable foraging habitat for the American Badger, a state Species of Special Concern, is present on the Project site. Storm Drain RDEIR at 3.3-29. The Storm Drain EIR determines that the Badger may forage on the Project site

and concludes that impacts would be significant in the absence of mitigation. The Storm Drain EIR proposes mitigation measures to reduce these impacts. *Id.* (MM BIO-1g (Nest and Den Avoidance), MM BIO-1h (Avoid Wildlife Hazards and Entrapment), MM BIO-1i (Avoid Nocturnal Wildlife), MM BIO-1f (Personnel Training). The COTW DREIR does not mention the American Badger, while its technical appendix asserts that the badger is “presumed absent” because “no suitable habitat is present within the project site.” DREIR Appendix C, Table C-1. The technical appendix provides no support for this conclusion.

**(e) Ringtail**

The Storm Drain EIR concludes that the Project site contains suitable habitat for the Ringtail (*Bassariscus astutus*), which is designated as a Fully Protected Species in California, and that impacts to the species would be significant in the absence of mitigation. Storm Drain RDEIR at 3.3-29. The Storm Drain EIR includes mitigation measures to reduce these impacts. *Id.* (MM BIO-1g (Nest and Den Avoidance), MM BIO-1h (Avoid Wildlife Hazards and Entrapment), MM BIO-1i (Avoid Nocturnal Wildlife), MM BIO-1f (Personnel Training). Neither the COTW EIR nor its appendices include any mention at all of the Ringtail.

**(f) Yellow Warbler**

The Storm Drain EIR also finds that the site contains suitable habitat for the Yellow Warbler (*Setophaga petechia*), a state Species of Special Concern, and determined that impacts on the species due to habitat loss or modification would be significant. Storm Drain RDEIR at 3.3-28. The Storm Drain EIR proposes a mitigation measure (MM BIO-1g (Nest and Den Avoidance)) to address these impacts. *Id.* The COTW EIR makes no mention of the Yellow Warbler at all, while its technical appendix asserts that the species is “presumed absent” because “no suitable habitat is present within the project site.” DREIR Appendix C, Table C-1.

The fact that the COTW EIR fails to acknowledge the presence of these species is a fatal flaw. As the Storm Drain EIR clearly determines, impacts to many of these species would be significant in the absence of mitigation. The COTW Project would destroy virtually the same type of habitat as the Storm Drain Project in almost the same exact location. Accordingly, the failure of the COTW EIR to disclose, analyze or mitigate these impacts is a fatal flaw warranting that the EIR be revised and recirculated.

**(g) Cumulative Impacts**



The EIR fails to analyze the Project's cumulative impacts to the sensitive wildlife species identified above. Instead, the EIR relies on unsubstantiated assertions to conclude impacts would be less than significant. FEIR at 3.C-24, 25. It is particularly troubling that the EIR fails to provide *any* cumulative impact analysis for the Southern Rubber Boa, San Bernardino Flying Squirrel, and the California Spotted Owl. FEIR at 438; 3.C-20; 3.C-21; 3.C-25. Rather than undertake this analysis, the EIR simply labels the impacts to these species significant and unavoidable. FEIR at 3.C-27. This approach is contrary to CEQA's requirements. A lead agency cannot simply conclude that an impact is significant and unavoidable and move on. *Berkeley Keep Jets Over the Bay Committee v. Board of Port Com'rs* (2001) 91 Cal.App.4th 1344, 1371 (lead agency may not "travel the legally impermissible easy road to CEQA compliance" by "simply labeling the effect 'significant' without accompanying analysis of the project's impact").

A conclusion that impacts remain significant and unavoidable does not excuse the agency from (1) performing a thorough evaluation and description of the impact and its severity before and after mitigation, and (2) proposing all feasible mitigation to "substantially lessen the significant environmental effect." CEQA Guidelines § 15091(a)(1); *see also id.* § 15126.2(b) (requiring an EIR to discuss "any significant impacts, including those which can be mitigated but not reduced to a level of insignificance" (emphasis added)). A mitigation measure may reduce or minimize a significant impact without avoiding the impact entirely. 14 Cal. Code Regs. §15370(b); *see also* Pub. Res. Code §§21002.1(a), 21081(a)(1). The EIR fails to meet these standards, and must be revised to provide adequate analysis and mitigation.

### **3. Jurisdictional Waters, Wetlands, Perennial Stream, Spring and Riparian Impacts**

The EIR's analysis of impacts to the site's aquatic resources suffers from numerous flaws. First, the EIR incorrectly assumes that all impacts to jurisdictional waters and wetlands within the Project development footprint will be addressed and mitigated under the County's Storm Drain Project. DREIR at 3.C-23. Yet, the EIR provides no evidence that this is the case. As the DREIR explains, it is unclear which project would be constructed first. DREIR at 3.F-3. Even if the Storm Drain Project is constructed before the COTW Project, as hydrologist Greg Kamman explained, not all jurisdictional waters and wetlands found on and immediately off of the COTW site would be permanently altered and eliminated by the Storm Drain Project, and the COTW Project would impact these waters and wetlands. *See* Letter from G. Kamman to C. Borg, February 21, 2019 ("Kamman 2019 Report") at 2 ("jurisdictional waters in the southwest portion of the COTW property will remain, albeit in a potentially slightly different



restored condition, upon completion of the Storm Drain Project”); *see also* Kamman 2020 Report at 3 (“[w]hen comparing the COTW Project plans to the Project’s jurisdictional waters/wetlands map, it is clear that the jurisdictional waters lying within the COTW grading footprint will be disturbed if not completely eliminated (buried)” by the COTW Project). Indeed, the COTW Project would build a roadway, ballfield and parking on these jurisdictional waters and wetlands, either disturbing or eliminating these resources. Kamman 2019 Report at 2. The COTW EIR’s failure to disclose, analyze or mitigate for these impacts is an egregious flaw.

Second, as Kamman also explained, a perennial stream exists on the COTW Project site and a spring is located just north of the COTW Project footprint. The COTW EIR makes no mention of either resource. Kamman explains that the spring likely sustains the perennial flow in the stream as well as jurisdictional wetlands found along the downstream stream alignment through the COTW property. *See* report from G. Kamman to C. Borg, February 21, 2019 (“Kamman 2019 Report”) at 3 and report from G. Kamman to L. Impett, January 21, 2020 Report (“Kamman 2020 Report”) at 4. The COTW EIR fails to analyze how development of the Project would impact the perennial stream or the spring, which in turn would impact jurisdictional wetlands and riparian habitat. *See also* COW Rimforest – Storm Drain Realignment Email Chain, attached as Exhibit E (explaining that the County is unsure of the exact location of the spring and acknowledging that the Storm Drain could possibly impact the spring); Storm Drain Concept Realignment Rimforest (April 30, 2020), attached as Exhibit F (documenting the location of the spring). The COTW EIR’s failure to disclose, analyze or mitigate for these impacts is another serious flaw.

Third, despite acknowledging that the Project would impact 0.05 acres of jurisdictional waters, the EIR fails to provide any mitigation for impacts to this resource. Based on its incorrect conclusion that the Storm Drain EIR identified and mitigated riparian impacts (DREIR at 3.C-22) and would be built first, the FEIR for this Project eliminated Mitigation Measure MM-3.C2c, which called for the COTW Project Applicant to secure a Clean Water Act Section 404 Nationwide Permit, a CWA Section 401 Water Quality Certification and a CDFW Section 1602 Streambed Alteration Agreement. DREIR at 3.C-27; FEIR-171. Consequently, if the COTW Project is built before the Storm Drain Project, the EIR is left with no mitigation for these significant impacts. Moreover, it is important to note that the CDFW recommend that impacts to jurisdictional waters be mitigated at a no less than 3:1 ratio. *See* Ex. G at 7 (Letter from J. Brandt).

Fourth, although the Project site contains riparian habitat, the EIR never discloses how much riparian acreage exists on the Project site and underestimates how much of this sensitive resource would be impacted by the Project. As discussed above, some section of the stream on the Project site (part of the headwaters of Little Bear Creek) would be buried under hundreds of thousands of cubic feet of dirt as a result of the COTW Project. DEIR at 3.C-23. Although the COTW EIR asserts that this impact would be mitigated as a result of the Storm Drain Project, it provides no evidence to support this conclusion.<sup>4</sup> Moreover, the COTW DEIR never discloses how much riparian habitat would purportedly be restored by the Storm Drain Project nor does it disclose the extent to which construction of the COTW Project would eliminate any restored habitat. This latter point is of course paramount because it appears that the COTW Project has the potential to severely impact the site's stream and riparian areas. These areas have high wildlife value and constitute the central area of the wildlife corridor that traverses the Project site. FEIR-58. In addition, although the EIR generally references the site's "steep mountainous slopes" (*see e.g.*, 2-6, 3.E-1), it fails to evaluate how development of such steep terrain would threaten the site's riparian areas. The EIR also ignores a well-established principle, despite the existence of ample scientific studies, that stream and riparian habitats must be protected with an undisturbed, naturally vegetated buffer zone especially where steep slopes are adjacent to such areas. *See, e.g.*, the U.S. Environmental Protection Agency's Aquatic Buffer Model Ordinance Guidelines<sup>5</sup> which would require a minimum of 200-225 feet between areas of disturbance and riparian areas.

Fifth, the EIR lacks support for its conclusion that the Project's cumulative impacts on jurisdictional waters would be less than significant. DREIR at 3.C-24. As an initial matter, the EIR fails to conduct any analysis of these cumulative impacts because it does not consider the Project's impacts on jurisdictional waters together with impacts on jurisdictional waters from other projects. CEQA Guidelines § 15355(a). Instead of conducting this required analysis, the EIR simply asserts that the combined areas of impact would be small in relation to the overall areas of jurisdictional waters in the area.

---

<sup>4</sup> Because the FEIR eliminated Mitigation Measure MM-3.C2c, if the COTW Project is implemented before the Storm Drain Project, there will be no mitigation for the Project's impacts to riparian resources.

<sup>5</sup> [https://www.epa.gov/sites/production/files/2015-12/documents/2002\\_09\\_19\\_nps\\_ordinanceuments\\_buffer\\_model\\_ordinancel.pdf](https://www.epa.gov/sites/production/files/2015-12/documents/2002_09_19_nps_ordinanceuments_buffer_model_ordinancel.pdf); accessed October 8, 2020.

The EIR provides no factual support for this assertion (e.g., how many acres of jurisdictional waters exist in the area? How many acres have been destroyed due to cumulative projects?). Unless the EIR provides this information and analysis, it cannot conclude that the cumulative loss of jurisdictional waters from the Project would be less than significant.

In addition, the EIR asserts that any cumulative impacts would be less than significant because “impacts to jurisdictional waters of the State and U.S., while significant at the Project level, would be mitigated to a less than significant level through permitting requirements with the [U.S. Army Corps of Engineers] and CDFW” and “the same permitting requirements and mitigation would be applicable to other related projects.” DREIR at 3.C-24. As noted above, the COTW FEIR actually eliminated Mitigation Measure MM-3.C2c, which required the COTW Project Applicant to obtain Clean Water Act permits and CDFW regulatory approvals. Moreover, regulatory compliance does not automatically establish impacts will be less than significant, and it cannot be used to bypass the obligation to analyze and mitigate those impacts. *See Californians for Alternatives to Toxics v. Department of Food & Agriculture* (2005) 136 Cal.App.4th 1, 15-17; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108-09. The EIR must conduct a comprehensive analysis of cumulative impacts.

**B. The EIR Fails to Adequately Evaluate the Project’s Effect on Water Quality.**

Along with hydrologist Greg Kamman, we commented that the DREIR failed to adequately analyze the Project’s impacts associated with hydrology and water quality. Comments 10-49 to 10-52, FEIR at 125. The FEIR fails to resolve these deficiencies.

As discussed further below, Dr. Jennifer Alford also commented on the EIR’s failure to adequately analyze and mitigate the Project’s water quality impacts. *See* email from Dr. Jennifer Alford to San Bernardino County re: California State University San Bernardino Water Quality Research Data – Little Bear Creek COTW Proposed Development (January 20, 2020), attached as Exhibit H. Dr. Alford also prepared and submitted a report to the County on water quality in Lake Arrowhead. Dr. Jennifer Alford, Lake Arrowhead Tributary Water Quality Community Report 2019-2020 (“Lake Arrowhead Report”), attached as Exhibit I.

**1. The EIR Does Not Accurately Disclose Existing Water Quality Issues in Little Bear Creek or Lake Arrowhead.**

To fulfill its information disclosure function, “an EIR must delineate environmental conditions prevailing absent the project, defining a baseline against which predicted effects can be described and quantified.” *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 447; *see County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 953 (without an adequate baseline description, “analysis of impacts, mitigation measures and project alternatives becomes impossible”); Guidelines, § 15125, subd. (a). Here, the EIR acknowledges that drainage from the Project flows to the headwaters of Little Bear Creek, which then discharges to the Lake Arrowhead reservoir. DREIR at 2-13; 3.F-2. The EIR asserts that neither Little Bear Creek nor Lake Arrowhead have been identified as having limited or “impaired” water quality under the CWA Section 303(d) List of Water Quality Limited Segments, such that water quality standards and/or receiving water beneficial uses have not been met. FEIR at 3.F-4.

Even if Little Bear Creek and Lake Arrowhead are not yet listed as water quality impaired for nutrients and bacteria, the evidence shows levels of these pollutants already exceed regulatory standards.<sup>6</sup> As Dr. Alford informed the County, episodic spikes in nutrients (NH<sub>4</sub><sup>+</sup> and NO<sub>4</sub><sup>-</sup>) as well as bacteria are currently present in Little Bear Creek. Ex. H at 1. Dr. Alford states:

Collectively these trends indicate that there are already activities on the landscape related to transportation, tourism, infrastructure (i.e. septic and sewer) and impervious surfaces that are adversely impacting surface water resources in perennial streams entering Lake Arrowhead. More specifically, data to date indicates that LBC1 [a site up stream of Blue Jay] has exceeded regulatory standards 36% of the sampling periods for NH<sub>4</sub><sup>+</sup>, 63% for NO<sub>3</sub><sup>-</sup>, 20% for total coliform, 40% for *E. coli* and 67% for enterococcus. The second site, LBC2 [Blue Jay], has exceeded regulatory standards for 70% of the sampling periods for NH<sub>4</sub><sup>+</sup>, 40% for NO<sub>3</sub><sup>-</sup>, 50% for total coliform, 17% for *E. coli* and 50% for enterococcus with many of the exceedances occurring simultaneously across multiple metrics. These trends continue to contribute to algal blooms and, if not mitigated, could result in the harmful algal blooms associated with cyanobacteria (blue-green algal blooms) as experienced by

---

<sup>6</sup> Contrary to the EIR’s assertions, Lake Arrowhead is on the 303(d) list due to mercury pollution.

Lakes Gregory and Silverwood. Such conditions impact the social, economic and environmental quality of all mountain communities since many of the communities are financially dependent on tourist activities year-round as well as public health and safety, especially as they [are] related to recreational waters.

Ex. H (Dr. Alford January 20, 2020 email) at 1-2; Ex I (Lake Arrowhead Report) at 20. The EIR's failure to accurately characterize existing water quality in Little Bear Creek and Lake Arrowhead renders adequate impact analysis impossible. The EIR must be revised to provide this information. An accurate description of baseline conditions is essential to evaluation and mitigation of the Project's water quality impacts.

**2. The EIR Lacks Evidentiary Support for its Conclusion that the Project Would Not Degrade Water Quality.**

**(a) Construction-related impacts**

The EIR fails to adequately address the Project's construction-related impacts on water quality. Although the EIR generally acknowledges the types of pollutants that would be generated by construction—and acknowledges that they could impact water quality—it stops short of analyzing how and where these pollutants would be conveyed and does not evaluate how the pollutants would affect water quality.

The Project would convert 50 percent of the site to a developed area by grading almost 17 acres and relocating 315,000 cubic yards of excavated soil. DREIR at 0-1; 2-22, 23; 3.A-10. Dr. Jennifer Alford informed the County in January that that the Project would create “changes to groundwater flows needed to sustain both water quality and quantity entering Lake Arrowhead year-round,” and that it would “simultaneously impact surface hydrology.” Ex. H (Dr. Alford January 20, 2020 email) at 2; Ex I (Lake Arrowhead Report) at 20. Dr. Alford also found that “[t]he location, landscape and hydrological alterations of the proposed Project, by design, will create adverse impacts to water resources” including Little Bear Creek. *Id.* Hydrologist Greg Kamman also informed that County that the EIR incorrectly characterizes groundwater conditions and fails to acknowledge or analyze the Project's potential to substantially interfere with groundwater recharge with corresponding impacts to Little Bear Creek. *See* Kamman 2019 Report at 3, 4.

The EIR inappropriately relies on compliance with the County's regulatory requirements to conclude that the Project's impacts would be less than significant.

DREIR at 3.F-23, 3.F-29. As discussed above, however, compliance with applicable regulations does not excuse the County from its obligation to analyze the Project's construction-related impacts and is not a sufficient basis to conclude that the Project's impacts would be less than significant. *See Californians for Alternatives to Toxics v. Department of Food & Agriculture* (2005) 136 Cal.App.4th 1, 15-17; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108-09.

Moreover, because the EIR relies on mere regulatory compliance, it fails to identify *any* mitigation for the Project's construction-related water quality impacts. Rather, the EIR looks to the eventual development of a Stormwater Pollution Prevention Plan ("SWPPP") which would purportedly include best management practices ("BMPs") to be used at the site. DREIR at 3.F-22. The EIR's approach does not comply with clearly established case law. CEQA allows a lead agency to defer mitigation only when: (1) an EIR contains criteria, or performance standards, to govern future actions implementing the mitigation; (2) practical considerations preclude development of the measures at the time of initial project approval; and (3) the agency has assurances that the future mitigation will be both "feasible and efficacious." *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 94-95; *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th at 669-71; Guidelines § 15126.4(a)(1)(B). Here, the County has met none of these requirements.

### **(b) Operational Impacts**

The EIR also fails to provide the required evidentiary support for its conclusion that the Project's operational water quality impacts would be less than significant. DREIR at 3.F-23. The Project would flatten a forested hillside, resulting in a 50 percent increase in impervious surfaces. DREIR at 3.F-24. Unless adequately controlled, the Project has the potential to discharge stormwater in Little Bear Creek and Lake Arrowhead. Anticipated pollutants of concern include bacteria/virus, heavy metals, nutrients, pesticides, organic compounds, sediments, trash and debris, oxygen demanding substances, and oil and grease. DREIR at 3.F-23. Despite the potential for these contaminants to discharge to area waterways, the EIR provides a confusing assessment of stormwater runoff volumes and inexplicably fails to provide *any* analysis of the Project's potential to degrade water quality post development.<sup>7</sup> Instead, as discussed below, the

---

<sup>7</sup> The EIR asserts that there would be a 0.54 cubic feet per second ("cfs") reduction in peak stormwater flows that would be discharged from the Project site when compared to existing conditions (a decrease to 67.64 cfs from 68.18 cfs as compared to undeveloped



document impermissibly relies on a series of vague BMPs that would purportedly be incorporated into the Project in support of its conclusion that the Project's impacts would be less than significant. DREIR at 3.F-23.

As an initial matter, CEQA does not allow an environmental document to avoid proposing and analyzing mitigation by labeling mitigation measures "Project design features" or otherwise folding them into the project description. The Project's significant impacts must be determined first, and then the EIR must identify adequate, enforceable mitigation that will avoid or reduce the impacts. *See Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 656, 658 (rejecting EIR that relied on project designs to find no significant impact, instead of identifying significant impacts and considering potential mitigation measures). In *Lotus*, the court held that an EIR was legally inadequate where it assumed certain mitigation techniques would be incorporated into the project, and thus failed to disclose the impacts of the project without those special techniques. *See id.* Further, the court in *Lotus* criticized the EIR's failure to consider whether other possible mitigation measures would be more effective than the ones that were assumed to be incorporated into the Project. *Id.* at 657. Here, by describing what are effectively mitigation measures as part of the Project, the EIR replicates the error made by the agency in *Lotus*.

Furthermore, the EIR makes no attempt to evaluate how increased stormwater runoff during the Project's operational stage would affect downstream water quality. There is ample research documenting the relationship between increases in impervious surfaces and water quality degradation. *See* Chester J. Arnold Jr. and C. James Gibbons, *Impervious Surface Coverage: The Emergence of a Key Environmental Indicator* (1996) 62 Journal of the American Planning Association 243, attached as Exhibit J; T.R. Schueler, *The Importance of Imperviousness* (1994) 1 Watershed Protection Techniques 100, attached as Exhibit K. The EIR must be revised to analyze the effect that increased impervious areas and resulting changes in stormwater discharge would have on water quality in Little Bear Creek and Lake Arrowhead.

---

conditions) due to regrading of the site. DREIR at 3.F-25; FEIR at 3.F-25. However, the EIR also states that when both offsite and onsite drainage areas are included, there would be a 1.24 cfs *increase* to the overall stormwater flows from 550.15 cfs to 551.39 cfs as compared to undeveloped conditions, again due to regrading. DREIR at 3.F-25; FEIR at 3.F-25; Technical Appendix F, pdf page 18. This 1.24 cfs increase across the total area would outweigh the supposed decrease from the Project site.

EIRs for other projects in the area provide an indication of the type of analysis that should have been conducted for the COTW Project. For example, although the EIR prepared for the Sky Park at Santa's Village Project did not provide a comprehensive analysis, it did disclose that paved (i.e. impervious) areas of the site would generate sheet flows of stormwater to down-slope locations. The Sky Park Village Project EIR's nominal analysis should be a starting point for the COTW EIR. *See* Sky Park FEIR excerpts at 69-70, attached as Exhibit L.

The COTW EIR lacks the required evidentiary support for its conclusion that the Project's design features would protect water quality during the Project's operational phase. The EIR looks to BMPs such as depressed landscapes (athletic fields and parking lots), storm drain filters, a bioretention basin, employee training, street sweeping and landscaping maintenance to claim that the Project's water quality impacts would be less than significant. DREIR at 3.F-23, 3.F-24; FEIR at 3.F-23. Yet, the EIR provides no detail about these measures or any indication that they would effectively prevent water quality degradation. To support a conclusion that a project would have less-than-significant impacts, an EIR "must provide a quantitative or qualitative determination or estimate of the mitigation measures' effect" on project impacts. *Friends of Oroville v. City of Oroville* (2013) 219 Cal.App.4th 832, 845. Here, the EIR neither actually calculates nor otherwise analyzes how the BMPs would protect water quality. Indeed, as Dr. Alford explains, BMPs have varying levels of effectiveness and the BMPs in the COTW EIR have not been proven, empirically, under similar site and climatic conditions. *See* Ex. H (Dr. Alford, January 2020 email) at 2. Dr. Alford further states:

The selection of BMPs requires careful consideration of site location based on landscape characteristics and the quantity of stormwater runoff during precipitation events. Gautam et al. (2010) suggests that factors influencing stormwater BMP design for specific regions are land use, vegetation, soil type, topography, geology, and climatic factors. In areas with various types of impervious surfaces (i.e. buildings, roads, and parking lots), BMPs are highly variable in their ability to effectively remove pollution inputs from stormwater runoff and protect aquatic.

Ex. I (Lake Arrowhead Report) at 9.

The COTW EIR provides no information that the applicant has taken site characteristics, the types of impervious surfaces, or climatic factors into account and thus

provides no indication that the proposed BMPs would effectively remove pollution from stormwater. Finally, as Dr. Alford notes, stormwater BMPs (grass swales, etc.) require constant management and monitoring to remain effective. Ex. I (Lake Arrowhead Report) at 7. Yet here, the EIR does not call for any monitoring at all. To conclude, as the EIR does, that an impact is less than significant, substantial evidence must demonstrate that mitigation measures will reduce an impact to a less-than-significant level. Substantial evidence consists of “facts, a reasonable presumption predicated on fact, or expert opinion supported by fact,” not “argument, speculation, unsubstantiated opinion or narrative.” Pub. Res. Code § 21080(e)(1)-(2). Because the EIR’s conclusion that water quality impacts would be insignificant was premised on unsupported assumptions, it falls far short of the showing required by CEQA. The COTW EIR must be revised to provide a comprehensive analysis of the COTW’s impacts on water quality and to identify effective BMPs capable of protecting water quality.

### **3. Cumulative Water Quality Impacts**

The COTW Project, together with the Storm Drain Project, have the potential to increase stormwater runoff on the Project site and consequently to cause cumulative water quality impacts. Regardless of the timing of the Storm Drain Project (i.e., even if the Storm Drain Project precedes the COTW Project), construction of both projects would increase impervious surfaces and runoff. As Greg Kamman explains, the COTW EIR does not incorporate the increased flow rates that would be introduced to COTW drainages by the Rimforest Storm Drain Project. *See* Kamman 2019 Report at 4, 5. He goes on to state that a complete analysis of COTW potential impacts should evaluate baseline hydrologic conditions under two scenarios – one in which the Storm Drain Project is constructed prior to COTW and the second in which COTW is constructed prior to the storm drain diversion. *Id.* Dr. Jennifer Alford expresses similar concerns about the cumulative water quality impacts from the COTW and the Storm Drain project. She concludes that “it is highly likely . . . that the county’s proposed, and now approved, stormwater project entering Little Bear Creek will impact water quality . . . Simply put, any alterations to the natural landscape create some degree of adverse impacts to downstream water sources.” Ex. H (Dr. Alford’s January 2020 email) at 2; Ex. I. (Lake Arrowhead Report) at 20. Dr. Alford adds that “[t]he location, landscape and hydrological alterations of the proposed COTW project, by design, will create [additional] adverse impacts to water resources” including Little Bear Creek. *Id.*

In sum, the EIR must be revised to provide a comprehensive analysis of the COTW’s direct and cumulative impacts on water quality and to identify effective mitigation measures capable of protecting water quality.

**C. The EIR Lacks Evidentiary Support for its Conclusion that the Project's Emergency Evacuation Impacts Would Be Less Than Significant.**

CEQA requires an EIR to discuss any “health and safety problems caused by physical changes” in the environment that arise out of a project. Guidelines § 15126.2(a). Where those physical changes contribute to or exacerbate wildfire and evacuation risks, the EIR must adequately inform the public and decisionmakers about the risks of attempting to evacuate the Project area. Here, the EIR does not meet CEQA’s standards.

Transportation engineer Neal Liddicoat with Griffin Cove Transportation Consultants (“GCTC”) reviewed the EIR’s emergency evacuation analysis. *See* GCTC Report, June 29, 2020, attached as Exhibit M. Liddicoat determined that the EIR does not disclose whether it is feasible to evacuate the Project’s occupants and surrounding community in a timely and safe manner. Consequently, the EIR lacks support for its conclusion that the risks associated with emergency evacuation would be less than significant.

Although the EIR identifies three potential evacuation routes from the Project site—SR 18, SR 138 and SR 189—the EIR does not evaluate the ability of these roadways to accommodate traffic under a mass evacuation scenario. No attempt was made, for example, to establish whether these roads would have adequate capacity during an evacuation and therefore provide a safe means for escaping from an approaching wildfire. GCTC Report at 9.

As an initial matter, it is important to point out that only SR 18 is a viable evacuation route. SR 189 and SR 138 are considered unsuitable for evacuating motorists. As the EIR acknowledges, SR 189 should be used only if time constraints do not exist or if there are no alternative routes available. EIR Project Evacuation Report at 8; GCTC Report at 9. SR 138 is also highly problematic as it is subject to significant, longstanding constraints on its use. *See* GCTC Report at 14. Although SR 138 is the only evacuation route to the north from the Project area, it is a very narrow, steep, winding road with hairpin turns that are difficult for large vehicles to negotiate. Notably, Caltrans has installed advisory signs warning against use of this highway by large trucks—as the roadway is frequently partially or completely blocked by semi-trucks. *See* GTCT Report at 15 (quoting the Alpenhorn News, February 18, 2017).

Consequently, although the EIR identifies SR 138 and SR 189 as evacuation routes, it is clear that the only real evacuation route for the proposed Project is SR 18.

Because the Project and cumulative development would result in numerous significant and unavoidable impacts to intersections along SR 18, the Project would substantially impede emergency evacuation. (See GCTC Report at 3, stating, “In other words, key components of the primary evacuation route (SR 18) serving the Project site are expected to operate at or above capacity, leaving no room to accommodate a sudden influx of vehicles associated with an emergency evacuation.”)

The Victorville Daily Press notes that emergency evacuation out of Big Bear Valley is already a well-known risk. The lack of available routes out of the Valley during the 2003 Old Fire/Grand Prix Fire caused motorists attempting to evacuate the area to experience a 28-mile traffic jam on SR-18. See “Big Bear’s fire escape routes high risk,” Daily Press, May 8, 2019, attached to GCTC Report. This same article reveals that an analysis by USA Today placed Big Bear and surrounding communities as the worst 1% statewide when it comes to population-to-evacuation-route ratios. *Id.* The EIR’s failure to disclose these well-known risks, let alone analyze how the Project would contribute to these risks, is a serious flaw.

Given the lack of meaningful information in the EIR, Liddicoat reviewed an evacuation study prepared to implement certain San Bernardino County 2007 General Plan goals, policies and programs relative to evacuation of the mountain communities during emergencies. See Mountain Region Emergency Road Capacity Study, URS, April 16, 2012, excerpts attached to GCTC Report. The URS Study tested the abilities of SR 18 and SR 330 to accommodate traffic during an emergency evacuation in the Lake Arrowhead area.<sup>8</sup> Liddicoat attempted to duplicate the URS Study’s analysis for certain segments along SR 18. His analysis revealed that that the traffic demand during an evacuation on SR 18 would be roughly *four to four-and-one-half times the capacity of the road*. GCTC Report at 12. It is important to note that roadway capacity could be reduced even further, as the URS Study did not take into account other critical variables that come into play during evacuations such as the possibility that the road will be obscured by smoke or other fire-related factors such as visible flames or flying embers. Moreover, as the EIR explains, only one lane of the two-lane highway would be available to evacuating

---

<sup>8</sup> Although the URS Study initially identifies SR-18, SR-173 and SR-189 as the evacuation routes for Lake Arrowhead, when it conducts the detailed evacuation analysis, it focuses on SR-18 and SR-330. It does not address SR-189 or SR-173 at all.

traffic as the “inbound” traffic lane would need to be reserved for approaching emergency vehicles. FEIR at 163 (Response to Comment 10-45). Consequently, the actual capacity of SR 18 would be substantially less than the URS study assumes. Furthermore, as Liddicoat explains, unstable flow will cause high levels of congestion and stop-and-go traffic, which will increase not only the time needed to evacuate, but also the levels of stress and anxiety for evacuees. GCTC Report at 13.

In summary, although the EIR does not address the feasibility of safely accomplishing a wildfire-related evacuation, the URS Study demonstrates conclusively that inadequate road capacity exists and the likelihood of a safe evacuation is negligible, at best. In order to adequately evaluate the Project’s emergency evacuation impacts, the EIR should have addressed the following basic questions:

1. If a wildland fire is approaching the Project site from a direction that necessitates evacuation to the south, does the two-lane SR 18 have adequate capacity to accommodate all Project- and non-Project-related traffic that might be on that road during an evacuation?
2. If a fire is approaching the Project site from a direction that necessitates travel to the north on SR 138, does that winding, two-lane road have adequate capacity to accommodate all Project- and non-Project-related traffic that might be on that road during an evacuation?
3. How long would it take to evacuate the Project site in the event of a wildland fire?
4. Can an evacuation be successfully and safely accomplished?
5. Would multijurisdictional fire efforts be able to mount an adequate emergency response consistent with County standards?

**D. The EIR Underestimates the Project’s Potential to Increase Roadway Hazards and Threaten Public Safety.**

**1. The EIR Relies on Inaccurate Assumptions in Its Site Distance Analysis.**

In our prior letters, we explained that the DREIR was deficient because it did not evaluate whether the Project’s traffic would increase roadway hazards. The FEIR declined to conduct this analysis, claiming that the burden was on the public to provide substantial evidence that the Project would compromise traffic safety. *See* Response 10-



40, FEIR at 162. It is not the public's responsibility to provide substantial evidence of an impact. Rather it is the duty of the EIR to support its conclusions with substantial evidence. Pub. Resources Code § 21080 (e) (1), (2).

Because the County declined to conduct this important analysis, we requested that GCTC review the applicable sections of the EIR. Liddicoat confirms that the EIR lacks evidentiary support for its conclusion that the Project's roadway hazard impacts would be less than significant. In particular, Liddicoat determined that the EIR fails to disclose that the Project would increase the risk of accidents at SR 18 and the Project Driveway. The DREIR incorrectly relied on the actual speed limit of SR 18 rather than the roadway's design speed. GCTC report at 4. According to Liddicoat, the design speed of a roadway is invariably higher than the speed limit; if it were equal to or less than the speed limit, then vehicles traveling at or even slightly above the speed limit would exceed the physical capabilities of the roadway. GCTC report at 4; 5. In this case, the speed limit on SR 18 is 35 mph; thus, it is likely that the design speed is 40 or 45 mph. Liddicoat recalculated the analysis using appropriate stopping sight distance values for the eastbound/downhill intersection approach. Liddicoat determined that for vehicles traveling two or more miles per hour over the speed limit, there would be inadequate stopping sight distance. Vehicles would be unable to stop in time to avoid entering the intersection if a red light is encountered or the intersection is otherwise occupied (e.g., pedestrians or bicyclists crossing the intersection or vehicles occupying the intersection because they have been involved in an earlier collision). GCTC Report at 4.

According to Liddicoat, to ensure safe operation, a minimum of 354 feet of stopping sight distance must be provided (i.e., the value for 40 mph) and it would be advisable to provide 427 feet, which would allow safe operation at up to 45 mph.<sup>9</sup> As noted above, these values represent the likely design speed for SR 18 at this location. As GCTC explains, the inappropriate use of the posted speed limit (instead of the design speed) in determining the required safe stopping sight distance is a substantial flaw in the EIR. It also undermines the EIR's conclusion that the Project's impacts relating to roadway hazards would be less than significant. Indeed, according to Liddicoat, it is likely that construction of the traffic signal-controlled Project access intersection will create a substantial traffic hazard. In particular, many drivers approaching the site on eastbound SR 18 will be unable to safely avoid any obstructions that might be present in the Project access intersection, as they will be unable to stop before entering the

---

<sup>9</sup> The EIR calls for a mere 300 feet of stopping sight distance. FEIR at 162.

intersection. The result will be collisions within the intersection, which will be a direct result of construction of the Project. GCTC at 6.

## **2. The EIR Fails to Consider the Presence of Queued Vehicles.**

Liddicoat also determined that the Project would create an additional safety hazard for motorists traveling eastbound toward the intersection of SR 18/Project Driveway. According to Liddicoat, if there are vehicles queued at the eastbound approach to this intersection, the approaching vehicle would be unable to stop in time to avoid a rear-end collision with the last vehicle in the standing queue. This is because the Project has been designed to provide a mere thirteen feet of stopping distance at this intersection. Many passenger trucks are longer than thirteen feet. GCTC Report at 6. Thus, a queue as short as one vehicle could completely consume the excess stopping sight distance for eastbound vehicles. In other words, unless there are no vehicles waiting on the eastbound intersection approach, there will be inadequate stopping sight distance available. *Id.*

As Liddicoat explains, this safety hazard would be exacerbated in the event of icy or snowy conditions. While some drivers may have the acumen to safely traverse the curving, downhill grade approaching the Project site, others will not. In either case, it is reasonable to expect that stopping distances will increase, reducing the likelihood that an approaching driver will be able to stop prior to entering the intersection (or encountering the rear end of a queued vehicle). GCTC Report at 7, 8.

The County should revise the EIR to include a comprehensive analysis of the Project's potential to increase public hazards and threaten public safety.

## **III. Approval Of the Project Would Violate the State Planning And Zoning Law.**

The State Planning and Zoning Law (Gov't Code § 65000 et seq.) requires that development decisions be consistent with the jurisdiction's general plan. General plans establish long-term goals and policies to guide future land use decisions, thus acting as a "constitution" for future development. *Leshar Communications, Inc. v. City of Walnut Creek* 52 Cal.3d 531, 540 (1990). As reiterated by the courts, "[u]nder state law, the propriety of virtually any local decision affecting land use and development depends upon consistency with the applicable general plan and its elements." *Resource Defense Fund v. County of Santa Cruz* 133 Cal.App.3d 800, 806 (1982). Accordingly, "[t]he consistency doctrine [is] the linchpin of California's land use and development laws; it is the principle which infuses the concept of planned growth with the force of law."

*Families Unafraid to Uphold Rural El Dorado County v. Board of Supervisors* 62 Cal.App.4th 1332, 1336 (1998).

To promote coordinated land use policies and practices, state law requires local governments not just to formulate theoretical land use plans, but also to conform their development and land use projects and approvals with those duly certified plans. *Citizens of Goleta*, 52 Cal.3d at 570. It is an abuse of discretion to approve a project that “frustrate[s] the General Plan’s goals and policies.” *Napa Citizens for Honest Gov’t v. Napa County* 91 Cal.App.4th 342, 379 (2001). The project need not present an “outright conflict” with a general plan provision to be considered inconsistent; the determining question is instead whether the project “is compatible with and will not frustrate the General Plan’s goals and policies.” *Napa Citizens*, 91 Cal.App.4th at 379.

As we and other members of the public including Sierra Club and SOFA explained in prior letters, the Project is inconsistent with the San Bernardino County General Plan and the Lake Arrowhead Community Plan. Subsequent to the submission of those letters and after the publication of the DREIR, the County determined that the Project’s increase in traffic would be inconsistent with the San Bernardino County General Plan (Policy M/CI 1.1) and Lake Arrowhead Community Plan (Policy LA/CI 1.1). Both policies require the County to maintain specific levels of service on Project area roadways. In particular, General Plan Policy M/CI 1.1 requires that the County “*shall ensure* that all new development proposals do not degrade Levels of Service (“LOS”) on State Routes and Major Arterials below LOS C during non-peak hours or below LOS D during peak hours” (emphasis added). As the DREIR explains, the Project would conflict with the County’s LOS standards at several intersections under all traffic scenarios. DREIR at 0-17. While the DREIR did not acknowledge these land use inconsistencies as a significant impact (DREIR at 0-16), the FEIR determines that these conflicts with the General Plan constitute significant and unavoidable impacts. FEIR at 0-16 (pdf page 469). The Project thus conflicts with a fundamental, mandatory, and clear General Plan policy with which it cannot rationally be found consistent. *See, e.g., Endangered Habitats League v. County of Orange* (2005) 131 Cal.App.4th 777.

The Project also would be inconsistent with General Plan Policy CI 13.2(c), which calls for the County to reduce the water quality impacts of stormwater runoff by preserving wetlands and riparian corridors and maintaining buffer zones around those areas. The Project not only fails to include any buffer zone around riparian areas, but in fact would construct parking, driveways and sports fields directly on top of a stream and wetlands, eliminating riparian habitat. As explained above, the Project’s regrading of the hilltop site and construction of parking lots and other large impervious surfaces will

degrade water quality and increase stormwater runoff, which will be exacerbated by the steep, erosion-prone slopes on the Project site and the lack of buffer areas around streams and wetlands. All of these impacts undermine the goals and policies of the General Plan.

Because of the Project's glaring inconsistencies with General Plan and Community Plan policies, approval of the Project would violate State Planning and Zoning Law. In addition, because the Project will result in new significant effects not identified in the DREIR, the County is obligated to revise the EIR and recirculate it for public review. CEQA Guidelines §§ 15162; 15163.

#### **IV. Conclusion**

For all of the foregoing reasons, as well as the reasons presented in our prior letters and other public and expert comments, and in light of the evidence in the record, the Board of Supervisors should uphold the appeal, reverse the Planning Commission's decision, and deny the proposed Project. In any event, the Board cannot lawfully approve this Project without first preparing a thorough, accurate, and complete EIR that discloses, analyzes, and provides mitigation for the Project's impacts to this unique environment.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



Kevin P. Bundy

#### List of Exhibits:

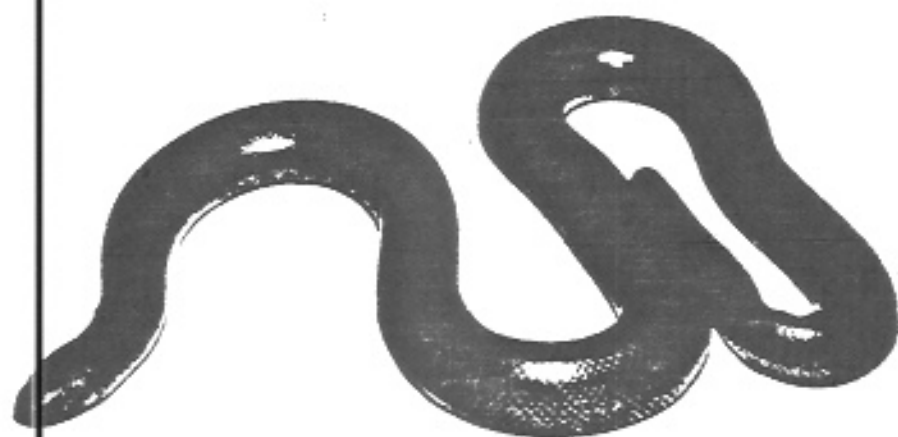
- Exhibit A: S. Loe and R. Stauber, Habitat Management Guide for Southern Rubber Boa on the San Bernardino National Forest (May 1985).
- Exhibit B: Robert Hamilton, Hamilton Biological, Review of Rubber Boa Issues: Proposed Church of the Woods Project, County of San Bernardino, California (August 10, 2020).
- Exhibit C: Rim Forest Storm Drain DREIR.

- Exhibit D: Rim Forest Storm Drain DREIR Addendum.
- Exhibit E: COW Rimforest – SD Realignment Email Chain.
- Exhibit F: SD Concept Realignment Rimforest (April 30, 2020).
- Exhibit G: Letter from J. Brandt, California Department of Fish and Wildlife to M. Slowik, re COTW DEIR, June 2, 2010.
- Exhibit H: Email from Dr. Jennifer Alford to San Bernardino County Board of Supervisors re: California State University San Bernardino Water Quality Research Data – Little Bear Creek COTW Proposed Development (January 20, 2020).
- Exhibit I: Dr. Jennifer Alford, Lake Arrowhead Tributary Water Quality Community Report (2019-2020).
- Exhibit J: Chester J. Arnold Jr. and C. James Gibbons, *Impervious Surface Coverage: The Emergence of a Key Environmental Indicator* (1996), 62 Journal of the American Planning Association 243.
- Exhibit K: T.R. Schueler, *The Importance of Imperviousness* (1994), 1 Watershed Protection Techniques 100.
- Exhibit L: Sky Park at Santa’s Village FEIR excerpts.
- Exhibit M: Griffin Cove Transportation Consultants Report (June 29, 2020).

# **Exhibit A**



*Glenk Stewart*



HABITAT MANAGEMENT GUIDE  
FOR SOUTHERN RUBBER BOA  
(Charina bottae umbratica)  
ON THE  
SAN BERNARDINO NATIONAL FOREST

HABITAT MANAGEMENT GUIDE FOR SOUTHERN RUBBER BOA  
(Charina bottae umbratica) ON THE SAN BERNARDINO NATIONAL FOREST

U.S. Department of Agriculture  
San Bernardino National Forest

Prepared By:

Steve A. Loe  
Steve A. Loe  
Wildlife Biologist

5/17/1985  
Date

Approved By:

Richard L. Stauber  
RICHARD L. STAUBER  
Forest Supervisor

5/20/85  
Date

TABLE OF CONTENTS

|  | <u>PAGE</u> |
|--|-------------|
| INTRODUCTION .....                                       | 1           |
| TAXONOMY AND DISTRIBUTION.....                           | 1           |
| STATUS .....   | 2           |
| HABITAT AND HABITAT USE .....                            | 2           |
| THREATS TO THE BOA IN THE SAN BERNARDINO MOUNTAINS ..... | 4           |
| PROPOSED HABITAT MANAGEMENT .....                        | 6           |
| PLANNING, RESEARCH AND INVENTORY .....                   | 8           |
| REFERENCES .....   | 9           |

## INTRODUCTION

The southern rubber boa (Charina bottae umbratica) is a small secretive snake, of very restricted distribution, which was listed as rare on the first list of rare California reptiles over ten years ago, and is now listed as threatened on the State of California list of threatened and endangered species. Since the southern rubber boa was listed, habitat loss has continued at a very rapid pace, especially in the San Bernardino Mountains. With the passage of the California Wilderness Bill, the boa population on Forest Service lands in the San Jacinto Mountains is entirely within the San Jacinto Wilderness boundary, and its habitat is fairly secure from human-induced factors. The southern rubber boa is listed as a Category 2 candidate for federal listing by the US Fish and Wildlife Service, and San Bernardino National Forest habitat is considered by most experts to be critical to the continued survival of this subspecies.

The Forest Service conducts a variety of management activities that need to be carefully integrated with the biological needs of the southern rubber boa to insure its continued existence. This habitat management guide will serve to document the current knowledge of the southern rubber boa and its habitat requirements and outline the steps necessary for conservation and enhancement of its habitat on National Forest lands. The biological information presented in this plan is applicable to the southern rubber boa throughout its range, but the discussion of threats and habitat management will focus on the San Bernardino Mountains since the bulk of the known San Jacinto population is in designated wilderness. The San Bernardino Mountains are the area of greatest management concern and have the greatest opportunity for the Forest Service to influence the long term survival of the subspecies.

## TAXONOMY AND DISTRIBUTION

The rubber boa (Charina bottae) is one of two members of the boa family present in the United States. It is smaller and more secretive in habits than the familiar rosy boa (Lichanura trivirgata). The rubber boa ranges from southern British Columbia to southern California and east to Montana, Wyoming and Utah. It is primarily an inhabitant of moist woodlands and coniferous forests. In the southern and interior parts of its range, its occurrence is spotty and confined to mountainous regions. Over much of its geographic range, populations of the rubber boa occur in isolated pockets. Populations occurring in southern California are found in this situation. This isolation is probably due to the warming and drying trend which has taken place since the last ice age and the resulting decline and isolation of cool moist habitats suitable for rubber boas. With the uplift of the Transverse Ranges (Santa Monica, San Gabriel, and San Bernardino Mountains) during the Pliocene and Pleistocene epochs, the rubber boa probably dispersed into southern California from the Sierra Nevada Range. The San Gabriels probably served as a corridor for this dispersal. Today however, there is considerable doubt among experts as to whether the rubber boa still exists in the San Gabriel Mountains. A probable explanation for the apparent absence of this snake in the San Gabriels is the small size and extreme isolation of pockets of suitable habitat. The

distributional hiatus represented by this mountain range may help explain the differentiation of the southern subspecies from its more widely distributed counterpart, the Pacific rubber boa (Charina bottae bottae).

The southern rubber boa (Charina bottae umbratica) is one of two recognized subspecies of the rubber boa. The other is the Pacific rubber boa (Charina bottae bottae). The southern rubber boa is known only from the San Bernardino and San Jacinto Mountains of southern California. What appear to be intergrade populations are found on Mt. Pinos and in the Tehachapi Mountains. The southern rubber boa is smaller in average size and averages fewer ventral, mid-body dorsal and subcaudal scales. It is usually a camel tan in color, compared to the dark brown or olive green color of the Pacific rubber boa. The frontal plate of the southern rubber boa usually has a nearly horizontal posterior margin in contrast to the distinctly convex or angular posterior margin of the northern subspecies.

The relationships among the various populations of the rubber boa are still poorly understood. Maps with southern rubber boa locality records and potential habitat in the San Bernardino Mountains and locality records for the San Jacinto Mountains are included as a part of this document. These maps were developed by Keasler, under Forest Service contract in 1982.

#### STATUS

The southern rubber boa is listed as Threatened by the State of California and as a Category 2 proposed species being considered for federal listing by the U.S. Fish and Wildlife Service. Threatened species are defined by the State as species that are not presently threatened with extinction, but are in such small numbers throughout their range that they may become endangered if their environment worsens. Threatened species are protected by State law and may be taken only for research purposes under a memorandum of understanding issued by the Department of Fish and Game, as authorized by the Fish and Game Commission. Category 2 taxa being considered for listing by the Fish and Wildlife Service are taxa for which information now in possession of the Service indicates that proposing to list the taxa as endangered or threatened is possibly appropriate, but for which substantial data are not currently available to biologically support a proposed rule. Further biological research and field study will normally be necessary to ascertain the status of the taxa in this category. Since its State listing as rare, habitat losses in the San Bernardino Mountains have continued despite efforts by the Forest Service and San Bernardino County to consider the well-being of the snake in areas of occupied habitat.

#### HABITAT AND HABITAT USE

Several studies have been conducted by the Forest Service to identify habitat components and determine distribution of the southern rubber boa on National Forest lands. These studies have provided some specific information regarding the habitat requirements of the boa and greatly improved distributional knowledge. Several studies failed to locate any boas using conventional collection methods. Although recent improvements in collection techniques have greatly improved the ability to locate boas, they are difficult to find. In a

six week period in 1981, a team of field workers were able to find only twelve boa locations searching in "ideal" potential habitat during an optimal time of year. A two month survey in 1982 in similar habitat found seven additional locations. The rarity and scattered occurrence of the southern rubber boa was validated in these surveys.

Like its northern relative, the southern rubber boa usually occurs in moist woodlands and coniferous forests. It is highly secretive, primarily a burrower, and crepuscular or nocturnal in its activity. Specimens are usually found under logs and other surface objects or in piles of leaf litter. Recent surveys have demonstrated the ability to find the snakes under rocks in the spring, both where they emerge from their winter hibernacula in rock outcrops and in areas of scattered surface rock exposed to the sun. These snakes are active during evening hours or heavily overcast days with high humidity and air temperatures in the 60-70 degree Fahrenheit range. Seasonal activity varies with the climate, but in southern California rubber boas probably hibernate from November through March, depending on weather conditions.

While the habitat requirements of the southern rubber boa have yet to be completely defined, the evidence suggests that it prefers mixed conifer-oak forests and woodlands at elevations of 5,000 to 8,000 feet. Old logs, surface rocks and rock outcrops provide daily shelters. Rock outcrops, and perhaps extremely large down logs, provide winter hibernacula. Adequate soil moisture seems to be essential to this fossorial snake which is most frequently observed in damp draws near springs, seeps, and streams during the summer months. This association with surface moisture, during the summer, is probably a seasonal phenomenon, however, as the southern rubber boa is most frequently found under rocks on ridges in the spring. Individuals may migrate annually between the ridges and canyon bottoms as they move from winter hibernacula to summer habitat. A southern rubber boa has been recorded moving up to 300 yards over a period of one season.

Overstory plant species most frequently associated with known rubber boa habitat include Jeffrey pine, sugar pine, ponderosa pine, white fir, black oak, and incense cedar. Small openings in the forest within occupied boa habitats usually have a dense cover of bracken fern and other herbaceous plants, or shrub cover of Ceanothus, manzanita or other species. These openings appear to be preferred as winter and spring habitat provided that adequate hibernacula such as rock outcrops are present. In general, southern rubber boa habitat appears to consist of some of the most vegetatively productive sites within the San Bernardino National Forest in this elevation range. Soils appear to be generally deep and well-developed, especially in summer habitat.

Surface objects such as rocks, and logs as well as a well-developed litter/duff layer are considered to be very important habitat components for rubber boas. They are needed in order to create and maintain areas of high soil moisture and to provide cover. These elements of the rubber boa's habitat also provide habitat for prey species, which most likely consist primarily of lizards, young rodents, and insect larvae.



## THREATS TO THE BOA IN THE SAN BERNARDINO MOUNTAINS

Southern rubber boa habitat in the San Bernardino Mountains has been severely altered over the last 100 years. Much of the optimal habitat for this subspecies has been developed and is now a part of the various mountain communities. This type of high-density human development is not compatible with maintenance of rubber boas. Rubber boas have been able to survive only on the fringes of these communities.

Most of the optimal boa habitat was logged in the early part of the century. Large, high-intensity wildfires have modified some areas of prime habitat. The southern rubber boa has demonstrated an ability to survive these types of temporary habitat alterations. Boas are present (at least seasonally) in second growth timber and shrub and herbaceous openings.

Fuelwood gathering in areas adjacent to mountain communities has been taking place for many years and may have significantly reduced habitat quality within easily accessible areas. The Forest Service has attempted to rectify the shortage of down logs on a few areas where timber harvest and stand treatment is taking place by felling some trees and letting them lie.

Campgrounds, summer home tracts, and various organization camps have been located in what was once prime rubber boa habitat. Whether rubber boas still exist in these areas depends on the density of development, the severity of habitat alteration on-site, and the proximity of unaltered habitat nearby.

San Bernardino County has required developers to build rubber boa protection measures into some developments in occupied habitats. Measures have included reduced residence densities and areas left as open space.

There has been a significant increase in the use of off-highway-vehicles (OHVs) in the San Bernardino Mountains over the past 5 years. Damage is most pronounced in riparian areas, relatively gentle areas, and areas adjacent to mountain communities. Since mountain communities are located in and adjacent to the best rubber boa habitat, considerable damage to boa habitat has occurred where OHV use is the heaviest. The Forest Service has attempted to control OHV use, but up until this time has not been very effective in eliminating resource damage. One road and trail system has been closed to reduce damage to rubber boa habitat, but with reduced recreation budgets, the ability to enforce OHV regulations is decreasing. New loop trails are being constructed in the hope of shifting illegal use to well-designed trails.

Continuing land developments in the San Bernardino Mountains are fragmenting formerly contiguous large tracts of rubber boa habitat. Whether this habitat fragmentation will result in the loss of boa populations is not known, but previous studies indicate that the likelihood of extirpation from environmental disturbances or genetic problems increases with decreases in population size and isolation and fragmentation of habitats. The apparent lack of rubber boas in the San Gabriel mountains could be an indication of the vulnerability of rubber boa populations that are isolated.

The southern rubber boa's habitat preference for productive mixed conifer-oak vegetation on relatively gentle slopes with adjacent riparian habitat puts it in direct conflict with the high public demand for housing in these same areas. Preferred rubber boa habitat is some of the most valuable mountain real estate in southern California. Property near riparian areas is all the more valuable. Communities in the San Bernardino Mountains have been located, almost without exception, in what was historically prime rubber boa habitat. These communities are expanding at a very rapid rate, and it appears that all of the remaining private land capable of being developed in these areas will eventually be developed. Areas not developed will be primarily floodplains and steep slopes, which at this time do not appear, by themselves, to be able to support rubber boas. Much of the remaining undeveloped private land in rubber boa habitat will eventually consist of small isolated areas that may not be capable of supporting viable populations of the snake.

Roads and pets (dogs and cats) associated with urban development create additional significant threats to the southern rubber boa. Pets catching and bringing rubber boas to their homes is a fairly common occurrence, especially where areas of natural habitat exist adjacent to human development. Predation by dogs and cats in these areas is probably a significant mortality factor based on the large numbers of snakes reportedly taken. Paved roads are an attractant to rubber boas for thermoregulation during certain weather conditions and seasons of year, resulting in road kills. These two human-induced mortality factors associated with mountain communities raise grave doubts as to the value of small isolated habitats surrounded by urban development in perpetuating the southern rubber boa.

Heavy dispersed recreation use and developed recreation have been implicated as significant threats to the well being of the southern rubber boa. The most serious of these is believed to be off-highway vehicle use. Impacts include direct mortality from crushing of individuals and indirect impacts associated with habitat degradation such as soil compaction and drying of habitats resulting from accelerated runoff. Disturbance of small rock outcrops by OHV use is another potential problem. Some concern has been expressed over soil compaction and erosion resulting from foot and horse traffic. Additional developed recreation sites are being planned and constructed in potential rubber boa habitat. The ability of these sites to support rubber boas after construction and use is doubtful in light of existing examples.

Removal of excessive amounts of down wood and snags for firewood is a major concern to southern rubber boa experts. This activity is limited to areas where there is vehicle access. On areas of flat ground, vehicle access is increasing due to illegal OHV use, wood gathering and dispersed recreation that creates new roads and trails. Once a road or trail is started by illegal vehicle use, it will generally continue to be used. Over time, these become well-defined routes which encourage additional vehicle use and conflicts for the boa.

Commercial timber sales, which are designed to improve the health and vigor of the timber stands, do not have a significant impact on boas because snags and down material can be retained. After timber sales improve vehicular access, however, OHV use can cause substantial habitat quality losses as previously described. Improved vehicular access resulting from timber sales also opens areas up to increased legal and illegal fuelwood removal, which can degrade boa

habitat if sufficient amounts of dead wood are not retained. Indications are that public demand for fuelwood will continue to increase, especially in light of projected increases in natural gas prices. Many mountain community home owners have invested in wood burning stoves, assuming an unlimited supply of fuelwood in the mountains.

Land exchanges from public to private ownership and special use permits can result in the permanent loss of boa habitat, and further fragment existing populations unless carefully planned and implemented.

Site preparation associated with forest regeneration efforts and fuelbreak construction can have significant effects if not properly planned and executed. Barriers to boa movement between hibernacula and seasonal use areas can be created if large areas are denuded of ground cover with inadequate corridors retained.

The trend toward converting large blocks of habitat owned by organizations to urban development is a severe threat to the continued existence of the boa.

#### PROPOSED HABITAT MANAGEMENT

Southern rubber boa habitat will be managed to maintain viable populations as well-distributed as is possible considering Forest Service land ownership patterns. To accomplish this, the following standards and guidelines for habitat maintenance and enhancement will be applied to all designated habitats within the range of the species, excluding parcels shown in red on the attached map. This includes all known currently occupied prime habitats of the species as well as those suspected habitats that should be managed to maintain habitat suitability.

Parcels shown in red are known or suspected rubber boa habitat that are not considered critical to the survival of the rubber boa if this plan is implemented. They are isolated parcels of National Forest land that are difficult to manage for any resource activity. They are being increasingly impacted by the development of adjacent private lands and associated activities. In general, they are marginal habitat, are now or will eventually be somewhat isolated from other boa habitat, or are on the extreme edges of areas of suitable habitat. They are not considered as significant for the perpetuation of the southern rubber boa and are identified as available for disposal through the Forest land adjustment program. There are some private lands within the San Bernardino National Forest which are known or suspected habitat, and it is the intention of the Forest Service to acquire these, if feasible, to help insure the continued existence of the southern rubber boa on the Forest.

#### All Occupied and Suspected Habitat (Letters and Roman Numerals on Map)

1. Avoid creating isolated populations or habitat for rubber boas in management activities and uses.
2. Reforest areas where wildfire has converted forested areas to brush.

- A. Retain corridors of vegetation in site preparation projects to provide for movement of boas between rock outcrops and drainages.
  - B. Retain vegetative cover along drainages and around rock outcrops.
  - C. Plant native species while striving for mixed species composition including hardwoods and conifers.
  - D. Conduct ground-disturbing activities when boas are safe in hibernacula if possible.
3. Restrict OHV use to designated and designed roads or trails.
- A. Locate routes outside of riparian areas and away from hibernacula and movement corridors whenever possible.
  - B. Increase enforcement and public education efforts to gain compliance with OHV regulations.
  - C. Monitor OHV damage to rubber boa habitat to determine whether existing controls are adequate. Institute more stringent controls, including designated route closures, construction of vehicle barriers, and increased enforcement where monitoring indicates downward trends in boa habitat conditions.
4. Limit vehicular access to the minimum number of designated roads and trails needed to provide for compatible dispersed recreational use and needed management activities.
5. Close roads not needed for management or desired levels of public use.
6. Strictly enforce fuelwood cutting regulations.
7. Manage timber stands to perpetuate mixed species composition and maintain health and vigor.
- A. Improve habitat conditions for rubber boas and associated wildlife species with K.V. funding in conjunction with timber sales by creating snags, down logs, and rock outcrops where lacking.
  - B. Retain 2-3 down logs per acre and sufficient snags as future replacements in forested areas. Down logs should be a minimum of 20 feet long and at least 12 inches in diameter to meet this requirement. Strive for a mixture of logs in various stages of decomposition. (Note: data are not available at this time to make firmer requirements. This requirement will be reevaluated as work being conducted by Chris Maser in the Pacific Northwest progresses.)
  - C. Monitor amounts of dead and down material in occupied rubber boa habitat to determine whether objectives are being met.
  - D. Lop and scatter or leave slash piles for cover and as prey substrate where possible, rather than burning slash.

E. Close timber sale roads and skid trails to public vehicular use unless needed to meet desired management and public access objectives.

8. Give consideration to keeping treated areas small and retaining down logs and unburned corridors for cover when planning for prescribed burns.

A. Seeps, springs and riparian areas will be excluded where possible from prescribed burns.

9. Protect rock outcrops, springs, seeps and riparian areas from mechanical disturbance where possible.

10. Acquire private land which will consolidate National Forest land for protection of rubber boa habitat and to facilitate Forest Service management activities.

11. Coordinate with the Southern Rubber Boa Advisory Committee, as needed, to assure optimum habitat management.

12. Adjust habitat management prescriptions, as necessary, to assure continued perpetuation of this species and its habitats.

#### OCCUPIED HABITAT (Letters on Map)

1. Compensate for any losses of high quality boa habitat by securing conservation easements on or acquiring private lands of equal or higher value through direct fee acquisition or land exchange.

2. Mitigate for habitat quality reductions resulting from planned management activities and land uses. Specific mitigation measures will be applied on an action-specific basis and should include recommendations set forth by discussions of these activities with the Southern Rubber Boa Advisory Committee.

3. Work actively with county and city governments in planning actions to ensure coordinated habitat management to the greatest extent possible.

#### PLANNING, RESEARCH AND INVENTORY

This plan is based on the assumption that the continued existence of the southern rubber boa is currently being jeopardized by a variety of land use activities, and that unless specific measures for protecting populations and habitats are followed, the boa will need to be listed by the federal government as threatened or endangered. This assumption could be wrong, but in the opinion of experts, the concern is real. It is the intent of the Forest Service to manage the habitat for the southern rubber boa so that listing will not be necessary. Additional information on the life history and the habitat requirements of the southern rubber boa is needed. Additional inventory work would also more accurately determine boa distribution. Extent of threat to the boa can then be determined by determining the degree and severity of habitat modification from a variety of activities.



This plan presents habitat management guidelines for the southern rubber boa on Forest Service lands based on current information. Recent advances in inventory techniques plus a considerable amount of interest in the snake should provide additional information which can be applied toward effective species and habitat management. The formation of the Southern Rubber Boa Advisory Committee has helped agencies concerned with the boa coordinate their management activities. In order for this plan to best provide for the needs of the southern rubber boa and interface with the multiple use demands within the San Bernardino National Forest, it needs to be a dynamic document. The Forest will meet at least annually on a formal basis with the Southern Rubber Boa Advisory Committee to evaluate any new information and update management actions within the plan.

#### REFERENCES

- Alten, Gary R. and G. Keasler. 1978. Southern rubber boa study, Mt. Pinos Ranger District, Los Padres National Forest. Unpublished report to the U.S. Forest Service, 38p.
- Banta, Benjamin H. 1979. An analysis of the status of the extant populations of (Charina bottae umbratica). Unpublished report to the U.S. Forest Service, 20p.
- Cereceres, Celia 1977. Habitats of the southern rubber boa (Charina bottae umbratica) in the San Bernardino Mountains. Unpublished report to the U.S. Forest Service, 13p. and 2 maps.
- Keasler, Gary L. 1981. Rubber boa survey for the San Bernardino National Forest. Unpublished report to the U.S. Forest Service, 26p. and 2 maps.
- \_\_\_\_\_. 1982. Eastern San Bernardino Mountain southern rubber boa survey. Unpublished report to the U.S. Forest Service, 22p. and 2 maps.
- Stewart, Glenn R. 1977. Charina, C. Bottae. Pages 205.1-205.2 In: L.D. Wilson, ed. Catalogue of American Amphibians and Reptiles. Society for the Study of Amphibians and Reptiles.
- \_\_\_\_\_. 1976. Final report on southern rubber boa, survey in the Angeles National Forest. Unpublished report to the U.S. Forest Service, 6p. and 2 maps.
- \* In addition to the above references, letters to the Forest Service from the Southern Rubber Boa Advisory Committee and Glenn R. Stewart, recognized southern rubber boa expert, making recommendations on specific projects were used.
- \*\* The draft of this plan was reviewed by the Deputy Forest Supervisor, Forest Supervisor's Staff, involved District Rangers, the Department of Fish and Game, Long Beach and Sacramento, the U.S. Fish and Wildlife Service, Sacramento and Laguna Niguel, San Bernardino County Planning Department, and all members of the Southern Rubber Boa Advisory Committee. All comments were incorporated where possible.



# **Exhibit B**



August 17, 2020

Ms. Laurel Impett  
Shute, Mihaly & Weinberger LLP  
396 Hayes Street  
San Francisco, CA 94102

**SUBJECT: REVIEW OF RUBBER BOA ISSUES  
PROPOSED CHURCH OF THE WOODS PROJECT  
COUNTY OF SAN BERNARDINO, CALIFORNIA**

Dear Ms. Impett,

At your request, Hamilton Biological, Inc., has reviewed issues related to the potential presence of the Southern Rubber Boa (*Charina umbratica*) — a species listed as threatened by the State of California due to its very limited range and potential threats from human activity and climate change — on the 27.12-acre Church of the Woods property (“church project site” or “site”) located near the unincorporated community of Rimforest in San Bernardino County (the County). The County prepared a Draft Revised EIR (DREIR) dated January 3, 2019, for the proposed construction of a church on the project site, and responded to comments in a Final EIR (FEIR) dated January 10, 2020. The Planning Commission’s approval of the project has been appealed to the County Board of Supervisors. The Board of Supervisors will be scheduling a hearing on this appeal.

The purpose of this review is to evaluate the County’s CEQA analysis regarding the Southern Rubber Boa, (a) to identify any inadequacies in the field work and evaluation of habitat suitability conducted in support of the EIR’s analyses, and (b) to identify and discuss any remedies that might be appropriate to enable the EIR to satisfy the minimum requirements of CEQA.

Robert Hamilton, President of Hamilton Biological, Inc., specializes in biological field reconnaissance, regulatory compliance, preparing CEQA documentation, and providing third-party review of CEQA documents. For this review, Mr. Hamilton has collaborated with herpetologist Brian Hinds to provide a high level of expertise concerning the natural history and specialized ecological requirements of the Southern Rubber Boa. Mr. Hinds is a founder and current board member of The North American Herpetological Education and Research Project (HERP) and the North American Field Herping Association. Mr. Hinds possesses 40 years of field experience with the local herpetofauna,

including the Southern Rubber Boa. During the course of his field work, Mr. Hinds has formally recorded approximately 65 individual Southern Rubber Boas and observed many more than this. He has worked as a volunteer expert consultant for field survey work on Southern Rubber Boas with the University of California at Los Angeles (UCLA), the US Geological Service (USGS), and The Tejon Ranch Conservancy. Mr. Hinds has written Southern Rubber Boa assessments for the US Fish and Wildlife Service (USFWS), and he has provided observational location data to the California Department of Fish and Wildlife (CDFW) and the US Forest Service (USFS).

## METHODS

Mr. Hamilton and Mr. Hinds visited the proposed project site on the afternoon of May 1, 2020, to evaluate the potential of the site to support Southern Rubber Boas.

As part of our review, we reviewed the original FEIR for the proposed Church of the Woods Project, dated June 2011, which the County did not certify, and the 2019 DREIR and 2020 FEIR for the proposed Church of the Woods project. We reviewed all relevant technical appendices to the 2019 DREIR, including Appendix D (Leatherman BioConsulting 2018; hereafter the “LBC report”):

We also reviewed the following additional relevant documents:

- *Center for Biological Diversity et al., Plaintiffs and Appellants, v. The County of San Bernardino, Defendant and Appellant; Hawarden Development Company, Real Party in Interest and Appellant.* Court of Appeals of California, Fourth Appellate District, Division Two. Unpublished opinion dated October 27, 2008. (Referred to herein as the “Hawarden case.”)
- Recirculated Draft EIR (RDEIR) for the Rimforest Storm Drain Project, certified by the County of San Bernardino on May 23, 2017.
- Letter dated June 2, 2010, from Jeff Brandt, California Department of Fish and Game, to Matthew Slowik, re DEIR for the 2010 Church of the Woods Project.
- Letter dated March 18, 2020, from Scott Wilson, CDFW Biologist and Environmental Program Manager, to Anthony DeLuca, County Senior Planner, re: a Mitigated Negative Declaration for the proposed Pine Tree RV Park Project in the unincorporated community of Big Bear City.

## RELEVANT LIFE-HISTORY TRAITS OF THE SOUTHERN RUBBER BOA

### *Rock Structures are Critically Important*

Southern Rubber Boas are rarely seen on the surface during the day, as they spend most of the daylight hours underground, where they appear to be highly reliant upon rock structures for thermoregulation. From fall through spring, Southern Rubber Boas hibernate in and use rock structures for thermoregulation required for proper breeding body temperatures, parasite control, and food digestion (B. Hinds pers. obs., Hoyer and Stewart 2000). Ovulating or gravid females use rock structures during the summer, as

well, to obtain the heat needed for successful birthing of live young in the late summer or early fall (B. Hinds pers. obs.). So important are rock structures to the Southern Rubber Boa that, in Mr. Hinds' review of all of data sources, he found that 98% of all spring records come from within 100 yards of rock structures. Whereas prime habitat for this species often features large or extensive rock formations, *small viable breeding populations may be associated with nothing more than a single small boulder, partially exposed above the surface* (B. Hinds pers. obs., naherp.com database, USFS and USFW observation data).

### ***Moisture is Critically Important***

Soil moisture is recognized as a limiting ecological factor for the Southern Rubber Boa; the species is usually found during summer months in damp draws near springs, seeps, and streams (Loe 1985). Furthermore, the species reaches its highest density in a 10-mile stretch between Twin Peaks to the west and Green Valley on the east where a relatively strong marine layer reaches the coastal front of the San Bernardino Mountains. In this marine-influenced zone, which includes the project site, the Southern Rubber Boa is able to occupy a wider range of habitats than the species typically occupies even a short distance inland, such as around Lake Arrowhead; farther east, such as around Big Bear Lake; or to south in the drier San Jacinto Mountains (B. Hinds pers. obs.).

### ***Use of Ancillary Surface Habitats***

Southern Rubber Boas are inextricably linked with rock structures, but the species may be found under a variety of other surface materials located near their required rock structures, so long as the materials retain adequate levels of moisture and heat, both of which are important for this species. Materials known to provide suitable ancillary surface habitat include logs, boards, carpeting, leaf litter, and plastic (B. Hinds and R. Hamilton pers. obs., naherp.com database, Hoyer and Stewart 2000, USFWS and USFS database). The leaf litter that normally occurs throughout suitable habitat is important for allowing boas to effectively regulate their levels of moisture and heat. The other main type of ancillary surface habitat, downed wood, tends to come and go over time, and may be used only occasionally. For this reason, presence/absence of logs or other downed wood generally should not be used to determine Southern Rubber Boa presence/absence or abundance, or for grading the quality of habitat for this species. Boa use of downed wood can be compared to human use of a porch or balcony; that is, areas near the main part of the house that are used for a limited amount of time. Furthermore, just as people may occupy homes without porches or balconies, Southern Rubber Boas routinely live and breed in habitats with little or no downed wood (B. Hinds pers. obs.).

### ***Summer Hunting and Dispersal Grounds***

During late spring and summer, many Southern Rubber Boas become nocturnally active, and range into cooler hunting grounds centered on their rock structures. This surrounding habitat is also vital for the boas' survival, as it allows them to hunt successful-

ly, find much needed moisture, and, for some juveniles and nomadic males, to disperse to other rock structures that they can occupy, thereby providing for vital gene flow and population expansion. The summer habitat grounds, used for hunting and dispersal, extend up to 300 yards or more from the rock structures used for hibernation and breeding (B. Hinds pers. obs., Loe 1985). Development or other dramatic alteration of these summer habitats quickly leads to local extirpation of Southern Rubber Boas, even if the original hibernation rock structure remains intact (B. Hinds pers. obs.). Some nomadic Southern Rubber boas, mainly juveniles and males, have been found even greater distance from rock structures (B. Hinds pers. obs. of individuals on roads at night, USFWS and USFS data).

### **SURVEYS MUST ACCOUNT FOR SPECIALIZED LIFE HISTORY TRAITS**

Given that Southern Rubber Boas are largely subterranean, and are secretive during the limited periods when present at or near the surface, detection during a biological survey is unlikely unless the survey methods are carefully designed with this snake's specialized life-history traits in mind. Naturally occurring surface site structures seldom lend themselves to productive searching, either because they are too large to be moved (e.g., most large rocks) or because they are too small to be attractive to the snakes. Therefore, researchers of this species typically set out artificial coverings, such as plywood or carpet, near large rock structures, to provide attractive temporary habitats that the snakes will use, at least occasionally, and that can be periodically checked during the proper seasons. Nocturnal surveys during the summer months may also be useful. Even using these specialized techniques, boas can remain undetected in a given area for many years before they are found to be present, even by experts. Mr. Hinds has had this experience at Tejon Ranch, at the UCLA Southern Rubber Boa study area in the San Jacinto Mountains, and other locations within the species' range.

### **THE EIR PROVIDES INCONSISTENT AND INACCURATE ACCOUNTING OF IMPACTS AND MITIGATION**

Page 3.C-20 of the DREIR acknowledges grading impacts to 8.64 acres of "low quality" boa habitat. The total proposed grading impact is 13.6 acres, but the EIR has improperly written off the remaining 4.96 acres of grading impact as involving "unsuitable" habitat. For reasons discussed in this letter, **all 13.6 acres of grading impacts involve highly suitable habitat for the Southern Rubber Boa**. Proposed fuel modification impacts, which also impact the boa, extend 0.66 acre beyond the grading limits. **Thus the total proposed project impact to the Southern Rubber Boa and its required habitat is 14.26 acres.**

Page 0-1 of the FEIR states [emphasis added]:

The proposed Project would result in the development of approximately 13.6 acres (50%) of the Project site (6.4 acres of structures, drives, walks, and drainage features; 7.2 acres of sports

fields, play areas, recreation, landscaping, and landscaped manufactured slopes). The remaining **13.5 acres** (50%) of the site would be retained as open space, including hiking trails, **fuel modification zones**, and undisturbed forested areas.

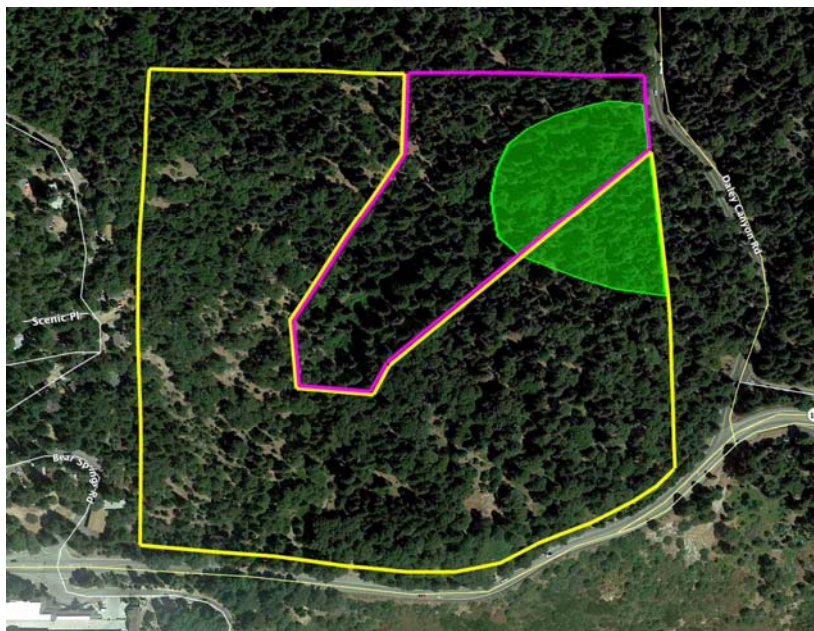
For reasons discussed in this letter, the 0.66 acre that would be subject to permanent fuel modification impacts cannot be claimed as part of 13.5 acres “retained as open space” and credited as Southern Rubber Boa mitigation.

Mitigation Measure MM-3.C1(b) states [emphasis added]: “Project Applicant has provided for the permanent preservation and management in perpetuity of **13.40 acres** of onsite habitat . . .” The 13.40 acre figure is inconsistent with the 13.5 acres of “retained open space” cited elsewhere in the FEIR.

To summarize, the proposed project entails 13.6 acres of grading impacts plus 0.66 acre of fuel modification impact for a total of 14.26 acres of impact to high-quality habitat for the Southern Rubber Boa. This leaves 12.86 acres of retained natural open space that may be credited as mitigation for the boa. The FEIR’s claims of either 13.40 or 13.50 acres of mitigation (a) are internally inconsistent, and (b) improperly claim credit for 0.66 acre that would be permanently impacted by fuel modification actions.

## **CHURCH OF THE WOODS DREIR TAKES AN APPROACH TO IMPACT ASSESSMENT THAT IS INCONSISTENT WITH THE APPROACH TAKEN IN THE COUNTY’S RIMFOREST STORM DRAIN EIR**

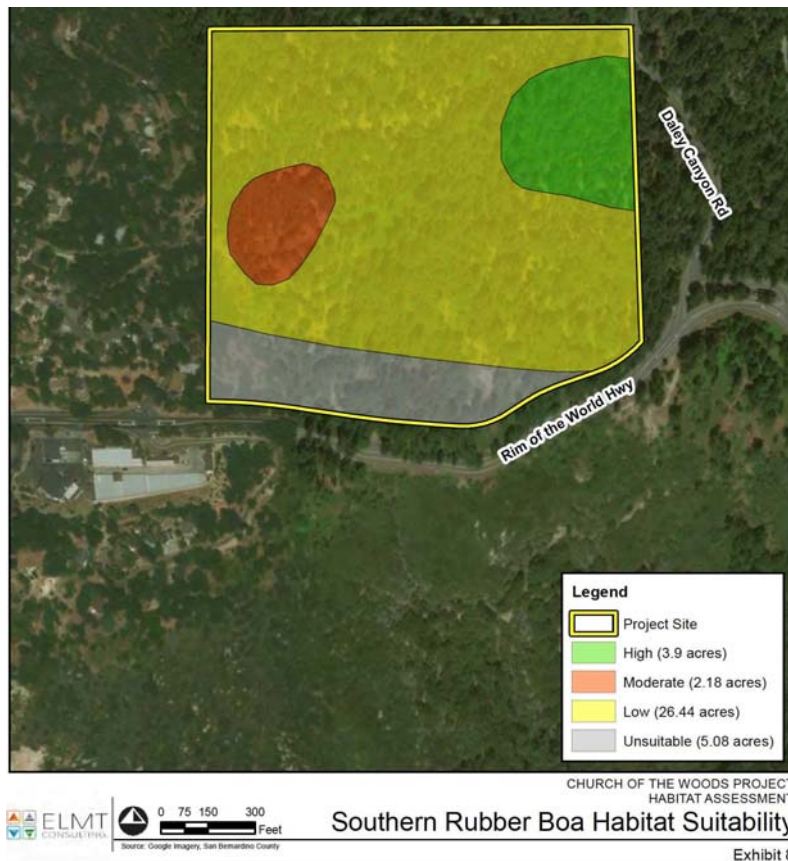
In 2017, the County certified the EIR for the County’s Rimforest Storm Drain Project, which identified impacts to a riparian area on 10.0 acres of land formerly owned by the Church of the Woods. This 10-acre piece of land extends from the northeastern Church project site boundary into the middle of the site (see Figure 1 below).



**Figure 1.** Showing the Church of the Woods site in yellow; the San Bernardino County Rimforest Storm Drain project site in magenta; and LBC’s mapped “high suitability” boa habitat in green screen (see Figure 2, below). LBC’s “high suitability” habitat covers 1.65 acres on the church site and 2.25 acres on the storm drain site. LBC mapped the remaining 7.75 acres of the storm drain site as “low suitability” habitat. By contrast, the Storm Drain EIR characterizes the entire storm drain site as “suitable habitat” with “high” potential for boa occupancy, and specifies that an ITP from CDFW is required for all impacts to the storm drain site. Storm Drain



RDEIR at 3.3-26.



**Figure 2.** Exhibit 8 in the LBC report, Appendix D to the Church DREIR, which included mapping of the storm drain project site. Comparing with Figure 1, on the previous page, note that LBC mapped most of the storm drain project site as “low suitability” habitat. This is inconsistent with the County’s treatment of the Southern Rubber Boa in the Storm Drain EIR.

Since the two properties fit each other like a lock and key, and both contain riparian and mixed coniferous forest habitats, the County should have treated impacts to the Southern Rubber Boa consistently in the Church EIR and the Storm Drain EIR. This is not, however, the case. Instead, the Church EIR concludes that only limited areas that LBC mapped as having “moderate” or “high” suitability (all of which lie outside of the Project’s impact areas) should be considered to be occupied by the boa. Based on the LBC report’s mapping of the great majority of the project site as being “unsuitable” or having “low” suitability, Page 3.C-20 of the DREIR incorrectly asserts that the Southern Rubber Boa “is not likely to occur within the development footprint of the Project site.”

By contrast, the Storm Drain EIR (p. 3.3-26) (a) identifies the entire 10-acre storm drain project site as “suitable”; (b) finds that the boa has “high” potential to occur throughout the site; and (c) requires an Incidental Take Permit (ITP) from CDFW for all impacts to suitable habitat (i.e., the entire storm drain project site). An ITP allows the “take” of a listed species, such as the Southern Rubber Boa, if such taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity. These permits are most com-

monly issued for construction, utility, transportation, and other infrastructure-related projects. Permittees must implement species-specific minimization and avoidance measures, and fully mitigate the impacts of the project. (Fish and Game Code § 2081 (b); Calif. Code Regs., title 14, §§ 783.2-783.8). Thus, the Storm Drain DREIR is written in a way that provides the public with at least some level of assurance that impacts to this State-listed species will be fully considered and adequately mitigated<sup>1</sup>.

The Church EIR, however, contains no requirement to obtain an ITP from CDFW. Instead, the EIR (page 3.C-20) acknowledges grading impacts to 8.64 acres of “low quality” boa habitat. As discussed previously, the project proposes 13.6 acres of grading, but the EIR has improperly concluded that 4.96 acres of grading impact involve “unsuitable” habitat. As reviewed in this letter, all 13.6 acres of grading impacts involve highly suitable habitat for the Southern Rubber Boa.

As reviewed previously in this letter, additional to the 13.6 acres of grading impact is 0.66 acre of fuel modification impact extending beyond the grading limits, for a total impact of 14.26 acres.

The Church EIR finds, without citing any evidence, that these 14.26 acres of impact to a listed species would be adequately mitigated by simply preserving the remaining part of the project site (which the FEIR refers to as either 13.40 acres or 13.50 acres, but which is actually 12.86 acres once the fuel modification impacts are accounted for).

The Church EIR’s unsubstantiated findings are based on LBC’s subjective mapping of 5.08 acres of the site as “unsuitable” habitat; 18.21 acres of the site as “low suitability” habitat; 2.18 acres of the site as “moderate suitability” habitat; and 1.65 acres of the site as “high suitability” habitat. Because these subjective habitat evaluations do not reflect the species’ known habitat requirements, the Church EIR’s conclusion that project implementation would impact only “unsuitable” and “low quality” habitat is not supported by the best available evidence. Using the more defensible approach taken in the Storm Drain EIR, the County would assume Southern Rubber Boa presence across the entire church project site, and would require that the Applicant obtain an ITP for 14.26 acres of impact to suitable habitat with high potential for the species’ presence.

## **CHURCH OF THE WOODS DREIR TAKES AN APPROACH TO IMPACT ASSESSMENT THAT IS INCONSISTENT WITH PRIOR CDFW COMMENTS**

The CDFW did not comment on the 2019 Church of the Woods DREIR, but CDFW biologist Jeff Brandt commented on the 2010 DEIR in a letter to the County dated June 10,

---

<sup>1</sup> Even with the ITP requirement, we believe that the Storm Drain DREIR should have identified the minimum level of mitigation that would be required to avoid potentially significant impacts to the Southern Rubber Boa, after mitigation.

2010. In Comment B-16 on page 4 of that letter, Mr. Brandt stated:

Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

The LBC habitat assessment was conducted on January 25, 2018, during the middle of winter, a time of year when Southern Rubber Boas are hibernating and thus essentially undetectable. Thus, the focused survey “required” by CDFW was not conducted, and we can find no evidence that the applicant consulted with CDFW or USFWS regarding appropriate survey protocols.

On page 5, in Comments B6-21 to B6-26, Mr. Brandt stated, “implementation of the proposed project may render the site unsuitable habitat for southern rubber boa” and specified, “The impacts to southern rubber boa habitat should be thoroughly addressed,” including analysis of project impacts “relative to their effects on habitats both onsite and offsite.” On pages 4 and 5 (Comment B-20), Mr. Brandt states that “Southern rubber boa is not compatible with high density development. The presence of southern rubber boa in human-occupied areas, such as campgrounds, depends upon the density of development, severity of habitat alteration, and proximity of unaltered habitat nearby.” Mr. Brandt requested a full evaluation of impacts to “maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas,” as well as a “cumulative effects analysis.” Rather than providing the required survey and thorough impact analysis, however, the current DREIR offers only a superficial and highly subjective habitat discussion, as discussed below.

## **REVIEW OF LBC’S HABITAT EVALUATION**

As discussed previously, LBC mapped 5.08 acres of the project site as “unsuitable”; 18.21 acres of the site as “low suitability” habitat; 2.18 acres of the site as “moderate suitability” habitat; and 1.65 acres of the site as “high suitability” habitat (see also Figure 2 on page 5 of this letter). The DREIR asserts on page 3.C-20 that limited areas deemed to have “moderate” or “high” value lie outside of proposed impact areas. Even among experienced experts, assessing habitat quality for the Southern Rubber Boa without conducting a survey designed to detect individuals is speculative, at best. In this case, the DREIR’s assessment is not only highly subjective, but is inconsistent with both CDFW’s recommendation and Mr. Hinds’ experience with the species.

Page 6 of the LBC report briefly explains why LBC considers the southernmost 5.08 acres of the project site to be “unsuitable” for the Southern Rubber Boa:

The strip of habitat north of SR 18 is similarly open and somewhat disturbed by an old access road and dead bracken fern. Habitat in this area therefore is judged to be of low quality or is likely unsuitable for the southern rubber boa at the present time.

Mr. Hinds, having found Southern Rubber Boas in comparable habitat, strongly disagrees that any substantial part of the project site can be accurately characterized as “unsuitable” for the species. See, for example, Photo 1, on the following page, which shows a very large rock structure near the southern project boundary, within the 5.08-acres that LBC characterizes as “unsuitable” habitat.



**Photo 1.** The LBC report evaluates this habitat as being “unsuitable” for the Southern Rubber Boa due to lack of downed wood in the area. Mr. Hinds regards this as high-value habitat due to (a) the presence of large rock structures; (b) ample leaf litter; (c) a nearby stream; and (d) a relatively strong marine influence. He has found Southern Rubber Boas in similar settings.

Mr. Hinds considers the area shown in Photo 1, above, to represent **high-value habitat** for the Southern Rubber Boa, as it provides the rock structures and leaf litter that the species requires. The drainage course running through the southern part of the project site, approximately 130 yards west of the area shown, provides a potentially important source of summer moisture. Finally, the project site lies within the marine-influenced part of the San Bernardino Mountains that supports the highest density of Southern Rubber Boas. This marine influence allows the boa to occupy a wider range of micro-habitats than the species is capable of utilizing in drier parts of its range (B. Hinds pers. obs.).

Also relevant, the LBC report describes various surface objects, such as downed logs, as part of the overall determination of habitat quality. Per the earlier discussion of the Southern Rubber Boa’s relevant life-history traits, these temporary, non-essential, ancillary surface habitats are only used seasonally and occasionally by Southern Rubber Boas, and should never be considered as indicators of snake presence/absence or abundance, or for grading the quality of habitat.

By relying upon a subjective habitat assessment, without an accompanying adequate field survey, the Church of the Woods EIR *grossly understates* the project site’s potential to support Southern Rubber Boas. Given the findings of the Storm Drain EIR together with Mr. Hinds’ assessment, the Church of the Woods EIR errs in that it fails to recognize that *the entire church project site constitutes highly suitable habitat*. Furthermore, the DREIR did not conduct the impact analysis that the CDFW letter (p. 5)



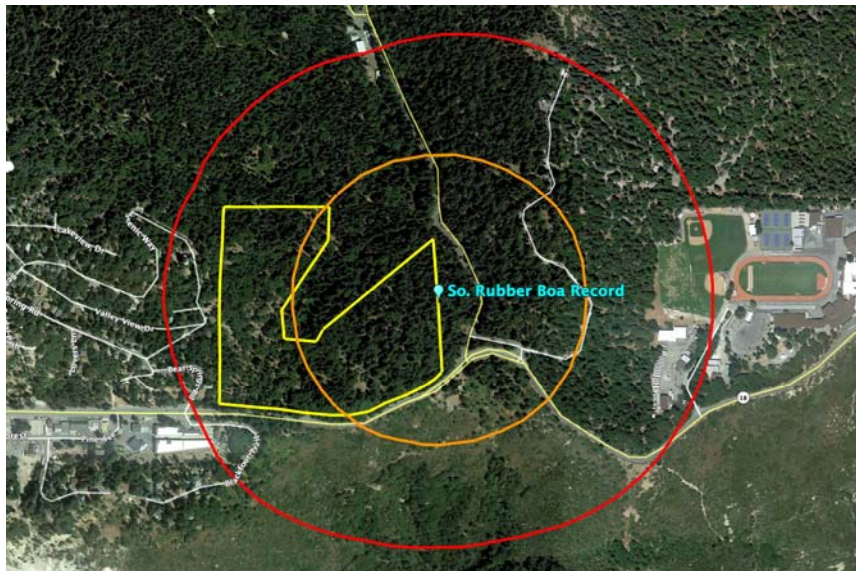
explains is necessary. The DREIR did not evaluate impacts on the southern rubber boa relative to their effects on habitats both onsite and offsite. It did not assess public lands, open space, adjacent natural habitats, dispersal requirements, or riparian ecosystems.

The RDEIR also failed to assess effects on the Southern Rubber Boa that would result from alteration of the onsite watercourses. As Mr. Hinds has explained, and CDFW confirms (page 4, Comment B6-19-B-20), soil moisture is important to the boa, which is frequently observed in association with damp draws near springs, seeps, and streams during the hot summer months. Despite the potential importance of the on-site riparian area, the DREIR failed to acknowledge, let alone analyze, how a more limited grading plan that maintains the riparian corridor, instead of burying it under a parking lot and sports field, could help to mitigate for impacts to the boa.

Finally, the DREIR acknowledges, on page 3.C-25, that impacts to the Southern Rubber Boa would be cumulatively significant, but fails to analyze these impacts or suggest ways of mitigating the impact. A proper cumulative analysis would evaluate the project site in the context of past, present, and planned future actions in the local area, and would analyze how these actions would affect the Southern Rubber Boa. For example, the species must retain the ability to disperse between areas of suitable habitat, and the project site is situated in a gap in development that could be important for north-south dispersal of the species in the future. The DREIR should have provided the context in which such cumulative effects could be evaluated and mitigated.

## THE LBC REPORT DEMONSTRATES THAT BOAS OCCUPY THE SITE

Page 4 of the LBC report states that the Southern Rubber Boa has been reliably reported from along the eastern church site boundary (U.S. Department of Agriculture Natural Resources Conservation Service [NRCS] data). Figure 3 in the LBC report maps the location of this record. Thus, even without focused surveys or a determination of habitat suitability, it is clear that the Southern Rubber Boa occupies the site, and especially the eastern part, where the church is proposed to be built. See Figure 2, below.



**Figure 2.** Circles with radius of 300 yards (orange circle) and 546 yards (500 m; red circle), centered on the known record of a Southern Rubber Boa, as mapped in the LBC report. The 300-yard circle represents the well-documented foraging and dispersal range of the Southern Rubber Boa (Loe 1985; B. Hinds pers. obs.). The 546-yard circle represents the species' maximum dispersal distance, as discussed in

the Hawarden case (Center for Biological Diversity v. County of San Bernardino).



Thus, the Church of the Woods EIR not only mischaracterizes highly suitable habitat as a mixture of low-value and unsuitable habitat, but also fails to account for the species' need to forage up to 300 yards from the rock structures where it hibernates. For these reasons, the DREIR's analysis is flawed and inadequate.

Based upon the large number of suitable rock structures scattered throughout the church project site, interspersed with required summer hunting and dispersal habitat, and considering the site's location within the area of marine influence that supports the highest density of this species, all 27.12 acres of the project site represent high-value habitat likely occupied by the Southern Rubber Boa. In the absence of an adequate survey effort for this species, which would require a minimum of three years of surveys using appropriate methods, it is our opinion that the County should consider all 27.12 acres of the project site to represent high-value habitat, 13.60 acres of which would be subject to grading impacts and 0.66 acres of which would be subject to fuel modification impacts (outside of grading limits), for a total impact of 14.26 acres.

## **FUEL MODIFICATION IMPACTS ARE ALSO SIGNIFICANT**

Master Response G on page FEIR-423 describes the proposed fuel modification impacts of the project:

Regarding fuel modification, when compared to the habitat suitability exhibits of the Project's habitat assessment (Exhibits 8 through 10 of DREIR Technical Appendix C), FEIR Figure F-2, Revised Proposed Physical Disturbance, illustrates that the Project's fuel modification zones (FMZ) 3 would disturb portions of low-quality habitat for SRB and moderate-quality habitat for SBFS and CSO. In these areas, all dead logs, branches, litter, and decaying organic material (i.e., leaves, needles, and woody material) would be removed from the ground and some thinning and pruning of trees and shrubs would also occur. Ongoing periodic maintenance would be required in the FMZ 3 area to ensure that the conditions of this zone are met. The FMZ 3 areas are not anticipated to substantially affect the areas protected under DREIR MM-3.C1(a) of MM-3.C1(b). The habitat to be permanently preserved on the Project site would include higher quality habitat than the habitat that would be impacted by the Project.

As discussed in this letter, the leaf litter that normally occurs throughout suitable habitat for the Southern Rubber Boa is important for allowing the snakes to effectively regulate body moisture and temperature. Initial and ongoing removal of this important natural material, along with all downed wood, would certainly adversely affect Southern Rubber Boas. Here, as in other parts of the impact analysis, the County attempts to sidestep the issue by claiming that only "low-quality habitat" would be affected. For reasons detailed herein, this claim should be rejected. The 0.66 acres of fuel modification impacts should be added to the grading impacts, for a total of 14.26 acres of significant impacts to high-value habitat.

## RECOMMENDED MITIGATION

As we explained above, the DREIR fails to substantiate that preservation of 12.86 acres of land (which the FEIR refers to as 13.40 or 13.50 acres) would be sufficient to mitigate impacts to 14.26 acres of Southern Rubber Boa habitat to a less than significant level. As CDFW has explained (pages 3 and 4), the Southern Rubber Boa is not compatible with high density development and the entire project site may be rendered unsuitable for this listed species. It is also important to understand that preserving land that would otherwise not be developed is not adequate mitigation. Even with the preservation of 12.86 acres of land, Church of the Woods Project will still result in a net loss of Southern Rubber Boa habitat, a contribution to cumulatively significant effects on the species and its local population, and landscape-level impacts that will disrupt potentially important dispersal pathways for the species.

In our opinion, adequate mitigation for grading and fuel modification impacts to 14.26 acres of high-value habitat, and degradation of habitat during the project's operational phase, would consist of conservation of high-value habitat at a ratio of 3:1, for a total of 42.78 acres. The mitigation habitat, most or all of which would have to be located off-site, should be placed under a conservation easement with adequate funding to ensure long-term maintenance of the habitat.

In addition, the Church EIR should be amended to include the following protective measures provided on pages 3.3-26 and 3.3-27 of the Storm Drain RDEIR:

Prior to initiation of project-related activities within suitable habitat for southern rubber boa, the County would be required to consult with CDFW to obtain applicable take authorization or to identify additional avoidance or mitigation measures that may be necessary to avoid take. The County would be required to implement all terms or conditions of such authorization and to comply with any additional avoidance or mitigation measures that are identified.

MM BIO-1h (Avoid Wildlife Hazards and Entrapment) would require the County to avoid creating entrapment hazards for wildlife and prohibit vehicle traffic outside of designated work areas and access roads. With implementation of this measure southern rubber boa would not be at risk of injury or mortality due to entrapment or other project activities and would therefore reduce the impacts to below a level of significance.

MM BIO-1j (Manage Project Trash) would require the County to contain project-related trash and remove it from the work area daily. MM BIO-1c (Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss) and BIO-1e (Speed Limit) would further minimize impacts by requiring the County to minimize loss of habitat and compensate for habitat that is lost and reduce speed limit to 10 mph to avoid injury or mortality to southern rubber boa caused by vehicles. MM BIO-1f (Personnel Training) would require the County to present an environmental-education program to project workers on sensitive biological resources which would allow them to recognize these species on the project site and know to avoid them.

MM BIO-1k (Minimization and Avoidance Measures for Southern Rubber Boa) requires the County to coordinate with CDFW to obtain an Incidental Take Permit (ITP) prior to the start of project activities. It would also require the County to conduct clearance surveys for southern rubber boa

immediately prior to initial ground disturbance, install exclusion fencing around work areas, and monitor initial vegetation removal and site preparation. This mitigation measure also requires that any southern rubber boa found on the project site will be relocated off the site by a qualified biologist and in accordance with take authorization from CDFW as applicable. With implementation of these measures, impacts of construction and operation of the proposed project would be less than significant (Class II).

## CONCLUSION

Hamilton Biological appreciates the opportunity to provide this independent review of Southern Rubber Boa issues. If you have questions or wish to further discuss any matters, please send e-mail to [robb@hamiltonbiological.com](mailto:robb@hamiltonbiological.com) or call me at 562-477-2181.

Sincerely,



Robert A. Hamilton, President  
Hamilton Biological, Inc.  
<http://hamiltonbiological.com>

## LITERATURE CITED

- Hoyer, R.F., and G.R. Stewart. 2000. Biology of the Rubber Boa (*Charina bottae*), with emphasis on *C. b. umbratica*. Part I: Capture, Size, Sexual Dimorphism, and Reproduction. *Journal of Herpetology* 34:348-354.
- Leatherman BioConsulting, Inc. 2018. Biological Assessment for Southern Rubber Boa at the Church of the Wood's Project Site, Rim Forest, San Bernardino County. Letter report dated February 22, 2018, prepared for Michael Baker International, 3536 Concours Street, Suite 100, Ontario, California 91746.
- Loe, S. A. 1985. Habitat management guide for southern rubber boa (*Charina bottae umbratica*) on the San Bernardino National Forest. San Bernardino National Forest, San Bernardino, CA. 9 pp.

# **Exhibit C**



# **Recirculated Draft Environmental Impact Report for the RIMFOREST STORM DRAIN PROJECT**

Prepared by:



**County of San Bernardino  
Department of Public Works  
Flood Control District**

Technical Assistance  
Provided By

**Aspen**  
Environmental Group

**September 2016**

# **Recirculated Draft Environmental Impact Report for the Rimforest Storm Drain Project**

## **Lead Agency:**

San Bernardino County  
Flood Control District  
825 East Third Street  
San Bernardino, California 92415



## **Technical Assistance Provided by:**

Aspen Environmental Group  
5020 Chesebro Road, Suite 200  
Agoura Hills, California 91301

September 2016



# Table of Contents

## Executive Summary

|        |   |       |
|--------|---|-------|
| ES.1   | Summary of Proposed Project .....                     | ES-2  |
| ES.2   | Environmental Review Process.....                     | ES-6  |
| ES.3   | Summary of Impacts and Mitigation Measures.....       | ES-6  |
| ES.3.1 | Impacts Not Further Considered in this EIR .....      | ES-7  |
| ES.3.2 | Growth Inducing-Effects .....                         | ES-9  |
| ES.3.3 | Irreversible Commitment of Resources.....             | ES-10 |
| ES.3.4 | Irreversible Damage from Environmental Accidents..... | ES-10 |
| ES.4   | Summary of Alternatives Analysis.....                 | ES-10 |
| ES.5   | Areas of Controversy and Issues to be Resolved .....  | ES-11 |

## 1. Introduction

|     |  |     |
|-----|--|-----|
| 1.1 | Purpose of the EIR.....                                  | 1-1 |
| 1.2 | Public Noticing Requirements.....                        | 1-1 |
| 1.3 | Public Review Period Requirements .....                  | 1-1 |
| 1.4 | Recirculated Draft EIR Environmental Review Process..... | 1-2 |
| 1.5 | Decision-Making Process .....                            | 1-2 |
| 1.6 | Recirculated Draft EIR Organization.....                 | 1-2 |

## 2. Project Description

|       |                                     |      |
|-------|-------------------------------------|------|
| 2.1   | Project Overview.....               | 2-1  |
| 2.2   | Environmental Setting.....          | 2-1  |
| 2.3   | Proposed Project.....               | 2-3  |
| 2.3.1 | Construction Plan.....              | 2-6  |
| 2.3.2 | Operation and Maintenance .....     | 2-11 |
| 2.4   | Required Permits and Approvals..... | 2-13 |
| 2.5   | Environmental Commitments .....     | 2-13 |

## 3. Environmental Setting, Analysis, and Mitigation Measures

|       |   |        |
|-------|---|--------|
| 3.2   | <b>Air Quality and Greenhouse Gases</b> .....       | 3.2-1  |
| 3.2.1 | Environmental Setting.....                          | 3.2-1  |
| 3.2.2 | Applicable Regulations, Plans, and Standards.....   | 3.2-5  |
| 3.2.3 | Environmental Impacts and Mitigation Measures ..... | 3.2-12 |
| 3.2.4 | Level of Significance After Mitigation .....        | 3.2-23 |
| 3.3   | <b>Biological Resources</b> .....                   | 3.3-1  |
| 3.3.1 | Environmental Setting .....                         | 3.3-1  |
| 3.3.2 | Applicable Regulations, Plans, and Standards.....   | 3.3-17 |
| 3.3.3 | Environmental Impacts and Mitigation Measures.....  | 3.3-20 |
| 3.3.4 | Level of Significance After Mitigation.....         | 3.3-36 |
| 3.4   | <b>Cultural Resources</b> .....                     | 3.4-1  |
| 3.4.1 | Environmental Setting .....                         | 3.4-1  |
| 3.4.2 | Applicable Regulations, Plans, and Standards.....   | 3.4-13 |
| 3.4.3 | Environmental Impacts and Mitigation Measures.....  | 3.4-15 |
| 3.4.4 | Level of Significance After Mitigation.....         | 3.4-18 |
| 3.6   | <b>Hydrology and Water Quality</b> .....            | 3.6-1  |
| 3.6.1 | Environmental Setting .....                         | 3.6-1  |
| 3.6.2 | Applicable Regulations, Plans, and Standards.....   | 3.6-5  |

|           |  |        |
|-----------|--|--------|
| 3.6.3     | Environmental Impacts and Mitigation Measures.....         | 3.6-7  |
| 3.6.4     | Level of Significance After Mitigation.....                | 3.6-13 |
| <b>5.</b> | <b>Cumulative Effects</b>                                  |        |
| 5.1       | CEQA Requirements.....                                     | 5-1    |
| 5.2       | Cumulative Impact Analysis Methodology.....                | 5-2    |
| 5.3       | Projects Considered in the Cumulative Impact Analysis..... | 5-2    |
| 5.4       | Cumulative Impact Analysis .....                           | 5-4    |
| <b>6.</b> | <b>Other CEQA Considerations</b>                           |        |
| 6.1       | Growth-Inducing Effects .....                              | 6-1    |
| 6.2       | Significant Irreversible Environmental Changes .....       | 6-2    |
| 6.3       | Significant Effects that Cannot be Avoided .....           | 6-3    |
| <b>7.</b> | <b>References</b> .....                                    | 7-1    |

## Tables

|              |   |        |
|--------------|---|--------|
| Table ES-1   | Summary of Impacts and Mitigation Measures.....   | ES-12  |
| Table 2-1    | Construction – Materials Quantities.....  | 2-7    |
| Table 2-2    | Construction Off-Road Equipment – Sediment Basin Construction.....  | 2-8    |
| Table 2-3    | Construction Off-Road Equipment – SH 18 Drain Construction.....   | 2-9    |
| Table 2-4    | Construction Off-Road Equipment – Pine Avenue Drain Construction .....                                    | 2-9    |
| Table 2-5    | Environmental Commitments .....   | 2-14   |
| Table 3.2-1  | Rimforest Area Monthly Average Temperatures and Precipitation.....  | 3.2-1  |
| Table 3.2-2  | National and California Ambient Air Quality Standards.....  | 3.2-3  |
| Table 3.2-3  | Attainment Status for the SCAB.....   | 3.2-3  |
| Table 3.2-4  | Background Ambient Air Quality Data.....  | 3.2-4  |
| Table 3.2-5  | SCAQMD Regional Air Quality Emissions Significance Thresholds .....                                       | 3.2-12 |
| Table 3.2-6  | SCAQMD LST and TACs Air Quality Emissions Significance Thresholds.....                                    | 3.2-13 |
| Table 3.2-7  | Maximum Daily Construction Emissions (lbs/day) .....  | 3.2-16 |
| Table 3.2-8  | Maximum Daily Operation Emissions (lbs/day).....  | 3.2-16 |
| Table 3.2-9  | Maximum Daily Localized Construction Emissions (lbs/day) .....  | 3.2-16 |
| Table 3.2-10 | Maximum Daily Localized Operation Emissions (lbs/day).....  | 3.2-17 |
| Table 3.2-11 | Summary of Project Greenhouse Gas Emission Estimates .....  | 3.2-20 |
| Table 3.2-12 | Project Consistency with Potentially Applicable Plans, Policies, and Regulations for GHG Emissions .....  | 3.2-21 |
| Table 3.2-13 | Annual Greenhouse Gas Emission Estimates.....   | 3.2-21 |
| Table 3.2-14 | Potentially Applicable California GHG Reduction Strategies.....   | 3.2-21 |
| Table 3.3-1  | Definitions of Special-Status Species .....   | 3.3-3  |
| Table 3.3-2  | Special-Status Plants of the Rimforest area.....  | 3.3-8  |
| Table 3.3-3  | Special-Status Wildlife Potentially Occurring on the Project Site.....                                    | 3.3-11 |
| Table 3.3-4  | Temporary and Permanent Impacts on the Proposed Project Site .....  | 3.3-18 |
| Table 3.3-5  | Temporary and Permanent Impacts to State and Federal Water and Wetlands in the Proposed Project Site..... | 3.3-37 |
| Table 3.5-1  | Significant Active and Potentially Active Faults within 50-miles of the Project.....                      | 3.5-8  |
| Table 3.6-1  | Basin Plan Beneficial Uses .....  | 3.6-3  |
| Table 5-1    | Rimforest Storm Drain Project Cumulative Projects List.....   | 5-4    |

## Figures

|              |   |        |
|--------------|---|--------|
| Figure ES-1  | Project Location Map.....   | ES-3   |
| Figure ES-2  | Project Site Plan .....   | ES-5   |
| Figure 1     | Project Location .....  | 2-2    |
| Figure 2     | Project Site Plan .....   | 2-4    |
| Figure 3     | Permanent and Temporary Disturbance .....   | 2-12   |
| Figure 3.2-1 | Wind Rose for Crestline (2006-2009, 2011) .....   | 3.2-2  |
| Figure 3.3-1 | Vegetation and Cover Type .....   | 3.3-7  |
| Figure 3.6-1 | Strawberry Creek and Little Bear Creek Watersheds for the Rimforest<br>Storm Drain Project..... | 3.6-12 |
| Figure 5-1   | Cumulative Projects.....  | 5-3    |

## Executive Summary

This Recirculated Draft Environmental Impact Report (EIR) has been prepared pursuant to the requirements of the California Environmental Quality Act (CEQA). The County is the lead agency under CEQA. CEQA requires the lead agency to consider the information contained in an environmental review document, prior to taking any discretionary action. This Recirculated Draft EIR will serve as an informational document in addition to the original Draft EIR to be considered by the County and other local and state permitting agencies during their respective processing of the proposed project.

The Recirculated Draft EIR for the proposed project has been prepared to inform the public of changes to the original document resulting from additional analysis for biological resources and hydrology and water quality. A downstream habitat and flow assessment for Strawberry Creek and Lower East Twin Creek was completed to more accurately characterize potential effects, downstream from the proposed project. Results from this assessment have been included in the Recirculated Draft EIR. Additionally, corrections have been made to a few references in the original cultural resources Draft EIR section.

The Recirculated Draft EIR contains an updated biological resources analysis (Section 3.3), updated cultural resources section (Section 3.4), updated hydrology and water quality analysis (Section 3.6), updated Cumulative Effects section (Section 5), and an updated References section (Section 7). No changes to impact conclusions have occurred based on the additional analyses performed. Only those sections that have changed from the original Draft EIR published in September 2015 are included in this Recirculated Draft EIR, per CEQA Guidelines 15088.5(c).

This Draft Environmental Impact Report (EIR) was prepared to address the environmental effects associated with implementation of the proposed Rimforest Storm Drain Project (proposed project). The County of San Bernardino, Department of Public Works (County) proposes to construct the proposed project, which involves construction and maintenance of a series of drainage facilities to address historic erosion and landsliding in the southern Rimforest community. The San Bernardino County Flood Control District (SBCFCD), a separate legal entity, is acting in an advisory capacity to the County for this project.

The County, as the Lead Agency under the California Environmental Quality Act (CEQA), prepared this EIR for the proposed project. This EIR is an informational document for the general public and governmental agencies to review and evaluate the proposed project. The reader should not rely exclusively on the Executive Summary as the sole basis for judgment of the proposed project and alternatives; rather, the complete EIR should be consulted for specific information about the environmental effects and the implementation of associated mitigation measures.

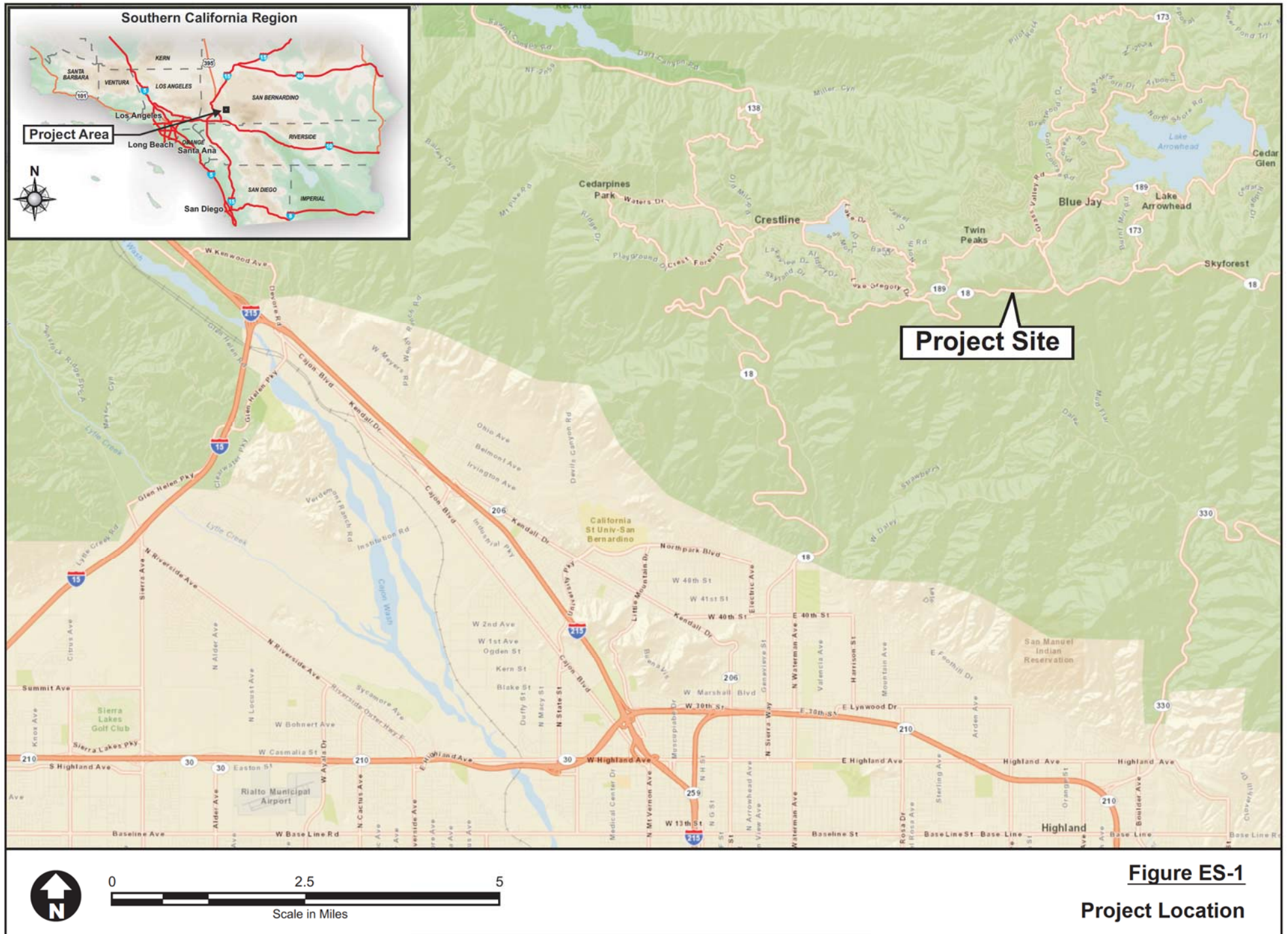
Responsible and Trustee Agencies, other agencies with review authority over the proposed project, and agencies with which the County would need to coordinate aspects of the proposed project include the following:

- State Water Resources Control Board, Santa Ana River and Lahontan Regional Water Quality Control Boards (review and enforcement stormwater discharges and authority over any other water or waste discharges; water rights transfer agreement)
- California Department of Fish and Wildlife (review and agreement for any streambed alteration or incidental take authorization that may be required)
- California Department of Transportation (review and authority over any Project-related activity within a state-owned transportation Right-of-Way [ROW])
- California Highway Patrol (coordination regarding haul route traffic on state highways)

- U.S. Army Corps of Engineers (review of potential discharges or effects on federal jurisdictional waters or wetlands)
- South Coast Air Quality Management District (review of construction-related emissions)
- San Bernardino County Fire Department (review and authority over any project-related activity within a County-owned transportation ROW or within a Fire Safety Overlay)
- San Bernardino County Sheriff's Department (review and authority over any project-related activity with a County-owned transportation ROW)
- San Bernardino County Solid Waste Management Division (permit authority over project-related waste disposal)

## **ES.1      Summary of Proposed Project**

The proposed project is located in the community of Rimforest, in the San Bernardino Mountains near Lake Arrowhead, approximately six miles north of the City of San Bernardino in the County of San Bernardino, California (Figure ES-1). The proposed project would restore runoff from its current flow-path through the community of Rimforest and outlet at the landslide area in southern Rimforest, into a new flow-path comprised of channels and pipeline to the north of SR-18, with an outlet into Little Bear Creek on the COTW property (Figure ES-2). In re-directing this runoff, the proposed project would result in runoff flowing into the Mojave River Watershed instead of the Santa Ana River Watershed.



**Figure ES-1**  
**Project Location**



In order to restore surface waters as proposed, the proposed project includes a series of channels, pipes, and attenuation basin(s). With development of the storm drain systems and attenuation basin(s), the proposed project would restore a total of approximately 100 acre-feet per year into Little Bear Creek (MBA, 2010). Primary elements of the project would be implemented in two distinct phases, described below.

### ***Phase 1***

Phase 1 of the proposed project would intercept the largest part of runoff to be restored under the proposed project, and result in a 64 percent reduction (in runoff) into the landslide area. Improvements constructed under this phase would convey mountainside runoff from an area of approximately 51 acres, and deliver this runoff to Little Bear Creek. This phase of the proposed project includes approximately 0.8 miles of flood control improvements, comprised of approximately 0.2 miles of channel/basin and approximately 0.6 miles of pipe culvert and appurtenances.

- ***Channelized Reach(s).*** The proposed channel sections would be of varying width and depth and trapezoidal in configuration. Channelized reaches would be located near the inlet and outlet of the proposed basin(s) and would be armored to prevent erosion. The configuration of the channel sections will be determined by the SBCFCD and designed to be sufficient to convey the mountainside runoff and associated debris.
- ***Culvert & Appurtenances.*** The culvert system would be aligned along the north side of SR-18 extending from the west end of the community of Rimforest to the east end of the community discharging into the proposed basin via an inlet channel as described above, and would include street inlets to filter debris onto SR-18. Stormwater flows would be directed via the culvert/basin systems into Little Bear Creek. Currently, runoff into Little Bear Creek occurs from an area of approximately 40 acres north of SR-18; restoring runoff from a 50-acre area would therefore increase runoff into the creek.
- ***Basin(s).*** Flow Attenuation basin(s) would be constructed within the Little Bear Creek channel, downstream of the point where flows restored by the culvert system described above would enter the drainage. This basin system would be designed to reduce peak storm flows discharging into Little Bear Creek, and would include a drain culvert and armored emergency spillway which would discharge to Little Bear Creek via an armored energy dissipater. The attenuation basin(s) are included in the Phase 1 design because downstream stormwater drainage structures in the Little Bear Creek channel would not have sufficient capacity to transmit peak flows with the additional runoff contributed by the restoration of flows as described above. Jurisdictional ephemeral and perennial but non-wetland waters of the State and federally jurisdictional “waters of the U.S.” will be defined on any property to be disturbed. The EIR will evaluate any of these areas that will be impacted by the proposed project. Any impacts to jurisdictional waters, wetlands, or riparian habitat associated with the proposed project would require authorization from the United States Army Corps of Engineers (USACE), SWRCB, RWQCB and the California Department of Fish and Wildlife (CDFW).

Phase 2 of the proposed project would restore runoff from 16 acres of the interior portion of the community of Rimforest and result in a 30 percent reduction in runoff to the landslide area. This phase includes installation of a culvert system to direct runoff from Pine Avenue, which runs parallel to the south of SR-18, and under SR-18 to join flows restored by Phase 1 in Little Bear Creek. The Phase 2 culvert system would include street inlets and storm drains within Rimforest to facilitate the diversion of flows along Pine Avenue. A culvert system would be installed through an existing lumber yard off Pine Avenue, connecting to the main culvert system along Pine Avenue. By restoring Pine Avenue runoff into Little Bear Creek, Phase 2 would restore an additional 100-year storm flow of 100 CFS.





0 490 980  
Feet



Phase 1  
Phase 2

**Figure ES-2**  
**Project Site Plan**



The existing storm drain catch basins and pipes along Apache Trail would be left in place and would continue to convey a small amount of stormwater runoff through the community of Rimforest to the existing output location at the landslide area in southern Rimforest.

Construction of the proposed project would occur over three summer seasons (potentially 2017-2019):

- Phase 1-Basin Construction: May-September
- Phase 1-SR 18 Storm Drain: Following May-August
- Phase 2-Pine Ave. Storm Drain: Undetermined May-August

Air Quality calculations for the EIR are slightly conservative as they assume a schedule which has higher off-road equipment and on-road vehicle fleet average emissions factors.

## **ES.2 Environmental Review Process**

The County prepared and transmitted a Notice of Preparation (NOP) for this EIR on May 22, 2015. Comments on the NOP were requested by no later than June 22, 2015. Eight comment letters on the NOP were received during the scoping period. The NOP is included as Appendix 1 of the original Draft EIR. The Draft EIR was released for agency and public review for the period between September 10, 2015 and October 26, 2015.

The review period for the Recirculated Draft EIR should generally be the same as the review period of the originally circulated EIR (CEQA Guidelines 15088.5[d], 15078[e]). In the case of an EIR submitted to the State Clearinghouse for review by State agencies, the review period must be at least 45 days (CEQA Guidelines 15105[a]). Therefore, the review period for this Recirculated Draft EIR is 45 days.

Publication of this Recirculated Draft EIR commences a 45-day public review period that ends on October 29, 2016 (CEQA Guidelines 15088.5[d], 15087[e], 15105[a]). The public is invited to comment on only those portions of the document that have been revised and included in this Recirculated Draft EIR; i.e. the Introduction, Biological Resources Analysis, Hydrology and Water Quality Analysis, Cumulative Effects Analysis for Biological Resources, and References for Biological Resources and Cultural Resources.

After the close of the public review period on October 29, 2016, the County will prepare a Final EIR that contains a response to each public agency, organization, and individual that commented during the initial circulation period that pertains to those portions of the EIR that were not recirculated, and all comments received during the recirculation period that pertain to the recirculated portions of the EIR (CEQA Guidelines 15088.5[f][2]). The County is the Lead Agency ensuring compliance of the proposed project with CEQA regulations. The Final EIR will be used by the County, in conjunction with other information developed in the County's formal record, to act on proposed project approval. Under CEQA requirements, the County will determine the adequacy of the Final EIR and, if adequate, will certify the document as complying with CEQA.

## **ES.3 Summary of Impacts and Mitigation Measures**

Section 3 of the original Draft EIR presents the direct and indirect impacts associated with the proposed project, and Section 5 provides its incremental contribution to cumulative effects. The proposed project would result in 14 adverse impacts that can be mitigated to a level of less than significant (Class II). These impacts would be related to biological resources, cultural resources, geology and soils, hydrology and water quality, noise, and traffic and transportation, as summarized in Table ES-1 (located at the end of

this section). All other impacts associated with the proposed project's implementation would be less than significant (Class III) or beneficial (Class IV).

### **ES.3.1 Impacts Not Further Considered in this EIR**

As discussed in Appendix 1 (Initial Study/Notice of Preparation, and Public Comments) of the original Draft EIR, the project was determined to have no impact or a less than significant impact with regard to the following impact thresholds, which are therefore not analyzed in the EIR.

#### **Aesthetics**

Construction of the proposed project would temporarily have an adverse effect on the scenic vista surrounding the project site due to construction activity and vehicles. However, construction is expected to occur over an approximately four-month-long period, and operation of the proposed project would not present permanent structures that would obstruct scenic views from SR-18. The removal of vegetation would not substantially change the scenic views from SR-18. Construction of the attenuation basin(s) would include the removal of trees and vegetation. However, the attenuation basin(s) would not be visible from SR-18, and the removal of trees to install the attenuation basin(s) would not alter scenic resources such as the view from the highway. Residential and commercial development is present along the proposed project site where the channel and pipeline would be constructed; therefore, the proposed project would not substantially degrade the visual quality and surroundings in this developed area. Construction of the attenuation basin(s) would require excavation, trenching, and the removal of trees, which would alter or degrade the existing visual character of the proposed project site. However, the proposed project would also include landscape buffers along the slopes of the attenuation basin(s), which would avoid substantial degradation of visual character of the site. No new sources of light or glare would be created for or by the proposed project. Therefore, the proposed project would have a less-than-significant impact on Aesthetics.

#### **Agriculture and Forestry Resources**

The proposed project is not located on or near Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation. There are no enrolled Williamson Act lands in the project area and the proposed project would not conflict with a Williamson Act contract. The project is not located on land which is zoned for forest land or timberland, and would not result in a significant conversion of forest land to non-forest use. The proposed project would also not convert Farmland to non-agricultural use, therefore the proposed project would have a less-than-significant impact on Agriculture and Forestry Resources.

#### **Hazards and Hazardous Materials**

The proposed project would not involve the routine transport, use, or disposal of hazardous materials. Any use of such materials during construction or operation of the proposed project would occur under best management practices (BMPs) to avoid accidental spill(s) or leak(s). This would not introduce a significant potential for hazard through the release of hazardous substances. The proposed project may require short term traffic control, however all closures would be coordinated with the relevant agencies to prevent access issues. Traffic for the proposed project would pass the Rim of the World High School, however, emissions associated with the traffic would be consistent with existing and future emissions from traffic along SR-18 and would not introduce a new impact associated with hazardous emissions in proximity to the high school. The proposed project would not be located on a hazardous materials site.

and would not create a significant hazard to the public or the environment. The proposed project is also not located within an airport land use plan, within two miles of an airport, or within the vicinity of a private airstrip. Construction of the proposed project would include the use of motorized vehicles and equipment in and adjacent to forest areas. Sparks of heat from engines could potentially result in the ignition of a wildland fire, however the proposed project would utilize standard safety measures and would not introduce a significant risk of wildland fire. Therefore, the proposed project would have a less-than-significant impact from hazards and hazardous materials.

### **Mineral Resources**

The proposed project would not result in the availability of known mineral resources, as there are no producing sites within the region. No mineral resources have been identified in the County's 2007 General Plan or the Lake Arrowhead Community Plan at the project site or within the vicinity. Therefore, the proposed project will have no impact on mineral resources.

### **Paleontological Resources**

The most useful designation for determining if paleontological resources are likely to be present in a project area is the "sensitivity" of the geologic units underlying the project. Sensitivity refers to the likelihood of finding significant fossils within a geologic unit. The colluvial and alluvial deposits and colluvial soils have low sensitivity based on their relative youthful age and/or their high-energy depositional history and are unlikely to produce important fossil remains. The granitic bedrock has zero sensitivity; zero sensitivity is assigned to crystalline rocks because they have no potential for producing fossil remains. The geologic units in the proposed project area have low to zero sensitivity, therefore there is a less than significant potential to damage or destroy paleontological resources.

### **Population and Housing**

The proposed project would not generate a permanent increase in population levels or a decrease in available housing because construction would be performed by crews or contractors from the County of San Bernardino. No new jobs would be created during operation which would result in a population increase. The proposed project also would not displace housing because it is being located in an area of undeveloped forest land. Therefore, the proposed project would have no impact on population and housing.

### **Recreation**

The proposed project would not result in short-term or long-term population growth which would result in an increased demand for recreational facilities. The proposed project also does not include the construction or expansion of recreational facilities. Therefore, the proposed project would have no impact on recreation.

### **Utilities and Service Systems**

The proposed project would not generate any wastewater, and would not exceed any wastewater treatment requirements. Any water used for dust suppression would be obtained through existing fire hydrants and would not require additional water. All requirements and best management practices would be incorporated into the project and no new or expanded water or wastewater facilities would be required. The design of the proposed project would ensure that existing and projected stormwater flows would not require additional stormwater facilities. All solid waste generated during construction would be disposed of at appropriately permitted landfills and would be compliant with all regulations related to solid waste. In order to comply with federal, State, and local statutes and regulations related to solid waste, the construction contractor will be held accountable to comply with the SBCFCD Plans and Special

Provisions issued for this project as well as Caltrans Standard Specifications. Therefore, the proposed project would have a less-than-significant impact on utilities and service systems.

### **ES.3.2 Growth Inducing-Effects**

#### **Elimination of Obstacles to Population Growth**

The elimination of either physical or regulatory obstacles to population growth is considered to be a growth-inducing impact. A physical obstacle to population growth typically involves the lack of critical public service infrastructure. The extension of critical public service infrastructure, including roadways, water mains, and sewer lines, into areas that currently do not have these services is expected to support new development. However, the proposed project would not remove any obstacle to growth as it does not include the extension of any critical public service infrastructures. While the project does include the extension of runoff and stormwater infrastructure, these services would restore the direction of existing flows in order to mediate ongoing erosion and landsliding hazards which pose significant risk to property and the public in southern Rimforest. This would remove an obstacle to population growth in the community of Rimforest; however, this community is already fairly developed. Therefore, while the proposed project could potentially remove an obstacle to growth, it would not be considered growth-inducing.

#### **Promotion of Economic Growth**

The proposed project would result in direct economic impacts to the County through employment and the local purchase of some construction materials, as well as secondary impacts from the purchases of goods and services by those employed to construct the proposed project. The project does not include any residential or commercial development. Approximately 10 workers on average would be required to construct the project (most of whom are expected to reside in the County), and construction would be completed over three summer seasons (2017-2019). Maintenance of the storm drain after completion of the proposed project would be performed by County operation and maintenance employees every 3-5 years with approximately quarterly cleaning of catch basin(s) and storm drains and would not require additional staffing. Therefore, the proposed project would not result in increased population or employment in the project area, and would not be considered growth inducing.

### **ES.3.3 Irreversible Commitment of Resources**

Implementation of the proposed project includes the construction and maintenance of a series of drainage facilities and a storm drain system to address historic erosion and landsliding in the southern Rimforest community. Nonrenewable energy resources would be committed during construction of the proposed project. This includes the use of fossil fuels and energy required for the attenuation basin(s) and culvert construction and associated activities, including earthen material and grading activities. Once completed, operation and maintenance activities would be limited to periodic inspections, vegetation control in the surrounding areas, debris and trash removal, and erosion and slope repair as needed. Therefore, an irreversible commitment of very small amounts of nonrenewable energy resources would occur.

Construction and operation of the proposed project would contribute to the incremental depletion of resources, including renewable and non-renewable resources. Non-renewable resources, such as natural gas, petroleum products, asphalt, petrochemical construction materials, steel, copper, and other metals, rock, and sand and gravel are considered to be commodities that are available in a finite supply. The



processes that created these resources occur over a long period. Therefore, replacement of these resources would not occur over the life of the project.

The demand for all such resources is expected to increase regardless of whether or not the project is developed. Forecasts of increases in population would directly result in the need for more public, commercial, and residential facilities in order to provide the needed services associated with this growth. If not consumed by this project, these resources would likely be committed to other projects in the region intended to meet this anticipated growth. Therefore, the proposed project would not increase energy consumption above what population growth itself would do. No increases in inefficiencies or unnecessary energy consumption are expected to occur as a direct or indirect consequence of the proposed project.

Furthermore, the investment of resources in the project would provide a community benefit by addressing historic erosion and landsliding in the southern Rimforest community. Mitigation measures have been included in this EIR to reduce and minimize project-specific and cumulative impacts.

### **ES.3.4 Irreversible Damage from Environmental Accidents**

The proposed project proposes no uniquely hazardous uses, and its operation would not be expected to cause environmental accidents that would affect other areas. The project site is located within a seismically active region and would be exposed to ground shaking during a seismic event. The project is not located on or crossing a known Alquist-Priolo zoned fault. Two potentially active faults are located within the project vicinity, the Waterman Canyon fault and the Rimforest fault. The Waterman Canyon fault (also referred to as the Devils Canyon fault) is a potentially north dipping reverse fault and is located approximately 0.6 miles south of the proposed project (USGS, 2003; SCEDC, 2015). The Rimforest fault zone crosses the edge of the southeast corner of the proposed project in an area of proposed grading and the southern end of the proposed access road. However, the fault does not cross any pipeline or attenuation basin structures, and would not cause any significant damage to project structures in the event of fault rupture. With regard to accidental spills, the Stormwater Pollution Prevention Plan (SWPPP) prepared for the project would provide BMPs to ensure potential contaminants used during construction (e.g., fuel, lubricants, sealants) would be stored away from areas where they could potentially affect water quality, and would provide measures for managing flows during accidental spills or storm events. Implementation of the SWPPP requirements would ensure that impacts during construction would not be significant.

## **ES.4 Summary of Alternatives Analysis**

Section 4 (Alternatives) of the original Draft EIR provides a description of the feasible project alternatives that meet the CEQA criteria and have been retained for the EIR's alternatives analysis. The alternatives analysis also includes a discussion of alternatives that were dismissed from further consideration, and a comparison of all alternatives evaluated. The following alternatives have been included in the analysis:

### **Alternative 1 (No Project Alternative)**

Under the No Project Alternative, the County would not construct and maintain a series of drainage facilities to address historic erosion and landsliding in the southern Rimforest community. The proposed restoration of the existing drainage patterns away from southern Rimforest and towards the north into Little Bear Creek would not occur. The project objective would not be achieved. The environmental impacts associated with slope instability and landsliding would be substantially greater for most environmental issue areas including biological resources, geology and soils, hazards and hazardous

materials, hydrology and water quality, and land use. Remedial activities that would be required to repair damage from erosion and landslides would further increase impacts to these topics and would have impacts under additional topics such as air quality, noise, and traffic and transportation.

### **Alternative 2 (Divert Runoff into Daley Creek Watershed)**

Alternative 2 would divert the runoff southerly into a canyon east of Rimforest and south of Highway 18. As with the proposed project, this alternative would consist of three construction phases. Phase 1 of Alternative 2 would differ from that of the proposed project because the discharge runoff would be diverted through a weir outlet structure into an unnamed tributary to West Fork City Creek (sometimes referred to as Daley Creek), which would cause erosion at and below the discharge point. The flow would cross the existing Daley trail approximately 1,000 feet below the discharge point. No structures would be affected, but this action would require permission from the U.S. Forest Service. Similar to the proposed project, Phase 2 would drain approximately 16 acres of the interior part of Rimforest, reducing an additional 30 percent of runoff, by construction of a storm drain system along SR-18 and Pine Avenue.

### **Environmentally Superior Alternative**

Based on the analysis contained in Sections 3 (Environmental Setting, Analysis, and Mitigation Measures) and 4 (Alternatives) of this EIR, the proposed project is the environmentally superior alternative. Although the majority of impacts would be reduced under Alternative 2 (see Table 4-1), due to the serious potential to create/trigger a new retrogressing landslide area, Alternative 2 was not considered to be feasible from a geotechnical standpoint and would result in a significant and unavoidable impact.

## **ES.5 Areas of Controversy and Issues to be Resolved**

Evaluation of the proposed project under CEQA was initiated in May 2015. As of the publication of this Recirculated Draft EIR, no areas of controversy or issues in need of resolution have been communicated to the San Bernardino County Department of Public Works. Additionally, there are no remaining technical project description issues or environmental review issues left to be resolved.

**Table ES-1. Summary of Impacts and Mitigation Measures**

| Issue Area           | Impact Number | Impact Summary   | Mitigation Measure(s)  | Level of Significance                            |
|----------------------|---------------|--|--|--|
| Air Quality          | N/A           | Cumulative Impacts   | <ul style="list-style-type: none"> <li>• <b>AQ-1:</b> Off-road Equipment Emissions Control</li> <li>• <b>AQ-2:</b> On-road Equipment Emissions Control</li> </ul>  | Class I – Significant and Unavoidable            |
| Biological Resources | BIO-1         | Construction activities would result in adverse effects to species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS | <ul style="list-style-type: none"> <li>• <b>MM BIO-1a:</b> Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas</li> <li>• <b>MM BIO-1b:</b> Pre-construction Surveys and Construction Monitoring</li> <li>• <b>MM BIO-1c:</b> Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss</li> <li>• <b>MM BIO-1d:</b> Prevent Invasive Weed Introduction</li> <li>• <b>MM BIO-1e:</b> Speed Limit</li> <li>• <b>MM BIO-1f:</b> Personnel Training</li> <li>• <b>MM BIO-1g:</b> Nest and Den Avoidance</li> <li>• <b>MM BIO-1h:</b> Avoid Wildlife Hazards and Entrapment</li> <li>• <b>MM BIO-1i:</b> Manage Project Trash</li> <li>• <b>MM BIO-1k:</b> Minimization and Avoidance Measures for Southern Rubber Boa</li> <li>• <b>MM BIO-1l:</b> Fugitive Dust Control</li> </ul> | Class II – Less than Significant with Mitigation |
|                      | BIO-2         | Construction activities would result in adverse effects to riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS           | <ul style="list-style-type: none"> <li>• <b>MM BIO-1a:</b> Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas</li> <li>• <b>MM BIO-1b:</b> Pre-construction Surveys and Construction Monitoring</li> <li>• <b>MM BIO-1c:</b> Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss</li> <li>• <b>MM BIO-1d:</b> Prevent Invasive Weed Introduction</li> <li>• <b>MM BIO-1e:</b> Speed Limit</li> <li>• <b>MM BIO-1f:</b> Personnel Training</li> <li>• <b>MM BIO-1l:</b> Fugitive Dust Control</li> </ul>   | Class II – Less than Significant with Mitigation |

**Table ES-1. Summary of Impacts and Mitigation Measures**

| Issue Area      | Impact Number | Impact Summary   | Mitigation Measure(s)  | Level of Significance                            |
|-----------------|---------------|--|--|--|
|                 | BIO-3         | Construction activities could result in a substantial adverse effect on federally protected wetlands as defined by Section 404, of the Clean Water Act through direct removal, filling, hydrological interruption, or other means        | <ul style="list-style-type: none"> <li>• <b>MM BIO-1a:</b> Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas</li> <li>• <b>MM BIO-1b:</b> Pre-construction Surveys and Construction Monitoring</li> <li>• <b>MM BIO-1c:</b> Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss</li> <li>• <b>MM BIO-1d:</b> Prevent Invasive Weed Introduction</li> <li>• <b>MM BIO-1e:</b> Speed Limit</li> <li>• <b>MM BIO-1f:</b> Personnel Training</li> <li>• <b>MM BIO-1i:</b> Fugitive Dust Control</li> </ul> | Class II – Less than Significant with Mitigation |
|                 | BIO-4         | Construction activities will have impacts to wildlife movement of native wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites                        | None required  | Class III – Less than Significant                |
|                 | BIO-5         | Construction activities may conflict with local policies or ordinances protecting biological resources   | None required  | Class III – Less than Significant                |
|                 | CUL-1         | Construction, operation, and maintenance of the proposed project would demolish, destroy, relocate, or disturb the cultural resource in a manner that would diminish its integrity or materially impair the significance of the resource | <ul style="list-style-type: none"> <li>• <b>MM CUL-1a:</b> Construction monitoring</li> <li>• <b>MM CUL-1b:</b> Treatment of previously unidentified cultural resources</li> </ul>   | Class II – Less than Significant with Mitigation |
|                 | CUL-2         | Construction, operation, and maintenance of the proposed project could uncover, expose, and/or damage human remains  | • <b>MM CUL-1:</b> Incidental Discovery of Historical Resources or Archaeological Resources  | Class II – Less than Significant with Mitigation |
| Geology & Soils | G-1           | Project structures could be damaged by surface fault rupture   | None required  | Class III – Less than Significant                |
|                 | G-2           | Strong to very strong earthquake-induced ground shaking could result in damage to project structures and/or injury to people   | • <b>MM G-1:</b> Geotechnical Evaluation and Design for Ground Shaking   | Class II – Less than Significant with Mitigation |
|                 | G-3           | Seismically induced landslides could damage project structures or expose people to injury  | None required  | Class III – Less than Significant                |
|                 | G-4           | Project structures could be damaged by seismically induced liquefaction phenomena  | • <b>MM G-2:</b> Geotechnical Evaluation and Design for Liquefaction   | Class II – Less than Significant with Mitigation |

**Table ES-1. Summary of Impacts and Mitigation Measures**

| Issue Area                | Impact Number | Impact Summary  | Mitigation Measure(s)   | Level of Significance                            |
|---------------------------|---------------|---|---|--|
|                           | G-5           | Expose people or structures to potential risk from landslides   | <ul style="list-style-type: none"> <li>• <b>MM G-3:</b> Conduct Geotechnical Surveys for Landslides and Unstable Slopes</li> </ul>  | Class II – Less than Significant with Mitigation |
|                           | G-6           | Construction could trigger or accelerate soil erosion   | None required   | Class III – Less than Significant                |
|                           | G-7           | Unsuitable soils result in damage to project structures   | None required   | Class III – Less than Significant                |
| Hydrology & Water Quality | HYD-1         | Construction, operation, and maintenance of the proposed project would degrade water quality and violate water quality standards or waste discharge requirements  | <ul style="list-style-type: none"> <li>• <b>MM HYD-1:</b> Attenuation basin to be no larger than necessary and designed to mimic downstream hydrology and sediment transport</li> </ul>   | Class II – Less than Significant with Mitigation |
|                           | HYD-2         | Construction and operation of the proposed project would substantially deplete groundwater supplies or interfere substantially with groundwater recharge  | None required   | Class III – Less than Significant                |
|                           | HYD-3         | Construction and operation of the proposed project would result in substantial erosion, siltation, and mudflow due to alteration of the existing drainage pattern   | None required   | Class IV – Beneficial Impact                     |
|                           | HYD-4         | Construction and operation of the proposed project would result in flooding on- or off-site or would exceed the capacity of existing or planned stormwater drainage facilities due to alteration of the existing drainage pattern | None required   | Class III – Less than Significant                |
| Land Use and Planning     | LU-1          | The project could conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project   | None required   | Class III – Less than Significant                |
|                           | LU-2          | Construction of the project could preclude an existing or permitted land use, or create a disturbance that would diminish the function of a particular land use   | <ul style="list-style-type: none"> <li>• <b>MM N-1:</b> Construction Noise Complaint Response</li> <li>• <b>MM TRA-1: Prepare a construction area traffic control plan or detour plan.</b></li> <li>• <b>MM TRA-2:</b> Notify affected property owners and tenants</li> </ul> | Class II – Less than Significant with Mitigation |
|                           | LU-3          | Operation and maintenance of the project could preclude an existing or permitted land use, or create a disturbance that would diminish the function of a particular land use  | None required   | Class III – Less than Significant                |
| Noise                     | N-1           | Noise from construction or maintenance activities would occur outside of the hours allowed by the County of San Bernardino Development Code   | None required   | Class IV – Beneficial Impact                     |

**Table ES-1. Summary of Impacts and Mitigation Measures**

| Issue Area               | Impact Number | Impact Summary  | Mitigation Measure(s)  | Level of Significance                            |
|--------------------------|---------------|---|--|--|
|                          | N-2           | Noise from construction activities would result in a temporary increase (more than 5 dBA Leq) over the lowest hourly ambient levels at sensitive receptors  | <ul style="list-style-type: none"> <li>• <b>MM N-1:</b> Construction Noise Complaint Response</li> </ul>   | Class II – Less than Significant with Mitigation |
| Public Services          | PS-1          | Construction, operation, and maintenance of the proposed project would place a demand on public services that would adversely affect the maintenance of acceptable service ratios, response times, or other performance objectives  | None required  | Class III – Less than Significant                |
| Traffic & Transportation | TRA-1         | Construction of the proposed project would 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                | <ul style="list-style-type: none"> <li>• <b>MM TRA-1:</b> Prepare a construction area traffic control plan or detour plan</li> <li>• <b>MM TRA-2:</b> Notify affected property owners and tenants</li> <li>• <b>MM TRA-3:</b> Coordinate with MARTA</li> </ul> | Class II – Less than Significant with Mitigation |
|                          | TRA-2         | Construction of the proposed project would 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 | None required  | Class III – Less than Significant                |
|                          | TRA-3         | Construction of the proposed project would substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)   | <ul style="list-style-type: none"> <li>• <b>MM TRA-1:</b> Prepare a construction area traffic control plan or detour plan</li> <li>• <b>MM TRA-2:</b> Notify affected property owners and tenants</li> <li>• <b>MM TRA-3:</b> Coordinate with MARTA</li> </ul> | Class II – Less than Significant with Mitigation |
|                          | TRA-4         | Construction of the proposed project would result in inadequate emergency access  | <ul style="list-style-type: none"> <li>• <b>MM TRA-4:</b> Coordinate with Emergency Service Providers</li> </ul>   | Class II – Less than Significant with Mitigation |
|                          | TRA-5         | Construction of the proposed project would conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities   | <ul style="list-style-type: none"> <li>• <b>MM TRA-1:</b> Prepare a construction area traffic control plan or detour plan</li> <li>• <b>MM TRA-2:</b> Notify affected property owners and tenants</li> <li>• <b>MM TRA-3:</b> Coordinate with MARTA</li> </ul> | Class II – Less than Significant with Mitigation |
|                          | TRA-6         | Operation of the proposed project would 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                   | None required  | Class III – Less than Significant                |



# **1. Introduction**

## **1.1 Purpose of the EIR**

The County of San Bernardino, Department of Public Works (County) proposes to construct the Rimforest Storm Drain Project (proposed project). The proposed project involves construction and maintenance of a series of drainage facilities to address historic erosion and landsliding in the southern Rimforest community. The San Bernardino County Flood Control District (SBCFCD), a separate legal entity, is acting in an advisory capacity to the County for this project.

This Recirculated Draft Environmental Impact Report (EIR) has been prepared pursuant to the requirements of the California Environmental Quality Act (CEQA). The County is the lead agency under CEQA. CEQA requires the lead agency to consider the information contained in an environmental review document, prior to taking any discretionary action. This Recirculated Draft EIR will serve as an informational document in addition to the original Draft EIR to be considered by the County and other local and state permitting agencies during their respective processing of the proposed project.

The Recirculated Draft EIR for the proposed project has been prepared to inform the public of changes to the original document resulting from additional analysis for biological resources and hydrology and water quality. A downstream habitat and flow assessment for Strawberry Creek and Lower East Twin Creek was completed to more accurately characterize potential effects, downstream from the proposed project. Results from this assessment have been included in the Recirculated Draft EIR. Additionally, corrections have been made to the construction schedule and a few references in the original cultural resources Draft EIR section.

The Recirculated Draft EIR contains an updated Project Description (Section 2), air quality section (3.2), biological resources analysis (Section 3.3), cultural resources section (Section 3.4), hydrology and water quality analysis (Section 3.6), Cumulative Effects section (Section 5), Other CEQA Considerations section (Section 6), and an updated References section (Section 7). No changes to impact conclusions have occurred based on the additional analyses performed. Only those sections that have changed from the original Draft EIR published in September 2015 are included in this Recirculated Draft EIR, per CEQA Guidelines 15088.5(c).

## **1.2 Public Noticing Requirements**

Notice of the Recirculated Draft EIR must be given in the same manner as notice of the previously circulated Draft EIR (CEQA Guidelines 15088.5[d]). Accordingly, notice of this Recirculated Draft EIR will be provided to all organizations and individuals who previously requested notice in writing, and by at least one of the methods specified in CEQA Guidelines 15087(a); i.e., publication in a newspaper of general circulation, posting, and/or direct mailing to neighboring property owners. All of the noticing procedures set forth in CEQA Guidelines 15087 for circulation of a Draft EIR will be complied with for the Recirculated Draft EIR as well. Additionally, the Lead Agency will provide notice to every agency, person, or organization that commented on the original EIR.

## **1.3 Public Review Period Requirements**

The review period for the Recirculated Draft EIR should generally be the same as the review period of the originally circulated EIR (CEQA Guidelines 15088.5[d], 15078[e]). In the case of an EIR submitted to the State Clearinghouse for review by State agencies, the review period must be at least 45 days (CEQA Guidelines 15105[a]). Therefore, the review period for this Recirculated Draft EIR is 45 days.

## 1.4 Recirculated Draft EIR Environmental Review Process

Publication of this Recirculated Draft EIR commences a 45-day public review period that ends on October 29, 2016 (CEQA Guidelines 15088.5[d], 15087[e], 15105[a]). The public is invited to comment on only those portions of the document that have been revised and included in this Recirculated Draft EIR; i.e. the Introduction, Biological Resources Analysis, Hydrology and Water Quality Analysis, Cumulative Effects Analysis for Biological Resources, and References for Biological Resources and Cultural Resources.

## 1.5 Decision-Making Process

After the close of the public review period on October 29, 2016, the County will prepare a Final EIR that contains a response to each public agency, organization, and individual that commented during the initial circulation period that pertains to those portions of the EIR that were not recirculated, and all comments received during the recirculation period that pertain to the recirculated portions of the EIR (CEQA Guidelines 15088.5[f][2]). The County is the Lead Agency ensuring compliance of the proposed project with CEQA regulations. The Final EIR will be used by the County, in conjunction with other information developed in the County's formal record, to act on proposed project approval. Under CEQA requirements, the County will determine the adequacy of the Final EIR and, if adequate, will certify the document as complying with CEQA.

## 1.6 Recirculated Draft EIR Organization

This Recirculated Draft EIR contains the following sections, which are organized as follows:

- **Executive Summary.** Provides a description of the proposed project's environmental review process, a summary of the proposed project attributes and its impacts, a brief description of the proposed project's alternatives and identification of the environmentally superior alternative, and a summary of the proposed project's areas of known controversy and issues in need of resolution.
- **Section 1.0 – Introduction** contains a summary of the purpose and scope of the Recirculated Draft EIR, and the reason why the document is being prepared.
- **Section 2.0 – Project Description** provides details on the proposed project, including the general environmental setting, construction plan, operation and maintenance, required permits and approvals, and environmental commitments to minimize impacts
- **Section 3.0 – Environmental Setting, Analysis, and Mitigation Measures** details environmental setting information, applicable regulations and standards, proposed project impacts, and proposed mitigation measures for the resource areas that have been updated from the original Draft EIR. Resource-specific analyses are included in the following sections:
  - 3.2 – Air Quality and Greenhouse Gases
  - 3.3 – Biological Resources
  - 3.4 – Cultural Resources
  - 3.6 – Hydrology and Water Quality
- **Section 5.0 – Cumulative Effects** provides a description of the current and reasonably foreseeable projects located in the vicinity of the proposed project, and the cumulative effects of these projects in combination with the proposed project. This section has been included due to updates to the biological resources section.

- **Section 6.0 – Other CEQA Considerations** addresses other applicable CEQA requirements, including an analysis of growth-inducing effects, significant irreversible commitment of resources, and significant effects that cannot be avoided.
- **Section 7.0 – References** lists all of the informational references cited in this EIR. This section is being included due to updates to the biological and cultural resources references.

## **2. Project Description**

### **2.1 Project Overview**

The County of San Bernardino (County), proposes to construct and maintain a series of drainage facilities to address historic erosion and landsliding in the southern Rimforest community. The remediation approach (proposed project) developed to address slope stability issues, includes restoring drainage runoff from north of Highway 18 into Little Bear Creek, which drains to Lake Arrowhead. In order to restore this flow pattern without increasing peak runoff downstream of Highway 18, the County proposes a detention basin to attenuate runoff. The San Bernardino County Flood Control District (District), a separate legal entity, is acting in an advisory capacity to the County for this project.

Phase 1 of the proposed project would intercept the largest part of runoff to be restored under the proposed project, and result in a 64 percent reduction in runoff into the landslide area. Improvements constructed under this phase would convey mountainside runoff from an area of approximately 51 acres, and deliver this runoff to Little Bear Creek. This phase of the proposed project includes approximately 0.8 miles of flood control improvements, comprised of approximately 0.2 miles of channel/basin and approximately 0.6 miles of pipe culvert and appurtenances.

Phase 2 of the proposed project would restore the direction of runoff from 16 acres of the interior portion of the community of Rimforest and result in a 30 percent reduction in runoff into the landslide area. This phase includes installation of a culvert system to direct runoff from Pine Avenue, which runs parallel to the south of SR-18, and under SR-18 to join flows restored by Phase 1 in Little Bear Creek. The Phase 2 culvert system would include street inlets and storm drains within Rimforest to facilitate the routing of flows along Pine Avenue.

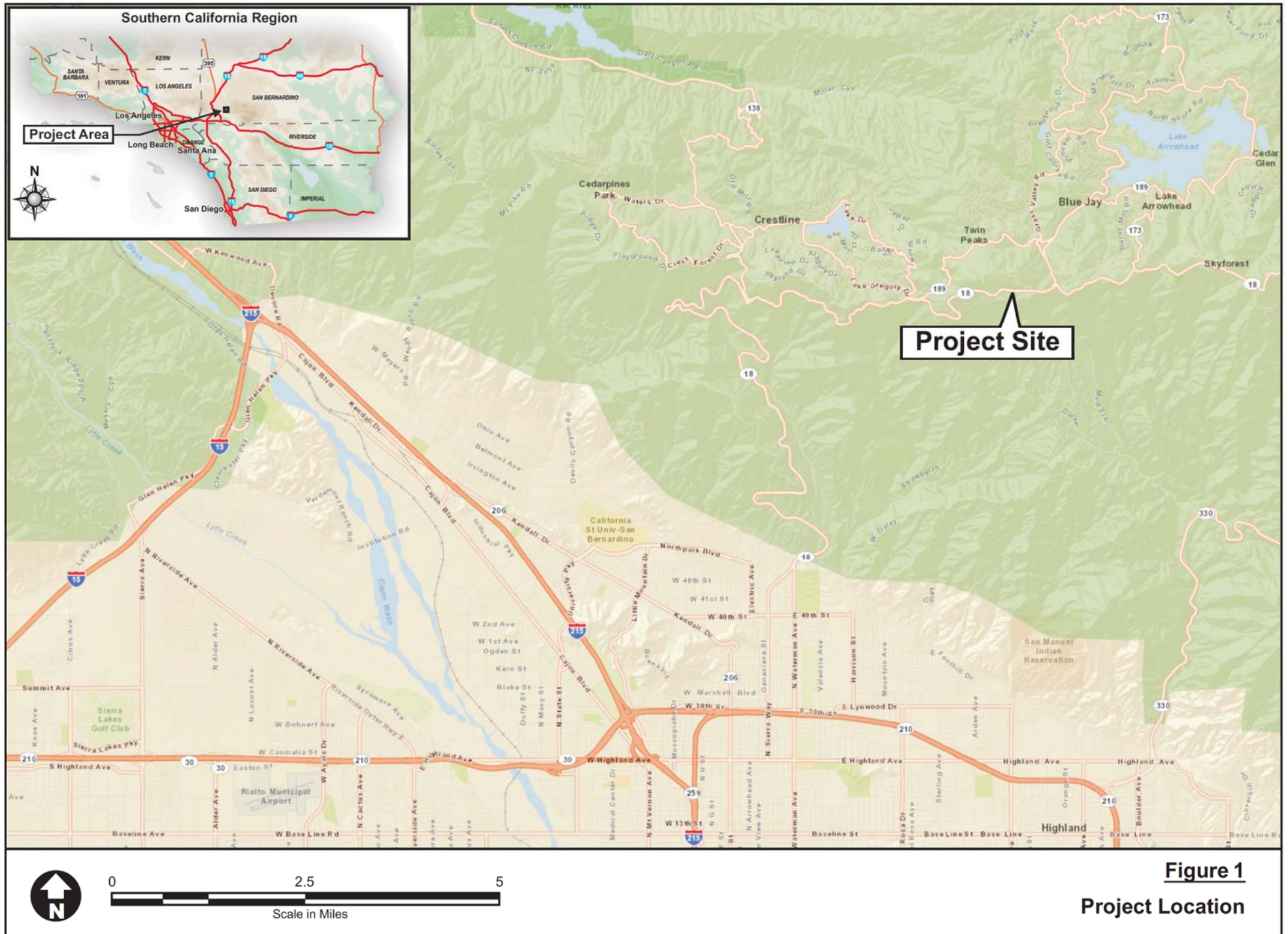
A development proposed by the Church of the Woods (COTW) is located in the northeastern area of the community of Rimforest, on the north side of SR-18, and the drainage output point for the proposed project is located on the COTW property. The Church of the Woods (COTW) development also proposes to implement stormwater drainage improvements along Little Bear Creek, including construction of culvert system that would initiate at an existing storm drain at the southwestern corner of the COTW site (PCR, 2010); this is the same area where flows associated with the proposed project would enter the COTW property, via the Pine Avenue culvert system described above. The COTW proposed culvert system would route through the property along the same alignment as the Little Bear Creek drainage and an existing sewer line, also generally parallel to a proposed COTW sewer alignment (PCR, 2010). Approximately midway through the COTW site, the new culvert system would discharge into the Little Bear Creek drainage and flow northeasterly through the property (PCR, 2010). Due to the location of the proposed project's discharge point at the southwestern portion of the COTW property, it is reasonably anticipated that flows associated with the proposed project would be transmitted through the COTW conveyance system described above, discharging into the proposed project's attenuation basin(s) within Little Bear Creek.

The existing storm drain catch basins and pipes along Apache Trail would be left in place and would continue to convey a small amount of stormwater runoff through the community of Rimforest to the existing output location at the landslide area in southern Rimforest.

### **2.2 Environmental Setting**

As shown in Figure 1, the proposed project is located in the community of Rimforest, in the San Bernardino Mountains near Lake Arrowhead, approximately six miles north of the City of San Bernardino in the County of San Bernardino, California. Surrounding land uses and project site specifics are provided below.

Rimforest Storm Drain Project  
PROJECT DESCRIPTION



Rimforest is an unincorporated community in the San Bernardino Mountains of San Bernardino County, California. State Route 18 (SR-18) runs through the community. Residential development and commercial uses are located south of SR-18, within the community of Rimforest, and residential development is also located to the north. Directly south of the residential uses in the community is the San Bernardino National Forest, which is federal land and will remain undeveloped. There are few developed recreational facilities in the proposed project area. A majority of the land to the immediate south of Rimforest is eroding cliff-side, a result of runoff that most likely used to drain into Little Bear Creek being directed over the hillside towards Strawberry Creek. Rim of the World High School is located approximately one mile to the east of the community of Rimforest.

The headwaters of Little Bear Creek drain from the northeastern vicinity of Rimforest, through the communities of Blue Jay and Lake Arrowhead, and into the Lake Arrowhead Reservoir. In addition, the headwaters of Strawberry Creek drain from the southern vicinity of Rimforest, into City Creek, and eventually terminate at the Santa Ana River. The Strawberry Creek watershed is part of the larger watershed of the Santa Ana River, which is within the safe yield of the San Bernardino Valley Municipal Water District (SBVMWD), meaning that the SBVMWD holds water rights to this drainage area. (Bonadiman, 2010a)

Pine Avenue runs parallel to the south of SR-18. Blackfoot Trail West runs in a north-south alignment through the western portion of Rimforest, between Pine Avenue and the landslide area in southern Rimforest. Apache Trail connects to Blackfoot Trail West approximately 250 feet south of Pine Avenue, and continues to the east then south, towards the landslide area in southern Rimforest.

## 2.3 Proposed Project

The proposed project would restore runoff from its current flow-path through the community of Rimforest and outlet at the landslide area in southern Rimforest, into a new flow-path comprised of channels and pipeline to the north of SR-18, with an outlet into Little Bear Creek on the COTW property. Please see Figure 2 for a site plan. In re-directing this runoff, the proposed project would result in runoff flowing into the Mojave River Watershed instead of the Santa Ana River Watershed; as described in Section A.1 (Background), based on available evidence it is believed this was the historic drainage direction, prior to construction of SR-18 and establishment of the community of Rimforest. The restoration of runoff between watersheds may require approval of the SBVMWD and the State Water Resources Control Board (SWRCB), as well as the Santa Ana River Regional Water Quality Control Board (RWQCB), which has jurisdiction over the Santa Ana River Watershed, and the Lahontan RWQCB, which has jurisdiction over the Mojave River Watershed (Bonadiman, 2010). The need for a water rights transfer petition will be determined by the SWRCB prior to the commencement of construction for the proposed project.

Downstream of the point where the proposed project would contribute flows to Little Bear Creek, the creek continues in a series of stormwater conveyance features through the unincorporated communities of Blue Jay and Lake Arrowhead, terminating at Lake Arrowhead Reservoir. Within the community of Blue Jay, an existing maintenance yard owned and operated by the County Department of Public Works (DPW) is located within the Little Bear Creek drainage; this maintenance yard is referred to as the Blue Jay Maintenance Yard. The maintenance yard is currently equipped with a three-foot-wide storm ditch





0 490 980  
Feet



Phase 1  
Phase 2

**Figure 2**  
**Project Site Plan**



to transmit flow in Little Bear Creek through the facility and through a pipe beneath the highway. The maintenance yard conveyance system may be inadequate to contain existing storm flows, as asphalt within the yard appears to be damaged by water-related cracking, which occurs when water seeps to the asphalt base, causing the base to soften and form cracks which penetrate the surface, eventually leading to potholes. Therefore, in order to avoid damage to the Blue Jay Maintenance Yard conveyance system and other facilities along Little Bear Creek, the proposed project would include attenuation basins on a property currently owned by the COTW, near the proposed project's output point into Little Bear Creek. These basins, described further below, would slow the rate of stormwater flows in Little Bear Creek.

As mentioned, Little Bear Creek terminates at the Lake Arrowhead Reservoir. The current water supplier for Lake Arrowhead is the Lake Arrowhead Community Services District (LACSD), which presently purchases Feather River water from the SBVMWD, which is then transferred through Crestline Lake Arrowhead Water Agency (CLAWA). The proposed project would result in approximately 100 more acre-feet per year (afy) of water in Lake Arrowhead, potentially available for treatment and distribution by the LACSD (Bonadiman, 2010). This additional annual inflow would represent a very small portion of Lake Arrowhead's 48,000 acre-foot storage capacity (DWR, 2014).

In order to restore surface waters as proposed, the proposed project includes a series of channels, pipes, and attenuation basins. With development of the storm drain systems and attenuation basin(s), the proposed project would restore a total of approximately 100 acre-feet per year into Little Bear Creek (MBA, 2010). Primary elements of the project would be implemented in two distinct phases, described below.

### ***Phase 1***

Phase 1 of the proposed project would intercept the largest part of runoff to be restored under the proposed project, and result in a 64 percent reduction (in runoff). Improvements constructed under this phase would convey mountainside runoff from an area of approximately 51 acres, and deliver this runoff to Little Bear Creek. This phase of the proposed project includes approximately 0.8 miles of flood control improvements, comprised of approximately 0.2 miles of channel/basin and approximately 0.6 miles of pipe culvert and appurtenances.

- *Channelized Reach(s)*. The proposed channel sections would be of varying width and depth and trapezoidal in configuration. Channelized reaches would be located near the inlet and outlet of the proposed basin(s) and would be armored to prevent erosion. The configuration of the channel sections will be determined by the SBCFCD and designed to be sufficient to convey the mountainside runoff and associated debris.
- *Culvert & Appurtenances*. The culvert system would be aligned along the north side of SR-18 extending from the west end of the community of Rimforest to the east end of the community discharging into the proposed basin via an inlet channel as described above, and would include street inlets to filter debris onto SR-18. Stormwater flows would be directed via the culvert/basin systems into Little Bear Creek. Currently, runoff into Little Bear Creek occurs from an area of approximately 40 acres north of SR-18; restoring runoff from a 50-acre area would therefore increase runoff into the creek.
- *Basin(s)*. Flow Attenuation basin(s) would be constructed within the Little Bear Creek channel, downstream of the point where flows restored by the culvert system described above would enter the drainage. This basin system would be designed to reduce peak storm flows discharging into Little

Bear Creek, and would include a drain culvert and armored emergency spillway which would discharge to Little Bear Creek via an armored energy dissipater. The retarding attenuation basin(s) are included in the Phase 1 design because downstream stormwater drainage structures in the Little Bear Creek channel would not have sufficient capacity to transmit peak flows with the additional runoff contributed by the restoration of flows as described above. Jurisdictional ephemeral and perennial but non-wetland waters of the State and federally jurisdictional “waters of the U.S.” will be defined on any property to be disturbed. The EIR will evaluate any of these areas that will be impacted by the proposed project. Any impacts to jurisdictional waters, wetlands, or riparian habitat associated with the proposed project would require authorization from the United States Army Corps of Engineers (USACE), SWRCB, RWQCB and the California Department of Fish and Wildlife (CDFW).

Phase 2 of the proposed project would restore runoff from 16 acres of the interior portion of the community of Rimforest and result in a 30 percent reduction in runoff to the landslide area. This phase includes installation of a culvert system to direct runoff from Pine Avenue, which runs parallel to the south of SR-18, and under SR-18 to join flows restored by Phase 1 in Little Bear Creek. The Phase 2 culvert system would include street inlets and storm drains within Rimforest to facilitate the diversion of flows along Pine Avenue. A culvert system would be installed through an existing lumber yard off Pine Avenue, connecting to the main culvert system along Pine Avenue. By restoring Pine Avenue runoff into Little Bear Creek, Phase 2 would restore an additional 100-year storm flow of 100 CFS. After a confluence with the Phase 1 flow into Little Bear Creek, the unregulated peak 100-year flow into Little Bear Creek would be approximately 500 CFS. However, the attenuation basin(s) that are part of the proposed project would reduce this peak flow into Little Bear Creek to approximately 139 CFS, less than the current 100-year peak flow rate of 167 CFS (Bonadiman, 2010).

The existing storm drain catch basins and pipes along Apache Trail would be left in place and would continue to convey a small amount of stormwater runoff through the community of Rimforest to the existing output location at the landslide area in southern Rimforest.

### 2.3.1 Construction Plan

**Schedule.** Construction of the proposed project would occur over three summer seasons (potentially 2017-2019):

- Phase 1-Basin Construction: May-September
- Phase 1-SR 18 Storm Drain: Following May-August
- Phase 2-Pine Ave. Storm Drain: Undetermined May-July

Air Quality calculations for the EIR are slightly conservative as they assume a schedule which has higher off-road equipment and on-road vehicle fleet average emissions factors.

Hours of operation during construction would be limited to daylight hours between 6:00 a.m. and 5:00 p.m., Monday through Friday. No construction activities would occur during holidays and snow months. Construction work at night would only occur by special permission. The integrated construction schedule showing the estimated dates for each of the construction sub phases is provided in Appendix 2 (Air Pollutant Emissions Calculations).

**Earth Disturbance.** Earth-disturbing activities would occur during construction of the proposed project in order to install the proposed project features described above. Table 2-1 provides a list of the types of

earth-disturbing activities required during construction of the proposed project, and the estimates of the associated quantities of materials required or handled.

**Table 2-1. Construction – Materials Quantities**

| Project Phase              | Activity / Material                 | Quantity                        |
|----------------------------|-------------------------------------|---------------------------------|
| Attenuation/Sediment Basin | Sewer relocation/sewer pipe         | 2,000 linear feet               |
|                            | Excavation/dirt                     | 60,000 cubic yards*             |
|                            | Hauling/dirt export                 | 15,000 cubic yards              |
|                            | Culvert construction/culvert length | 500 linear feet                 |
|                            | Embankment earth moving/dirt        | 30,000 cubic yards              |
|                            | Concrete structures/concrete        | 500 cubic yards                 |
|                            | Rock placement/rock                 | 4,000 cubic yards               |
|                            | Paving/asphalt                      | 1,250 tons                      |
| SR 18 Drain                | Asphalt removal/asphalt             | 5,000 square yards (2,500 tons) |
|                            | Pipe installation/pipe              | 3,800 linear feet               |
|                            | Hauling/dirt export                 | 10,200 tons                     |
|                            | Concrete structures/concrete        | 120 cubic yards                 |
|                            | Paving/asphalt                      | 2,500 tons                      |
| Pine Avenue Drain          | Asphalt removal/asphalt             | 5,000 square yards (2,500 tons) |
|                            | Pipe installation/pipe              | 2,250 linear feet               |
|                            | Hauling/dirt export                 | 6,300 tons                      |
|                            | Concrete structures/concrete        | 120 cubic yards                 |
|                            | Paving/asphalt                      | 1,800 tons                      |

\* Specific quantities of soil excavation that would be required to provide the needed detention volume depend upon site-specific topography and soil conditions, and will be determined during final engineering of the proposed project. Value provided is rough estimate.

Following is a summary list of the types of earth-disturbing activities that would occur in association with the proposed project.

- Geotechnical studies will be required to properly design the attenuation basins and evaluate groundwater conditions (i.e., whether shallow groundwater is present in excavation areas).
- Excavation / trenching and slope protection would be required to install the culvert system north of SR-18.
- The pipelines proposed to the north of SR-18 and from Pine Avenue to Little Bear Creek would likely be installed in eight-foot segments, the size in which the pipes are manufactured, with the trench back-filled following the placement of each eight-foot segment.
- Trenching up to depths of 22 feet may be required to install the pipeline from Pine Avenue and under SR-18 to Little Bear Creek.
- The attenuation basins would be constructed prior to the culvert system(s), and would require excavation activities to achieve desired detention volume of up to 20 acre feet.

Clear and grub wastes generated during construction of the proposed project may be taken to Heaps Peak Transfer Station for disposal. Other exported waste types may also be disposed of at this transfer station or be made the property of the contractor to be used or disposed of outside of County right-of-way at their discretion. Heaps Peak Transfer Station is located at 29898 SR-18 at Heaps Peak in Running Springs, approximately five miles east of the proposed project site, along SR-18.

**Equipment.** The number of off-road vehicles and equipment to be used during construction of the proposed project could vary from one or two to as many as 20 or 30, depending on actual site conditions, construction schedule, and the specific construction activity. The types of equipment anticipated to be required during construction of the proposed project include the following: water trucks, loaders, backhoe, wheel-mounted air compressor(s), excavators, pneumatic breaker, pneumatic-tired motor grader, steel drum roller, self-propelled paving machine, and haul trucks. Tables 2-2 through 2-4 lists the off-road equipment that would be used during the three years of construction.

**Table 2-2. Construction Off-Road Equipment – Sediment Basin Construction**

| Equipment Type by Phase                    | Horsepower | Number | Hours / Day | # Days |
|--|------------|--------|-------------|--------|
| <b>Clearing &amp;Grubbing/Tree Removal</b> |            |        |             |        |
| Bulldozer                                  | 240        | 1      | 8           | 10     |
| Excavator                                  | 300        | 1      | 8           | 10     |
| Loader                                     | 225        | 1      | 8           | 10     |
| Chipper                                    | 50         | 1      | 8           | 10     |
| Chainsaw                                   | 6          | 3      | 8           | 10     |
| Water Truck                                | 457        | 1      | 8           | 10     |
| <b>Sewer Relocation</b>                    |            |        |             |        |
| Backhoe                                    | 107        | 1      | 8           | 15     |
| Loader                                     | 225        | 1      | 8           | 15     |
| Water Truck                                | 457        | 1      | 8           | 15     |
| <b>Excavation</b>                          |            |        |             |        |
| Excavator                                  | 300        | 2      | 8           | 20     |
| Bulldozer                                  | 240        | 1      | 8           | 20     |
| Loader                                     | 225        | 2      | 8           | 20     |
| Water Truck                                | 457        | 1      | 8           | 20     |
| <b>Hauling</b>                             |            |        |             |        |
| Loader                                     | 225        | 1      | 8           | 30     |
| Excavator                                  | 300        | 1      | 8           | 30     |
| Water Truck                                | 457        | 1      | 8           | 30     |
| <b>Culvert Construction</b>                |            |        |             |        |
| Excavator                                  | 300        | 1      | 8           | 10     |
| Loader                                     | 225        | 1      | 8           | 10     |
| Sheepsfoot/Roller/Tamper                   | 100        | 1      | 8           | 10     |
| Water Truck                                | 457        | 1      | 8           | 10     |
| <b>Embankment Construction</b>             |            |        |             |        |
| Loader                                     | 225        | 2      | 8           | 19     |
| Bulldozer                                  | 240        | 1      | 8           | 19     |
| Grader                                     | 220        | 1      | 8           | 19     |
| Sheepsfoot/Roller/Tamper                   | 100        | 1      | 8           | 19     |
| Water Truck                                | 457        | 1      | 8           | 19     |
| <b>Concrete Structures</b>                 |            |        |             |        |
| Backhoe                                    | 107        | 1      | 8           | 1      |
| Generator                                  | 5          | 1      | 4           | 5      |

**Table 2-2. Construction Off-Road Equipment – Sediment Basin Construction**

| Equipment Type by Phase           | Horsepower | Number | Hours / Day | # Days |
|-----------------------------------|------------|--------|-------------|--------|
| <b>Rock Placement</b>             |            |        |             |        |
| Excavator                         | 300        | 1      | 8           | 10     |
| Loader                            | 225        | 1      | 8           | 10     |
| <b>Paving &amp; Miscellaneous</b> |            |        |             |        |
| Paving Machine                    | 200        | 1      | 8           | 2      |
| Roller                            | 60         | 2      | 8           | 2      |
| Water Truck                       | 457        | 1      | 8           | 2      |
| Skip                              | 100        | 1      | 8           | 2      |

**Table 2-3. Construction Off-Road Equipment – SH 18 Drain Construction**

| Equipment Type by Phase           | Horsepower | Number | Hours / Day | # Days |
|-----------------------------------|------------|--------|-------------|--------|
| <b>Asphalt Concrete Removal</b>   |            |        |             |        |
| Backhoe w/breaker                 | 107        | 1      | 8           | 10     |
| Loader                            | 225        | 1      | 8           | 10     |
| Water Truck                       | 457        | 1      | 8           | 10     |
| <b>Pipe Installation</b>          |            |        |             |        |
| Excavator                         | 115        | 1      | 8           | 25     |
| Loader                            | 225        | 1      | 8           | 25     |
| Water Truck                       | 457        | 1      | 8           | 25     |
| <b>Hauling (Dirt Export)</b>      |            |        |             |        |
| Loader                            | 225        | 1      | 8           | 10     |
| Water Truck                       | 457        | 1      | 8           | 10     |
| <b>Backfill &amp; Compaction</b>  |            |        |             |        |
| Loader                            | 225        | 1      | 8           | 25     |
| Vibratory Compactor               | 100        | 1      | 8           | 25     |
| Water Truck                       | 457        | 1      | 8           | 25     |
| <b>Concrete Structures</b>        |            |        |             |        |
| Backhoe w/breaker                 | 107        | 1      | 4           | 5      |
| <b>Paving &amp; Miscellaneous</b> |            |        |             |        |
| Paving Machine                    | 200        | 1      | 8           | 3      |
| Vibratory Roller(s)               | 60         | 2      | 8           | 3      |
| Skip                              | 100        | 1      | 8           | 3      |
| Water Truck                       | 457        | 1      | 8           | 3      |

**Table 2-4. Construction Off-Road Equipment – Pine Avenue Drain Construction**

| Equipment Type by Phase         | Horsepower | Number | Hours / Day | # Days |
|---------------------------------|------------|--------|-------------|--------|
| <b>Asphalt Concrete Removal</b> |            |        |             |        |
| Backhoe w/breaker               | 107        | 1      | 8           | 7      |
| Loader                          | 225        | 1      | 8           | 7      |



**Table 2-4. Construction Off-Road Equipment – Pine Avenue Drain Construction**

| Equipment Type by Phase           | Horsepower | Number | Hours / Day | # Days |
|-----------------------------------|------------|--------|-------------|--------|
| Water Truck                       | 457        | 1      | 8           | 7      |
| <b>Pipe Installation</b>          |            |        |             |        |
| Excavator                         | 115        | 1      | 8           | 20     |
| Loader                            | 225        | 1      | 8           | 20     |
| Water Truck                       | 457        | 1      | 8           | 20     |
| <b>Hauling (Dirt Export)</b>      |            |        |             |        |
| Loader                            | 225        | 1      | 8           | 10     |
| Water Truck                       | 457        | 1      | 8           | 10     |
| <b>Backfill &amp; Compaction</b>  |            |        |             |        |
| Loader                            | 225        | 1      | 8           | 20     |
| Vibratory Compactor               | 100        | 1      | 8           | 20     |
| Water Truck                       | 457        | 1      | 8           | 20     |
| <b>Concrete Structures</b>        |            |        |             |        |
| Backhoe w/breaker                 | 107        | 1      | 4           | 5      |
| <b>Paving &amp; Miscellaneous</b> |            |        |             |        |
| Paving Machine                    | 200        | 1      | 8           | 2      |
| Vibratory Roller(s)               | 60         | 2      | 8           | 2      |
| Skip                              | 100        | 1      | 8           | 2      |
| Water Truck                       | 457        | 1      | 8           | 2      |

The on-road vehicles required during project construction would consist of worker commuting vehicles, dump trucks, other large haul/delivery trucks, concrete trucks, concrete pump trucks, medium-heavy delivery trucks vehicles including fuel trucks, and crew trucks. The specific assumptions for the number of trips for each vehicle type during each construction sub phase for all three years of construction are provided in Appendix 2 (Air Pollutant Emissions Calculations).

**Possible Staging and Flow Interception Area.** Possible construction staging and employee parking may be located within the 1.55 acre area adjacent to the Fire Station near the upstream end of the proposed storm drain (west end of Rimforest) as depicted on Figure 2. The District may attempt to collect runoff within the existing Fire Station area prior to the flow reaching the shoulder area within SR-18. The flow will be collected and then conveyed to the proposed storm drain within SR-18. The collection system within the Fire Station area has not been designed but it is anticipated to consist of some simple grading and catch basins and / or culvert apron.

**Transportation.** It is anticipated that either State Highway 138 or Interstate 210 would be used to transport construction vehicles, equipment, and materials to and from the proposed project site, via SR-18. SR-138 travels in an east-west alignment from Interstate 5 south of Gorman (west of the proposed project area) to Mount Anderson Junction, where it joins SR-18 south of Crestline, west of the proposed project site. Interstate 210 travels in an east-west alignment from Interstate 5 at Sylmar (west of the project site) to Interstate 10 in Redlands (east of the project site).

**Utilities.** A construction management trailer would be required to support construction of the proposed Project. Connection to power, water, and possibly telephone service would be required for the construction management trailer. Portable toilets would be provided on the construction site, and the construction management trailer would not require sewer service. The construction contractor selected to con-

struct the proposed Project would be responsible for providing generators and fuel as needed to power the equipment and vehicles required during construction. If nighttime construction is required, the construction contractor would also provide the necessary lighting. Proposed construction facilities will not impact existing utility systems.

**Water.** During construction of the proposed project, a water source would be required for dust control and soil compaction. It is anticipated that existing fire hydrants located within the community of Rimforest would be used to obtain the proposed project's water supply. This water supply is provided by the Lake Arrowhead Community Services District. A water truck(s) would be used to spray water on the ground surface as necessary to achieve dust control goals.

**Temporary and Permanent Disturbance.** The total area of temporary disturbance would be approximately 10.03 acres and permanent disturbance would include approximately 6.24 acres. The boundaries of temporary and permanent disturbance are shown on Figure 3.

### 2.3.2 Operation and Maintenance

Operation and maintenance of the proposed project would generally occur at 3-5 year intervals and would include but is not limited to the following activities:

- Slope stabilization, where necessary to maintain the integrity of flood conveyance facilities;
- Removal of sediment and vegetation from the retarding basin(s) and channelized sections to maintain capacity;
- Regular inspection of facilities for wear and damage;
- Repair of facilities as needed; and
- Maintenance of vegetated landscape buffers.

In addition, clearing of the storm drains and catch basins may occur on a quarterly basis.

No use of chemicals such as herbicides and pesticides, among others, are anticipated during operation of the proposed project. However, materials such as motor oil and lubricants would be used by inspection vehicles and equipment required for operational activities such as sediment removal and slope stabilization.



0 240 480  
Feet

Temporary Disturbance Area  
Permanent Impact Area

**Figure 3**  
**Permanent and Temporary Disturbance**

## 2.4 Required Permits and Approvals

Construction and operation of the proposed project may require the discretionary actions and approvals listed below, per jurisdiction.

### ***Federal***

- United States Fish and Wildlife Service (USFWS)
  - Biological Opinion/Endangered Species Act/Section 7 Consultation
- United States Army Corps of Engineers (USACE)
  - Clean Water Act Section 404 Individual Permit

### ***State***

- California Department of Transportation
  - Right-of-way (ROW) Encroachment Permit
  - Transportation Permit
- California Department of Fish and Wildlife
  - Streambed Alteration Agreement / California Fish and Game Code Section 1600
  - 2081 Incidental Take Permit (if applicable)
- State Water Resources Control Board
  - Water rights transfer agreement (if applicable)
- Native American Heritage Commission
  - Consultation on Sacred Areas to comply with State requirements

### ***Regional***

- Santa Ana River and Lahontan Regional Water Quality Control Boards (RWQCBs)
  - National Pollutant Discharge Elimination System (NPDES) Permit (Stormwater Pollution Prevention Plan (SWPPP)
  - Water Quality Certification/Clean Water Act Section 401

## 2.5 Environmental Commitments

Several mechanisms have been incorporated into the proposed Project that would minimize potential environmental effects. The County has developed Environmental Commitments (ECs) that are specific to environmental issue areas, such as air quality, biological resources, or traffic impacts. All Project-related activity would be subject to the ECs. Table 2-5 lists the ECs incorporated into the proposed Project to minimize or avoid potential environmental impacts.

---

**Table 2-5. Environmental Commitments**

---

| <b>Environmental Commitment</b>   | <b>Issue Areas Affected</b> |
|---|-----------------------------|
| Landscape buffers will be planted on portions of the attenuation basin slopes as necessary  | Aesthetics                  |
| Geotechnical studies will be required to properly design the attenuation basins and evaluate groundwater conditions (i.e. Whether shallow groundwater is present in excavation areas).  | Geology and Soils           |
| The county will prepare a Water Quality Management Plan (WQMP) and Stormwater Pollution Prevention Plan (SWPPP) to identify site design, pollution source control, and best management practices (BMPs) to prevent water quality degradation. | Hydrology and Water Quality |
| The county will also perform a preliminary drainage study to analyze the addition of runoff to potential 100-year flood impacts at Lake Arrowhead.  | Hydrology and Water Quality |

---



## 3.2 Air Quality and Greenhouse Gases

This section addresses both Air Quality and Greenhouse Gas (GHG) Emissions. Air Quality is comprised of the analysis of the impacts of criteria and air toxic air pollutant emissions, while GHG Emissions is comprised of the analysis of the impacts of GHG emissions and the effects of climate change.

### 3.2.1 Environmental Setting

The proposed project is located in the unincorporated community of Rimforest, which is located within the South Coast Air Basin (SCAB) under the South Coast Air Quality Management District (SCAQMD) jurisdiction. Most of the SCAB is characterized by a Mediterranean climate with warm, dry summers and cool winters with seasonally heavy precipitation that occurs primarily during the winter months. Summers typically have clear skies, warm temperatures, and low humidity. However, the project site is at an altitude of more than 4,500 feet above sea level and so has an alpine-influenced climate with generally cooler days and nights year round, particularly during winter, and more precipitation than the lower elevations. Some of the precipitation is in the form of snow rather than rain in the winter. A monthly climate summary for the community of Rimforest is provided in Table 3.2-1.

**Table 3.2-1. Rimforest Area Monthly Average Temperatures and Precipitation**

| Month     | Temperature (°F) |         | Precipitation |
|-----------|------------------|---------|---------------|
|           | Maximum          | Minimum |               |
| January   | 44               | 29      | 8.39          |
| February  | 47               | 30      | 8.99          |
| March     | 53               | 32      | 8.03          |
| April     | 60               | 35      | 2.53          |
| May       | 67               | 41      | 1.32          |
| June      | 76               | 49      | 0.28          |
| July      | 81               | 55      | 0.10          |
| August    | 81               | 55      | 0.33          |
| September | 76               | 50      | 1.07          |
| October   | 64               | 41      | 2.01          |
| November  | 52               | 34      | 3.45          |
| December  | 45               | 29      | 5.16          |

Source: Intellicast, 2015

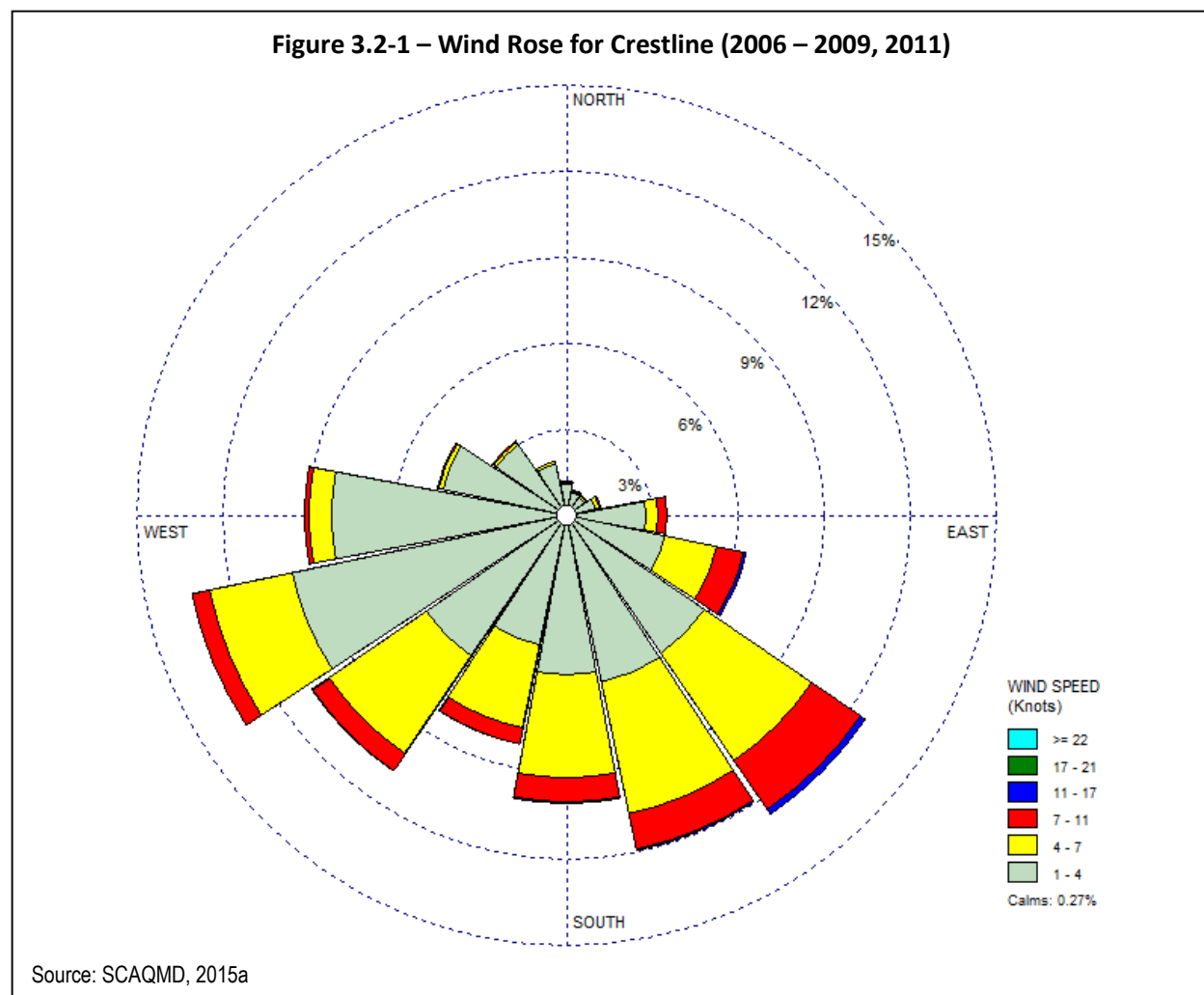
Average summer (June to September) high and low temperatures in the study area range from 81 °F to 49 °F. Average winter (December to March) high and low temperatures range from 53 °F to 29 °F. The average annual precipitation is approximately 42 inches with over 70 percent occurring between December and March. Summers are dry; starting in June, three straight months average an inch of precipitation or less. Little precipitation occurs during summer because of high-pressure cell blocks migrating storm systems over the eastern Pacific Ocean, but the San Bernardino Mountains do experience more rain in the summer than most of the SCAB, often in the form of desert monsoon-influenced summer thunderstorms.

The typical wind speeds and directions for the project area are depicted in Figure 3.2-1 using a wind rose from the Crestline air pollutant monitoring station, which is the nearest monitoring station to Rimforest and is located approximately 3 miles west northwest of the project site. As shown, a strong predominant flow from the west southwest through the southeast, or from the South Coast Air Basin to the Mojave Desert Air Basin, with generally low wind speeds but with very few calm wind hours. This wind rose is based on five years of data between 2006 to 2009 and 2011, and the average wind speed during this five-year period was just under 3.7 miles per hour. The conditions at the Rimforest project site will be somewhat different given the specific topography around the project site and the fact that it is located approximately 1,100 feet higher in elevation than Crestline.



## Air Pollutants and Monitoring Data

Air pollutants are defined as two general types: (1) “criteria” pollutants, representing six pollutants for which national and state health- and welfare-based ambient air quality standards have been established; and (2) toxic air contaminants (TACs), which may lead to serious illness or increased mortality even when present at relatively low concentrations. Generally, TACs do not have ambient air quality standards. The three TACs that do have ambient air quality standards (lead, vinyl chloride, and hydrogen sulfide) are pollutants that are not relevant to the proposed project.



## Criteria Pollutants

The U.S. Environmental Protection Agency (USEPA), California Air Resources Board (ARB), and the local air districts classify an area as attainment, unclassified, or nonattainment depending on whether or not the monitored ambient air quality data shows compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively. The National and California Ambient Air Quality Standards (NAAQS and CAAQS) relevant to the proposed project are provided in Table 3.2-2; Table 3.2-3 summarizes the federal and state attainment status of criteria pollutants for the SCAQMD based on the NAAQS and CAAQS, respectively.

**Table 3.2-2. National and California Ambient Air Quality Standards**

| Pollutant   | Averaging Time      | California Standards | National Standards     | Health Effects  |
|---|---------------------|----------------------|------------------------|---|
| Ozone (O <sub>3</sub> )                           | 1-hour              | 0.09 ppm             | --                     | Breathing difficulties, lung tissue damage                          |
|   | 8-hour              | 0.070 ppm            | 0.075 ppm              |   |
| Respirable particulate matter (PM <sub>10</sub> ) | 24-hour             | 50 µg/m <sup>3</sup> | 150 µg/m <sup>3</sup>  | Increased respiratory disease, lung damage, cancer, premature death |
|   | Annual              | 20 µg/m <sup>3</sup> | --                     |   |
| Fine particulate matter (PM <sub>2.5</sub> )      | 24-hour             | --                   | 35 µg/m <sup>3</sup>   | Increased respiratory disease, lung damage, cancer, premature death |
|   | Annual <sup>1</sup> | 12 µg/m <sup>3</sup> | 12 µg/m <sup>3</sup>   |   |
| Carbon monoxide (CO)                              | 1-hour              | 20 ppm               | 35 ppm                 | Chest pain in heart patients, headaches, reduced mental alertness   |
|   | 8-hour              | 9.0 ppm              | 9 ppm                  |   |
| Nitrogen dioxide (NO <sub>2</sub> )               | 1-hour              | 0.18 ppm             | 0.100 ppm <sup>2</sup> | Lung irritation and damage  |
|   | Annual              | 0.030 ppm            | 0.053 ppm              |   |
| Sulfur dioxide (SO <sub>2</sub> )                 | 1-hour              | 0.25 ppm             | 0.075 ppm <sup>2</sup> | Increases lung disease and breathing problems for asthmatics        |
|   | 3-hour              | --                   | 0.5 ppm                |   |
|   | 24-hour             | 0.04 ppm             | --                     |   |

Notes:

ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter; "--" = no standards

1 – The federal standard shown is the primary standard; the secondary standard is 15 µg/m<sup>3</sup>.

2 – The new federal 1-hour NO<sub>2</sub> and SO<sub>2</sub> standards are based on the 98th and 99th percentile of daily hourly maximum values, respectively.

Source: ARB, 2015a; ARB, 2001

**Table 3.2-3. Attainment Status for the SCAB**

| Pollutant         | Attainment Status      |                       |
|-------------------|------------------------|-----------------------|
|                   | Federal                | State                 |
| O <sub>3</sub>    | Extreme Nonattainment  | Extreme Nonattainment |
| PM <sub>10</sub>  | Attainment/Maintenance | Nonattainment         |
| PM <sub>2.5</sub> | Nonattainment          | Nonattainment         |
| CO                | Attainment/Maintenance | Attainment            |
| NO <sub>2</sub>   | Attainment/Maintenance | Attainment            |
| SO <sub>2</sub>   | Attainment             | Attainment            |

Source: ARB, 2015b; USEPA, 2015a

Table 3.2-4 summarizes the historical air quality data for the project area collected at the nearest representative air quality monitoring stations to Rimforest. The air monitoring station used for ozone and PM<sub>10</sub> is located in Crestline, while the air monitoring station used for PM<sub>2.5</sub>, CO, and NO<sub>2</sub> is located in San Bernardino and the air monitoring station used for SO<sub>2</sub> is located in Fontana. Table 3.2-4 presents the maximum pollutant levels measured from the monitoring stations from 2012 through 2014.

**Table 3.2-4. Background Ambient Air Quality Data**

| Pollutant         | Averaging Time       | Maximum Concentration (ppm or $\mu\text{g}/\text{m}^3$ ) <sup>1</sup> |       |       |
|-------------------|----------------------|---|-------|-------|
|                   |                      | 2012  | 2013  | 2014  |
| O <sub>3</sub>    | 1-hour               | 0.140   | 0.120 | 0.130 |
|                   | 8-hour               | 0.112   | 0.105 | 0.106 |
| PM <sub>10</sub>  | 24-hour              | 43  | 37    | 47    |
|                   | Annual               | 18.9  | 21.4  | 18.5  |
| PM <sub>2.5</sub> | 24-hour <sup>2</sup> | 27.1  | 33.4  | --    |
|                   | Annual               | 11.8  | 11.4  | --    |
| CO                | 8-hour               | 1.7   | 1.7   | --    |
| NO <sub>2</sub>   | 1-hour <sup>2</sup>  | 0.060   | 0.055 | 0.056 |
|                   | Annual               | 0.019   | 0.018 | 0.018 |
| SO <sub>2</sub>   | 1-hour <sup>2</sup>  | 0.004   | 0.003 | --    |

Notes:

ppm = parts per million;  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter; "--" = no data1 – Gaseous pollutant (ozone, SO<sub>2</sub>, NO<sub>2</sub>, and CO) concentrations are shown in ppm and particulate (PM<sub>10</sub> and PM<sub>2.5</sub>) concentrations are shown in  $\mu\text{g}/\text{m}^3$ .2 – 24-hour PM<sub>2.5</sub> data and 1-hour NO<sub>2</sub> data shown are the 98th percentile values and SO<sub>2</sub> for 2011 and 2012 are 99th percentile values.

Source: SCAQMD, 2015b; ARB, 2015c

The ambient air quality data shown above indicates that in the three years of data shown, the local Rimforest area had experienced exceedances of the federal and state ozone standards. No exceedances of the federal or state PM<sub>10</sub> standards were observed near Rimforest and it is unlikely that PM<sub>2.5</sub>, CO, NO<sub>2</sub>, or SO<sub>2</sub> standards were exceeded in Rimforest, but this conclusion cannot be confirmed because the closest available monitoring data were collected in San Bernardino and Fontana.

### Sensitive Receptors

There are residences and workplaces located within 25 to 50 meters of the SR-18 Drain and Pine Avenue Drain construction routes within Rimforest. The Basin construction area is located further from receptors with minimum distances over 50 meters for all construction areas and over 100 meters from the main basin construction area. The closest school is the Rim of the World High School that is located approximately 500 meters from the eastern edge of the new drainage basin.

### Greenhouse Gas Emissions

#### Climate Change

While climate change has been a concern since at least 1998, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), efforts devoted to GHG emissions reduction, and climate change research and policy have increased dramatically in recent years.

Global climate change (GCC) is expressed as changes in the average weather of the Earth, as measured by change in wind patterns, storms, precipitation, and temperature. Much scientific research has indicated that the human-related emissions of GHGs above natural levels are likely a significant contributor to GCC.

Because the direct environmental effect of GHG emissions is the increase in global temperatures, which in turn has numerous indirect effects on the environment and humans, the area of influence for GHG impacts associated with the proposed project would be global. However, those cumulative global impacts would be manifested as impacts on resources and ecosystems in California. Additionally, as this analysis

concerns cumulative global impacts, there is no separate cumulative impacts analysis for GCC in Section 5 (Cumulative Effects) of this EIR.

### ***Setting***

The project site is located in the community of Rimforest in the extreme northern area of the SCAB bordering the Mojave Desert Air Basin. In California, ARB is designated as the responsible agency for traditional air quality regulations. In addition, Assembly Bill (AB) 32 vested ARB with regulatory authority for GHGs.

### ***Description of Greenhouse Gases***

Greenhouse gases are gases that trap heat in the atmosphere and are emitted by natural processes and human activities. Examples of GHGs that are produced both by natural processes and by industry include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). The accumulation of GHGs in the atmosphere regulates the earth's temperature. GHGs have varying amounts of global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. By convention, CO<sub>2</sub> is assigned a GWP of 1. In comparison, CH<sub>4</sub> has a GWP of 25, which means that it has a global warming effect 25 times greater than CO<sub>2</sub> on an equal-mass basis. To account for their GWP, GHG emissions are often reported as CO<sub>2</sub>e (CO<sub>2</sub> equivalent). The CO<sub>2</sub>e for a source is calculated by multiplying each GHG emission by its GWP, and then adding the results together to produce a single, combined emission rate representing all GHGs.

## **3.2.2 Applicable Regulations, Plans, and Standards**

### **Air Quality**

Sources of air emissions in the SCAB are regulated by the USEPA, ARB, and SCAQMD. In addition, regional and local jurisdictions play a role in air quality management. The role of each regulatory agency is discussed below.

#### ***Federal***

The federal Clean Air Act (CAA) of 1970 and its subsequent amendments form the basis for the nation's air pollution control effort. The USEPA is responsible for implementing most aspects of the CAA. Basic elements of the CAA include the establishment of NAAQS for major air pollutants, hazardous air pollutant standards, attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The CAA delegates the enforcement of the federal standards to the states. In California, the ARB is responsible for enforcing air pollution regulations. In the SCAB, the SCAQMD has this responsibility.

#### **State Implementation Plan**

For areas that do not attain the NAAQS, the CAA requires the preparation of a State Implementation Plan (SIP), detailing how the state will attain and maintain the NAAQS within mandated timeframes. In response to this requirement, the SCAQMD and Southern California Association of Governments (SCAG) have developed air quality management plans (AQMPs). The focus of the 2003 AQMP was to demonstrate attainment of the federal PM<sub>10</sub> standard by 2006 and the federal 1-hour O<sub>3</sub> standard by 2010, while making expeditious progress toward attainment of state standards (SCAQMD, 2003). The 2003 AQMP also includes an NO<sub>2</sub> maintenance plan.

On June 11, 2007, the USEPA re-designated the SCAB from nonattainment to attainment for the CO 1-hour and 8-hour NAAQS. The USEPA also approved a SIP revision for the SCAB nonattainment area, stating that this area meets the CAA requirements for maintenance plans for CO. The USEPA made an adequacy finding and approved motor vehicle emission budgets, which are included in the maintenance plan. The USEPA also approved the California motor vehicle inspection and maintenance (I/M) program as meeting the low enhanced I/M requirements for CO in the South Coast region (USEPA, 2007).

The SCAQMD and SCAG, in cooperation with the ARB and the USEPA, have developed the 2007 AQMP for purposes of demonstrating compliance with the new NAAQS for PM<sub>2.5</sub>, the NAAQS for PM<sub>10</sub>, the 8-hour O<sub>3</sub> NAAQS, the 1-hour O<sub>3</sub> NAAQS, and other air quality planning requirements. The 1-hour O<sub>3</sub> standard was revoked by the USEPA, but the SCAQMD is still tracking progress towards attainment of this standard. The SCAQMD Governing Board adopted the Final 2007 AQMP on June 1, 2007 (SCAQMD, 2007).

Since it will be more difficult to achieve the 8-hour O<sub>3</sub> NAAQS compared to the 1-hour NAAQS, the 2007 AQMP contains substantially more emission reduction measures compared to the 2003 AQMP. The USEPA approved nearly all elements of the 2007 PM<sub>2.5</sub> plan and the 2007 8-hour O<sub>3</sub> Plan in 2011. On June 12, 2013, the USEPA provided final approval of SCAQMD's 2009 PM<sub>10</sub> Redesignation Request and Maintenance Plan. Later in 2013, USEPA approved the South Coast 1997 PM<sub>2.5</sub> NAAQS contingency measures that will terminate the sanctions and FIP clocks that were triggered by USEPA's partial disapproval of the South Coast's 2007 PM<sub>2.5</sub> plan.

During 2012 and 2013, the USEPA determined that the 1-hour ozone plan was inadequate and withdrew approval of the vehicle-miles-traveled (VMT) emissions offset demonstration for the 8-hour Ozone Plan. As a result, the District is required to submit new plan elements to demonstrate 1-hour and 8-hour ozone attainment.

The AQMD Governing Board approved the 2012 AQMP on December 7, 2012 (SCAQMD, 2012). This plan addresses the 1-hour and 8-hour Ozone Plan inadequacies identified by the USEPA and provides a 24-hour PM<sub>2.5</sub> plan. However, this AQMP has not yet been approved by the USEPA, so it is not the applicable AQMP for CEQA review.

Currently, the 2009 Maintenance Plan is the applicable plan for PM<sub>10</sub>, and the 2007 AQMP is the applicable plan for ozone and PM<sub>2.5</sub>.

### **Emission Standards for Non-Road Diesel Engines**

The USEPA has established a series of cleaner emission standards for new off-road diesel engines culminating in the Tier 4 Final Rule of June 2004. The Tier 1, Tier 2, Tier 3, and Tier 4 standards require compliance with progressively more stringent emission standards. Tier 1 standards were phased in from 1996 to 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006, and the Tier 3 standards were phased in from 2006 to 2008.

The Tier 4 standards complement the latest 2007 and later on-road, heavy-duty engine standards by requiring 90 percent reductions in diesel particulate matter (DPM) and NO<sub>x</sub> when compared against current emission levels. The Tier 4 standards are currently being phased in, starting with smaller engines in 2008 until all but the very largest diesel engines meet NO<sub>x</sub> and particulate matter (PM) standards in 2015.

### **Non-Road Diesel Fuel Rule**

In May 2004, the USEPA set sulfur limits for non-road diesel fuel. Under this rule, sulfur levels in non-road diesel fuel would be limited to 500 ppm starting in 2007 and 15 ppm starting in 2010 (USEPA, 2004), at

which time it would be equivalent to sulfur content restrictions of the California Diesel Fuel Regulations (described below).

### **Emission Standards for On-Road Trucks**

To reduce emissions from on-road, heavy-duty diesel trucks, the USEPA established a series of cleaner emission standards for new engines, starting in 1988. These emission standards regulations have been revised over time. The latest effective regulation, the 2007 Heavy-Duty Highway Rule, provides for reductions in PM, NO<sub>x</sub>, and non-methane hydrocarbon emissions that were phased in during the model years 2007 through 2010 (USEPA, 2000).

### ***State***

#### **California Clean Air Act**

In California, the ARB is designated as the responsible agency for all air quality regulations. The ARB, which became part of the California Environmental Protection Agency (Cal/EPA) in 1991, is responsible for implementing the requirements of the federal CAA, regulating emissions from motor vehicles and consumer products, and implementing the California Clean Air Act of 1988 (CCAA). The CCAA outlines a program to attain the CAAQS for O<sub>3</sub>, NO<sub>2</sub>, SO<sub>2</sub>, and CO by the earliest practical date. Since the CAAQS are often more stringent than the NAAQS, attainment of the CAAQS will require more emission reductions than what is required to demonstrate attainment of the NAAQS. Similar to the federal requirements, the state requirements and compliance dates are based on the severity of the ambient air quality standard violation within a region.

#### **Heavy Duty Diesel Truck Idling Regulation**

This ARB rule became effective February 1, 2005, and prohibits heavy-duty diesel trucks from idling for longer than five minutes at a time, unless they are queuing, and provided the queue is located more than 100 feet from any homes or schools (ARB, 2006).

#### **California Diesel Fuel Regulations**

In 2004, the ARB set limits on the sulfur content of diesel fuel sold in California for use in on-road and off-road motor vehicles (ARB, 2004). Under this rule, sulfur content of diesel fuel was limited to 15 ppm starting in June 2006.

### ***Local***

#### **South Coast Air Quality Management District**

The SCAQMD is primarily responsible for planning, implementing, and enforcing federal and state ambient standards within this portion of the SCAB. As part of its planning responsibilities, SCAQMD prepares Air Quality Management Plans and Attainment Plans as necessary based on the attainment status of the air basins within its jurisdiction. The SCAQMD is also responsible for permitting and controlling stationary source criteria and air toxic pollutants as delegated by the USEPA.

Through the attainment planning process, the SCAQMD develops the SCAQMD Rules and Regulations to regulate sources of air pollution in the SCAB (SCAQMD, 2015c). This project would not include any stationary or portable stationary emissions sources that would be subject to SCAQMD air quality



permitting regulations and no greenwaste composting would be done at the project site. The SCAQMD rules applicable to the proposed project are listed below.

SCAQMD Rule 401 – Visible Emissions. This rule prohibits discharge of air contaminants or other materials that are as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, or that obscures an observer's view.

SCAQMD Rule 402 – Nuisance. This rule prohibits discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any such persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 – Fugitive Dust. The purpose of this rule is to control the amount of PM entrained in the atmosphere from man-made sources of fugitive dust. The rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area to be visible beyond the emission source's property line. During project construction, best available control measures identified in the rule would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities. These measures would include site watering as necessary to maintain sufficient soil moisture content.

Additional Rule 403 requirements apply to large operations, which is defined as active operations on property that contains 50 or more acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of 5,000 cubic yards or more, three times during the most recent 365-day period. These requirements include submittal of a dust control plan, maintaining dust control records, and designating a SCAQMD-certified dust control supervisor. The proposed project's construction would not exceed these two triggers and so would not be subject to these additional Rule 403 requirements.

SCAQMD Regulation XI – Source Specific Standards. This regulation is composed of several dozen individual rules, most of which are not applicable to the proposed project. Specific rules that may be applicable include:

- Rule 1133.1 - Chipping and Grinding Facilities. This rule would apply to the vegetation chipping proposed to handle the cleared vegetation. The proposed project would fall under exemption (f)(2) that would limit the rule requirements to compliance with part (d)(1), which does not allow the receipt of foodwaste. Foodwaste is not proposed to be accepted as part of the chipping operations.
- Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil. This regulation would only be applicable in the very unlikely event that contaminated soils are discovered during project excavation work.

### **San Bernardino County**

There are air quality goals and policies (Goal CO 4.) within the San Bernardino County General Plan (SBC, 2013), and general performance standards within the San Bernardino County Development Code (§83.01.040 Air Quality) (SBC, 2014). In general, compliance with SCAQMD rules and regulations will provide compliance with the potentially applicable policies (CO 4.1) and general performance standards [§83.01.040 (a) through (c)] of the General Plan and Development Code, respectively.

### **Greenhouse Gas Emissions**

All levels of government have some responsibility for the protection of air quality, and each level (federal, state, and regional/local) has specific responsibilities relating to air quality regulation. Regulation of GHGs

is a relatively new component of air quality. Several legislative actions have been adopted to regulate GHGs on a federal, state, and local level.

### **Federal**

#### **Massachusetts v. EPA**

In April 2007, the U.S. Supreme Court held that GHG emissions are pollutants within the meaning of the CAA. In reaching its decision, the court also acknowledged that climate change results, in part, from anthropogenic causes. (*Massachusetts et al. Environmental Protection Agency* 549 U.S. 497, 2007). The Supreme Court's ruling paved the way for the regulation of GHG emissions by USEPA under the CAA.

#### **Clean Air Act**

The federal CAA of 1970 and its subsequent amendments form the basis for the nation's air pollution control effort. The USEPA is responsible for implementing most aspects of the CAA. Under the provisions of the CAA to protect public health and welfare, the USEPA has the authority to regulate GHGs, should a finding be made that GHGs have the potential for adverse impacts.

In response to the Supreme Court decision on December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- **Endangerment Finding:** That the current and projected concentrations of the GHGs in the atmosphere threaten the public health and welfare of current and future generations, and
- **Cause or Contribute Finding:** That the combined emissions of GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

USEPA has enacted a number of regulations and other environmental rules regarding GHG emissions, including:

- Mandatory GHG Reporting,
- GHG Tailoring Rule for PSD Permits,
- GHG Vehicle Emissions Standards,
- Corporate Average Fuel Economy Standards, and
- Renewables Fuel Standard.

None of these federal regulations are specifically relevant to the construction or operation of the proposed project.

### **State**

California is one of several states that have set GHG emission targets. Executive Order S-3-05 and AB 32, the California Global Warming Solutions Act of 2006, promulgated targets to achieve reductions in GHG to 1990 GHG levels by the year 2020. This target-setting approach allows progress to be made in addressing climate change, and is a forerunner to setting emission limits.

#### **AB 32 – California Global Warming Solutions Act of 2006**

AB 32 was signed into law by Governor Schwarzenegger on September 27, 2006, and is the first law to comprehensively limit GHG emissions at the state level. The intent of AB 32 is to reduce California GHG

emissions to 1990 levels by 2020. AB 32 instructs the ARB to adopt regulations that will reduce emissions from significant sources of GHG and establish a mandatory GHG reporting and verification program by January 1, 2008. AB 32 requires the ARB to adopt GHG emission limits and emission reduction measures by January 1, 2011, both of which became effective on January 1, 2012. AB 32 does not identify a significance level of GHG for CEQA purposes, nor has the ARB adopted such a significance threshold.

In accordance with AB 32, the ARB approved the Climate Change Scoping Plan (Scoping Plan) (ARB, 2008) in October 2008, which outlines California's strategy for achieving the 2020 GHG emissions limit outlined under the law. The Scoping Plan includes recommendations for reducing GHG emissions from most sectors of the California economy. The scoping plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program. These measures have been introduced through four workshops between November 30, 2007, and April 17, 2008. A draft scoping plan was released for public review and comment on June 26, 2008, followed by more workshops in July and August 2008. The proposed scoping plan was released on October 15, 2008, and approved at the Board hearing on December 12, 2008. The draft of the First Update to the Scoping Plan was published in February 2014, followed by its accompanying Environmental Analysis (CEQA Equivalent Document) published in March 2014. The Scoping Plan update was approved at an Air Resources Board Hearing on May 22, 2014.

#### **Executive Order S-3-05**

Executive Order S-3-05, signed by Governor Schwarzenegger on June 1, 2005, calls for a reduction in GHG emissions to 1990 levels by 2020 and for an 80 percent reduction in GHG emissions by 2050. Executive Order S-3-05 also calls for the Cal/EPA to prepare biennial science reports on the potential impact of continued GCC on certain sectors of the California economy. The first of these reports, "Our Changing Climate: Assessing Risks to California," and its supporting document "Scenarios of Climate Change in California: An Overview" were published by the California Climate Change Center in 2006.

#### **California Senate Bill 97**

Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs the Governor's Office of Planning and Research (OPR) to develop draft CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009, and directs the California Natural Resources Agency to certify and adopt the CEQA guidelines by January 1, 2010.

The OPR published a technical advisory on CEQA and Climate Change on June 19, 2008. The guidance did not include a suggested threshold, but stated that the OPR has asked the ARB to, "recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of greenhouse gas emissions throughout the state." The OPR does recommend that CEQA analyses include the following components:

- Identify Greenhouse Gas Emissions
- Determine Significance
- Mitigate Impacts

On December 30, 2009, the California Natural Resources Agency adopted amendments to the CEQA Guidelines including GHG/Climate Change analysis guidelines. According to the California Natural Resources Agency (CNRA, 2009), "due to the global nature of GHG emissions and their potential effects,

GHG emissions will typically be addressed in a cumulative impacts analysis.” Two GHG CEQA checklist items were included as part of the CEQA Guidelines amendment; they are discussed further in Section 3.2.3.

As discussed in Section 15064.4 of the CEQA Guidelines, the determination of the significance of GHG emissions calls for a careful judgment by the lead agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a lead agency should make a good-faith effort, to the extent possible and based on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

1. Use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
2. Rely on a qualitative analysis or performance-based standards.

Section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:

3. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
4. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
5. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

### ***Local***

#### **South Coast Air Quality Management District**

To date, the SCAQMD has developed two regulations regarding GHG emissions (SCAQMD, 2015c). Those regulations are:

SCAQMD Rule 2701 – SoCal Climate Solutions Exchange. This rule establishes a voluntary program to encourage, quantify, and certify voluntary high-quality certified GHG emission reductions in the district.

SCAQMD Rule 2702 – Greenhouse Gas Reduction Program. This program will fund projects through contracts in response to requests for proposals or purchase GHG emission reductions.

These two SCAQMD rules are not applicable to the proposed project.

#### **San Bernardino County**

San Bernardino County has an approved Greenhouse Gas Emissions Reduction Plan. The discussion of the applicable requirements of this plan is provided within the discussion of Impact GCC-2 in Section 3.2.3.

### 3.2.3 Environmental Impacts and Mitigation Measures

This section analyzes the impacts associated with implementation of the proposed project related to air quality and GHG emissions. The impact analysis lists the thresholds used to conclude the significance of an impact and describes the methods used to determine the proposed project's impacts. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, as needed.

#### Air Quality

##### *Thresholds of Significance*

The significance of potential air quality impacts were determined based on relevant State CEQA Guidelines, Appendix G. Project construction and operation would have significant air quality impacts if it would:

- *Criterion AQ1: Conflict with or obstruct implementation of the applicable air quality plan.*
- *Criterion AQ2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation.*
- *Criterion AQ3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).*

The regional thresholds of significance for construction and operation activities as shown below in Table 3.2-5 were used in this EIR to determine the significance of proposed project air quality impacts. These criteria are based on CEQA thresholds recommended by the SCAQMD (SCAQMD, 2015d).

**Table 3.2-5. SCAQMD Regional Air Quality Emissions Significance Thresholds**

| Regional Emissions Significance Thresholds |              |              |
|--|--------------|--------------|
| Pollutant                                  | Construction | Operation    |
| Nitrogen Oxides (NO <sub>x</sub> )         | 100 lbs./day | 55 lbs./day  |
| Volatile Organic Compounds (VOC)           | 75 lbs./day  | 55 lbs./day  |
| PM10                                       | 150 lbs./day | 150 lbs./day |
| PM2.5                                      | 55 lbs./day  | 55 lbs./day  |
| Sulfur Oxides (SO <sub>x</sub> )           | 150 lbs./day | 150 lbs./day |
| CO   | 550 lbs./day | 550 lbs./day |

Source: SCAQMD, 2015d

- *Criterion AQ4: Expose sensitive receptors to substantial pollutant concentrations.*

SCAQMD has published localized significance thresholds (LST) that are used to determine impacts on ambient air quality for off-site sensitive receptors (SCAQMD, 2015e). The published LSTs for construction activities, as shown below in Table 3.2-6, were used in this EIR to determine the significance of project air quality impacts. The emissions impacts of TACs are also evaluated under this significance criterion, and SCAQMD's thresholds for air toxics impacts are also shown in Table 3.2-6.

**Table 3.2-6. SCAQMD LST and TACs Air Quality Emissions Significance Thresholds**

| Localized Significance Criteria                    |   |                        |
|--|---|------------------------|
| Pollutant  | Construction <sup>1</sup>   | Operation <sup>1</sup> |
| NOx  | 118 lbs/day, 378 lbs/day  | 378 lbs/day            |
| CO   | 667 lbs/day, 4,142 lbs/day  | 4,142 lbs/day          |
| PM10   | 4 lbs/day, 65 lbs/day   | 16 lbs/day             |
| PM2.5  | 3 lbs/day, 17 lbs/day   | 5 lbs/day              |
| TACs<br>(includes carcinogens and non-carcinogens) | Maximum Incremental Cancer Risk $\geq 10$ in 1 million<br>Cancer Burden $> 0.5$ excess cancer cases (in areas $\geq 1$ in 1 million)<br>Chronic and Acute Hazard Index $\geq 1.0$ (project increment) |                        |

Source: SCAQMD, 2015d; SCAQMD, 2015e

<sup>1</sup> – The first value is for the SR 18 and Pine Avenue Drain construction where the assumptions are a 1 acre active construction site and receptor distance of 25 meters, and the second value is for Basin construction where the assumptions are a 5 acre active construction site and a distance to receptor of 100 meter, and this second set of assumptions is also used for operation.

The proposed project is located in Source Receptor Area (SRA) 37 (Central San Bernardino Mountains). To be conservative, the project work areas (shown in Figure 2 of Section 2) for linear drain construction activities are evaluated using the one-acre LST look-up values provided in SCAQMD CEQA guidance, and the minimum distance to sensitive receptors is assumed to be 25 meters (80 feet). For the major excavation activities associated with the basin construction and major intermittent basin O&M activities the LST look-up values are based on five-acre construction areas and 100 meter distance to receptors, which is conservative since the distance to receptors from the sediment basin are at least 150 meters.

The following threshold from the CEQA Appendix G Environmental Checklist were found to have no impact in the Initial Study and are not discussed further beyond the summary below:

■ *C.3.3 (e) Create objectionable odors affecting a substantial number of people?*

Some objectionable odors may be temporarily created during construction-related activities, such as from diesel exhaust and paving activities. These odors would not affect a substantial number of people and would only occur in localized areas. Therefore, impacts related to objectionable odors would be less than significant.

***Emission Calculations Methodology***

Air pollutant emissions from the proposed construction activities were calculated using the most current SCAQMD CEQA website and USEPA emission factors and methods, then compared to the thresholds identified in Tables 3.2-5 and 3.2-6 to determine their significance. Additional details on the specific emissions calculation methodology and assumptions are provided in Appendix 2 (Air Pollutant Emissions Calculations) of the original Draft EIR. The SCAQMD CEQA website off-road and on-road emissions factors are based on the California Air Resources Board OFFROAD and on-road EMFAC models adjusted for the South Coast Air Basin. For impacts that exceed a significance threshold, mitigation measures have been applied to reduce impacts to the extent feasible.

Construction Emissions

The proposed project's construction would involve the following main elements:

- Construction of a new 20 acre-feet attenuation basin and connecting culvert in the summer of 2017
- Construction of a new storm drain along SR-18 in the summer of 2018.



- Construction of a new storm drain along Pine Avenue in the summer of 2019.

The detailed assumptions and phases for each of these three summer construction events is provided in Appendix 2 (Air Pollutant Emissions Calculations) of the original Draft EIR.

Construction emissions would result from the use of off-road construction equipment and the trips generated by construction workers and heavy haul trucks, and from earth-moving activities and vehicle travel on paved and unpaved roads/areas that would cause fugitive dust emissions. Construction activities would generate emissions of criteria air pollutants VOCs, NOx, CO, PM10, PM2.5, and SOx.

Equipment usage and scheduling data needed to calculate emissions for proposed construction activities were developed by the County. Construction-related emissions are calculated using the following:

- On-road emissions factors and off-road diesel fueled equipment emission factors from the CARB EMFAC 2014 and OFFROAD emissions factor models based on fleet average emissions for each year of construction.
- Off-road gasoline fueled equipment emissions factors (i.e. for chainsaws and small generators) are from USEPA (USEPA, 2015c).
- USEPA AP 42 (USEPA, 2015b) emission factor calculations for fugitive dust emissions sources. Additional assumptions for calculation inputs were also derived from the SCAQMD Air Quality Handbook (SCAQMD, 2015f; SCAQMD, 1993).

For more information on the construction emissions calculation methodology, assumptions, and the detailed calculations, please refer to Appendix 2 (Air Pollutant Emissions Calculations) of the original Draft EIR.

#### Operation Emissions

The proposed project would have minor normal operations and maintenance (O&M) emissions from occasional inspection activities and intermittent larger O&M events related to basin sediment removal and also slope maintenance. These larger maintenance events are anticipated to be needed approximately every three to five years. In addition, quarterly sediment removal and maintenance of storm drains and catch basins may occur. The assumptions used to calculate emissions from these operation events are provided in Appendix 2 (Air Pollutant Emissions Calculations) of the original Draft EIR. The calculation methods are the same as those listed for construction, with the assumption that the peak emissions related to the first sediment removal and slope maintenance events occur as early as 2019.

#### ***Environmental Controls***

The County has not proposed any environmental controls directly related to reducing construction or operation air pollutant emissions, but fugitive dust emissions during construction would be controlled through compliance with SCAQMD Rule 403 – Fugitive Dust. The primary Rule 403 compliance assumption used in the emissions calculations is the use of water to control material handling and unpaved road dust emissions.

#### **Project Impacts**

***Criterion AQ1: Conflict with or obstruct implementation of the applicable air quality plan.***

**Impact AQ-1: The Project would conflict with or obstruct implementation of the applicable air quality plan (Class III)**

The proposed project would produce emissions of nonattainment pollutants primarily from diesel-powered mobile on-road and off-road sources. The 2007 AQMP proposes emission reduction measures that are designed to bring the SCAB into attainment of the NAAQS and CAAQS. The attainment strategies in this plan include mobile source control measures and clean fuel programs that are enforced at the federal and state levels on engine manufacturers and petroleum refiners and retailers.

The SCAQMD adopts AQMP control measures into the SCAQMD rules and regulations, which are then used to regulate sources of air pollution in the SCAB. The proposed project would comply with these regulatory requirements. Therefore, the proposed project's emissions sources would meet or exceed the emissions control forecasts for all approved AQMP control measures.

Since the 2007 AQMP assumes growth that is consistent with the implementation of this project, it would not exceed the future growth projections in the 2007 AQMP, and it would not conflict with or obstruct implementation of the SIP. As a result, construction and operation of the proposed project would conform to the applicable AQMP; therefore, impacts would be less than significant and no mitigation is required (Class III).

***Criterion AQ2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation.***

**Impact AQ-2: The Project would violate any air quality standard or contribute substantially to an existing or projected air quality violation (Class III)**

The proposed project's air pollutant emissions would occur for a short period, less than a year total (occurring over multiple four-to-five month-long periods during summer seasons), and would be well below the magnitude that would cause air quality standard violations or contribute substantially to existing or projected air quality standard violations. Therefore, impacts are less than significant and no additional mitigation is required (Class III).

Please see the regional emissions analysis provided below under Impact AQ-3 and the localized emissions analysis provided under Impact AQ-4 for additional information.

***Criterion AQ3: 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).***

**Impact AQ-3: The Project would result in 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] (Class III)**

Construction

The project's maximum daily construction emissions estimate considered the construction phase maximum equipment use and throughputs and the worst-case construction phase overlap. Detailed assumptions for the construction phases, including equipment and on-road vehicle use, are provided in Appendix 2 (Air Pollutant Emissions Calculations) of the original Draft EIR. Table 3.2-7 compares the maximum daily construction emissions of the project with the SCAQMD regional significance thresholds.

**Table 3.2-7. Maximum Daily Construction Emissions (lbs/day)**

| <b>Basin Construction – 2017</b>           | <b>VOC</b> | <b>CO</b> | <b>NO<sub>x</sub></b> | <b>SO<sub>x</sub></b> | <b>PM10</b> | <b>PM2.5</b> |
|--|------------|-----------|-----------------------|-----------------------|-------------|--------------|
| On-road vehicles                           | 1.15       | 7.87      | 7.46                  | 0.03                  | 0.34        | 0.18         |
| Off-road equipment                         | 5.52       | 19.28     | 85.06                 | 0.09                  | 3.07        | 2.82         |
| Fugitive dust                              | ---        | ---       | ---                   | ---                   | 33.37       | 7.45         |
| Total                                      | 6.67       | 27.15     | 92.52                 | 0.13                  | 36.78       | 10.45        |
| SCAQMD Regional Significance Thresholds    | 75         | 550       | 100                   | 150                   | 150         | 55           |
| Significant?                               | NO         | NO        | NO                    | NO                    | NO          | NO           |
| <b>SR 18 Drain Construction – 2018</b>     | <b>VOC</b> | <b>CO</b> | <b>NO<sub>x</sub></b> | <b>SO<sub>x</sub></b> | <b>PM10</b> | <b>PM2.5</b> |
| On-road vehicles                           | 1.23       | 8.20      | 10.82                 | 0.05                  | 0.43        | 0.21         |
| Off-road equipment                         | 4.83       | 17.38     | 67.20                 | 0.07                  | 2.77        | 2.55         |
| Fugitive dust                              | ---        | ---       | ---                   | ---                   | 12.71       | 2.98         |
| Total                                      | 6.06       | 25.58     | 78.02                 | 0.12                  | 15.90       | 5.74         |
| SCAQMD Regional Significance Thresholds    | 75         | 550       | 100                   | 150                   | 150         | 55           |
| Significant?                               | NO         | NO        | NO                    | NO                    | NO          | NO           |
| <b>Pine Ave. Drain Construction - 2019</b> | <b>VOC</b> | <b>CO</b> | <b>NO<sub>x</sub></b> | <b>SO<sub>x</sub></b> | <b>PM10</b> | <b>PM2.5</b> |
| On-road vehicles                           | 1.03       | 7.06      | 7.49                  | 0.04                  | 0.35        | 0.16         |
| Off-road equipment                         | 4.29       | 17.13     | 57.89                 | 0.08                  | 2.35        | 2.16         |
| Fugitive dust                              | ---        | ---       | ---                   | ---                   | 9.54        | 2.25         |
| Total                                      | 5.32       | 24.19     | 65.38                 | 0.11                  | 12.24       | 4.58         |
| SCAQMD Regional Significance Thresholds    | 75         | 550       | 100                   | 150                   | 150         | 55           |
| Significant?                               | NO         | NO        | NO                    | NO                    | NO          | NO           |

Source: Appendix 2; SCAQMD, 2015d

As shown in Table 3.2-7, construction of the project would not exceed any of the SCAQMD CEQA regional emissions significance thresholds, so the construction emissions impacts are less than significant (Class III).

The air quality cumulative impacts assessment, see Section 5.4.1, determined significant cumulative NO<sub>x</sub> emission impacts that would require off-road equipment and on-road equipment mitigation (Mitigation Measures AQ-1 and AQ-2) in the worst-case scenario event, the proposed project would be constructed concurrently with the construction of the Church of the Woods project. If these two mitigation measures are required to be enforced, the proposed project's maximum daily construction NO<sub>x</sub> emissions shown above in Table 3.2-7 could be reduced by 30 percent or more.

### Operation

The project's maximum daily operation emissions estimate is based on the worst-case intermittent maintenance activity, namely sediment removal. Detailed assumptions for sediment removal, including equipment and on-road vehicle use, are provided in Appendix 2 (Air Pollutant Emissions Calculations) of the original Draft EIR. Table 3.2-8 compares the maximum daily operation emissions of the project with the SCAQMD regional significance thresholds.

**Table 3.2-8. Maximum Daily Operation Emissions (lbs/day)**

|   | <b>VOC</b> | <b>CO</b> | <b>NO<sub>x</sub></b> | <b>SO<sub>x</sub></b> | <b>PM10</b> | <b>PM2.5</b> |
|---|------------|-----------|-----------------------|-----------------------|-------------|--------------|
| On-road vehicles                        | 0.57       | 3.29      | 10.90                 | 0.04                  | 0.31        | 0.15         |
| Off-road equipment                      | 1.21       | 4.85      | 16.64                 | 0.03                  | 0.61        | 0.56         |
| Fugitive dust                           | ---        | ---       | ---                   | ---                   | 26.45       | 4.53         |
| Total                                   | 1.78       | 8.14      | 27.54                 | 0.06                  | 27.37       | 5.25         |
| SCAQMD Regional Significance Thresholds | 55         | 550       | 55                    | 150                   | 150         | 55           |
| Significant?                            | NO         | NO        | NO                    | NO                    | NO          | NO           |

Source: Appendix 2; SCAQMD, 2015d

As shown in Table 3.2-8, operation of the project would not exceed any of the SCAQMD CEQA regional emissions significance thresholds, so operation impacts are less than significant (Class III).

**Criterion AQ4: Expose sensitive receptors to substantial pollutant concentrations.**

**Impact AQ-4: The Project would expose sensitive receptors to substantial pollutant concentrations (Class III)**

Construction Localized Criteria Pollutant Emissions Impacts

SCAQMD LSTs are used to determine if a project could exceed ambient air quality thresholds for nearby receptors. The LSTs were established by SCAQMD for each SRA within their jurisdiction, and represent on-site emission levels that could cause ambient air quality standard exceedances or substantial contributions to existing exceedances at given distances from the site to nearby receptor locations.

The appropriate LSTs for project site construction were compared to the assumed reasonably foreseeable maximum localized on-site daily construction emissions in Table 3.2-9. The Basin construction LST is based on a construction area of 5 acres and a conservative distance to receptor of 100 meters (actual distance is over 150 meters), and the SR-18 Drain Construction and Pine Avenue Drain construction LSTs are based on a construction area of one acre and a distance to receptor of 25 meters.

**Table 3.2-9. Maximum Daily Localized Construction Emissions (lbs/day)**

| <b>Basin Construction - 2017</b>           | <b>CO</b>    | <b>NO<sub>x</sub></b> | <b>PM10</b>  | <b>PM2.5</b> |
|--|--------------|-----------------------|--------------|--------------|
| On-road vehicles                           | 0.79         | 0.75                  | 0.03         | 0.02         |
| Off-road equipment                         | 19.28        | 85.06                 | 3.07         | 2.82         |
| Fugitive dust                              | ---          | ---                   | 26.59        | 5.78         |
| <b>Total</b>                               | <b>20.07</b> | <b>85.80</b>          | <b>29.70</b> | <b>8.63</b>  |
| SCAQMD Localized Significance Thresholds   | 4,142        | 378                   | 65           | 17           |
| Significant?                               | NO           | NO                    | NO           | NO           |
| <b>SR-18 Drain Construction – 2018</b>     | <b>CO</b>    | <b>NO<sub>x</sub></b> | <b>PM10</b>  | <b>PM2.5</b> |
| On-road vehicles                           | 1.28         | 4.50                  | 0.01         | 0.00         |
| Off-road equipment                         | 8.61         | 26.23                 | 1.03         | 0.94         |
| Fugitive dust                              | ---          | ---                   | 1.70         | 0.28         |
| <b>Total</b>                               | <b>9.89</b>  | <b>30.73</b>          | <b>2.73</b>  | <b>1.23</b>  |
| SCAQMD Localized Significance Thresholds   | 667          | 118                   | 4            | 3            |
| Significant?                               | NO           | NO                    | NO           | NO           |
| <b>Pine Ave. Drain Construction - 2019</b> | <b>CO</b>    | <b>NO<sub>x</sub></b> | <b>PM10</b>  | <b>PM2.5</b> |
| On-road vehicles                           | 1.17         | 4.10                  | 0.01         | 0.00         |
| Off-road equipment                         | 8.47         | 22.74                 | 0.87         | 0.80         |
| Fugitive dust                              | ---          | ---                   | 1.11         | 0.18         |
| <b>Total</b>                               | <b>9.64</b>  | <b>26.85</b>          | <b>1.99</b>  | <b>0.99</b>  |
| SCAQMD Localized Significance Thresholds   | 667          | 118                   | 4            | 3            |
| Significant?                               | NO           | NO                    | NO           | NO           |

Source: Appendix 2; SCAQMD, 2015e

As shown above in Table 3.2-9 construction of the project would not exceed any of the SCAQMD CEQA LST significance thresholds, so the construction emissions impacts are less than significant (Class III).

The worst-case localized emissions case for construction is not the same as the worst-case regional emissions case as shown previously in Table 3.2-8. The regional emissions case is composed of all emissions sources that are active on a worst-case day within the air basin, while the localized emissions case is composed entirely of worst-case daily emissions estimated to occur during one day within one construction site.

#### Operation Localized Criteria Pollutant Emissions Impacts

The appropriate LSTs for project site operation were compared to the assumed reasonably foreseeable maximum localized on-site daily construction emissions in Table 3.2-10. The operation LST is based on a construction area of 5 acres and a conservative distance to receptor of 100 meters for basin sediment removal activities.

**Table 3.2-10. Maximum Daily Localized Operation Emissions (lbs/day)**

| <b>Sediment Removal</b>                  | <b>CO</b> | <b>NO<sub>x</sub></b> | <b>PM<sub>10</sub></b> | <b>PM<sub>2.5</sub></b> |
|--|-----------|-----------------------|------------------------|-------------------------|
| On-road vehicles                         | 0.33      | 1.09                  | 0.03                   | 0.02                    |
| Off-road equipment                       | 4.85      | 16.64                 | 0.61                   | 0.56                    |
| Fugitive dust                            | ---       | ---                   | 14.62                  | 1.63                    |
| <b>Total</b>                             | 5.18      | 17.73                 | 15.26                  | 2.21                    |
| SCAQMD Localized Significance Thresholds | 4,142     | 378                   | 16                     | 5                       |
| Significant?                             | NO        | NO                    | NO                     | NO                      |

Source: Appendix 2; SCAQMD, 2015e

As shown above in Table 3.2-10 the project's operation and maintenance activities would not exceed any of the SCAQMD CEQA LST significance thresholds, so the operations emissions impacts are less than significant (Class III).

#### TAC Emissions Impacts

The proposed project's TAC emissions and health risk potential are primarily associated with the DPM emissions from the diesel-fueled off-road and on-road engines. The emissions of acutely hazardous pollutants from project emissions sources are negligible, so the primary potential health risk would be related to the carcinogenic and chronic risks from DPM exposure. However, the construction DPM emissions are low and the project's duration is short, so the construction emissions are not considered to be of concern in relation to the potential long-term health risk impacts from DPM exposure. Therefore, the proposed project's TAC emissions impacts would be less than significant (Class III).

#### Valley Fever

Valley Fever, or Coccidiomycosis, is an illness caused by a Southern California endemic fungus, *Coccidioides immitis* (*C. immitis*). Persons exposed to airborne *C. immitis* arthrospores may become infected with Valley Fever. The resulting infection is most likely to have no symptoms or present with mild cold-like symptoms, but it can cause flu-like symptoms, or in rare cases (one percent of persons infected) cause a disseminated form of the disease that can cause severe disabling illness or death. Earthmoving and other activities that cause fugitive dust emissions can cause *C. immitis* arthrospores, if present, to become airborne. The proposed project would require earthmoving; however, much of the temporary impact area (shown in Figure 3) would be within shoulders and adjacent to existing roadways that would not have been subject to long-term *C. immitis* fungal growth. Additionally, the project area has an average rainfall of approximately 40 inches, which is above the favorable range of rainfall associated with high levels of *C.*

*immitis* growth (Kolivras, et al., 2001). So, while there may be some limited potential for the *C. immitis* fungus to exist in the project area (primarily during earthmoving activities within the permanent impact area shown in Figure 3), the risk of project activities causing Valley Fever infection is considered low due to the characteristics of the project area. Impacts would be less than significant (Class III).

## Greenhouse Gas Emissions

### *Thresholds of Significance*

Appendix G of the CEQA Guidelines presents significance criteria that may be used by the lead agency to address and evaluate significance of an impact. According to these Guidelines, the following criteria may be used to establish the significance of GCC emissions (AEP, 2015).

Would the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. For industrial projects, a significance threshold of 10,000 metric tons of CO<sub>2</sub>e emissions per year was determined. Construction GHG emissions are required to be included, amortized over the project life, in the project's annual GHG emissions totals.

In accordance with these guidelines, the proposed project would have significant GCC impacts if it would:

- *Criterion GCC1: Produce GHG emissions that exceed the SCAQMD CO<sub>2</sub>e annualized significance threshold.*
- *Criterion GCC2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.*

### *Emissions Calculations Methodology*

GHG emissions were calculated based on methodologies provided in *The Climate Registry – General Reporting Protocol* (TCR, 2013) (TCR Protocol), and emissions factors for the TCR Protocol updated in 2015 (TCR, 2015). The TCR Protocol is the guidance document that TCR members, which includes the State of California, use to prepare annual GHG inventories for the Registry. Direct GHG emissions would result from fuel use from the proposed construction activities. The project would not consume electricity and would consume very limited quantities of water, primarily for dust control; therefore, indirect GHG emissions would be negligible.

***Criterion GCC1: Produce GHG emissions that exceed the SCAQMD CO<sub>2</sub>e annualized significance threshold.***

### **Impact GCC-1: The Project would produce GHG emissions that exceed the SCAQMD CO<sub>2</sub>e annualized significance threshold (Class III)**

The proposed project would generate GHG emissions through construction and operation and maintenance activities. The construction-phase GHG emissions would occur directly from the off-road heavy-duty equipment and the on-road motor vehicles needed to mobilize crew, equipment, and materials. The project would also create a small amount of indirect GHG emissions from water use and electricity use. The indirect GHG emissions for electricity use were calculated but there was no estimate for water use, so those indirect emissions were not calculated. The proposed project's operation and maintenance GHG emissions from off-



road equipment and on-road vehicle trips was also calculated. Per SCAQMD interim guidance for assessing industrial project impacts, the construction emissions are amortized over the project life, which is considered to be a 50-year period. Table 3.2-11 summarizes total annualized GHG emissions generated from project construction. The CO<sub>2</sub>e emissions are compared against the SCAQMD interim threshold.

**Table 3.2-11. Summary of Project Greenhouse Gas Emission Estimates**

| Emissions Source                             | Annual CO <sub>2</sub> e, tons |
|--|--------------------------------|
| <b>Construction Emissions</b>                |                                |
| On-Road Emissions                            | 296.03                         |
| Off-Road Emissions                           | 443.77                         |
| Electricity Use                              | 0.67                           |
| Total Emissions                              | 740.48                         |
| Amortized Emissions (50 year-life)           | 14.81                          |
| <b>Operation Emissions</b>                   |                                |
| On-Road Emissions                            | 11.26                          |
| Off-Road Emissions                           | 14.61                          |
| Total Operation Emissions (3-year frequency) | 25.87                          |
| Average Annual Operations Emissions          | 8.62                           |
| Total Annual Emissions                       | 23.43                          |
| SCAQMD Significance Threshold                | 10,000                         |
| Exceeds Threshold?                           | NO                             |

Source: Appendix 2; SCAQMD, 2015e

Table 3.2-11 shows that construction of the proposed project would have GHG emissions that are well below the SCAQMD GHG emissions significance criteria. Therefore, the project would have less-than-significant GHG emissions impacts and no mitigation is required (Class III).

***Criterion GCC2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.***

**Impact GCC-2: The Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions (Class III)**

Climate change is a global phenomenon, and the regulatory background and scientific data are changing rapidly. In 2006, the California state legislature adopted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. A number of other federal, state, and local regulations, plans, and policies have been developed recently for the purpose of reducing GHG emissions.

A summary of the compliance with all potentially applicable GHG plans, policies, and regulations is provided in Table 3.2-12. The GHG emissions for the proposed project, as described above, are expected to be minimal during construction and operation. Furthermore, maintenance of the proposed project will not require the installation of new stationary sources of emissions. Therefore, the project is not subject to the federal and state mandatory reporting regulation, the federal 40 CFR Part 52 permitting regulation, or the State Cap-and-Trade regulations.

**Table 3.2-12. Project Consistency with Potentially Applicable Plans, Policies, and Regulations for GHG Emissions**

| Adopted Plan, Policy, or Regulation   | Consistency Determination | Proposed Project Consistency   |
|---|---------------------------|--|
| <b>Federal</b>  |                           |  |
| 40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.   | Not Applicable            | The project would not have emissions sources that would be subject to this regulation.   |
| 40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. | Not Applicable            | The project would not have emissions sources that would be subject to this regulation.   |
| <b>State</b>  |                           |  |
| AB 32. Annual GHG Emissions Reporting   | Not Applicable            | The project does not include emissions sources that would be subject to this regulation.   |
| AB 32. Cap-and-Trade  | Not Applicable            | The project does not include emissions sources that would be subject to this regulation.   |
| <b>Local</b>  |                           |  |
| San Bernardino County Greenhouse Gas Emissions Reduction Plan (SBC, 2011)                                   | Consistent                | The project would not exceed the review standard threshold of 3,000 MT CO <sub>2</sub> e per year and is not subject to the County's performance standards for development or commercial projects. |

The project-related construction sources for which GHG emissions were calculated include off-road diesel construction equipment, on-road trucks, and worker commute vehicles. Per the San Bernardino County Greenhouse Gas Emissions Reduction Plan guidance for assessing project impacts, the construction emissions are amortized over the project life (50-year project life is assumed) in order to determine their contribution to annual emissions over the lifetime of the project. Table 3.2-13 indicates that the annualized GHG emissions are well below the San Bernardino GHG Emissions Reduction Plan review standard threshold of 3,000 MT CO<sub>2</sub>e per year.

**Table 3.2-13. Annual Greenhouse Gas Emission Estimates**

|  | CO <sub>2</sub> e, metric tons |
|--|--------------------------------|
| Total Annual Average Construction and Operation Emissions  | 23.43                          |
| SBC GHG Emissions Reduction Plan Review Standard Threshold | 3,000                          |
| Exceeds Threshold?   | NO                             |

Source: Appendix 2, SBC, 2011.

Table 3.2-14 identifies current potentially applicable California emission reduction strategies to reduce GHGs and identifies the project design feature or mitigation measure that is proposed to comply with these potentially applicable strategies.

**Table 3.2-14. Potentially Applicable California GHG Reduction Strategies**

| Strategy                                       | Project Design/Mitigation to Comply with Strategy   |
|--|---|
| Vehicle Climate Change Standards               | These are ARB enforced standards; vehicles that access the project that are required to comply with the standards would comply with these strategies.   |
| Other Light Duty Vehicle Technology            |   |
| Heavy-Duty Vehicle Emission Reduction Measures |   |
| Diesel Anti-Idling                             |   |
| Construction and Demolition Waste Reduction    | The construction wastes from this project will be reduced through the reuse of materials (dirt and rock) to the extent possible and there will be no concrete or metal wastes to recycle from this project. |
| Increase Water Use Efficiency                  | Not directly applicable to the proposed project. The water use for the project is short-term and limited to that required for fugitive dust control and worker safety.                                      |

Source: OPR, 2008; CAPCOA, 2009.

The Office of the California Attorney General maintains a website with a list of CEQA Mitigations for Global Climate Change Impacts (OAG, 2015). The Attorney General has listed some examples of types of mitigations that local agencies may consider to offset or reduce global climate change impacts from a project. The Attorney General stresses that the presented lists are examples of measures and policies that could be implemented, and are not intended to be exhaustive. Moreover, the measures cited may not be appropriate for every project, so the Attorney General suggests that the lead agency use its own informed judgment in deciding which measures it would analyze, and which measures it would require, for a given project.

The Attorney General suggests energy efficiency measures that could be undertaken or funded by a diverse range of projects, including: renewable energy, water conservation and efficiency, solid waste measures, land use measures, transportation and motor vehicles, and carbon offsets. However, most of the suggested measures would not be applicable to the proposed project because they are more appropriate as measures to reduce long-term operation GHG emissions.

In summary, the proposed project would conform to state and local GHG emissions/climate change regulations and policies/strategies; therefore, the proposed project would have less-than-significant GHG impacts and no mitigation is required (Class III).

### **3.2.4 Level of Significance After Mitigation**

#### **Air Quality**

Air quality impacts are less than significant and require no mitigation (Class III).

#### **Greenhouse Gas Emissions**

Greenhouse gas emissions impacts are less than significant and require no mitigation (Class III).

### 3.3 Biological Resources

This section describes the biological resources on the Rimforest Storm Drain Project site, identifies the environmental and regulatory setting for the construction and operation of the proposed project, evaluates potential impacts to biological resources, and recommends measures to mitigate impacts below a level of significance as needed.

#### 3.3.1 Environmental Setting

The project site located in the San Bernardino Mountains in the unincorporated community of Rimforest. The attenuation basin(s) portion of the project is located on private land and the other project components are located on County road rights-of-way and other unincorporated county land. Land use within the attenuation basin(s) portion of the project site is primarily open space while most of the storm drain alignment is within commercial and residential development. The potential staging area at the west end of the project site is primarily disturbed open space.

Elevation of the project site ranges from approximately 5,400 to 5,700 feet above sea level and the topography varies from relatively flat along the storm drain alignment to a steeper north-sloping canyon at the north end of the attenuation basin(s). There is a spring near the southern end of the attenuation basin(s) where perennial water begins flowing north through the project site. The water eventually leaves the site and continues north in Little Bear Creek down Daley Canyon, through the community of Blue Jay and eventually into Lake Arrowhead. Storm flows originate on SR-18 and flow into the project site, through an incised sandy wash, past the spring, and then follow the route of the perennial flows. The project site is in Township 2 North, Range 3 West, Sections 29 and 30, as shown on the Harrison Mountain 7.5-minute USGS topographic quad.

The San Bernardino Mountains are part of the Transverse Ranges, running generally east-west for about 55 miles. Maximum elevation is about 11,500 feet at Mount San Gorgonio, the highest peak in southern California. The terrain is rugged, with chaparral and shrubland at the lower elevations transitioning to mixed conifer and hardwood forest and conifer forest at the higher elevations. The climate of the mountains is characterized by warm, dry summers and cold, wet winters. Spring and fall are typically cool and wet; fog is common. Average temperatures in the area range from mid-30s in the winter to high 60s in the summer. Precipitation occurs mainly from late fall through early spring; snow is common at the higher elevations. Average annual precipitation is about 40 inches (WRCC, 2015).

#### Methods

For the purposes of biological resource surveys and analysis, the project site is defined as the storm drain alignment, attenuation basin(s), staging areas, utility relocations, and all other permanent and temporary impact areas. The project vicinity is defined as the area within five miles of the project site.

Prior to the biological reconnaissance survey, biologist Justin M. Wood of Aspen Environmental Group (Aspen) reviewed available literature to identify special-status biological resources known from the vicinity of the project site. The literature and databases listed below were reviewed:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CDFW, 2015a) for the following 7.5-minute USGS topographic quads: Lake Arrowhead, Harrison Mountain, San Bernardino North, and Silverwood Lake.

- California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2015), for the topographic quads listed above.
- CDFW Special Animals List (CDFW, 2015b).
- The Jepson (2015) eFlora database of California plants.
- Aerial and street-level photographs (Google, 2015).
- Biological Resources Reports for Church of the Woods Development (County of San Bernardino Land Use Services Department, 2010; Appendix C).
  - Habitat Re-assessment for the Southern Rubber Boa (PCR, 2007a)
  - Results of a Trapping Program for San Bernardino Flying Squirrel (PCR, 2007b)
  - California Spotted Owl Survey (TES, 2007)
  - Results of a Wetland/Jurisdictional Delineation Study for Tentative Parcel Map No. 16155 (TLC, 2005)
  - California Spotted Owl Survey on APN 336-101-006 (BRC, 2005).
  - Opinion Regarding Absence of Southern Rubber Boa from TPM 16155 (TLC, 2003a).
  - Results of Focused 2003 Botanical Surveys Performed on Tentative Parcel Map No. 16155. (TLC, 2003b).
  - 2003 Results of an Andrew's Marble Butterfly Habitat Assessment (TLC, 2003c).
  - Results of 2003 California Spotted Owl Protocol Surveys (TLC, 2003d).
  - Results of a 2003 Mountain Yellow-legged Frog Habitat Assessment (TLC, 2003e).
  - White-eared Pocket Mouse Trapping Survey Church of the Woods, Rimforest, California. (ENVIRA, 2003).
  - Results of a Focused Southern Rubber Boa Surveys (TLC, 2002a).
  - Results of a Mountain Yellow-legged Frog Habitat Assessment (TLC, 2002b).
  - Results of a Biological Constraints Analysis of APN 336-101-006 and APN 336-101-007 (TLC, 2001a).
  - Results of California Spotted Owl Protocol Surveys (TLC, 2001b).
  - Results of an Andrew's Marble Butterfly Habitat Assessment (TLC, 2001c).

Based on review of the literature and databases listed above, and on local expertise with the flora and fauna of the San Bernardino Mountains, lists of special-status plants (Table 3.3-2) and wildlife (Table 3.3-3) with potential to occur on the project site or in the project vicinity were compiled. Plant and wildlife taxa were considered to be special-status species if they were classified in one or more of the categories listed in Table 3.3-1.

**Table 3.3-1. Definitions of Special-Status Species**

| Species Designation  | Agency | Definition  |
|--|--------|---|
| Federal Endangered   | USFWS  | A species that is in danger of extinction throughout all or a significant portion of its range.   |
| Federal Threatened   | USFWS  | A species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.   |
| Federal Candidate  | USFWS  | A species the US Fish and Wildlife Service (USFWS) has designated as a candidate for listing under Section 4 of the federal Endangered Species Act (ESA), published in its annual candidate review, and defined as a species that has sufficient information on its biological status and threats to propose it as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities.   |
| Federal Proposed   | USFWS  | A species that the USFWS has proposed for listing under Section 4 of the ESA, by publishing a Proposed Rule in the Federal Register.  |
| Protected under the federal Bald and Golden Eagle Protection Act (BGEPA) | USFWS  | Bald and golden eagles are protected from take, including harassment, except as permitted by USFWS.   |
| State Endangered   | CDFW   | A species that is in serious danger of becoming extinct throughout all or a significant portion of its range due to one or more causes, including loss or change in habitat, overexploitation, predation, competition, or disease.  |
| State Threatened   | CDFW   | A species that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.   |
| State Candidate  | CDFW   | A species that has been officially noticed by the California Fish and Game Commission as being under review by the CDFW for addition to the threatened or endangered species lists. CDFW candidate species are given no extra legal protection under state laws.  |
| Fully Protected  | CDFW   | Animal species fully protected under the California Fish and Game Code. The CDFW may not issue take authorization except for scientific purposes or as provided under SB 618 (2011).  |
| Species of Special Concern   | CDFW   | <p>A species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:</p> <ul style="list-style-type: none"> <li>Is extirpated from the state or, in the case of birds, in its primary seasonal or breeding role;</li> <li>Is on the federal, but not state list, of threatened or endangered species;</li> <li>Meets the state definition of threatened or endangered but has not formally been listed;</li> <li>Is experiencing or formerly experienced serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status; or</li> <li>Has naturally small populations exhibiting high susceptibility to risk from any factor(s) that if realized, could lead to declines that would qualify it for state threatened or endangered status.</li> </ul> <p>This is an administrative designation and carries no formal legal status. This designation is intended to focus attention on animals at conservation risk, to stimulate research on poorly known species, and to achieve conservation and recovery before these species meet the California Endangered Species Act (CESA) criteria for listing. California Species of Special Concern are considered under the California Environmental Quality Act (CEQA) and require a discussion of impacts and appropriate mitigation to reduce impacts.</p> |



**Table 3.3-1. Definitions of Special-Status Species**

| Species Designation                  | Agency | Definition   |
|--------------------------------------|--------|--|
| Watch List                           | CDFW   | Taxa that were previously Species of Special Concern, but no longer merit that status or which do not meet criteria for designation as Species of Special Concern, but for which there is concern and a need for additional information to clarify status. |
| Special Animal                       | CDFW   | An animal species that is tracked in the CNDDB, but has no other status at the state or federal level.   |
| California Rare Plant Rank (CRPR) 1A | CDFW   | Plants presumed to be extinct in California.   |
| CRPR 1B                              | CDFW   | Plants rare or endangered in California and elsewhere.   |
| CRPR 2A                              | CDFW   | Plants presumed extinct in California but more common elsewhere.   |
| CRPR 2B                              | CDFW   | Plants rare or endangered in California but more common elsewhere.   |
| CRPR 3                               | CDFW   | Plants about which more information is needed – a review list.   |
| CRPR 4                               | CDFW   | Plants of limited distribution – a watch list.   |

A biological survey of the project site was conducted by biologists Justin Wood and Jared Varonin of Aspen on July 6, 2012. Wood conducted additional reconnaissance surveys on May 28 and June 11, 2014 and June 19, 2015. Wood and Varonin also delineated State and federally jurisdictional features of the project site on April 2, 2015. Wood and Patrick Meddaugh of Aspen conducted a habitat assessment, stream sampling, and species inventory of Strawberry Creek and lower Twin Creek on February 10, 2016. During all surveys a species list of all plants and animals was maintained. Taxonomic conventions for plants follow Jepson eFlora (2015) and a Complete List of Amphibian, Reptile, Bird, and Mammal Species in California (CDFG, 2008) for wildlife.

During the biological survey, vegetation was mapped using a Trimble Juno 3B GPS unit and identified on aerial photographs. Field maps were digitized using Geographic Information Systems (GIS) and field verified at the project site. The smallest mapping units were approximately 0.10 acre and most mapped vegetation boundaries are accurate to within approximately 5 feet. Any vegetation map is subject to imprecision for several reasons including: vegetation types tend to intergrade on the landscape so that there are no true boundaries in the vegetation itself, vegetation types as they are named and described tend to intergrade; and vegetation tends to be patchy, so depending on minimum mapping units some patches may or may not be included. Vegetation nomenclature follows A Manual of California Vegetation, Second Edition (Sawyer et al., 2009) with references to the Preliminary Description of the Terrestrial Natural Communities of California (Holland, 1986) whenever applicable.

During the jurisdictional delineation, hydrology was mapped using a Trimble Juno 3B GPS unit and identified on aerial photographs. Field maps were digitized using GIS and field verified at the project site. Non-wetland “waters of the U.S.” were delineated based on the limits of the ordinary high water mark (OHWM) as determined by changes in physical and biological features, such as bank erosion, deposited vegetation or debris, and vegetative characteristics. Jurisdictional wetlands were delineated using a routine determination according to the methods outlined in the USACE Wetland Delineation Manual (1987) and the Arid West Supplement (2008) based on three wetland parameters: dominant hydrophytic vegetation, wetland hydrology, and hydric soils. CDFW jurisdiction was delineated to the top of the banks

of the channel and/or to the edge of the riparian canopy/riparian habitat. For portions of the project site, the CDFW jurisdictional boundary mirrors the OHWM. In some areas, the riparian canopy/riparian habitat extends beyond the OHWM. Therefore, the total acreage of CDFW jurisdictional waters is greater than the combined acreage of federal jurisdictional waters/wetlands.

After vegetation and hydrology data had been collected, GIS files with the permanent and temporary impacts from the project were overlaid to determine the temporary, permanent, and total impacts to each vegetation type and jurisdictional feature. These are presented below in Impact BIO-2 for vegetation and Impact BIO-3 for hydrology. The temporary and permanent impact acreages provided are independent from one another.

During the downstream habitat assessment and stream sampling in Strawberry Creek and lower Twin Creek, a Trimble Juno 3B GPS unit was used to record sampling locations. General notes on habitat suitability throughout the downstream assessment area were recorded. Detailed stream measurements were recorded at seven sampling transects located throughout the downstream assessment area. Numerous parameters were measured and recorded in accordance with portions of the Surface Water Ambient Monitoring Program (SWAMP), a California stream bioassessment protocol (Ode, 2007). Surface flow depth, width, and velocity was also recorded and later used to determine flow velocity at the seven locations. This flow data was then used to model the hydrology of the watershed and is presented in Section 3.6 (Hydrology and Water Quality).

## Results

### Vegetation and Other Cover Types

The storm drain alignment crosses residential and commercial development where little vegetation is present. Vegetation on the attenuation basin(s) portion of the project site is dominated by mixed hardwood and coniferous forests as defined and further described below. The forest has a relatively open understory with a diverse assemblage of annuals, perennials, and shrubs. There is a dense riparian corridor dominated by dogwood trees. There is a small dry sandy meadow just upstream of the riparian corridor that supports some scattered willow trees and is mapped as arroyo willow thickets. Vegetation and other cover types in the project site are shown on Figure 3.3-1 and described below.

**White Fir–Sugar Pine Forest (*Abies concolor* – *Pinus lambertiana* Forest Alliance).** The most common vegetation on the project site is white fir – sugar pine forest. The dominant species are white fir (*Abies concolor*), incense cedar (*Calocedrus decurrens*), and sugar pine (*Pinus lambertiana*). Other tree species that present include Jeffrey pine (*Pinus jeffreyi*), Coulter pine (*Pinus coulteri*), and black oak (*Quercus kelloggii*). Understory species include bracken fern (*Pteridium aquilinum* var. *pubescens*), wax currant (*Ribes cereum*), and numerous annuals and perennials. Some portions of the site better match descriptions of Jeffrey pine forest (*Pinus jeffreyi* Forest Alliance) in Sawyer et al. (2009) but they were too small and interspaced within the white fir- sugar pine forest to delineate. This vegetation best matches the descriptions of upper montane mixed coniferous forest and Jeffrey pine forest in Holland (1986).

**Red Osier Thickets (*Cornus sericea* Shrubland Alliance).** This vegetation is found in the wettest portions of the project site, found in north-sloping canyon bottom. It is dominated by American dogwood (*Cornus sericea*) which is also known as red osier. The American dogwoods are greater than twenty feet in height and form a dense continuous canopy for several hundred feet down the canyon and continuing out of the Project site to the north. Other species present are mountain dogwood (*Cornus nuttallii*), thimbleberry (*Rubus parviflorus*) and mountain pink currant (*Ribes nevadense*). This vegetation matches the description

of montane riparian forest and southern mixed riparian forest in Holland (1986), which are classified as sensitive natural communities (CDFW, 2015a).

**Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance).** This vegetation is found primarily in the dry sandy meadow that lies just upstream of the attenuation basin(s) location. Arroyo willow (*Salix lasiolepis*) is the dominant species, although it has relatively sparse tree cover, with other species such as Mexican elderberry (*Sambucus nigra* ssp. *cerulea*), Douglas mugwort (*Artemisia douglasiana*), mountain pink currant, numerous sedges (*Carex* spp.), and grasses (*Elymus* spp. and *Bromus* spp.) also present. Within the dry meadow there is an incised, largely unvegetated channel that was too narrow to map. This vegetation matches the description of both southern willow scrub southern arroyo willow riparian forest in Holland (1986).

**California Black Oak Forest (*Quercus kelloggii* Forest Alliance).** This vegetation is found at the west end of the storm drain alignment and also just south of the attenuation basin(s). It is dominated by black oak (*Quercus kelloggii*) with other trees such as California bay (*Umbellularia californica*) and incense cedar also present. The understory is dominated by bracken fern and numerous other perennial and annuals. This vegetation best matches the description of black oak forest in Holland (1986). Trees within and adjacent to this vegetation were thinned to reduce fuel load in 2004 (County of San Bernardino Land Use Services Department, 2010).

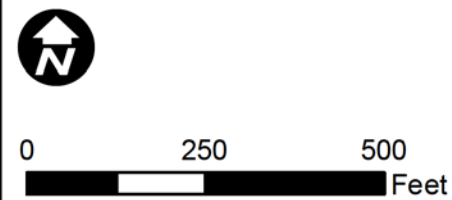
**Developed.** This unvegetated land cover was used to classify areas that are developed or disturbed and lack natural vegetation. Within the project site, these areas include residential and commercial buildings, paved roads, and asphalt parking areas. There are scattered large trees around the buildings and roadways, but otherwise the only plants are ruderal weedy species and ornamental species.








### Sensitive Natural Communities

Two sensitive natural communities are present on the project site: Southern Arroyo Willow Riparian Forest and Southern Mixed Riparian Forest. The areas mapped as Arroyo Willow Thickets meet the definition of the Southern Arroyo Willow Riparian Forest and the Red Osier Thickets meet the definition of Southern Mixed Riparian Forest. Both of these natural communities have a state rank of S2, indicating the community occupies between 2,000 and 10,000 acres in the state and is considered rare in California (CDFG, 2010). These vegetation communities are described above.

In addition, several sensitive natural communities are present in the downstream assessment area on Strawberry Creek and Little Bear Creek. These include areas of Southern Arroyo Willow Riparian Forest and Southern Mixed Riparian Forest as described above. California Sycamore Woodland and Bigcone Douglas Fir Forest were both present in the downstream assessment area. Both of these natural communities have a state rank of S3, indicating that they are considered rare in California (CDFG, 2010).





| Cover Type  |                             |   |
|---|-----------------------------|---|
|  | Arroyo willow thickets      |  Developed                   |
|  | California black oak forest |  Red osier thickets          |
|   |                             |  White fir-sugar pine forest |
|   |                             |  Permanent Impact Area       |
|   |                             |  Temporary Disturbance Area  |

**Figure 3.3-1**

**Vegetation and Cover Type**



### Special-Status Plants

Table 3.3-2 lists the special-status plant species from the region and summarizes their habitat and distribution, conservation status, and potential for occurrence on the project site. The potential for occurrence of each species is assessed based on the following criteria, but may be modified based on professional judgement of the surveying biologist:

- **Present:** Observed on the project site during surveys or previously documented on the project site.
- **High:** Documented in the project vicinity (within about 5 miles) and suitable habitat found on the project site, but not detected on the project site during project-specific biological surveys.
- **Moderate:** Either documented in the project vicinity (within about 5 miles), or suitable habitat found on the project site and the project site is within species' geographic range.
- **Low:** There are no records in the project vicinity (within about 5 miles), the habitat is marginal, or the species is conspicuous and was not detected during biological surveys.
- **Minimal:** There are no records in the project vicinity (within about 5 miles) and the site lacks suitable habitat.

A list of species considered, but determined to be unlikely to occur in the project site is included in Appendix 3b along with the rationale for rejecting these species.

**Table 3.3-2. Special-Status Plants of the Rimforest area.**

| Species   | Status                   | Habitat and Distribution   | Blooming Period | Potential to Occur  |
|---|--------------------------|--|-----------------|---|
| Bear Valley checkerbloom<br><i>Sidalcea malviflora</i> ssp.<br><i>dolosa</i>  | Fed: none<br>Calif: 1B.2 | Perennial herb; meadows and seeps in riparian woodlands and coniferous forests. Restricted to the San Bernardino Mts., about 4900-8800 ft. elev.       | May–August      | <b>Minimal.</b> Marginally suitable habitat, west of nearest known occurrence by 4 mi, not observed.  |
| Common woolly sunflower<br><i>Eriophyllum lanatum</i> var.<br><i>obovatum</i> | Fed: none<br>Calif: 4.3  | Perennial herb; coniferous forests in the San Bernardino Mts., about 3650-8200 ft. elev.   | June–July       | <b>Present.</b> Suitable habitat present, observed on the project site.                               |
| Hall's monardella<br><i>Monardella macrantha</i> ssp.<br><i>hallii</i>        | Fed: none<br>Calif: 1B.3 | Perennial herb; chaparral, hardwood & coniferous forest, and grasslands in S. Calif. mts., 2395-7200 ft. elev.   | June–October    | <b>Low.</b> Suitable habitat present, nearest record roughly 4.5 mi SE of project site, not observed. |
| Laguna Mountains jewelflower<br><i>Streptanthus bernardinus</i>               | Fed: none<br>Calif: 4.3  | Annual or perennial herb; chaparral, hardwood & coniferous forest, about 3900-8100 ft. elev.; mts. of S Calif. (gen. W. half of San Bernardino Mts.).  | May–July        | <b>Present.</b> Suitable habitat present, observed growing on the project site.                       |
| Lemon lily<br><i>Lilium parryi</i>  | Fed: none<br>Calif: 1B.2 | Perennial bulb; meadows and seeps in riparian and coniferous forests in S. Calif. mts., 4000-9000 ft. elev.  | July–August     | <b>Low.</b> Marginal suitable meadow or seep habitat, nearest known occurrence 6 mi. to the east.     |
| Mojave phacelia<br><i>Phacelia mohavensis</i>                                 | Fed: none<br>Calif: 4.3  | Annual; sandy or gravelly soil; dry meadows and streambeds gen. within pine forest in the San Gabriel & San Bernardino Mts., about 4500-8100 ft. elev. | April–August    | <b>High.</b> Suitable habitat present, records from within 0.5 mi., not observed.                     |

**Table 3.3-2. Special-Status Plants of the Rimforest area.**

| Species   | Status                   | Habitat and Distribution  | Blooming Period | Potential to Occur  |
|---|--------------------------|---|-----------------|---|
| Palmer's mariposa-lily<br><i>Calochortus palmeri</i> var. <i>palmeri</i>              | Fed: none<br>Calif: 1B.2 | Perennial bulb; meadows and seeps in chaparral and coniferous forest in S. Calif. mts., about 3280-7840 ft. elev.   | April–July      | <b>Low.</b> Marginal suitable meadow or seep habitat, known from 5 m. north of the project site.                            |
| Parish's alumroot<br><i>Heuchera parishii</i>   | Fed: none<br>Calif: 1B.3 | Perennial herb; rocky areas in coniferous forests and alpine rock fields of the San Bernardino Mts., about 4400-12450 ft. elev.   | June–August     | <b>Low.</b> Minimal suitable habitat present, very few records in the Project vicinity, known within 3 mi. of project site. |
| Parish's yampah<br><i>Perideridia parishii</i> ssp. <i>parishii</i>                   | Fed: none<br>Calif: 2B.2 | Perennial herb; meadows and seeps in coniferous forests of the San Bernardino Mts., about 4800-9800 ft. elev.   | June–August     | <b>Moderate.</b> Marginally suitable meadow or seep habitat, known within 0.5 mi., not observed.                            |
| Plummer's mariposa-lily<br><i>Calochortus plummerae</i>                               | Fed: none<br>Calif: 4.2  | Perennial herb; chaparral, cismontane woodland, coastal scrub, coniferous forests, and grasslands; granitic and rocky areas; much of cismontane S. Calif., about 330-5600 ft. elev. | May–July        | <b>Low.</b> Minimally suitable habitat present, records from project vicinity, not observed.                                |
| San Bernardino aster<br><i>Symphyotrichum defoliatum</i>                              | Fed: none<br>Calif: 1B.2 | Perennial herb; meadows, seeps, springs, and other wet areas in coastal scrub, grasslands, chaparral and woodlands throughout S. Calif., sea level to 6600 ft. elev.                | July–November   | <b>Minimal.</b> Marginally suitable habitat present, no recent records in project vicinity, not observed.                   |
| San Bernardino Mountains owl's-clover<br><i>Castilleja lasiorhyncha</i>               | Fed: none<br>Calif: 1B.2 | Annual; meadows, seeps, and pebble plains in chaparral, coniferous forest, and riparian woodlands of the San Bernardino Mts., about 4200- 7800 ft. elev.                            | May–August      | <b>Moderate.</b> Marginally suitable habitat present, reported from vicinity, not observed.                                 |
| Silver-haired ivesia<br><i>Ivesia argyrocoma</i> var. <i>argyrocoma</i>               | Fed: none<br>Calif: 1B.2 | Pebble plains, seasonal meadows and drainages in the San Bernardino Mts. and one site in Baja Calif., about 4900-8800 ft. elev.   | June–August     | <b>Moderate.</b> Marginally suitable habitat, known from within 0.5 mi. of the project site, not observed.                  |
| Southern jewelflower<br><i>Streptanthus campestris</i>                                | Fed: none<br>Calif: 1B.3 | Generally a biennial herb; shrublands, forests, woodlands, often rocky sites S. Calif. mts., about 2900 -7600 ft. elev.   | May–July        | <b>Moderate.</b> Suitable habitat present, not observed on the project site.  |
| Southern mountains skullcap<br><i>Scutellaria bolanderi</i> ssp. <i>austromontana</i> | Fed: none<br>Calif: 1B.2 | Perennial herb; mesic habitats in chaparral, coniferous forests, and cismontane woodland in S. Calif. mts., about 1400-6500 ft. elev.   | June–August     | <b>Low.</b> Marginal habitat present, known from one location in SB Mtns. over 7 miles NW, not observed.                    |

Source: Baldwin et al., 2012; CDFW, 2015a; CNPS, 2015.

**Status Codes**

**US Fish and Wildlife Service (Fed.) Designations:**

**END:** Federally listed, endangered.

**THR:** Federally listed, threatened.

**Cand.** Candidate: Sufficient data available to support Federal listing, but not yet listed.

**Prop.** Proposed: Candidate species found to warrant listing as either threatened or endangered and officially proposed as such in a Federal Register notice after the completion of a status review and consideration of other protective conservation measures.

**BGEPA:** Bald and Golden Eagle Protection Act.

**California Department of Fish and Wildlife (Calif.) Designations:**

**END:** State listed, endangered.

**THR:** State listed, threatened.

**SCand.** Candidate for state listing.

**SC:** Species of Special Concern: Considered vulnerable to extinction due to declining numbers, limited geographic ranges, or ongoing threats.

**FP:** Fully protected. May not be taken or possessed without permit from CDFW. Also includes protected furbearers.

**SA:** Special Animal: An animal species that is tracked in the CNDDB, but has no other status at the state or federal level.

**California Rare Plant Rank (CRPR) designation**

**1A** Plants presumed extinct in California.

**1B** Plants rare, threatened, or endangered in California and elsewhere.

**2** Plants rare, threatened, or endangered in California, but more common elsewhere.

**3** Plants about which we need more information – a review list.

**4** Plants of limited distribution – a watch list.

**.1** Seriously threatened in California (high degree/immediacy of threat).

**.2** Fairly threatened in California (moderate degree/immediacy of threat).

**.3** Not very threatened in California (low degree/immediacy of threats or no current threats known).

**CNDDB California State (S) Ranks**

**S1** Extremely endangered: <6 viable occurrences (EOs) or < 1,000 individuals, or 2,000 acres of occupied habitat.

**S2** Endangered: about 6-20 EOs or 1-3,000 individuals, or 2,000-10,000 acres of occupied habitat.

**S3** Restricted Range, rare: about 21-100 EOs or 3,000-10,000 individuals, or 10,000-50,000 acres of occupied habitat.

**S4** Apparently Secure: some factors exist to cause some concern such as narrow habitat or continuing threats.

**S5** Demonstrably Secure: commonly found throughout its historic range.

A question mark may be added to S ranks to indicate there is some uncertainty as to status.

**Listed Threatened or Endangered Plant Species.** Federally or state-listed threatened or endangered plant species were not observed on the project site during the field survey. There is no potential habitat for listed plant species on the project site because all listed species of the San Bernardino Mountains are restricted to carbonate soils, pebble-plain, alkali lake beds, or mesic montane meadows, primarily in the eastern half of the San Bernardino Mountains. There are no carbonate soils or pebble-plain on the project site and the nearest occurrences of these habitats are well over ten miles to the east. The listed meadow species are restricted to meadow habitats that are much further east of the project site and are not known from meadows in the vicinity of the project (CDFW, 2015a). The project site is not within designated critical habitat for any federally listed threatened or endangered plant species.

**Other Special-Status Plant Species.** Two special-status plants, each with a CRPR of 4, were observed on the project site during surveys. These are common woolly sunflower (*Eriophyllum lanatum* var. *obovatum*) and Laguna Mountains jewelflower (*Streptanthus bernardinus*). The common woolly sunflower was reported by (County of San Bernardino Land Use Services Department, 2010) but was not observed during the most recent surveys. It is probably still present in low numbers within the project site. Laguna Mountains jewelflower was observed at a few locations along Little Bear Creek in Daley Canyon within and immediately adjacent to the project site.

Three additional plant species with a CRPR 1B have a moderate potential to be present on the project site: San Bernardino Mountains owl's-clover (*Castilleja lasiorhyncha*), southern jewelflower (*Streptanthus campestris*), and silver-haired ivesia (*Ivesia argyrocoma* var. *argyrocoma*). In addition, Parish's yampah (*Perideridia parishii* ssp. *parishii*), a CRPR 2, and Mojave phacelia (*Phacelia mohavensis*), CRPR 4, are known from the immediate vicinity and may be present on the project site. There is suitable habitat for several additional special-status plant species; however, their likelihood of occurrence is either low or minimal; see Table 3.3-2.



## Common Wildlife

Common wildlife species found on the project site include reptiles such as western fence lizards (*Sceloporus occidentalis*) and Southern alligator lizard (*Elgaria multicarinatus*); birds such as Stellar's jay (*Cyanocitta stellari*), common raven (*Corvus corax*), mountain chickadee (*Parus gambeli*), American robin (*Turdus migratorius*), dark-eyed junco (*Junco hyemalis*), and house finch (*Carpodacus mexicanus*); and small mammals such as deer mouse (*Peromyscus maniculatus*) and western gray squirrel (*Sciurus griseus*). Larger mammals such as mule deer (*Odocoileus hemionus*) and black bear (*Ursus americanus*) probably forage on the project site. Common passerines (perching birds) are likely to nest in trees and shrubs on the project site. Common bat species may roost in the trees or snags within the project site.

## Nesting Birds

Nesting birds are protected under the federal Migratory Bird Treaty Act and California Fish and Game Code. The project site has many trees, shrubs, and some rocky outcrops, as well as buildings (i.e., homes and other structures along the storm drain alignment) that may provide nesting habitat. At this elevation, most birds start nesting in April or May. Several active bird nests were observed on the project site including mountain chickadees and dark-eyed juncos. One special-status bird species, California spotted owl, may nest in more secluded portions of the project site (TES, 2007).

## Special-Status Wildlife

Table 3.3-3 lists the special-status wildlife species known from the region and summarizes their habitat, conservation status, and potential for occurrence on the project site. The potential for occurrence is assessed based on the same criteria as listed under *Special-Status Plants* above. A list of special-status wildlife considered, but determined to be unlikely to occur in the project site is included in Appendix 3b along with the rationale for excluding each species from further discussion.

**Table 3.3-3. Special-Status Wildlife Potentially Occurring on the Project Site**

| Species  | Status                        | Habitat  | Potential to Occur   |
|--|-------------------------------|--|--|
| <b>INVERTEBRATES</b>   |                               |  |  |
| Andrew's marble butterfly<br><i>Euchloe hyantis andrewsi</i> | Fed: none<br>Calif: SA,<br>S1 | Shrubland, woodland, about 5000-6000 ft. elev.; endemic to San Bernardino Mtns.; several mustard family larval food plants.  | <b>High.</b> Two larval food plants are present. Type locality nearby.   |
| <b>FISHES</b>  |                               |  |  |
| Santa Ana sucker<br><i>Catostomus santaanae</i>              | Fed: THR<br>Calif: SC         | Endemic to the Los Angeles, San Gabriel, and Santa Ana Rivers; habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.  | <b>Minimal.</b> Believed extirpated from the upper Santa Ana River, last documented in 1982 in City Creek. Suitable habitat present in the upper Strawberry Creek watershed, south of project site. No suitable habitat on the project site.   |
| Arroyo chub<br><i>Gila orcuttii</i>                          | Fed: none<br>Calif: SC        | Major cismontane stream systems in S Calif. incl. Santa Ana River; extant populations near Riverside and down-stream. Introduced into various sites in CA outside its native range, including the Mojave River where it has hybridized with the Mohave tui chub. Prefers slow water stream sections with mud or sand bottom. | <b>Minimal.</b> Populations in the Mojave River and tributaries are introduced. Known to occur in several tributaries to the Santa Ana River, but not currently known from the Twin Creek watershed. Suitable, but unfavorable, habitat is present in the upper Strawberry Creek watershed south of project site. No suitable habitat on the project site. |

**Table 3.3-3. Special-Status Wildlife Potentially Occurring on the Project Site**

| Species   | Status                      | Habitat  | Potential to Occur   |
|---|-----------------------------|--|--|
| Santa Ana speckled dace<br><i>Rhinichthys osculus</i> spp.<br>3                         | Fed: none<br>Calif: SC      | Headwaters of the Santa Ana and San Gabriel Rivers; requires permanent flowing streams with temperatures between 17-20 degrees C; usually inhabits shallow cobble and gravel riffle.   | <b>Minimal.</b> Occured in upper Strawberry Creek and Twin Creek watersheds south of project site until 2005. Now considered extirpated from the watershed. No suitable habitat on the project site.   |
| <b>AMPHIBIANS</b>   |                             |  |  |
| California red-legged frog<br><i>Rana draytonii</i>                                     | Fed: THR<br>Calif: SC       | Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation; requires 11-20 weeks of permanent water for larval development; must have access to aestivation habitat.        | <b>Minimal.</b> Most recent occurrence (1988) along west fork City Creek. Many occurrences in southern California have been extirpated. Suitable habitat may be present in the upper Strawberry Creek watershed south of the project site. No suitable deep water habitat on the project site. |
| San Gabriel slender salamander<br><i>Batrachoseps gabrieli</i>                          | Fed: none<br>Calif: SA, S2  | Mesic canyons and talus slopes, cismontane San Gabriel and San Bernardino Mtns; about 3000 - 5000 ft. elev.  | <b>Low.</b> Occurs in Waterman Canyon roughly 3.5 miles W of project site, marginally suitable habitat present.  |
| Southern mountain yellow-legged frog<br><i>Rana muscosa</i>                             | Fed: END<br>Calif: END      | Inhabit perennial mountain streams (i.e. streams that contain plunge pools or backwaters year-round) with steep gradients; found at moderate to high elevations; tadpoles may require 2-4 years to complete their aquatic development. | <b>Minimal.</b> Few occurrences in region, restricted to City Creek in the SB Mtns, suitable habitat present in the upper Strawberry Creek watershed south of the project site. No suitable habitat on the project site.   |
| <b>REPTILES</b>   |                             |  |  |
| Coast horned lizard<br><i>Phrynosoma blainvillii</i>                                    | Fed: none<br>Calif: SC      | Forest, shrubland or grassland with sandy areas; W Calif. from LA Co. S through Baja Calif., below ±6000 ft. elev.   | <b>Low.</b> Very limited suitable habitat present.   |
| San Bernardino Mountain kingsnake<br><i>Lampropeltis zonata parvirubra</i>              | Fed: none<br>Calif: SC      | Forests and chaparral with rock outcrops or talus, often riparian, about 1200 – 8100 ft. elev.; San Gabriel, San Bern, San Jacinto Mtns.   | <b>High.</b> Suitable habitat present, not observed, known from the area.  |
| San Bernardino ringneck snake<br><i>Diadophis punctatus modestus</i>                    | Fed: none<br>Calif: SA, S2? | Gen. open, rocky areas; woodlands, shrublands, grasslands below about 7000 ft. elev.; Ventura, LA, Orange, SW San Bern. & W Riverside Cos.   | <b>High.</b> Suitable habitat present, records in project vicinity, not observed.  |
| Silvery legless lizard<br><i>Anniella pulchra pulchra</i> ( <i>Anniella stebbinsi</i> ) | Fed: none<br>Calif: SC      | Mtns and valleys, Bay Area to N Baja (excluding desert); shrublands and woodlands, loose soils and leaf litter, below about 6500 ft. elev.   | <b>High.</b> Suitable habitat present, not observed; no records in project vicinity, but species is highly cryptic.  |
| Southern rubber boa<br><i>Charina umbratica</i>   | Fed: none<br>Calif: THR     | Montane forest and woodland; Mt. Pinos, San Bernardino and San Jacinto Mtns; usually cool, moist areas w/ deep rocky crevices (no records in San Gabriel Mtns but habitat and elev. seem suitable).                                    | <b>High.</b> Suitable habitat present, not observed; one record from within 0.5 miles of the project site (CNDDB, 2015).   |

**Table 3.3-3. Special-Status Wildlife Potentially Occurring on the Project Site**

| Species  | Status                        | Habitat  | Potential to Occur   |
|--|-------------------------------|--|--|
| Two-striped garter snake<br><i>Thamnophis hammondi</i>           | Fed: none<br>Calif: SC        | Highly aquatic; found in or near permanent fresh water; often along streams with rocky beds and riparian growth  | <b>Moderate.</b> This species is known from most of the creeks along the cismontane slope of the San Bernardino Mts. Suitable habitat present and species is likely to occur in upper Strawberry Creek watershed south of the project site. Intermittent creek on project site provides marginally suitable habitat.                   |
| <b>BIRDS</b>   |                               |  |  |
| American peregrine falcon<br><i>Falco peregrinus anatum</i>      | Fed:<br>Delisted<br>Calif: FP | Nests on high cliffs, generally near water bodies. Will occasionally nest in tree cavities or on tall buildings or other structures. Has been reported nesting on transmission towers. May use abandoned nests of other raptors. Feeds on birds (especially shorebirds & waterfowl). Widespread, but rare worldwide. | <b>Moderate.</b> Minimal suitable nesting habitat, likely to fly over the project site, seen regularly in the vicinity of the project site, not known to nest in the vicinity.   |
| Bald eagle<br><i>Haliaeetus leucocephalus</i>                    | Fed:<br>BGEPA<br>Calif: END   | Breed in large trees, usually near major rivers or lakes; winters more widely; scattered distribution in N America; esp. coastal regions; formerly federally listed, delisted in 2007  | <b>Moderate.</b> No suitable nesting habitat, likely to fly over the project site, seen regularly at Lake Gregory roughly 2.5 miles to the northwest.  |
| California horned lark<br><i>Eremophila alpestris actia</i>      | Fed: none<br>Calif: SA,<br>S3 | Open, flat lands incl. sparse sagebrush or grassland, meadows, alkali flats; wide elev. range; breeds in western Calif (San Diego Co through Humboldt Co) and Baja Calif; winters in same range.   | <b>Low.</b> Minimal suitable habitat, not observed.  |
| California spotted owl<br><i>Strix occidentalis occidentalis</i> | Fed: none<br>Calif: SC        | Nests and forages year-around in dense conifer, oak, or (sometimes) riparian forest; Sierra Nevada, cent & S Coast Ranges, S Calif mtns.   | <b>Present.</b> Observed on the project site in 2007 (TES).  |
| Golden eagle<br><i>Aquila chrysaetos</i>                         | Fed:<br>BGEPA<br>Calif: FP    | Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Golden eagles in the western U.S. are year-round residents.   | <b>Moderate.</b> No suitable nesting habitat may fly over the project site, seen occasionally in the vicinity of the project site.   |
| Least Bell's vireo<br><i>Vireo bellii pusillus</i>               | Fed: END<br>Calif: END        | Summer resident of southern California in low riparian habitats in vicinity of water or dry river bottoms; found below 2000 ft.; nests placed along margins of bushes or on twigs projecting into pathways, usually willow, mesquite, baccharis.   | <b>Minimal.</b> Known from numerous locations along the cismontane slope of the San Bernardino Mtns. Suitable habitat is present in upper Strawberry Creek watershed, but most of the watershed is at or above the limits of their elevation range. No suitable habitat on the project site and site is known above elevational range. |

Table 3.3-3. Special-Status Wildlife Potentially Occurring on the Project Site

| Species   | Status                       | Habitat   | Potential to Occur   |
|---|------------------------------|---|--|
| Southwestern willow flycatcher<br><i>Empidonax traillii extimus</i> | Fed: END<br>Calif: END       | Breeds in dense riparian forests & shrublands, esp. in willows; scattered locations in Calif. and N Baja; near sea level to about 8000 ft. elev; winters in Cent. Amer. | <b>Minimal.</b> Known from several recent records in the region, including occurrences at San Timoteo Canyon, Cooper's Creek, Thurman Flats Picnic area, and Big Bear Lake. No recent records in the vicinity of the Twin Creek watershed. Suitable habitat is present in the upper Strawberry Creek watershed south of the project site. No suitable nesting habitat on the project site, not detected. |
| Yellow warbler<br><i>Setophaga petechia</i>                         | Fed: none<br>Calif: SC       | Riparian plant associations; prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging   | <b>Moderate.</b> Occurs along most creeks on cismontane slope of San Bernardino Mtns. Suitable habitat is present and species is likely to occur in the upper Strawberry Creek watershed south of the project site. Suitable habitat present on project site.  |
| <b>MAMMALS</b>  |                              |   |  |
| American badger<br><i>Taxidea taxus</i>                             | Fed: none<br>Calif: SC       | Mountains, deserts, interior valleys where burrowing animals are avail as prey and soil permits digging; throughout cent and W N Amer.                                  | <b>Moderate.</b> Project site may provide suitable foraging habitat, record from less than 5 mi northeast of project site.   |
| Fringed myotis<br><i>Myotis thysanodes</i>                          | Fed: none<br>Calif: SA, S4   | Four-corners states through Calif., Pacific NW, and mainl. Mexico; arid forests & woodl. gen. 4000-7000 ft. elev.; roost in caves, buildings, & rock crevices.          | <b>High (foraging).</b> Suitable foraging habitat present.<br><b>Minimal (roosting).</b> No suitable roosting sites present.   |
| Hoary bat<br><i>Lasiurus cinereus</i>                               | Fed: none<br>Calif: SA, S4?  | Common and widespread, found in a wide range of habitats, roosts in dense foliage of medium to large trees and forages in open areas or habitat edges.                  | <b>High (foraging).</b> Suitable foraging habitat present.<br><b>Moderate (roosting).</b> Suitable roosting sites present.   |
| Lodgepole chipmunk<br><i>Neotamias speciosus speciosus</i>          | Fed: none<br>Calif: SA, S2S3 | Pine forest, sometimes montane chaparral, above about 6400 ft. elev.; San Jacinto, San Bernardino, S Sierra, maybe San Gabr. Mtns.                                      | <b>Low.</b> Suitable habitat present, below elevation range.   |
| Long-eared myotis<br><i>Myotis volans</i>                           | Fed: none<br>Calif: SA, S4?  | W N America, SE Alaska to Mexico; arid woods; wide elev. range; roost in buildings, crevices, trees; forage over water and in forest openings.                          | <b>High (foraging).</b> Suitable foraging habitat present.<br><b>Minimal (roosting).</b> No suitable roosting sites present.   |
| Long-legged myotis<br><i>Myotis evotis</i>                          | Fed: none<br>Calif: SA, S4?  | W North America, British Columbia to N Baja; montane & coastal conifer forests; roosts in trees, buildings and caves; forage in woods & over water.                     | <b>High (foraging).</b> Suitable foraging habitat present.<br><b>Moderate (roosting).</b> Suitable roosting sites present.   |
| Pocketed free-tailed bat<br><i>Nyctinomops femorosaccus</i>         | Fed: none<br>Calif: SC       | Arid areas of Calif. and the SW US; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian; roosts on high cliffs.                              | <b>Low (foraging).</b> Very few record in southern California.<br><b>Minimal (roosting).</b> No suitable roosting sites present.   |
| Ringtail<br><i>Bassariscus astutus</i>                              | Fed: none<br>Calif: FP       | Most of Calif and the SW US, to tropical Mexico; forests, woodlands, deserts; nocturnal; dens in burrows, trees, or rock crevices.                                      | <b>Moderate.</b> Suitable habitat present; not tracked in the CNDDDB, but known from the area.   |

**Table 3.3-3. Special-Status Wildlife Potentially Occurring on the Project Site**

| Species   | Status                         | Habitat   | Potential to Occur   |
|---|--------------------------------|---|--|
| San Bernardino flying squirrel<br><i>Glaucomys sabrinus californicus</i>          | Fed: none<br>Calif: SC         | Mesic forest w/ white fir & black oak, above about 5200 ft. elev.; San Bernardino and San Jacinto Mtns (expected in San Gabriel Mtns).                  | <b>Present.</b> Suitable habitat present, documented on the project site in 2001 (Envira, 2003).                                 |
| Small-footed myotis<br><i>Myotis ciliolabrum</i>                                  | Fed: none<br>Calif: SA, S2S3   | Much of W North America, wide elev. range; roost in caves, rock crevices, buildings, bridges; forage over water and in open woods; hibernate in winter. | <b>High (foraging).</b> Suitable foraging habitat present.<br><b>Minimal (roosting).</b> No suitable roosting sites present.     |
| Townsend's big-eared bat (incl. all subspecies)<br><i>Corynorhinus townsendii</i> | Fed: none<br>Calif: Scand., SC | Many habitats throughout Calif and W N Amer, scattered pop'ns in E; day roosts in caves, tunnels, mines; feed primarily on moths.                       | <b>High (foraging).</b> Suitable foraging habitat present.<br><b>Minimal (roosting).</b> No suitable roosting sites present.     |
| Western mastiff bat<br><i>Eumops perotis californicus</i>                         | Fed: none<br>Calif: SC         | Lowlands (rare exceptions); cent. and S. Calif., S Ariz., NM, SW Tex., N. Mexico; roost in deep rock crevices, forage over wide areas.                  | <b>High (foraging).</b> Suitable foraging habitat present.<br><b>Minimal (roosting).</b> No suitable roosting sites present.     |
| White-eared pocket mouse<br><i>Perognathus alticolus alticolus</i>                | Fed: none<br>Calif: SC         | Patches of grass or ferns, historically from San Bernardino Mts, Running Springs and west, evidently now extinct.                                       | <b>Minimal.</b> Suitable habitat present, believed extirpated or extinct.  |
| Yuma myotis<br><i>Myotis yumanensis</i>   | Fed: none<br>Calif: SA, S4?    | W North America, British Columbia to central Mexico; roost in buildings, bridges, caves, mines; feed over open water.                                   | <b>High (foraging).</b> Suitable foraging habitat present.<br><b>Low (roosting).</b> Marginally suitable roosting sites present. |

Source: CDFW, 2015a; eBird, 2015.  
Key to status codes at bottom of Table 3.3-2.

**Listed Threatened or Endangered Wildlife Species.** Federal- or state-listed threatened or endangered wildlife species were not observed on the project site during any of the field surveys. Southern rubber boa (*Charina umbratica*) and bald eagle (*Haliaeetus leucocephalus*) are the only listed species with potential to occur on the project site. There is no designated critical habitat for any federally listed species on the project site.

The southern rubber boa is a state-listed threatened species. It generally occurs in mesic (relatively moist) montane forests above about 5,000 feet elevation. The southern rubber boa is secretive and takes cover under rotting logs and other surface debris. It is mainly crepuscular (active at dawn and dusk) or nocturnal. During the cooler months, the southern rubber boa is inactive and remains in underground hibernacula, often located in rock outcrops. In the San Bernardino Mountains, most observations have been in the western part of the range around Lake Arrowhead and Running Springs and in the Barton Flats area. There are also a few records in the Big Bear Lake area. The CNDDDB lists several occurrences of this species in the Harrison Mountain USGS topo quad (CDFW, 2015a). One of these occurrences was from Daley Canyon, within 0.5 miles of the Project site (CDFW, 2015a). The Biotic Resources Overlay maps in the San Bernardino County Development Code depict habitat for southern rubber boa throughout the project site (County of San Bernardino Land Use Services Department, 2007). There is suitable habitat for southern rubber boa in the project site, and it has a high potential to occur.

The bald eagle is a state-listed endangered species and is protected under the Bald and Golden Eagle Protection Act (BGEPA). It generally nests near large bodies of water or free flowing rivers with abundant fish for foraging and adjacent tall trees, snags, or rocks for perching. It primarily eats fish, but will also take birds, mammals, and carrion if available. Nests are usually located near a permanent water source and

placed in tall trees or on cliffs. Bald eagles roost communally in winter in dense, sheltered, remote conifer stands (Zeiner et al., 1990). Bald eagles have been documented regularly at Lake Gregory and Lake Arrowhead and have also been observed flying over the project site (eBird, 2015). There is suitable upland foraging habitat and roosting sites on the project site. Bald eagles winter at many of the lakes in southern California, including lakes throughout the San Bernardino Mountains. Bald eagles have successfully nested at Big Bear Lake in the San Bernardino Mountains in recent years (CNDDDB, 2015). They have attempted nesting in other more remote areas of the San Bernardino Mountains, including in Lake Silverwood watershed (Stephenson and Calcarone, 1999). It is unlikely that bald eagles would nest at or near the Project site due to proximity to human activities and distance to a large body of water. Bald eagles are likely to fly over the project site and have a moderate potential to use the project site for upland foraging and roosting.

**Other Special-status Wildlife Species.** Two special-status wildlife species were observed on the project site during previous focused biological surveys: California spotted owl (*Strix occidentalis occidentalis*) and San Bernardino flying squirrel (*Glaucomys sabrinus californicus*). No special-status wildlife species were observed on the project site during the most recent reconnaissance surveys. In addition to California spotted owl and San Bernardino flying squirrel, numerous other California Species of Special Concern, Fully Protected species, and Special Animals have at least a moderate potential for occurrence. In addition, several special-status bats could occur. There is suitable habitat for several additional special-status wildlife species on the site; however, their likelihood of occurrence is either low or minimal because of lack of suitable roosting or foraging habitats (see Table 3.3-3).

The California spotted owl (*Strix occidentalis occidentalis*) is a CDFW Species of Special Concern. It nests in dense, shaded mature forests throughout portions of the San Bernardino Mountains, in mature forest stands with multi-layered canopies usually consisting of hardwoods and conifers (Stephenson and Calcarone 1999). The nests are found in cavities or limbs of large trees. California spotted owl is a year-round resident (i.e., non-migratory) and feeds primarily on small mammals such as wood rats. The California spotted owl is not heat-tolerant and apparently requires shaded roost sites during summer. Foraging habitat is generally similar to breeding habitat, but may be more open (Davis and Gould, 2008). The project site is three miles east of the Spotted Owl Habitat Overlay (Open Space Overlay 18) in the San Bernardino County Development Code (San Bernardino County Land Use Services Department, 2007). During focused surveys for California spotted owl in 2007 an adult spotted owl was observed on three occasions on or immediately adjacent to the project site (TES, 2007). On one of the surveys the owl was followed off site and a nest was located roughly one half mile to the southeast of the project site (TES, 2007). The project site provides foraging habitat for California spotted owls. There is a moderate potential for nesting on the project site.

The San Bernardino flying squirrel (*Glaucomys sabrinus californicus*) is a CDFW Species of Special Concern. It is found in conifer and hardwood forests from about 3,900 to 8,200 feet elevation, usually in mature forest stands dominated by black oak and white fir. It nests in tree cavities and also builds stick nests in trees. It eats acorns and other tree seeds, wild fruits, insects, fungi, and tree sap. It typically mates in early March with young being born between May and July (Wells-Gosling and Heany, 1984). The young typically leave the nest in two months (Wells-Gosling and Heany, 1984). The San Bernardino flying squirrel is nocturnal and secretive, and therefore rarely seen. It occurs in low-density residential areas and organization camps, but may be absent from more densely developed areas (Stephenson and Calcarone, 1999). The Biotic Resources Overlay maps depict habitat for San Bernardino flying squirrel throughout the surrounding area (San Bernardino County Land Use Services Department, 2007). San Bernardino flying squirrels were captured twice on or immediately adjacent to the project site during small mammal



trapping in 2001 (Envira, 2003). The project site provides suitable flying squirrel foraging and nesting habitat and is occupied at least for foraging.

Several special-status bat species (Townsend's big-eared bat, hoary bat, long-eared myotis, fringed myotis, small-footed myotis, long-legged myotis, Yuma myotis, and western mastiff bat) have been documented within the San Bernardino National Forest (Miner and Stokes, 2005) and could use the site for foraging or roosting. Most special-status bats roost primarily in caves, abandoned mine shafts, or old buildings. Others may roost in rock crevices or tree cavities, bark crevices, or foliage. Townsend's big-eared bat is a California species of special concern and a candidate for state listing as threatened. The red bat and western mastiff bat are California species of special concern, while the other species are ranked as "special animals." Occurrence potential for all special-status bats is addressed in Table 3.3-3.

Other California Species of Special Concern with a moderate or high potential to occur on the project site are San Bernardino Mountain kingsnake (*Lampropeltis zonata parvirubra*), silvery legless lizard (*Anniella pulchra pulchra*), two-striped garter snake (*Thamnophis hammondi*), yellow warbler (*Dendroica petechia brewsteri*), and American badger (*Taxidea taxus*). Two Fully Protected species, the ringtail (*Bassariscus astutus*), the American peregrine falcon (*Falco peregrinus anatum*), and two Special Animals, Andrew's marble butterfly (*Euchloe hyantis andrewsi*) and San Bernardino ringneck snake (*Diadophis punctatus modestus*), also have moderate to high potential for occurrence; see Table 3.3-3.

### Wildlife Movement

The ability for wildlife to move freely among populations is important to long-term genetic variation and demography. Fragmentation and isolation of natural habitat may cause loss of native species diversity in fragmented habitats. In the short term, wildlife movement may also be important to individual animals' ability to occupy their home ranges, if their ranges extend across a potential movement barrier. These considerations are especially important for rare, threatened, or endangered species, and wide-ranging species such as large mammals, which exist in low population densities.

The California Essential Habitat Connectivity Project was commissioned by the California Department of Transportation (Caltrans) and CDFW to create a statewide assessment of essential habitat connectivity for conservation and infrastructure planning (Caltrans and CDFW, 2010). One of its goals was to create the Essential Connectivity Map, which depicts large, relatively natural habitat blocks that support native biodiversity (natural landscape blocks) and areas essential for ecological connectivity between them (essential connectivity areas). This map does not reflect the needs of particular species, but is based on overall biological connectivity and ecological integrity. A more detailed analysis is required to assess local and regional needs for connectivity and develop linkage designs based on the requirements of individual species (Caltrans and CDFW, 2010).

The Essential Connectivity Map (Caltrans and CDFW, 2010) identifies several natural landscape blocks within the San Bernardino Mountains with essential connectivity areas in some of the more developed areas. The project site is entirely within an essential connectivity area which connects a natural landscape block just to the south of State Highway 18 with natural landscape blocked to the northeast and northwest of the project site.

The western portion of the project site lies within the Strawberry Creek Wildlife Corridor. This wildlife corridor is identified in the San Bernardino County Open Space Overlays (San Bernardino County Land Use Services Department, 2007). The Strawberry Creek Wildlife Corridor was established to connect the Strawberry Creek drainage to the south with habitat further to the north (Corridor 16). The County Plan states that Open space should be maintained in this area to preserve habitat values.

## Jurisdictional Waters and Wetlands

A delineation of jurisdictional waters and wetlands was conducted by Aspen biologists on April 2, 2015, and concludes that jurisdictional waters and wetlands are present. There is a spring near the southern end of the attenuation basin(s) where perennial water begins flowing north through the project site. The water eventually leaves the site and continues north in Little Bear Creek down Daley Canyon, through the community of Blue Jay and eventually into Lake Arrowhead. Storm flows originate on State Highway 18 and flow into the project site, through an incised sandy wash, past the spring, and then follow the route of the perennial flows. Lake Arrowhead is jurisdictional therefore all connected channels will be federally jurisdictional. The jurisdictional delineation report is attached to this report.

## Water Diversion

**Strawberry Creek.** The headwaters of Strawberry Creek drain from the southern vicinity of the community of Rimforest into Twin Creek approximately 4.5 miles downstream; Twin Creek enters a flood control facility 1.8 miles further downstream. Approximately 7 miles further downstream, Twin Creek confluences with the Santa Ana River south of San Bernardino. The project would restore 47 acre-feet per year (afy) of flows that would otherwise enter Strawberry Creek (Santa Ana River watershed) into Little Bear Creek (Mojave River watershed), with flows occurring in direct response to precipitation events and snowmelt runoff (Bonadiman, 2010).

The Strawberry Creek watershed (2,817 acres) is part of the larger East Twin Creek watershed (5,631 acres) and the Santa Ana River watershed (98,048 acres). The Rimforest drainage area to be restored under the proposed project is 77 acres in size, or approximately 2.7 percent of the size of the Strawberry Creek watershed, and 1.4 percent of the size of the East Twin Creek watershed (Bonadiman, 2010).

Existing flow through the East Twin Creek watershed is 1,921 afy. The existing flow through the Rimforest drainage area (47 afy) to be restored under the proposed project represents approximately 2.4 percent of total flows through East Twin Creek watershed (which includes Strawberry Creek) (Bonadiman, 2010).

Flow data was recorded at seven downstream locations within the East Twin Creek Watershed (including the Strawberry Creek Watershed). Using this flow data flow modeling was done to determine what impacts the proposed project would have on downstream flow volumes. Based on this assessment the proposed project would result in the following decreases of flow volume (see Table 3.3-4).

**3.3-4 Table. Downstream Flow Volumes and Proposed Changes.**

| Transect Number | Distance downstream (miles) | Watershed area above transect (square miles) | Winter low-flow water volume (cfs) | Decrease in volume resulting from project (%). | Decrease in depth resulting from project (%). |
|-----------------|-----------------------------|--|------------------------------------|--|---|
| 1               | 0.75                        | 0.31   | 0.33                               | 24   | 38  |
| 2               | 1.70                        | 0.95   | 1.93                               | 7  | 13  |
| 3               | 2.35                        | 1.83   | 0.96                               | 4  | 6   |
| 4               | 4.0                         | 4.30   | 2.85                               | 2  | 4   |
| 5               | 4.6                         | 8.19   | 3.13                               | 1  | 2   |
| 6               | 5.25                        | 9.06   | 7.75                               | 1  | 2   |
| 7               | 6.00                        | 9.35   | 4.23                               | 1  | 0   |

The project is designed to substantially reduce existing rates of erosion and susceptibility to landslide hazards in southern Rimforest; in doing so, the project would also reduce siltation/sedimentation in the Strawberry Creek drainage associated with sediment-laden surface runoff from the landslide area. The

upstream-most one mile of the upper Strawberry Creek drainage has heavy sedimentation and very little riparian vegetation. During the habitat assessment, heavy sedimentation, more than 10 feet thick, was observed in this portion of the watershed. Young riparian vegetation had recently been pushed down and covered by the sediment. This upstream portion of the watershed has some potential to support riparian vegetation, but periodic sediment deposition appears to prevent long-term establishment. Downstream of this area, the sediment load decreases and the amount of vegetation increases. The recent sediment deposition continued downstream to just below the confluence of Strawberry and Twin Creeks where sand had recently been deposited, covering much of the pool habitat and potentially deteriorating some of the aquatic habitat.

Starting at approximately 1.25 miles downstream of the community of Rimforest, Strawberry Creek turns in a southwesterly direction and descends steeply through a narrow canyon. This canyon has several waterfalls with drops greater than five feet, which would prevent aquatic species from moving upstream through this canyon. In addition, the canyon has a very heavy sediment load and riparian vegetation is nearly absent. At approximately 1.75 miles downstream, the creek joins an unnamed tributary that enters from the west. At this point, riparian vegetation, dominated by white alders (*Alnus rhombifolia*), becomes intermittent and the first obligate wetland plant species, such as wrinkled rush (*Juncus rugulosus*), become established. This indicates that this reach of the creek likely has water present most of the year. The expected change in flow volume at this location due to project implementation would be a decrease of approximately seven percent and depth may decrease by 13 percent (see Table 3.3-4). Because this section does not appear to provide perennial aquatic habitat and the riparian vegetation is relatively sparse, these changes would have a less-than-significant impact on biological resources.

Further downstream at approximately 2.35 miles, the creek turns to the southwest again and descends steeply down the canyon. At this location, the first aquatic species, California tree frog (*Pseudacris cadaverina*), was observed, indicating that perennial water is likely to be present. Riparian vegetation was still sparse within this reach and was dominated with white alder and scattered willows (*Salix* spp.). Access below this point was very difficult, but the creek appears to run southwest for one mile before it confluences with an additional unnamed eastern tributary. At this point, the riparian vegetation becomes denser and may support suitable nesting habitat for southwestern willow flycatcher (*Empidonax traillii extimus*). The expected change in flow volume at this location would be a decrease of approximately four percent and depth may decrease by six percent (see Table 3.3-4). A reduction of four percent of the water volume is not expected to have a significant effect on biological resources because the changes in flow volume and water depth would be negligible.

Still further downstream, approximately four miles from the community of Rimforest, the canyon widens and the creek begins to form pool habitat. The riparian vegetation is dense and composed of western sycamore (*Platanus racemosa*), various willow species, white alder, and an understory of mulefat (*Baccharis salicifolia*) and desert wild grape (*Vitis girdiana*). This lower portion of the canyon, at an elevation of approximately 2,000 feet, is likely to provide suitable habitat to numerous special-status species such as least Bell's vireo (*Vireo bellii pusillus*), yellow warbler (*Setophaga petechia*), and two-striped garter snake. The best habitat for Santa Ana speckled dace (*Rhinichthys osculus* spp. 3) is also present in this lower portion of the canyon however this species is now considered extirpated from the watershed. This is also the location where Strawberry Creek confluences with Twin Creek, which flows from the north out of Coldwater Canyon. Twin Creek within Coldwater Canyon appears to provide the best riparian and aquatic habitat in the watershed because it is largely protected from the sediment deposition which has degraded the habitat in Strawberry Creek. This suitable riparian and aquatic habitat continues downstream for approximately two miles before entering a flood control facility. The expected change in flow volume at this location would be a decrease of less than two percent and depth may

decrease by up to four percent (see Table 3.3-4). A change in depth of four percent would alter the average low-flow depth of the creek from 13 cm (5.12 inches) to approximately 12.5 cm (4.92 inches). A reduction of two percent of the water volume is not expected to significantly affect biological resources because the change would be negligible.

**Little Bear Creek.** Little Bear Creek is an intermittent creek that follows Daley Canyon from the proposed project site to Lake Arrowhead. Immediately downstream of proposed project site, Little Bear Creek flows approximately 0.15 miles to the north as a natural unlined creek until it reaches a San Bernardino County Department of Public Works maintenance yard. At this point, flows enter an underground culvert that runs below the community of Aqua Fria for approximately 0.35 miles before it resurfaces. The creek then flows to the northeast for approximately 0.5 miles, crossing through approximately 25 private residential lots, before once again going underground into a culvert and through the community of Blue Jay for another 0.2 miles. The creek resurfaces briefly again before running under SR-189 and a commercial building. The final stretch of the creek runs to the northeast for approximately 0.3 miles before emptying into Lake Arrowhead. The total distance between the proposed project site and Lake Arrowhead is approximately 1.5 miles, of which all but approximately 0.15 miles are inaccessible due to the creek being below ground or on private land.

Vegetation along the upper portion of Little Bear Creek, from the proposed project site to the maintenance yard, is dominated by American dogwood and matches the description of Red Osier Thickets as described in see Section 3.3.1 (Environmental Setting) above. Further downstream, the vegetation transitions to a mature white alder forest with an overstory canopy and very little understory vegetation. There is extensive development throughout the lower 1.35 miles of the creek, and it provides no suitable habitat for special-status wildlife species.

### 3.3.2 Applicable Regulations, Plans, and Standards

The following are federal, state, and local laws, ordinances, regulations, and standards that apply to biological resources and jurisdictional waters and wetlands.

#### Federal Regulations

**Endangered Species Act.** The Endangered Species Act (ESA) (16 USC 1531 et seq.) establishes legal requirements for the conservation of endangered and threatened species and the ecosystems upon which they depend.

**Section 9.** Section 9 of the ESA lists those actions that are prohibited under the ESA, including take (i.e., to harass, harm, pursue, hunt, wound, or kill) of listed species without special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or shelter. "Harass" is further defined as actions that create the likelihood of injury to listed species to an extent as to significantly disrupt normal behavior patterns which include breeding, feeding, and shelter.

**Section 10.** Section 10 allows for the "incidental take" of endangered and threatened species by non-Federal entities. Incidental take is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Section 10 requires an applicant for an incidental take permit to submit a habitat conservation plan that specifies, among other things, the impacts that are likely to result from the taking and the measures the applicant will undertake to minimize and mitigate such impacts.

**Critical Habitat.** Designation of an area as critical habitat provides a means by which the habitat of an endangered or threatened species can be protected from adverse changes or destruction resulting from federal activities or projects. A critical habitat designation does not set up a preserve or refuge and usually applies only when federal funding, permits, or projects are involved.

**Clean Water Act.** The Clean Water Act (33 USC 1251 et seq.) establishes legal requirements for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

**Section 401/WDRs.** Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the United States must obtain a State certification that the discharge complies with other provisions of the Clean Water Act. The Regional Water Quality Control Boards (RWQCBs) administer the certification program in California. If the surface waters that are being impacted are not waters of the United States (i.e., a non-federal water), or are waters of the United States that do not require a federal permit or license, a "Report of Waste Discharge" is required, and Waste Discharge Requirements (WDRs) must be obtained from the Regional Water Board pursuant to the Porter-Cologne Water Quality Control Act prior to starting the activities. If a project would require water quality certification or dredge-and-fill WDRs that affect two water quality control regions, the State Water Board's Division of Water Quality would be responsible for those permitting duties.

**Section 402.** Section 402, subdivision (p) stormwater permit, in the form of a National Pollutant Discharge Elimination System (NPDES) Construction General Stormwater Permit, may be required for land disturbance associated with the proposed project. This permit requires the development of a Stormwater Pollution Prevention Plan and implementation of best management practices (BMPs) for erosion control and prevention.

**Section 404.** Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) regulating the discharge of dredged or fill material into waters of the United States, including wetlands. Implementing regulations by the USACE are found at 33 CFR Parts 320-330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines and were developed by the EPA in conjunction with the USACE (40 CFR Parts 230). The Guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

**Migratory Bird Treaty Act.** The Migratory Bird Treaty Act (MBTA) (16 USC 703-711) is a treaty signed by the United States, Canada, Mexico, and Japan that prohibits take of any migratory bird, including eggs or active nests, except as permitted by regulation (e.g., hunting waterfowl or upland game species). Under the MBTA, "migratory bird" is broadly defined as "any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle" and thus applies to most native bird species.

**Bald and Golden Eagle Protection Act.** The BGEPA (16 USC, 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this act. Under BGEPA, take includes "disturb," which means "to agitate or bother a bald eagle or a golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

## State Laws and Regulations

**California Endangered Species Act.** The California Endangered Species Act (CESA) (Fish and Game Code 2050 et seq.) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that state agencies not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that affect a species listed under both CESA and the federal ESA, compliance with the federal ESA will satisfy CESA if CDFW determines that the federal incidental take authorization is consistent with CESA under Fish and Game Code Section 2080.1. For projects that will result in take of a species listed under CESA but not under the federal ESA, the applicant must apply for a take permit under Section 2081(b).

**Fully Protected Designations – California Fish and Game Code Sections 3511, 4700, 5515, and 5050.** Prior to enactment of CESA and the federal ESA, California enacted laws to “fully protect” designated wildlife species from take, including hunting, harvesting, and other activities. Unlike the subsequent CESA and ESA, there was no provision for authorized take of designated fully protected species. Currently, 36 fish and wildlife species are designated as fully protected in California, including golden eagle.

California Senate Bill 618 (signed by Governor Brown in October 2011) authorizes take of fully protected species, where pursuant to a Natural Conservation Community Plan, approved by CDFW. The legislation gives fully protected species the same level of protection as is provided under the Natural Community Conservation Planning Act for endangered and threatened species (see below).

**Native Birds – California Fish and Game Code Sections 3503 and 3513.** California Fish and Game Code Section 3503 prohibits take, possession, or needless destruction of bird nests or eggs except as otherwise provided by the Code; Section 3503.5 prohibits take or possession of birds of prey or their eggs except as otherwise provided by the Code; and Section 3513 provides for the adoption of the MBTA’s provisions (above). With the exception of a few non-native birds such as European starling, the take of any birds or loss of active bird nests or young is regulated by these statutes. Most of these species have no other special conservation status as defined above. The administering agency for these sections is the CDFW. As with the MBTA, these statutes offer no statutory or regulatory mechanism for obtaining an incidental take permit for the loss of non-game migratory birds.

**Streambed Alteration Agreements – California Fish and Game Code Sections 1600-1616.** Under these sections of the Fish and Game Code, an applicant is required to notify CDFW prior to constructing a project that would divert, obstruct, or change the natural flow, bed, channel, or bank of a river, stream, or lake. Preliminary notification and project review generally occur during the environmental review process. When a fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications, and bid documents for the project. CDFW jurisdiction is determined to occur within the water body of any natural river, stream, or lake. The term “stream,” which includes creeks and rivers, is defined in Title 14, CCR, Section 1.72.

## Regional and Local Regulations

### *County of San Bernardino Development Code*

The San Bernardino County Development Code implements the goals and policies of the General Plan by regulating land uses within the unincorporated areas of the County. Overlay maps depict areas subject to various county policies. The Biotic Resources Overlay implements General Plan policies regarding the



protection and conservation of beneficial rare and endangered plants and animal resources and their habitats.

The Biotic Resources Overlay maps depict habitat for southern rubber boa and San Bernardino flying squirrel throughout the local area. The project site is roughly 3 miles east of the California Spotted Owl Habitat Overlay (Open Space Overlay 18). The policy states that habitat areas for southern rubber road and San Bernardino spotted owl should be maintained.

The west end of the project site lies within the Strawberry Creek Wildlife Corridor. This wildlife corridor follows the alignment of Strawberry Creek from approximately the City and San Bernardino northward to the national forest and ultimately connects across the national forest to Corridor 16. This area contains important riparian habitat. Open space should be maintained in this area to preserve habitat values.

For projects within the Biotic Resources and Open Space Overlay areas, Chapter 82.11 and 82.19 of the Development Code require that for proposed new land uses, or increases of existing land use by more than 25 percent of disturbed area, the land use application shall include a biological resources report, along with mitigation measures to reduce or eliminate impacts to the identified resources. The Development Code also states that the County's Conditions of Approval for the project shall incorporate the mitigation measures from the biological report.

Chapter 88.01 of the Development Code regulates vegetation removal, including permitting, mitigation, and treatment of felled trees. A Tree or Plant Removal Permit is required for the removal of regulated trees and plants. In the project vicinity, regulated trees and plants are living, native trees with a stem diameter of six inches or greater or stem circumference of 19 inches or greater, measured at 4.5 feet above natural grade level; riparian vegetation within 200 feet of the bank of a stream. Conditions of Approval may include replacement, restoration, or in-lieu mitigation for impacts.

Section 88.01.090 details regulations for treatment and disposal of felled trees to protect against damaging insects (e.g., bark beetles) and diseases. This section applies to coniferous trees and lists several methods for treating felled trees, and at least one of these methods must be employed within 15 days after a tree is cut. There are several other requirements in the section, including the treatment of cut stumps with borax powder within two hours of cutting to protect against annosus root rot (*Fomes annosus*).

### **Environmental Commitments**

Several Environmental Commitments (ECs) have been developed by the County of San Bernardino (County) and are incorporated into the proposed project description to minimize potential effects to various resource areas. While no ECs are written specifically for biological resources, ECs for Hydrology and water resources such as preparing a Stormwater Pollution Prevention Plan (SWPPP) prevent water quality degradation. All the ECs are described in Section 2.5 (Environmental Commitments).

### **3.3.3 Environmental Impacts and Mitigation Measures**

This section evaluates the project's potential direct and indirect effects to biological resources and describes feasible mitigation measures to reduce these impacts to less-than-significant levels. The impact analysis is based on the biological resources described above and in the proposed project description in Section 2.

A significant impact is defined under CEQA as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (CEQA Guidelines Section 15382).

The CEQA Guidelines define direct impacts as those impacts that result from the project and occur at the same time and place. Indirect impacts are caused by the project, but can occur later in time or farther removed in distance and are still reasonably foreseeable and related to the operation of the project.

### 3.3.3.1 Significance Criteria

The significance criteria listed below are from the Environmental Checklist form in Appendix G of the CEQA guidelines, with the exception of Criterion BR3, which has been modified slightly to include waters of the State. They are used to determine whether the proposed project would result in significant impacts to biological resources. Impacts would be significant if the project would:

- *Criterion BR1: 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 CDFW or USFWS;*
- *Criterion BR2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;*
- *Criterion BR3: Have a substantial adverse effect on federally protected wetlands, federally protected waters, non-federally protected state waters (SWRCB or RWQCB), and state waters regulated by CDFW through direct removal, filling, hydrological interruption, or other means;*
- *Criterion BR4: 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; or*
- *Criterion BR5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

The following threshold from the CEQA Appendix G Environmental Checklist was found to have no impact in the Initial Study and is not discussed further beyond the summary below:

- *C.3.4 (f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

The project site is not located within any adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other approved local, regional, or state HCP area. The project would not conflict with such plan and no impact would occur related to this threshold.

### 3.3.3.2 Project Impacts

***Criterion BR1: 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 CDFW or USFWS.***

**Impact BIO-1: Construction activities would result in adverse effects to species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS (Class II).**

### Special-Status Plants

There are no listed threatened or endangered plants or plants that are proposed or candidates for State or federal listing on the project site. In addition, there is no suitable habitat for listed, proposed, or

candidate plants on the project site or adjacent areas. The project would not affect listed, proposed, or candidate plant species.

Two special-status plants with a CRPR of 4 were observed on the project site. These included Common woolly sunflower and Laguna Mountains jewelflower. The common woolly sunflower was reported as being present in previous reports but was not observed during the most recent surveys. It is likely still present in low numbers within the project site. Laguna Mountains jewelflower was observed at a few locations along Daley Canyon within and immediately adjacent to the project site.

Three additional plant species with a CRPR 1B have the potential to be present on the project site, including San Bernardino Mountains owl's-clover, southern jewelflower, and silver-haired ivesia. In addition, Parish's yampah, a CRPR 2 species and Mojave a CRPR 4 species are known from the immediate vicinity and have potential to be present on the project site. If other special-status plants are present within the project site they could be directly affected by the temporary or permanent removal of vegetation or by trampling or crushing during construction, as well as indirect impacts from dust, hazardous materials, or invasive species.

These impacts, should they occur, would not be substantial for Common woolly sunflower and Laguna Mountains jewelflower or special-status plants ranking CRPR 4 due to the low numbers of plants occurring (or potentially occurring) on the attenuation basin(s) and their conservation status as rare or watch-list species, but not listed under the CESA or ESA.

Mitigation Measure (MM) BIO-1b (Pre-construction Surveys and Construction Monitoring) would require the County to have a qualified biological monitor conduct pre-construction surveys and monitor construction to ensure that impacts to special-status plants would be avoided to the maximum extent possible. MM BIO-1c (Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss), BIO-1d (Prevent Invasive Weed Introduction), and BIO-1f (Fugitive Dust Control) would further reduce any potential impacts to special-status plants by identifying and avoiding any occurrences in the project site to the extent feasible, restoring or compensating for impacts to habitat, controlling fugitive dust, and minimizing the potential for weed introductions or spread. MM BIO-1f (Personnel Training) would require the County to present an environmental-education program to project workers on sensitive biological resources. With implementation of BIO-1f, all personnel on the project site will be familiar with the sensitive resources on the site and associated minimization measures. Adopted mitigation measures from the Final EIR, environmental laws and regulations, permits, and all other agency requirements will help to reduce impacts to below a level of significance by allowing personnel to be able to identify and avoid sensitive resources in the field and understand all appropriate measures and regulations. Implementation of these mitigation measures would reduce impacts to special-status plants to less-than-significant (Class II).

### **Special-Status Wildlife**

The project site may provide foraging, roosting, sheltering, or nesting habitat for Andrew's marble butterfly, San Bernardino Mountain kingsnake, San Bernardino ringneck snake, silvery legless lizard, southern rubber boa, two-striped garter snake, bald eagle (wintering/foraging), California spotted owl, yellow warbler, American peregrine falcon, American badger, ringtail, and San Bernardino flying squirrel. Construction activities at the project site could affect these species and their habitat.

Special-status wildlife may be affected by temporary or permanent loss or modification of habitat, disturbance from fugitive dust, noise, and vibration, entrapment in construction materials or excavations, exposure to hazardous substances accidentally released by vehicles or other equipment, and

displacement, injury, or morality from Project-related construction activities. Absent mitigation, these impacts would be significant.

Restoring flows from Strawberry Creek could have downstream impacts to riparian and aquatic special-status wildlife. Santa Ana speckled dace is a state species of special concern and was the only fully aquatic special-status species known from the upper Strawberry Creek watershed. A large fire in 2003 burned much of the watershed and a subsequent flood in 2005 caused catastrophic flows which are the likely cause of the recent extirpation of this species from the watershed. Several listed aquatic species have a minimal potential to occur in Strawberry and Twin Creeks: Santa Ana sucker, California red-legged frog, and mountain yellow-legged frog. Arroyo chub and two-striped garter snake are both special-status species that also have potential to occur. Two listed birds that nest in riparian vegetation have potential to occur downstream including the Least Bell's vireo and southwestern willow flycatcher as well as yellow warbler which is another species of special concern. The likelihood of these species occurring in the upper Strawberry Creek watershed is described in Table 3.3-3.

Most of these special-status species are aquatic and restricted to areas of running creek which are present more than two miles downstream of the project area and would not be affected by the restoration of such a negligible amount of water from the total watershed. Some of the bird species, such as the listed southwestern willow flycatcher and least Bell's vireo could occupy the riparian habitat along Strawberry Creek but they would not be impacted by the restoration of the flowpath because any impacts to nesting habitat would occur over time and be less than significant.

**Southern Rubber Boa.** The southern rubber boa is a state-listed threatened species protected under CESA. The project site is shown as southern rubber boa habitat in the San Bernardino Development Code Biological Resource Overlay, and a field survey confirmed that the site includes habitat suitable for the southern rubber boa. The entire project site, with the exception of the storm drain alignment along Hwy. 18 and Pine Ave., provides suitable habitat for the rubber boa. If southern rubber boa is present within the project site, it may be affected by temporary or permanent loss or modification of habitat, disturbance from fugitive dust, noise, and vibration, entrapment in construction materials or excavations, exposure to hazardous substances accidentally released by vehicles or other equipment, and injury or morality from project-related construction activities, particularly during removal of vegetation and initial grading. Absent mitigation, these impacts would be significant.

Prior to initiation of project-related activities within suitable habitat for southern rubber boa, the County would be required to consult with CDFW to obtain applicable take authorization or to identify additional avoidance or mitigation measures that may be necessary to avoid take. The County would be required to implement all terms or conditions of such authorization and to comply with any additional avoidance or mitigation measures that are identified.

MM BIO-1h (Avoid Wildlife Hazards and Entrapment) would require the County to avoid creating entrapment hazards for wildlife and prohibit vehicle traffic outside of designated work areas and access roads. With implementation of this measure southern rubber boa would not be at risk of injury or mortality due to entrapment or other project activities and would therefore reduce the impacts to below a level of significance.

MM BIO-1j (Manage Project Trash) would require the County to contain project-related trash and remove it from the work area daily. MM BIO-1c (Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss) and BIO-1e (Speed Limit) would further minimize impacts by requiring the County to minimize loss of habitat and compensate for habitat that is lost and reduce speed limit to 10 mph to avoid injury or mortality to southern rubber boa cause by vehicles. MM BIO-1f (Personnel Training) would

require the County to present an environmental-education program to project workers on sensitive biological resources which would allow them to recognize these species on the project site and know to avoid them.

MM BIO-1k (Minimization and Avoidance Measures for Southern Rubber Boa) requires the County to coordinate with CDFW to obtain an Incidental Take Permit (ITP) prior to the start of project activities. It would also require the County to conduct clearance surveys for southern rubber boa immediately prior to initial ground disturbance, install exclusion fencing around work areas, and monitor initial vegetation removal and site preparation. This mitigation measure also requires that any southern rubber boa found on the project site will be relocated off the site by a qualified biologist and in accordance with take authorization from CDFW as applicable. With implementation of these measures, impacts of construction and operation of the proposed project would be less than significant (Class II).

**Bald Eagle.** The bald eagle is a state-listed endangered species protected under CESA and BGEPA. Bald eagles have been seen flying over and may forage on the project site, but has a low potential to nest there. The bald eagle may be affected by temporary or permanent loss or modification of habitat or disturbance from fugitive dust, noise, and vibrations. These impacts, should they occur would be adverse but less than significant because of the bald eagles ability to leave the area and utilize other similar habitat that is abundant throughout the vicinity of the project site (Class III).

**Andrew's Marble Butterfly.** The Andrew's marble butterfly is a CDFW Special Animal. Larval food plants for this species may be present on the project site and it has a high potential for occurrence. This species may be affected by temporary or permanent loss or modification of habitat, including loss of larval food plants, disturbance from fugitive dust, noise, and vibration, entrapment in construction materials or excavations, exposure to hazardous substances accidentally released by vehicles or other equipment, and injury or mortality from project-related construction activities. Absent mitigation, these impacts would be significant.

MM BIO-1c (Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss), BIO-1d (Prevent Invasive Weed Introduction), BIO-1e (Speed Limit), and BIO-1f (Fugitive Dust Control) would further minimize impacts by requiring the County to minimize loss of native vegetation and compensate for habitat loss, prevent the introduction of invasive weeds, reduce project speed limits to 10 mph, and control fugitive dust. Additionally, MM BIO-1f (Personnel Training) would require the County to present an environmental-education program to project workers on sensitive biological resources. With implementation of these MMs, potential adverse effects would be avoided or minimized and impacts to Andrew's marble butterfly would be reduced to a less-than-significant level (Class II).

**Special-Status Reptiles.** Several non-listed, special-status reptiles potentially occur on the project site. These include the San Bernardino Mountain kingsnake, San Bernardino ringneck snake, silvery legless lizard, and two-striped garter snake. Suitable habitat for these species is present in the project site and they each have a moderate to high potential for occurrence. Special-status reptiles may be affected by temporary or permanent loss or modification of habitat, disturbance from fugitive dust, noise, and vibration, entrapment in construction materials or excavations, exposure to hazardous substances accidentally released by vehicles or other equipment, and injury or mortality from project-related construction activities. Absent mitigation, these impacts would be significant.

MM BIO-1h (Avoid Wildlife Hazards and Entrapment) would require the County to avoid creating entrapment hazards for wildlife and prohibit vehicle traffic outside of designated work areas and access roads. MM BIO-1j (Manage Project Trash) would require the County to contain project-related trash and remove it from the work area daily. MM BIO-1c (Minimize Impacts to Sensitive Habitat and Compensate

for Habitat Loss), BIO-1d (Prevent Invasive Weed Introduction), BIO-1e (Speed Limit), and BIO-1f (Fugitive Dust Control) would further minimize impacts by requiring the County to minimize loss of native vegetation and compensate for habitat loss, prevent the introduction of invasive weeds, reduce project speed limits to 10 mph, and control fugitive dust. Additionally, MM BIO-1f (Personnel Training) would require the County to present an environmental-education program to project workers on sensitive biological resources. With implementation of these MMs, these potential adverse effects would be avoided or minimized and impacts to special-status reptiles would be reduced to a less-than-significant level (Class II).

**California Spotted Owl.** The California spotted owl is a state Species of Special Concern. The project site is roughly 3 miles east of the California Spotted Owl Habitat Overlay (Open Space Overlay 18). The project site is unlikely to support nesting spotted owls due to proximity to human activities, but the project site does provide suitable foraging habitat. California spotted owl may be affected by temporary or permanent loss or modification of habitat, disturbance from fugitive dust, noise, and vibration, exposure to hazardous substances accidentally released by vehicles or other equipment, loss of or damage to nests and injury or mortality to eggs and chicks during vegetation clearing, and injury or mortality from project-related construction activities. Absent mitigation, these impacts would be significant.

MM BIO-1g (Nest and Den Avoidance) would require the County to identify nests through pre-construction surveys and avoid take of active bird nests through pre-construction clearance surveys and implementation of no-disturbance buffers for nesting birds prior to vegetation and habitat removal. MM BIO-1i (Avoid Nocturnal Wildlife) would require the County to carry out project-related construction activities during daylight hours to minimize impacts to nocturnal wildlife, including spotted owls. MM BIO-1j (Manage Project Trash) would require the County to contain project-related trash and remove it from the work area daily. MM BIO-1c (Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss), BIO-1d (Prevent Invasive Weed Introduction), MM BIO-1e (Speed Limit), and BIO-1f (Fugitive Dust Control) would further minimize impacts by requiring the County to minimize loss of native vegetation and compensate for habitat loss, prevent the introduction of invasive weeds, reduce project speed limits to 10 mph, and control fugitive dust. Additionally, MM BIO-1f (Personnel Training) would require the County to present an environmental-education program to project workers on sensitive biological resources. With implementation of these MMs, potential adverse effects would be avoided or minimized and would reduce impacts to California spotted owl to a less-than-significant level (Class II).

**Yellow Warbler.** The yellow warbler is a state Species of Special Concern. Suitable habitat for this species is present on the project site and it has a moderate potential for occurrence. This species may be affected by temporary or permanent loss or modification of habitat; disturbance from fugitive dust, noise, and vibration; exposure to hazardous substances accidentally released by vehicles or other equipment; and injury or mortality from project-related construction activities. Absent mitigation, these impacts would be significant.

MM BIO-1g (Nest and Den Avoidance) would require the County to identify nests through pre-construction surveys and avoid take of active bird nests, either through scheduling of project activities outside the nesting season or through pre-construction clearance surveys and implementation of no-disturbance buffers for nesting birds prior to vegetation and habitat removal. With implementation of this MM, potential adverse effects would be avoided or minimized and would reduce impacts to yellow warbler to a less-than-significant level (Class II).

**American Peregrine Falcon.** The American peregrine falcon is a state Fully Protected species. While there is minimal suitable nesting habitat on the project site, it has been seen regularly in the project vicinity and it has a moderate potential for occurrence. This species may be affected by temporary or permanent loss



or modification of habitat or disturbance from fugitive dust, noise, and vibration. These impacts, should they occur would be adverse but less than significant and would require no additional mitigation because this species has the ability to leave the area and there is extensive similar habitat throughout the vicinity of the project site that they could utilize (Class III).

**American Badger.** The American badger is a state Species of Special Concern. Suitable foraging habitat for this species is present in the project site and it has a moderate potential for occurrence. This species may be affected by temporary or permanent loss or modification of habitat or disturbance from fugitive dust, noise, and vibration. Absent mitigation, these impacts would be significant.

MM BIO-1g (Nest and Den Avoidance) would require the County to identify wildlife nests and dens through pre-construction surveys and avoid take of active nests and dens, either through scheduling of project activities outside the nesting/denning season or through pre-construction clearance surveys and implementation of no-disturbance buffers for nesting or denning wildlife prior to vegetation and habitat removal. MM BIO-1h (Avoid Wildlife Hazards and Entrapment) would require the County to avoid creating entrapment hazards for wildlife and prohibit vehicle traffic outside of designated work areas and access roads. MM BIO-1i (Avoid Nocturnal Wildlife) would require the County to carry out project-related construction activities during daylight hours to minimize impacts to nocturnal wildlife. Additionally, MM BIO-1f (Personnel Training) would require the County to present an environmental-education program to project workers on sensitive biological resources. With implementation of these MMs, potential adverse effects would be avoided or minimized and impacts to American badger would be reduced to a less-than-significant level (Class II).

**Ringtail.** The ringtail is a state Fully Protected species. Suitable habitat for this species is present in the project site and it has a moderate potential for occurrence. This species may be affected by temporary or permanent loss or modification of habitat or disturbance from fugitive dust, noise, and vibration; entrapment in construction materials or excavations; exposure to hazardous substances accidentally released by vehicles or other equipment; and injury or morality from project-related construction activities. Absent mitigation, these impacts would be significant.

MM BIO-1g (Nest and Den Avoidance) would require the County to identify wildlife nests and dens through pre-construction surveys and avoid take of active nests and dens, either through scheduling of project activities outside the nesting/denning season or through pre-construction clearance surveys and implementation of no-disturbance buffers for nesting or denning wildlife prior to vegetation and habitat removal. MM BIO-1h (Avoid Wildlife Hazards and Entrapment) would require the County to avoid creating entrapment hazards for wildlife and prohibit vehicle traffic outside of designated work areas and access roads. MM BIO-1i (Avoid Nocturnal Wildlife) would require the County to carry out project-related construction activities during daylight hours to minimize impacts to nocturnal wildlife. Additionally, MM BIO-1f (Personnel Training) would require the County to present an environmental-education program to project workers on sensitive biological resources. With implementation of these MMs, many of these potential adverse effects would be avoided or minimized and impacts to ringtail would be reduced to a less-than-significant level (Class II).

**San Bernardino Flying Squirrel.** The San Bernardino flying squirrel is a state Species of Special Concern. The Biotic Resources Overlay maps depict habitat for San Bernardino flying squirrel throughout the surrounding area (San Bernardino County Land Use Services Department, 2007). San Bernardino flying squirrels were captured twice on or immediately adjacent to the Project site during small mammal trapping in 2001 (Envira, 2003). The project site provides suitable foraging and nesting habitat and should be considered occupied. San Bernardino flying squirrel may be affected by temporary or permanent loss or modification of habitat; disturbance from fugitive dust, noise, and vibration; entrapment in

construction materials or excavations; exposure to hazardous substances accidentally released by vehicles or other equipment; and injury or mortality from project-related construction activities. Absent mitigation, these impacts would be significant.

MM BIO-1g (Nest and Den Avoidance) would require the County to identify wildlife nests and dens through pre-construction surveys and avoid take of active nests and dens, either through scheduling of project activities outside the nesting/denning season or through pre-construction clearance surveys and implementation of no-disturbance buffers for nesting or denning wildlife prior to vegetation and habitat removal. With implementation of this measure nesting birds and San Bernardino flying squirrel will be avoided during nesting season which will avoid any direct loss and will reduce these impacts to below a level of significance.

MM BIO-1h (Avoid Wildlife Hazards and Entrapment) would require the County to avoid creating entrapment hazards for wildlife and prohibit vehicle traffic outside of designated work areas and access roads. With implementation of this measure wildlife would not be at risk of injury or mortality due to entrapment or other project activities and would therefore reduce the impacts to below a level of significance.

MM BIO-1i (Avoid Nocturnal Wildlife) would require the County to carry out project-related construction activities during daylight hours to minimize impacts to nocturnal wildlife. With implementation of this measure nocturnal wildlife will be avoided and any impacts would be below a level of significance.

MM BIO-1j (Manage Project Trash) would require the County to contain project-related trash and remove it from the work area daily. MM BIO-1c (Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss), BIO-1d (Prevent Invasive Weed Introduction), BIO-1e (Speed Limit), and BIO-1l (Fugitive Dust Control) would further minimize impacts by requiring the County to minimize loss of native vegetation and compensate for habitat loss, prevent the introduction of invasive weeds, reduce project speed limits to 10 mph, and control fugitive dust. Additionally, MM BIO-1f (Personnel Training) would require the County to present an environmental-education program to project workers on sensitive biological resources. With implementation of these MMs, potential adverse effects would be avoided or minimized and impacts to San Bernardino flying squirrel would be reduced to a less-than-significant level (Class II).

### **Mitigation Measures**

**MM BIO-1a Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas.** The County of San Bernardino, Department of Public Works or the San Bernardino County Flood Control District (County) will implement all mitigation measures and conditions contained within the Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife (CDFW) for impacts to jurisdictional areas, as well as any permits obtained from the Regional Water Quality Control Boards (RWQCB), State Water Resources Control Board, or U.S. Army Corps of Engineers (USACE), upon determination of jurisdiction and permit issuance by all three agencies. In addition, the following Best Management Practices will be implemented during all construction and maintenance activity in or near drainages, waters, and wetlands:

1. Vehicles and equipment will not operate in ponded or flowing water except as described in the Streambed Alteration Agreement.
2. The County will minimize construction activities and vegetation clearing within drainages to the extent feasible.

3. The County will prevent water containing mud, silt, or other pollutants from grading or other activities to enter drainages or be placed in locations that may be subjected to high storm flows.
4. Spoil sites will not be located within 30 feet from the boundaries of drainages or in locations that may be subjected to high storm flows, where spoils might be washed back into drainages.
5. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from Project-related activities, will not be allowed to contaminate soil or enter drainages.
6. When construction activities are completed, any excess materials or debris will be removed from the work area. No rubbish will be deposited within 150 feet of the high water mark of any drainage during construction of the Project.
7. No equipment maintenance will occur within 150 feet of any streambed and no petroleum products or other pollutants from the equipment will be allowed to enter these areas or enter any off-site jurisdictional waters or wetlands in Little Bear Creek or Strawberry Creek under any flow.
8. The installation of bridges, culverts, or other structures will be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts will be placed at or below stream channel grade.
9. No equipment fueling, hazardous materials storage area, and operation and maintenance activities involving hazardous materials will be sited within 100 feet of any jurisdictional waters or wetlands.

**MM BIO-1b Pre-construction Surveys and Construction Monitoring.** The County of San Bernardino, Department of Public Works or San Bernardino County Flood Control District (County) will assign one or more qualified biological monitors to monitor project construction activities and conduct pre-construction surveys. Monitors will be responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, and sensitive or unique biological resources are avoided to the extent possible. Monitors will also inform on-site construction personnel and County representatives of applicable project mitigation measures, environmental commitments, and permit conditions, and any potential for infraction.

A biological monitor will be present during initial site clearing activities (vegetation clearing, soil preparation, ground disturbance, and removal of rock reinforcement) and during installation of exclusion fencing (if any), and at appropriate intervals throughout construction to ensure compliance with regulatory terms and conditions. In addition, a monitor will conduct clearance surveys for sensitive plant or wildlife resources and active bird nests within or adjacent to the project site within three (3) calendar days prior to each of these activities. If any sensitive resources are found, the biological monitor will take appropriate action as defined in all adopted mitigation measures, environmental commitments, and permit conditions.

Monitoring and survey activities will be documented and, at the conclusion of project construction activities, all monitoring reports and communications will be retained in

project files to allow review by permitting agencies, if requested, unless otherwise required by an agency or stated as a permit requirement.

**MM BIO-1c Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss.** The County of San Bernardino (County) will minimize impacts and permanent loss of all native vegetation that provides habitat for special-status plants and wildlife, at construction sites by flagging areas to be avoided, as feasible. As feasible, stands of native trees within the temporary impact areas will be flagged for avoidance to reduce impacts to mature trees, which will improve the post-project habitat quality and allow the temporarily impacted areas to restore more quickly. Whenever possible, trees that must be removed from within temporary impact areas will be cut off at ground level and the root structure should be left in place to stabilize the soil and allow the tree to re-sprout after the completion of project construction. In addition, large rocks or outcrops within the temporary impact areas should be avoided and protected in place to maintain wildlife habitat wherever possible.

Within temporary impact areas, topsoil and leaf litter should remain in place during construction unless grading is required. If grading is required, then topsoil and leaf litter will be salvaged and stockpiled on the project site to be used in the restoration of temporarily impacted areas. The trunks of large trees that are removed for project construction should be kept on the project site and incorporated into the post-project landscaping to provide refuge for wildlife and shelter for young plants.

**On-site Restoration.** To mitigate temporary impacts to sensitive vegetation or habitat that may support special-status plants or animals (e.g., temporary equipment staging areas), the County will prepare and implement an Ecological Restoration Plan, to establish native vegetation cover on all temporary impact areas within five (5) years of the end of construction. The plan will be prepared in coordination with CDFW prior to the start of construction. It will be implemented immediately following the completion of construction and shall be monitored for a period of five years to ensure that the establishment of vegetation is successful. The Ecological Restoration Plan's goal will be to restore native vegetation that will ultimately replace habitat values that are damaged or degraded by the Project and is not necessarily designed to replace in-kind vegetation within a five year period. Instead, the plan is designed to create the baseline conditions that will allow vegetation to establish and be replaced by natural succession over time. The plan will include: (a) quantitative description of habitat to be removed, including vegetation cover (by tree, shrub, and herb components), native species richness, and density of dominant species; (b) soil or substrate preparation measures, such as recontouring, decompacting, or imprinting; (c) provisions for topsoil and leaf litter salvage and storage; (d) provisions for woody debris, tree trunk, and boulder storage and placement; (e) plant material collection and acquisition guidelines, including guidelines for salvaging, storing, and handling seed, cuttings, or rooted plants from the Project site, as well as obtaining materials from commercial nurseries or collecting from outside the Project site; (f) time of year that the planting or seeding will occur and the methodology of the planting; (g) an irrigation plan or alternate measures to ensure adequate water; (h) quantitative success criteria, to reflect yearly progress and final completion; (i) a detailed monitoring program to evaluate conformance with the success criteria; and (j) contingency measures to remediate the restoration site if success criteria are not met.

In addition to the project site, the Ecological Restoration Plan will apply to borrow sites where any native habitat is affected. Due to applicability of the California Surface Mining and Reclamation Act to any such borrow sites, the County will include the Ecological Restoration Plan in any required Mining and Reclamation Plan, and identify the appropriate bonding amount, for review by the California Office of Mine Reclamation. If no borrow material will be used from off-site sources this would not apply.

**Compensation.** To mitigate permanent impacts to sensitive vegetation or habitat that may support special-status species, the County will provide for long-term habitat replacement by protecting compensation land that will provide habitat value equivalent or greater than habitat removed for the Project. To mitigate impacts to waters of the State, the County will provide compensatory mitigation. Compensation for impacts to waters of the State will be based on the range of functions and beneficial uses of the affected waters. Overall compensation may include off-site habitat restoration or other habitat improvements as needed, to replace habitat components affected by the Project. In addition, the County will provide for long-term conservation management of the compensation land and execute a conservation easement over the property. The County will prepare and implement a Compensation Plan, identifying the proposed compensation lands, proposed habitat improvements and long-term management, and specific legal mechanism for long-term preservation (e.g., parties to the conservation easement and long term management plan). The Compensation Plan may be subject to review and approval by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), or California Department of Fish and Wildlife (CDFW) according to each agency's applicable permit conditions (if any).

In addition, any third-party conservator that will manage the compensation lands should be authorized by CDFW to manage the mitigation lands and appropriate endowment funds. Where non-profit organizations, government entities, and/or special districts are proposed to hold title (i.e., conservation easement), per Government Code section 65967[a], CDFW is required to conduct a due diligence review to ensure that the entity possesses the necessary qualifications and can effectively manage and steward the land, water, or natural resource. Purchase of mitigation credit or payment of an in-lieu mitigation fee may fulfill the habitat compensation requirement if a suitable mitigation bank or similar habitat conservation and management program is available.

Alternatively, if a suitable in-lieu mitigation fee program is located, an appropriate in-lieu mitigation fee may be paid as required by the appropriate permitting agencies.

**MM BIO-1d Prevent Invasive Weed Introduction.** Precautions will be taken to prevent the introduction of any invasive weeds to the proposed project site. Precautions will also be taken to prevent any invasive weeds from leaving the site. Construction equipment will be cleaned of mud or other potential sources of weed seeds before it arrives at the Project site and also before it leaves the project site. Any reclamation or erosion control seeding will consist of native species, native seed mix, or other ecologically appropriate, non-invasive plants. Only weed-free straw or mulch will be used. Weeds will be managed post-construction, during the restoration of temporary impacts areas, with the use of herbicides, as well as appropriate manual and mechanical methods. If herbicides are used, they will be applied by a licensed herbicide applicator in a manner that minimizes risk to wildlife and non-target vegetation.

- MM BIO-1e**     **Speed Limit.** Vehicle speeds will remain below 10 mph on unpaved roads to reduce wildlife impacts and minimize dust.
- MM BIO-1f**     **Personnel Training.** The County of San Bernardino, Department of Public Works or the San Bernardino County Flood Control District shall present an environmental-education program to all personnel assigned to the Project. The program will describe sensitive resources and associated minimization measures, adopted mitigation measures from the Final Environmental Impact Report, environmental laws and regulations, permits, and all other agency requirements.
- MM BIO-1g**     **Nest and Den Avoidance.** Vegetation removal or ground disturbance for project construction and routine maintenance should take place after a pre-construction survey has taken place to identify any active bird nest or other active denning or nesting wildlife within or adjacent to Project disturbance areas. The County of San Bernardino, Department of Public Works or the San Bernardino County Flood Control District will reschedule vegetation removal activities and delineate a no-disturbance buffer area around the nest or den site. The extent of the buffer area will be determined by the biological monitor, based on the nature of proposed project activities, the animal's tolerance to disturbance (if known), and conservation status of the affected species.
- Breeding season for the San Bernardino flying squirrel is not well known and reproduction can potentially take place year-round (Brylski, 1998). Therefore, pre-construction surveys for denning or nesting mammals and reptiles, and implementation of disturbance-free buffers as needed, will be conducted year-round.
- MM BIO-1h**     **Avoid Wildlife Hazards and Entrapment.** The County of San Bernardino, Department of Public Works or the San Bernardino County Flood Control District will ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) have been backfilled or securely covered at the end of each workday. If backfilling or covering is not feasible, these potential pitfalls will be sloped at a 3:1 ratio at the ends as wildlife escape ramps. Project workers or construction monitors will inspect all potential pitfalls daily.
- All pipes or other construction materials or supplies will be covered or capped in storage or laydown areas. No pipes or tubing will be left open either temporarily or permanently, except during use or installation. Any construction pipe, culvert, or other hollow materials will be inspected for wildlife before it is moved, buried, or capped. Should wildlife become trapped in excavations, materials, or other project-related situation, the biological monitor will remove it (if feasible and safe) or immediately contact the California Department of Fish and Wildlife. Any wildlife encountered will be moved out of harm's way by the biological monitor, or will be allowed to leave the area unharmed.
- Project-related vehicle access, construction activities, and equipment storage will be restricted to established roads, designated access roads, construction rights-of-way, and designated construction, storage, staging, and parking areas. Off-road traffic outside of these designated areas will be prohibited.
- MM BIO-1i**     **Avoid Nocturnal Wildlife.** All Project-related construction activities and routine maintenance will be carried out during daylight hours to minimize adverse effects to foraging or other activities for California spotted owl, San Bernardino flying squirrel, southern rubber boa, special-status bats, and other nocturnal wildlife.

**MM BIO-1j**     **Manage Project Trash.** Trash, especially food items or packaging, will be kept inside vehicles or in self-closing containers and removed from work areas daily.

**MM BIO-1k**     **Minimization and Avoidance Measures for Southern Rubber Boa.** The County of San Bernardino, Department of Public Works or the San Bernardino County Flood Control District (County) will implement the following measures to minimize or avoid potential impacts to southern rubber boa:

- The County will work with the California Department of Fish and Wildlife (CDFW) to obtain an incidental take permit (ITP) for southern rubber boa. The ITP must be obtained prior to start of project activities.
- A qualified biologist will conduct clearance surveys for southern rubber boa on the project site prior to any vegetation removal, rock removal, or initial ground disturbance on the day that such activities are scheduled.
- Exclusion fencing appropriate for snakes will be installed around the perimeter of the project disturbance area footprint to ensure no southern rubber boas enter the work site. If large rocks or rock outcrops within the temporary impact areas can be avoided, the exclusion fence will be routed around these features to avoid impacting them.
- A biological monitor will be on site during fence installation and will conduct clearance surveys of the fence locations prior to installation. The fencing will remain in place for the duration of construction and the biological monitor will periodically inspect the fence for damage. Any damage found will be reported to the County or the County's construction contractor for immediate repair.
- A qualified and permitted biologist will monitor initial vegetation removal and site preparation and will immediately halt work if a southern rubber boa is discovered in the work area. The biologist will move the animal out of harm's way, in accordance with the terms and conditions of the incidental take permit, and details regarding the sighting will be recorded and provided to the County and CDFW within 24 hours. Construction activities may resume when the animal is out of harm's way and the biologist has cleared the work area.
- If a dead or injured southern rubber boa is found on the project site, the biologist will immediately contact CDFW for guidance.

**MM BIO-1l**     **Fugitive Dust Control.** The following dust control measures shall be implemented during project construction:

- All unpaved travel routes/roads shall be effectively stabilized using water at least three times daily.
- All material excavated or graded will be sufficiently watered, prior to excavation or grading, to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. Hauled materials shall be moist while being loaded into or out of dump trucks.
- The soil storage piles, if not covered, shall be watered at an adequate frequency, or sprayed with an environmentally safe chemical stabilizer, to create stabilized surfaces that will minimize wind erosion emissions. Additionally, the soil storage piles shall be watered by hand or covered when wind events are declared.



- Construction activities that occur on unpaved surfaces shall be discontinued during windy conditions when those activities cause visible dust plumes that are transported beyond the site boundary or that remain visible within 100 feet of any occupied residence, school, or public recreation area.
- All haul trucks hauling soil, sand, and other loose materials to or from the project site shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions) or have at least 18 inches of freeboard.
- Drop heights should be minimized when loading into or unloading out of haul trucks, and gate seals should be tight on haul trucks.
- Disturbed areas shall be minimized, and after active construction activity has ceased, disturbed areas shall be stabilized using non-toxic soil stabilizers approved by the County of San Bernardino, Department of Public Works or San Bernardino County Flood Control District for project use and shall be revegetated as soon as possible after disturbance.
- Construction workers shall avoid driving commuting vehicles on unpaved roads in the Rimforest area and shall park in paved areas or in designated construction parking areas with proper best management practices.
- Other fugitive dust control measures shall be implemented as necessary so that feasible dust controls are equivalent to the most effective measures listed within South Coast Air Quality Management District Rule 403 Tables 1 and 2 for each type of dust causing source category (unpaved roads, storage piles, etc.).

***Criterion BR2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.***

**Impact BIO-2: Construction activities would result in adverse effects to riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS (Class II).**

### **Common Plants and Wildlife**

Vegetation and habitat removal for the temporary and permanent disturbance areas for the attenuation basin(s) could cause displacement or mortality of native plants and most wildlife on the site. Ongoing routine maintenance on a three to five year cycle may also cause similar impacts. Animals would generally leave, or attempt to leave, during equipment operation. Many small mammals and reptiles, as well as nestling birds or eggs, could be crushed by the equipment. Other effects of the project could cause disturbance from fugitive dust, noise, and vibration, entrapment in construction materials or excavations, exposure to hazardous substances accidentally released by vehicles or other equipment, and displacement, injury, or mortality from project-related construction activities. Trash, particularly food trash, left in the work areas may affect wildlife by attracting potential predators, such as common ravens and domestic dogs.

Mortality and displacement for most common plants and animals would be adverse but less than significant according to CEQA because these species are widespread and impacts to individuals within the project site would be minimal compared to the number of common species in adjacent unaffected

habitats. Displacement or mortality of special-status species may meet CEQA criteria as a significant impact, depending on the extent of take and local population conditions. Native birds, nests, and nestlings are generally protected under the Migratory Bird Treaty Act and California Fish and Game Code, regardless of other conservation designations. Thus, mortality of nesting birds (including eggs or nestlings), regardless of other conservation status designations, may violate state and federal regulations.

MMs BIO-1b (Pre-construction Surveys and Construction Monitoring) and BIO-1g (Nest and Den Avoidance) would require the County to identify nests through pre-construction surveys and avoid take of active bird nests, either through scheduling of project activities outside the nesting season or through pre-construction clearance surveys and implementation of no-disturbance buffers for nesting birds prior to vegetation and habitat removal. With implementation of BIO-1b and BIO-1g, adverse effects to nesting and migratory birds would be minimized. In addition, MM BIO-1h (Avoid Wildlife Hazards and Entrapment) would require the County to minimize hazards to wildlife by avoiding wildlife entrapment and prohibiting vehicle traffic outside of designated work areas and access roads. MM BIO-1e (Speed Limit) would reduce wildlife impacts by maintaining a 10 mph speed limit on all unpaved roads. MM BIO-1i (Avoid Nocturnal Wildlife) would require the County to carry out project-related construction activities during daylight hours to minimize impacts to nocturnal wildlife. MM BIO-1f (Personnel Training) would require the County to present an environmental-education program to project workers on sensitive biological resources. Implementation of mitigation measures would reduce impacts to common plants and wildlife, including nesting birds, to less-than-significant (Class II).

Construction of the attenuation basin(s) and other project components would require the removal of native vegetation, including sensitive natural communities. Table 3.3-4 quantifies the temporary and permanent impacts to vegetation and land cover. Figure 3.3-1 shows the locations of temporary and permanent impacts. Temporary impact areas are portions of the project site that will be cleared for project activities but will be restored at the end of the project. These impacts are temporary, and although not permanent, are considered long-term temporary impacts because of the time required for the vegetation to become established to a pre-construction condition. As feasible stands of native trees within the temporary impacts areas may be avoided, which will improve the post-project habitat quality and allow the temporarily impacted areas to restore more quickly. In addition, trees being removed from within temporary impact areas should be cut off at ground level whenever possible and the root structure should be left in place to stabilize the soil and allow the tree to re-sprout after the completion of project construction. Large rocks or outcrops within the temporary impact areas should be avoided and protected in place to maintain whenever possible to maintain wildlife habitat. Topsoil and leaf litter should also remain in place during construction unless grading is required. Permanent impact areas will be cleared for project activities and will not be restored. These areas will also be routinely maintained on a three to five year interval. Temporary and permanent impact areas are independent from one another.

**Table 3.3-5. Temporary and Permanent Impacts on the Proposed Project Site**

| Vegetation Communities and Cover Types | Area (acres)          |                       | Total Impacts |
|--|-----------------------|-----------------------|---------------|
|  | Temporary Impact Area | Permanent Impact Area |               |
| Arroyo willow thicket                  | 0.32                  | 0.01                  | 0.33          |
| California black oak forest            | 2.18                  | 0.06                  | 2.24          |
| Red osier thicket                      | 0.37                  | 2.25                  | 2.62          |
| White fir-sugar pine forest            | 5.56                  | 2.92                  | 8.48          |
| Developed                              | 1.60                  | 0.03                  | 1.63          |
| <b>Total</b>                           | <b>10.03</b>          | <b>5.27</b>           | <b>15.30</b>  |

Sensitive natural communities on the project site are red osier thickets and arroyo willow thickets. These sensitive natural communities would be directly affected by removal of vegetation or by trampling or crushing during construction activities.

Indirect impacts to vegetation could result from alterations in existing topography and hydrology, sedimentation and erosion, soil compaction, accumulation of fugitive dust (which could impact plant photosynthesis and respiration), exposure to hazardous substances accidentally released by vehicles or other equipment, disruptions to seed banks from ground disturbance, or the colonization of non-native, invasive plant species. Absent mitigation, these impacts would be significant. Project operation and maintenance would not cause further significant effects to sensitive vegetation.

Restoration of flows from Strawberry Creek could have downstream impacts to riparian habitat, but these impacts are expected to be minimal since the majority of flows being restored are from storm runoff and snowmelt, both of which have short durations and are highly variable on an annual basis. In addition, an examination of aerial photos of Strawberry Creek from roughly the last twenty years (1994-2015) shows that the downstream riparian vegetation appears to be cyclic around large floods. During these large floods, sediment-laden surface runoff deposits extensive sediment from the landslide area below the community of Rimforest. Large floods, such as those in 1993, 2005, 2010, and 2015 tend to cause large sediment deposits in Strawberry Creek. This sediment deposition covers and/or removes the riparian vegetation. In the years after these floods, the riparian vegetation begins to recolonize the creek at the downstream limits of disturbance and progresses upstream. Riparian vegetation appears to be able to colonize the canyon up to within 0.5 miles of the community of Rimforest, but is unable to progress further upstream, likely due to the steepness of the terrain, lack of perennial surface flows, and the erodible nature of the substrate. From this point downstream an additional 1.5 miles, the watershed has some potential to support riparian vegetation, but periodic sediment deposition and the steep gradient appear to prevent long-term establishment. Approximately 1.75 miles downstream of the community of Rimforest, an unnamed tributary enters Strawberry Creek from the west. It is at this point that riparian vegetation becomes more established and is represented by scattered white alders. Based on the vegetation present, this is likely the highest point in Strawberry Creek where water is present for most of the year. The expected change in flow volume at this location would be a decrease of approximately seven percent and depth may decrease by 13 percent (see Table 3.3-4). Because this section does not appear to provide perennial aquatic habitat and the riparian vegetation is relatively sparse, these changes would have a less-than-significant impact on biological resources. Further downstream, the decrease in flow rate and water depth are reduced to four percent or less and become even more negligible (see Section 3.3.1 for further discussion on Strawberry Creek). In addition,

The increased flows into Little Bear Creek would be captured and regulated by the attenuation basin(s), which would prevent high-flow events from exceeding the baseline high-flow conditions in Little Bear Creek. The attenuation basin(s) would also maintain typical low-flow conditions by allowing normal flows to pass through the embankment and continue down Little Bear Creek. By regulating the discharges from the basin(s), downstream impacts to riparian vegetation and other habitats is expected to be negligible.

MM BIO-1a would require the County to implement BMPs to minimize impacts to wildlife habitats and jurisdictional areas. With implementation of this measure impacts to native vegetation, habitat, and sensitive natural communities would be less than significant because impacts would be reduced on-site and would be minimized off-site. In addition, temporarily impacted areas would be restored on-site and direct impacts to sensitive vegetation and habitats would be offset by off-site habitat that would be acquired, managed, and improved to benefit the biological resources in perpetuity.

MM BIO-1b would require the County to have a qualified biological monitor conduct pre-construction surveys and monitor construction to ensure that impacts to special-status species, native vegetation, wildlife habitat, and sensitive or unique biological resources are avoided to the extent possible. With implementation of this measure impacts to common species, native vegetation, wildlife habitat, and sensitive natural communities would be less than significant because biological resources would be identified prior to project activities, avoided as needed, and monitored for the duration to ensure they are not directly impacted.

MMs BIO-1c, BIO-1d, BIO-1e, and BIO-1f would require the County to minimize loss of native vegetation and compensate for habitat loss, prevent the introduction and spread of invasive weeds, and control fugitive dust. With implementation of MM BIO-1d invasive weeds will be kept from invading the project site or adjacent off-site habitats as a result of project activities. This will reduce impacts from invasive weeds on native habitats, common species, and special-status species to below a level of significance. In addition, implementation of BIO-1e would reduce the likelihood that wildlife would be struck by a vehicle and either injured or killed would therefore be less than significant because it will

MM BIO-1f would require the County to present an environmental-education program to project workers on sensitive biological resources. With implementation of the measures above, impacts to native vegetation, habitat, and sensitive natural communities would be less than significant by minimizing direct loss of habitat and reducing impacts to adjacent habitat and vegetation (Class II).

#### **Mitigation Measures**

- MM BIO-1a      Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas.**
- MM BIO-1b      Pre-construction Surveys and Construction Monitoring.**
- MM BIO-1c      Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss.**
- MM BIO-1d      Prevent Invasive Weed Introduction.**
- MM BIO-1e      Speed Limit.**
- MM BIO-1f      Personnel Training.**
- MM BIO-1f      Fugitive Dust Control.**

***Criterion BR3: Have a substantial adverse effect on federally protected wetlands, federally protected waters, non-federally protected state waters (SWRCB or RWQCB), and state waters regulated by CDFW through direct removal, filling, hydrological interruption, or other means.***

**Impact BIO-3: Construction activities could result in a substantial adverse effect on federally protected wetlands, federally protected waters, non-federally protected state waters (SWRCB or RWQCB), and state waters regulated by CDFW through direct removal, filling, hydrological interruption, or other means (Class II).**

The delineation of jurisdictional features on the project site identified preliminary State and federal jurisdictional waters and wetlands. Project construction would affect these features, as described above for sensitive native vegetation. Absent mitigation, these impacts would be significant. Projects affecting waters of the State or waters of the U.S. are subject to permitting under the California Fish and Game Code and federal Clean Water Act (CWA). Each project applicant must prepare and submit appropriate applications, notifications, and fees to the USACE (according to Section 404 of the CWA), the CDFW (according to Sections 1600-1616 of the California Fish and Game Code), the RWQCB (according to Section 401 of the CWA), and

the SWRCB (according to Section 402 of the CWA). Federal CWA permitting is required for projects that would place dredged or fill material into jurisdictional waters of the U.S., and State authorization is required if projects would substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

Temporary impacts to jurisdictional waters would occur in portions of the project site that may be impacted by project activities but would be restored at the end of the project. This would include recontouring, restoring flow lines, and replanting vegetation. Permanent impact areas would be impacted during project activities and would not be restored at the end of the project. Some of these permanent impacts could lose function entirely while others may still convey water but would no longer be vegetated or provide habitat for wildlife.

**Table 3.3-6. Temporary and Permanent Impacts to State and Federal Water and Wetlands in the Proposed Project Site**

| Jurisdictional Feature | Area (acres)          |                       |
|------------------------|-----------------------|-----------------------|
|                        | Temporary Impact Area | Permanent Impact Area |
| Federal Wetlands       | 0.41                  | 0.32                  |
| Federal Waters         | 0.12                  | 0.05                  |
| <b>Total Federal</b>   | <b>0.53</b>           | <b>0.37</b>           |
| <b>State Waters</b>    | <b>0.45</b>           | <b>1.07</b>           |

Under Fish and Game Code and CWA, prior to the start of construction, the County would be required to submit the attached preliminary jurisdictional delineation report (Appendix 4) and obtain permits or agreements from the USACE, RWQCB, SWRCB, and CDFW for project-related impacts to jurisdictional areas. The County would be required to implement all conditions required by the permits and agreements as issued by the resource agencies. To mitigate impacts to waters of the State, the County will provide compensatory mitigation. Compensation for impacts to waters of the State will be based on the range of functions and beneficial uses of the affected waters.

As described in Section 3.6 (Hydrology and Water Quality), existing regulations require that the project obtain a Construction General Permit. The General Permit requires a Storm Water Pollution Prevention Plan (SWPPP) prepared by a qualified SWPPP developer. The SWPPP must list Best Management Practices (BMPs) that will be used to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

MM BIO-1a would require the County to implement BMPs to minimize impacts to jurisdictional areas. MM BIO-1b would require the County to have a qualified biological monitor construction to ensure that impacts to jurisdictional areas are minimized to the extent possible. MMs BIO-1c, BIO-1d, BIO-1e, and BIO-1f would require the County to minimize loss of native vegetation and compensate for habitat loss, prevent the introduction and spread of invasive weeds, and control fugitive dust. MM BIO-1f would require the County to present an environmental-education program to project workers on sensitive biological resources. MM BIO-1d requires any herbicide use be performed by a licensed herbicide applicator in a manner that minimizes risk to wildlife and non-target vegetation.

Additionally, compliance with SWPPP requirements (project environmental commitment) would minimize impacts from stormwater runoff. Implementation of these measures would reduce impacts to native vegetation, habitat, and sensitive natural communities and jurisdictional areas to less than significant (Class II).

### **Mitigation Measures**

- MM BIO-1a**     **Implement Best Management Practices to Minimize Impacts to Jurisdictional Areas.**
- MM BIO-1b**     **Pre-construction Surveys and Construction Monitoring.**
- MM BIO-1c**     **Minimize Impacts to Sensitive Habitat and Compensate for Habitat Loss.**
- MM BIO-1d**     **Prevent Invasive Weed Introduction.**
- MM BIO-1e**     **Speed Limit.**
- MM BIO-1f**     **Personnel Training.**
- MM BIO-1i**     **Fugitive Dust Control.**

***Criterion BR4: 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.***

**Impact BIO-4: Construction activities will have impacts to wildlife movement of native wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (Class III).**

According to the California Essential Connectivity Map (Caltrans and CDFW, 2010), the project site is within either a natural landscape block or an essential connectivity area. The western portion of the project site lies within the Strawberry Creek Wildlife Corridor. This wildlife corridor is identified in the San Bernardino County Open Space Overlays (San Bernardino County Land Use Services Department, 2007).

The proposed storm drains would be located within a developed community and would not substantially affect wildlife movement or nursery areas. Due to availability of surrounding habitat east and west of the proposed attenuation basin(s), the basin(s) would not substantially affect wildlife movement for many species. However, the attenuation basin(s) would degrade wildlife habitat long term through the area. In addition, the basin(s) would affect wildlife nursery sites such as nest trees for birds or small mammals; burrows or other nesting areas for ground-dwelling vertebrates; or aquatic nest sites for amphibians. In general, these impacts to wildlife breeding areas would not be substantial for common or wide-ranging species, but could be substantial for special-status wildlife (see C.3.3.1. above). Given the relatively small size of the project disturbance areas, the limited timeline for project construction activities, and the availability of surrounding habitat east and west of the attenuation basin(s) for wildlife movement, the project would have a less-than-significant impact on wildlife movement or the use of wildlife nursery sites, and no mitigation is proposed (Class III).

***Criterion BR5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.***

**Impact BIO-5: Construction activities may conflict with local policies or ordinances protecting biological resources (Class III).**

The San Bernardino County Development Code includes policies regarding the protection and conservation of rare and endangered plants and animal resources and their habitats. It also includes regulations and guidelines for the management of plant resources in the unincorporated areas of the County.

The County would comply with all applicable requirements of the San Bernardino County Development Code. No mitigation measure designed to avoid conflict with local policies or ordinances protecting biological resources would be required and impacts would be less than significant (Class III).

### **3.3.4 Level of Significance After Mitigation**

Compliance with applicable regulations would avoid any conflict with local policies or ordinances protecting biological resources, resulting in a less-than-significant impact (Class III). The Project would have a less-than-significant impact on wildlife movement and the use of wildlife nursery sites (Class III). All other impacts would be reduced to less-than-significant with implementation of mitigation measures (Class II).



## 3.4 Cultural Resources

A cultural resource is defined as any object or specific location of past human activity, occupation, or use, identifiable through historical documentation, inventory, or oral evidence. Cultural resources can be separated into three categories: archaeological, built environment, and traditional resources.

Archaeological resources include both historic and prehistoric remains of human activity. Historic resources can consist of structural remnants (such as cement foundations), historic objects (such as bottles and cans), and sites (such as refuse deposits or scatters). Prehistoric resources can include lithic scatters, ceramic scatters, quarries, habitation sites, temporary camps/rock rings, ceremonial sites, and trails.

Built environment resources consist of standing historic buildings and structures, the latter of which includes canals, historic roads and trails, bridges, ditches, and cemeteries.

A traditional cultural resource or traditional cultural property (TCP) can include Native American sacred sites (such as rock art sites) and traditional resources that are important for maintaining the cultural traditions of any group.

### 3.4.1 Environmental Setting / Affected Environment

Situated north and east of the San Bernardino Valley on the North American Plate, the San Bernardino Mountains are the easternmost mountain range in the Transverse Range. The San Bernardino Mountains extend for approximately 60 miles (100 km) east-west on the southern edge of the Mojave Desert in southwestern San Bernardino County, north of the city of San Bernardino. The range is separated from the San Gabriel Mountains to the west by Cajon Pass, and from the San Jacinto Mountains to the south and southeast by Banning Pass. The highest peaks in the range include San Gorgonio Mountain (elevation 11,502 ft), the highest peak in southern California, and other peaks of the San Gorgonio Wilderness. The shorter Little San Bernardino Mountains extend southeast from the range along the eastern side of the Coachella Valley.

The steep northern side of the mountains is separated from the Mojave Block to the north by a fault, while the San Andreas Fault separates the San Bernardino Mountains from the San Gabriel Mountains to the west and the San Bernardino Valley to the south. North of the city of San Bernardino near Waterman Canyon, the San Andreas fault divides into the Mill Creek-Mission Creek fault and the Banning fault; the former extending east across the mountains north of Mill Creek toward the Morongo Valley, while the latter runs southeast through the San Gorgonio Pass. The Precambrian igneous-metamorphic basement complex, consisting of schists, gneiss, and migmatites, surfaces north of the San Andreas fault between Cajon Mountain and Mill Creek. Extensive outcrops of gneiss are also present near San Gorgonio Peak and Sugarloaf Peak. Near Big Bear Lake, these are uncomfortably overlain by upper Paleozoic marine quartzite and limestone that are weakly metamorphosed. These in turn are intruded by Triassic volcanics, and Jurassic and Cretaceous plutonic rocks. During the early Cenozoic, there was erosion of the Cretaceous mountain topography. More tectonic activity extended through the Miocene, and basalts extruded in the eastern part of the range. Faulting and associated compression in the late Pliocene rejuvenated the previously eroded surface, and during the middle Pleistocene, the San Bernardino and San Gabriel Mountains were uplifted along the block and thrust faults. Some flat areas in the San Bernardino Mountains are overlain by Pleistocene alluvium, and there is Wisconsin age glacial till on north San Gorgonio Peak above 8,700 feet.

### 3.4.1.1 Regional Setting and Approach to Data Collection

For the purposes of cultural resources, the project Study Area includes portions of State Route 18 (SR-18, Rim of the World Drive) and Pine Avenue, and areas along Little Bear Creek and the canyon east of Blackfoot Trail East. The area of potential impact defined for the project includes all disturbance areas along the roads, the flood control channel/basin locations, and the staging area (totaling approximately 15.3 acres).

As currently proposed, the project would occur in two phases. As discussed in Section 2.1, Phase 1 includes approximately 0.8 miles of flood control improvements, comprised of approximately 0.2 miles of channel/basin and approximately 0.6 miles of pipe culvert and appurtenances. Phase 2 of the proposed project includes installation of a culvert system to direct runoff from Pine Avenue, which runs parallel to the south of SR-18, and under SR-18 to join flows restored by Phase 1 in Little Bear Creek. The Phase 2 culvert system would include street inlets and storm drains within Rimforest to facilitate the diversion of flows along Pine Avenue. A culvert system would be installed through an existing lumber yard off Pine Avenue, connecting to the main culvert system along Pine Avenue. Trenching up to depths of 22 feet may be required to install the pipeline from Pine Avenue and under SR-18 to Little Bear Creek.

The Crest Forest Fire District building and property involves approximately 1.2 acres north of SR-18. The property is located at the western boundary of the project area. The project proposes to use this property as a potential staging and flow interception area, and the existing building will not be altered as a result of the project.

For the proposed project, record searches were conducted at the San Bernardino Archaeological Information Center. The record searches included an examination of all previously documented cultural resources within a one-mile radius of the proposed project. A review of relevant historic maps, and excavation and survey reports were also conducted as part of the record searches.

Field surveys were conducted in order to verify the location of any previously identified cultural resources and to inspect lands within the project area. Field surveys are useful for identifying above-ground or surface cultural resources and for identifying high-probability areas. However, negative pedestrian survey results do not preclude the possibility that buried archaeological deposits could be discovered. Applied EarthWorks, Inc. (Æ) conducted pedestrian field surveys of the project area in July 2012 and July 2015 (Smallwood, 2015).

Æ requested a search of the Sacred Lands File (SLF) maintained by the Native American Heritage Commission (NAHC) on July 9, 2012. The NAHC responded on July 11, 2012, stating that Native American cultural resources were not identified within one-half mile of the project area. However, the NAHC requested that Native American individuals and organizations be contacted to elicit information and/or concerns regarding cultural resource issues related to the proposed project. Correspondence was initiated on July 14 and 15, 2015 with the Ramona Band of Cahuilla Mission Indians, the Morongo Band of Mission Indians, the San Manuel Band of Mission Indians, the San Fernando Band of Mission Indians, the Fort Mojave Indian Tribe, the Gabrielino Tongva Nation, and the Serrano Nation of Indians. A second attempt at correspondence was made on July 28, 2015.

The San Manuel Band of Mission Indians responded to both the cultural scoping letter and the Notice of Preparation (NOP) for the proposed project. The Tribe noted that the proposed project is within the Tribe's ancestral territory and requested to be contacted for further consultation if cultural resources are identified during project implementation. The Morongo Band of Mission Indians responded to the cultural scoping letter stating that the project is outside of the Tribe's current reservation boundaries,

but within an area considered to be a traditional use area. Therefore, the Tribe requested a copy of the records search and survey results to better assess the sensitivity of the area. Furthermore, the Tribe requested to be contacted if Native American cultural resources are discovered during project construction. Mr. Ernest Siva, Tribal Elder with the Morongo Band of Mission Indians, had no comments or concerns regarding the project. All Native American correspondence is included in Appendix A of the Cultural Resources Survey Report (Appendix 5) prepared for the project (Smallwood, 2015).

### **3.4.1.2 Prehistoric Background**

Prehistoric archaeological sites in California are places where Native Americans lived or carried out activities during the prehistoric period before Europeans arrived in 1769 A.D. These sites contain artifacts and subsistence remains, and they may contain human burials. Artifacts are objects made by people and include tools (such as projectile points, scrapers, and grinding implements), waste products from making stone tools (flakes and debitage), and nonutilitarian or decorative artifacts (beads, ornaments, ceremonial items, and rock art). Subsistence remains include the inedible portions of foods, such as animal bone and shell, and edible parts that were lost and not consumed, such as charred seeds.

A prehistoric cultural chronology generally used for the San Bernardino Mountains is based on the Mojave Desert chronology, as adapted by Warren (1984). This chronology has been divided into seven cultural complexes: Fluted Point Complex, Lake Mojave Complex, Pinto Complex, Gypsum, Saratoga Springs Complex, Late Complex, and Contact/Ethnographic Complex. Earle et al. (1997) present this chronology in calendar ages. However, for purposes of this report, the prehistoric cultural chronology will begin at the Lake Mojave Complex, and is presented in years Before Present (B.P.) in order to compare cultural periods with paleoclimatic events.

#### ***Lake Mojave Complex (10,000-7,000 B.P.)***

The Lake Mojave Complex, an expression of the so-called “Western Pluvial Lakes Tradition,” is presumed to begin somewhat earlier than 9500 B.P. and lasting to perhaps 7000 B.P. in the southwestern Great Basin (Basgall and Hall, 1993; Warren 1980, 1984). This cultural manifestation in the early Holocene refers to a long period of human adaptation to environmental changes brought about by the transition from the late Pleistocene to the early Holocene geologic periods. As climatic conditions became warmer and more arid, Pleistocene megafauna perished abruptly between 13,000 and 10,000 B.P. Human populations responded to these changing environmental conditions by focusing their subsistence efforts on the procurement of a wider variety of faunal and floral resources.

Most prehistoric sites of this period have been found within the southwestern Great Basin and the Mojave Desert. Although intact stratified sites dating to this period are very scarce, the limited data do suggest that the prehistoric populations of this period moved about the region in small, highly mobile groups, with a wetland-focused subsistence strategy based on hunting and foraging. The vast majority of archaeological sites dating to this period have been found around early Holocene marshes, lakes, and streams which dominated much of the landscape. These early occupants of southern California are believed to have been nomadic large-game hunters whose tool assemblage included percussion-flaked scrapers and knives; large, well-made fluted, leaf-shaped, or stemmed projectile points (e.g., Lake Mojave, Silver Lake); crescentics; heavy core/cobble tools; hammerstones; bifacial cores; and choppers and scraper planes. The absence of milling tools commonly used for seed preparation indicates that an orientation toward hunting continued throughout this phase. Nonetheless, based on ethnographic models developed for hunting-gathering groups throughout the world, populations of this phase undoubtedly exploited plant resources as well. Indeed, most Lake Mojave deposits investigated in the southwestern Great Basin have yielded some amount of milling equipment, usually large slabs with

ephemeral wear and handstones, implying regular, albeit limited use of vegetal resources (Basgall and Hall, 1993:19).

#### ***Pinto Complex (7,000-4,000 B.P.)***

In the desert regions of southern California, the “Pinto Complex” succeeded the “Lake Mojave Complex,” beginning at approximately 7000 B.P. and lasting to 4000 or 3500 B.P. Relatively recent paleo-ecological and paleo-hydrological evidence suggests maximum aridity in the desert regions between ca. 7000 and 5000 B.P., with amelioration beginning at approximately 5500 B.P. and continuing through 4000 B.P. (Spaulding, 1991, 1995). During this period, it is believed that populations diminished and dispersed due to the decrease in permanent wetland habitats; thus, the Pinto Complex reflects a settlement pattern in which the population relocated from the ancient lakeshores to seasonal water sources. As well, as an adaptive response to these changing climatic conditions, the Pinto Complex is characterized by necessary shifts in prehistoric subsistence practices and adaptations, with greater emphasis placed on the exploitation of plants and small animals than the preceding Lake Mojave Complex, as well as a continued focus on artiodactyls (Warren, 1980, 1984).

The distinctive characteristics of the “Pinto Basin Complex” as defined by Campbell and Campbell (1935) are projectile points of the Pinto series, described by Amsden (1935) as weakly shouldered, indented-base projectile points that are coarse in manufacture as well as form. Other diagnostic artifact types of this period include: large and small leaf-shaped bifaces; domed and heavy-keeled scrapers; numerous core/cobble tools; large blocky metates evincing minimal wear and small, thin, extensively used milling slabs; and shaped and unshaped manos. Throughout most of the California desert region, sites containing elements of the Pinto Basin Complex (e.g., those in the Pinto Basin, Tiefort Basin, Salt Springs, and Death Valley) are small and usually limited to surface deposits suggestive of temporary and perhaps seasonal occupation by small groups of people (Warren, 1984:413).

#### ***Gypsum Complex (4,000-1,500 B.P.)***

Several Gypsum Complex sites have been identified in the general Project vicinity. This period is characterized by a trend toward increasingly effective moisture, which began in the late middle Holocene and culminated in a pronounced pluvial episode between ca. 3700 and 3500 B.P. At that time, a number of basins in the Mojave and Owens River drainages supported perennial lakes (Enzel et al., 1992).

In general, the projectile points of this cultural period are fairly large (dart point size), but also include more refined notched (Elko), concave base (Humboldt), and small stemmed (Gypsum) forms. In addition to diagnostic projectile points, Gypsum Complex sites include leaf-shaped points, rectangular-based knives, flake scrapers, T-shaped drills, and occasionally, large scraper planes, choppers, and hammerstones (Warren, 1984:416). Manos and milling stones are common; the mortar and pestle also were introduced during this period. Other artifacts include shaft smoothers, incised slate and sandstone tablets and pendants, bone awls, *Olivella* shell beads, and *Halotis* beads and ornaments. A wide range of perishable items dating to this period was recovered from Newberry Cave, located along the Mojave River near the southern end of the Troy Lake Basin, including atlatl hooks, dart shafts and foreshafts, sandals and S-twist cordage, and tortoise-shell bowls.

Technologically, the artifact assemblage of this period is similar to that of the preceding Pinto Complex; new tools also were added either as innovations or as “borrowed” cultural items. Included are the mortar and pestle, used for processing hard seeds (e.g., mesquite pods [*Prosopis glandulosa*]) and acorns, pine nuts, yucca, and agave, as well as the bow and arrow, as evidenced by the presence of Rose

Spring projectile points late in this period. Ritual activities became important, as evidenced by split-twig figurines (likely originating from northern Arizona) and petroglyphs depicting hunting scenes. Finally, increased contact with neighboring groups likely provided the desert occupants important storable foodstuffs during less productive seasons or years, in exchange for valuable lithic materials such as obsidian, chalcedony, and chert. The increased carrying capacity and intensification of resources suggests higher populations in the desert with a greater ability to adapt to arid conditions (Warren, 1984:420). Large villages or village complexes also appear in the archaeological record during the Gypsum Complex, reflecting a transition from seasonal migration (i.e., seasonal round) to year-round sedentary occupation of the western Mojave Desert (Sutton, 1988).

#### ***Saratoga Springs Complex (1,500-800 B.P.)***

Because paleo-environmental conditions were little changed from the preceding period, cultural trends in the Saratoga Springs Complex essentially saw a continuation of the Gypsum Complex subsistence adaptation throughout much of the California deserts. Unlike the preceding period, however, the Saratoga Springs Complex is marked by strong regional cultural developments, especially in the southern California desert regions, which were heavily influenced by the Hakataya (Patayan) culture of the lower Colorado River area (Warren, 1984:421–422). Specifically, turquoise mining and long distance trade networks appear to have attracted both the Anasazi and Hakataya peoples into the California deserts from the east and southeast, respectively, as evidenced by the introduction of Buff and Brown Ware pottery and Cottonwood and Desert Side-notched projectile points. The initial date for the first Hakataya influence on the southern Mojave Desert remains unknown; however, it does appear that by about 1000 to 1100 B.P. the Mojave Sink was heavily influenced, if not occupied by, lower Colorado River peoples. Trade with the California coastal populations also appears to have been important in the western Mojave Desert region and helped stimulate the development of large complex villages containing deep middens and cemeteries that have been dated from 2200 to 300 B.P., as well as the trade and movement of large quantities of shell beads and steatite items from the coast.

Brown and Buff Ware pottery, first appearing on the lower Colorado River at about 1200 B.P., started to diffuse across the California deserts by about 1100 B.P. (Warren, 1984:425). Associated with the diffusion of this pottery were Desert Side-notched and Cottonwood Triangular arrow points dating to about 800 to 850 B.P., suggesting a continued spread of Hakataya influences. Trade along the Mojave River also expanded resulting in middlemen between coastal and Colorado River populations. The Hakataya influence in coastal and inland southern California regions appears to have diminished during the late Protohistoric period when the extensive trade networks along the Mojave River and in Antelope Valley appear to have broken down and the large village sites were abandoned (Warren, 1984:427). Evidence presented by Jones et al. (1999) points to the apparent concordance between the reduction in use of the interior desert and the Medieval Climatic Anomaly. This period, lasting from approximately 1100 to 550 B.P., was typified by increased aridity here as elsewhere in the southwest (Stine, 1994; Warren, 1984:427). This dry period may have led to the withdrawal of southwestern Native populations, such as the Anasazi, from marginal desert areas. Warren (1984:428) also suggests that the apparent disruption in trade networks may have been caused by the movement of Chemehuevi populations southward across the trade routes during late Protohistoric times.

#### ***Late Prehistoric Complex (800-300 B.P.)***

The Medieval Warm extended into the Late Prehistoric Complex, ending about 550 B.P. The cultural trends and patterns of land-use which characterized the Medieval Warm Interval, including that portion which extends into the earlier part of the Late Prehistoric Complex, were discussed above. At the end of

the Medieval Warm, however, and lasting throughout the ensuing Contact/Ethnographic times, a period of cooler temperatures and greater precipitation ushered in the Little Ice Age during which time ecosystem productivity greatly increased along with the availability and predictability of water (Spaulding, 2001).

The Late Complex reflects an adaptive modification of the cultural developments that were established during the Saratoga Springs Complex. With the waning of the Medieval Climatic Anomaly, desert settlement is believed to have expanded. Bettinger and Baumhoff (1982) propose an expansion of Numic-speakers around 800 B.P., possibly precipitated by this climatic crisis, while Moratto (1984) has suggested an earlier beginning date for this expansion (1000–900 B.P.), perhaps associated with prolonged drought. However, it is not currently known what effect Numic expansion had on the immediate Project area as Uto-Aztecan-speakers appear to have moved into the area during an earlier period.

Socioeconomic and sociopolitical organization continued to increase in complexity during this period, and by this time the “desert village” model of settlement appears to have become generalized in at least some areas of the western Mojave Desert. This model is based on population-driven sedentism and geographical limitation of gathering and hunting territories as accompanied by ever more intensive exploitation of a larger array of less attractive and less cost-efficient food resources (Earle et al., 1997).

With the return of wetter conditions around 500 B.P., there is some evidence of population increase in southern California and archaeological evidence indicates that the Late Complex populations utilized a greater variety of subsistence resources. This included the exploitation of both small and large mammals, and in some areas, fish. The continuation of milling technologies reflect a persistence of seed collecting, and the frequency of special purpose sites increases proportionally with a growing awareness of resource availability and potential (McIntyre, 1990).

### **3.4.1.3 Ethnographic Background**

Historically, the project area is located within Serrano territory. Altschul et al. (1989) have provided a useful overview of the ethnographic land-use patterns, social organization, and early ethnohistorical interactions in Serrano territory. Pertinent aspects of this overview, along with ethnographic information obtained primarily from Strong (1929), Gifford (1918), Kroeber (1925), Bean and Smith (1978), and Bean et al. (1981) are presented below.

#### ***Serrano***

The Serrano, or “mountaineers” in Spanish, occupied the territory of the San Bernardino Mountains east to Mount San Gorgonio, the San Gabriel Mountains west to Mount San Antonio, and portions of the desert to the north and the fringe of the San Bernardino Valley to the south (Kroeber, 1925:615–616). Numbering no more than perhaps 1,500 people, the Serrano were scattered over a rugged, expansive landscape. The Serrano were Shoshonean peoples, speakers of languages in the Takic sub-family of the larger Uto-Aztecan language family, and their ancestors are presumed to have entered southern California some 1,500 years ago from the Great Basin (Kroeber, 1925:578–579). Their most intensive cultural contacts were with the Pass Cahuilla, who occupied the territory to the southeast, and the Gabrielino, who occupied the lands westward to the Pacific coast.

The term “Serrano” is properly applied to just one of four original Serrano subgroups, the others being the Alliklik, Vanyume, and Kitanemuk; all were closely linked linguistically, but were not a tribe with a recognizable political unity (Strong, 1929:5–6). The Serrano subgroup occupied the portions of the San

Bernardino Mountains and Valley that encompass the Project area, and thus this term refers here to the smaller cultural unit.

Serrano clans were politically autonomous, although linked by ceremonial ties to other clans and peoples of other tribal groupings (i.e., the Cahuilla and Gabrielino). A moiety structure conditioned Serrano social life, all clans belonging to either the Coyote or Wildcat moiety, and all spring ceremonial and mourning obligations extending to at least one other clan (Strong, 1929:12–13). Exchanges of shell money between clans occurred during ceremonies, and contributions of shell money were made to mourning clan leaders by members of other clans on occasions of death. These moieties were exogamous, while clan organization was both patrilineal and exogamous. Although some have suggested that the clans were totemic, Gifford (1918:218) disagrees. Gifford attributes the patrilineal clan and moiety form of organization to links with southwestern tribes (Gifford, 1918:218); others would identify Serrano organization as a typically Shoshonean social structure.

Each Serrano clan had a hereditary leader, or *kika*, and an assistant who was a ceremonial leader, or *paha* (Strong, 1929:17–18). These individuals were central to the ritual life of the Serrano, providing leadership during yearly ceremonial periods. In the context of discussions concerning mourning ceremonies, Strong (1929:32) indicates, “Immediately after death, much of the property of the deceased was destroyed,” and Bean and Smith (1978:572) note that cremation was practiced concurrent with the destruction of most of the deceased’s possessions.

Kroeber (1925:617) indicates that villages were generally located where streams emerged from the foothills. Bean et al. (1981:85–86) are considerably more precise in their descriptions of Serrano village and camp locations. Groups of lineages lived in villages at the valley margins in the winter and in smaller encampments at higher elevations in the summer. Proximity to water sources and adequate arrays of resources predictably dictated settlement location choices. Localities rich in oaks, pinyon, yucca, agave, or seasonal migratory fowl, for example, were favored for population convergence at peak “harvest” times. Streamside areas, canyon mouths by alluvial fans, and flats near springs or lakes were frequently chosen as prime locations, with avoidance of wind and floods, and adequate defensive position also of considerable concern. Bean et al. (1981:85) note also that individual homes were quite scattered across the landscape in order to ensure privacy, to the extent that some “villages” covered up to five square miles. This clearly has important implications for archaeological interpretations of occupation sites.

Serrano residences were circular, domed, willow-and-tule thatch structures. The home of the *kika* also served as a large ceremonial house, and large, semi-subterranean, earth-covered sweathouses were found immediately adjacent to streams in most villages (Bean and Smith, 1978). Subsistence during winter months consisted mostly of reliance on stored foods (acorns, pinyon nuts, mesquite beans) and some fresh meats and greens. In the spring, agave, cacti, greens, and a mix of game provided the bulk of the food resources. Many fruits and seeds became available during the summer months, but perhaps the richest season was autumn, when major harvests of acorns, pinyon nuts, mesquite beans, and screwbeans occurred, and when communal rabbit hunts took place in the context of much feasting and ritual activity (Bean et al., 1981:86–87). In addition to occupation sites and food procurement sites, rock cairns (“offerings” places along trails), cupule petroglyph sites, hot springs (sacred areas), sources of lithic materials suitable for the production of stone tools and other artifacts, and trails represent important land uses by the Serrano.

During the early historic era, Serrano peoples and their culture were dramatically affected by the Spanish mission system. San Gabriel Mission was established in 1771 in the Los Angeles area, and baptisms of Serrano individuals began by 1785. Much later, in 1819, a new mission *asistencia* was founded in the San Bernardino Valley at the Indian rancheria of *Guachama*. An irrigation ditch (the Mill



Creek Zanja) was built with Serrano labor in 1819–1820, and agriculture became important in the valley. A more thorough review of relations between native inhabitants and early missionaries and explorers in the region is provided in the following sections.

#### **3.4.1.4 Historical Background**

The historical background of the San Bernardino Mountains and adjacent areas is best presented by adhering to the familiar divisions of local history which have become standardized in the area literature. Beginning with the Spanish (Mission) Period in 1771, the progression moves rapidly through the poorly documented Mexican (Rancho) Period into the American Period, marked by the arrival of Mormon scouts in 1850. The Post-Mormon American Period begins with the recall and departure of the Latter Day Saints in 1857, and continues into modern times. In the following discussion, important regional historical events during these periods are summarized, followed by a more detailed discussion of the historical developments in the immediate project vicinity.

##### ***European Exploration Period (1771-1810)***

The earliest significant moment in the recorded history of the region was the arrival of Portola's former Lieutenant Pedro Fages who, as military governor, accompanied an expedition from San Diego in pursuit of deserters from the Presidio. Fages kept a journal which recorded that the party traveled along the west side of the San Jacinto Mountains to what is now Riverside, continued north into the San Bernardino Valley, and then crossed into the Mojave Desert by way of the Cajon Pass (Allen, 1974:24). The record of Fages' transit across the San Bernardino Valley in 1772 is the first written account of the area to have survived into modern times.

European settlement and development of the San Bernardino Valley proceeded slowly. The year 1819 is often cited as when the San Bernardino *asistencia*, or mission outpost, was established at *Guachama*; the site of the outpost is near the present location of the restored *asistencia* on Barton Road. The following year, the local Indians began construction of the *zanja*, or ditch, under the direction of Father Zalvidea from Mission San Gabriel. The *zanja* was completed in 1823 (Knight et al., 1962:2). During the late 1810s and early 1820s, the San Bernardino *asistencia* was active, functioning as the rancho headquarters.

In 1826, the first American citizen to enter California over land, trapper and mountain man Jedediah Strong Smith, reached the San Bernardino Valley. Guided by Mohaves, as was Father Garcés, Smith left the Colorado River on November 10, 1826, and arrived at the summit of Cajon Pass 15 days later. He and his men were taken in and cared for at a rancho some five miles short of San Gabriel, where they gave themselves up to the Mexican authorities. Smith's party left San Gabriel, apparently for his Salt Lake camp, on January 18, 1826 (Morgan, 1953:243), with warnings from the Mexican authorities to never return to California. Despite the warnings, Smith returned to California and the San Bernardino Valley the following August, 1827, again by way of the Cajon Pass. Detained for several months by the Mexican authorities and determined never to return, Smith was eventually allowed to leave on December 30, 1827.

The unsettled political condition of California during the 1820s was in part due to the turmoil in Mexico in the wake of the revolution. Most disturbing in California were the decrees issued by the Mexican authorities for the secularization of the mission system. The Indians were "liberated" by decree in 1826, followed by orders for the withdrawal of the Franciscans a few years later (Elliot, 1883:27). On August 17, 1833, the Mexican Congress passed the Secularization Act which placed all mission property into the hands of civil administrators. The former Mission Indians became the most vulnerable victims in the

resulting shuffle and land grab, and their numbers were rapidly decimated by disease and culture shock. Those Indians surviving on rancherias throughout the valley apparently experienced mainly a change of masters, from padre to California ranchero. This relationship of California “pardon” and Indian stock tender worked as well as any system could for the aboriginal population.

In the 1830s and 1840s, the Southern Paiute and Mohaves with their well-developed warrior class and knowledge of the trails and desert water holes, began their most aggressive raids on these early outposts. After their first raid in 1832, Paiutes again attacked the San Bernardino asistencia in October 1834, killing Christianized Indians and taking stored grain and altar vessels (Knight et al., 1962:2). They returned again in December 1834, burned buildings, and took Father Esteneza hostage. This last attack, coupled with the decree of secularization, dealt the final blow to the San Bernardino asistencia; it was abandoned shortly thereafter.

### ***The Rancho Period (1834-1850)***

Throughout the Rancho Period, the ranchers in the San Bernardino Valley were plagued by large stock losses (primarily horses) resulting from the Indian raids. By 1840, the “Hawk of the Mountains,” Walkara, said to be chief of the Ute Indians, was leading well-organized raids on the valley. Walkara commanded a band of 200 men “all of whom were well armed with the best American guns and riding in Spanish saddles on the best mounts available in the western region of North America” (Waitman, n.d.:5).

In 1842, in a desperate attempt to protect their stock animals, Juan Bandini, owner of the Jurupa Rancho, and the Lugo family, who had received eight leagues of the Rancho San Bernardino, and had moved into the abandoned asistencia for the purposes of settling and raising stock, decided to contract for protection with a group of New Mexicans under the leadership of Lorenzo Trujillo, a native of Taos and of Pueblo Indian descent. In exchange for good land for settlement by the New Mexican clan, the “Fighting Trujillos” agreed to establish a colony in the valley and thus protect the ranchero’s property. They accepted the Lugo family’s offer first, and then in 1843 the majority moved to land later known as the “Bandini Donation,” consisting of one-half league on the Jurupa Rancho (Vickery, 1977:31).

With these two native settlements guarding the valley, the problem of marauders entering by way of Cajon Pass began to diminish. Often with ranchero Don Benito Wilson in command, mounted parties rode up into the mountains in pursuit of Walkara and his men, which reduced the success and frequency of the raids. However, they were unable to defeat Walkara, who continued actively raiding almost up to his death in 1855 (Waitman, n.d.:9).

The earliest historically known use of the Santa Ana River Canyon as a transportation route in the San Bernardino Mountains took place in 1845, when Benjamin Wilson led a party of men up the canyon in an expedition against the Indians who had been raiding livestock in the San Bernardino Valley area. The account of Wilson’s travels is significant in that it served as the basis for subsequent use and exploration of the route and San Bernardino Mountain region (Arnold et al., 1987).

### ***The American-Mormon Period (1851-1857)***

Wilson’s trip up the Santa Ana Canyon opened a new pathway to the mountains. In particular, the stories told of encountering and killing numerous bears at what is now Big Bear Lake served to attract trappers and to develop the fur trade in the San Bernardino Mountains (Drake, 1949:13). Trappers undoubtedly utilized the Santa Ana Canyon route as a means of access to the Big Bear area, and their successes most certainly led to a more general circulation of knowledge regarding the region.

A far greater impact to the region was the direct result of the development of the lumber industry. The Mormon Period from 1850 to 1857 initiated "...major farming efforts and the start of timber-cutting in the mountains...From this time on, there was widespread homesteading and farming with the diversion of the mountain streams for irrigation" (Hill, 1985:3–4). Although the rugged nature of the Santa Ana Canyon precluded the transportation of lumber, it is likely that the canyon was used as an exploration route into the interior region. Following the discovery of gold in the mountains around Bear Lake in 1860, lumbering would rapidly become a major industry in the Bear Valley area (Johanneck, 1975:47).

During the period from 1845 to 1860, the route to Bear Valley by way of Santa Ana Canyon was traveled by hunters, trappers, lumbermen/explorers, and prospectors. From 1855 to 1860 the canyon was relatively heavily utilized by miners, setting the stage for a true gold mining boom. Santa Ana Canyon was established as the gateway to the gold fields following Billy Holcomb's gold discovery in what is now referred to as Holcomb Valley (Hatheway, 1987).

The Mormon experience in California has its roots in the Mexican-American War years (1846–1848) when the Mormon Battalion was formed in Iowa and sent to California. Although too late to participate in the battle, the Mormon soldiers did observe the San Bernardino Valley during the fall harvest, and returned to Salt Lake with glowing reports of the area's potential. On March 14, 1851, a group of approximately 500 Mormons left Salt Lake with the intention of establishing a Mormon colony in the area. Camping for the summer in a sycamore grove in Cajon Pass, the Mormon families waited for the results of their leaders' negotiations to buy land to build their town. In September, 1851, Mormon leaders Lyman and Rich bought the 35,000-acre Rancho de San Bernardino from Antonio Lugo for \$77,500, and development of the town was immediate (Allen, 1974:33). A stockade was constructed, crops were planted, and a road was built up into Waterman Canyon for lumber. In 1852, a grist mill was completed, and in the following year the first county election was held, and the post office in San Bernardino was opened (Knight et al., 1962:6). However, after several years of prosperity, in 1857 trouble between the Mormon Church and federal government became so intense that Brigham Young called the faithful to return to Salt Lake City. Roughly two-thirds obeyed, packed their belongings, and in the winter of 1857–1858, left their homes for Salt Lake City.

### ***The American Period (1850-1880s)***

Through the 1860s, it was initially the freight wagon trains bound for Fort Mojave under military escort which functioned to restore law and order in the San Bernardino Valley. The once little town of San Bernardino became a major trade and outfitting center, catering to the increasing commercial stage and wagon traffic. However, those residing in the valley were to face three major disasters during the decade of the 1860s.

In 1862, a smallpox epidemic, which began in Los Angeles, swept the entire state taking many thousands of lives, and decimating the San Bernardino Valley's Indian population. Deaths were said to be so numerous that bodies of the victims were left in the open for days before undertakers could bury them (Waitman, n.d.:56). Also in 1862, a major flood struck the valley and dramatically changed the topography. What once had been fertile bottomland below Santa Ana Canyon and Mill Creek became a wide, rock-filled wash unfit for agricultural purposes (Altschul et al., 1989:73). Following the flood in the winter of 1861-1862, a drought hit southern California; almost no rain fell until February, 1864, by which time thousands of livestock had died from hunger and thirst. One estimate based on census data showed a loss of 71 percent of the total cattle in Los Angeles County (Cleland, 1941:180). Considering that cattle-ranching had been the dominant occupation of the California residents of the San Bernardino Valley up to this time, the impact of the drought was catastrophic to say the least.

Desperate for water, ranchers in the San Bernardino Valley drove their cattle and sheep up through the canyons and into the high country of the San Bernardino Mountains for summer pasture. By 1864, Holcomb and Bear Valleys, as well as Coxey Meadow, Little Pine Flat, and Big Pine Flat were full of grazing cattle, horses, and sheep. The first real cattle ranch in the San Bernardino Mountains was H.E. Parrish's Mojave Rancho along the west fork of the Mojave River in Summit Valley. Parrish drove his cattle there during the 1862 drought and patented 160 acres the following year. In late 1863, Parrish sold his Mojave Ranch to Elijah K. Dunlap for \$2,500, "together with the Rocking P brand and 400 head of neat cattle" (Robinson, 1989). Dunlap built a ranch house and other buildings, and patented 400 additional acres in Summit Valley. The Dunlap Ranch was a major cattle operation during the remainder of the 1860s (Robinson, 1989).

Through the 1860s to 1870s, San Bernardino continued to draw settlers and tradesmen. Citrus farming, which would eventually become an extremely important economic factor in the area's history, was introduced by Anson Van Leuven in 1862 (Knight et al., 1962:10). Other dramatic changes to the San Bernardino Valley and surrounding mountain regions occurring during the 1860s through the 1880s were brought about by an intensification of silver and gold mining operations within the mountains and the deserts beyond. Lumbering came to the San Bernardino Mountains in 1883 when Oscar Newberg and Dan Rathbun erected their Summit Shingle Mill at Cedar Springs on the west fork of the Mojave River. In 1884 Charles Bennett and John Shaver bought the saw mill and moved it higher into the Mountains.

By 1890, San Bernardino County had a population of about 35,000, the vast majority of whom lived west of the Cajon Pass. The largest city in the valley was San Bernardino which, by this time, had artesian municipal water, gas and electric lighting, several banks, newspapers, churches, schools, and a developed road system. Riverside was the second largest city, but was soon to become the seat of its own county. Other population centers established by this time were Colton, Redlands, South Riverside, Rincon, Etiwanda, Grapeland, and Ontario (Allen, 1974:34).

In 1883 the California Southern Railroad, later known as the Atchison Topeka & Santa Fe Railroad (AT&SF), was built over the Cajon Pass; the railroad reached the Atlantic & Pacific Railroad (later known as the Union Pacific Railroad) junction in Barstow/Dagget in 1885. Throughout the 1890s and the early 1900s the railroads were looked upon as the primary means to accomplish any and all transportation needs. Although easily able to make the ascent up Cajon and San Geronimo Passes, a railroad was not the solution to the transportation problem faced by the San Bernardino Mountain resorts. In 1887, the San Bernardino, Arrowhead and Waterman Railroad were incorporated to build a line up Waterman Canyon; however, the track was laid only as far as Harlem Springs. The first railroad to reach the top, an electric line between Arrowhead Hot Springs and San Bernardino, was built in 1906 (Carrico et al., 1982:4-30).

Lumbering, dam building, road improvement, and sporadic mining continued in the San Bernardino Mountains through the late 1800s and early 1900s. The Big Bear District began to acquire permanent residents, and recreation became the theme of mountain land use. A number of camps were established during these years which promoted recreational use of the mountains, such as Skyland Camp, Pioneer Camp, Elder's Grove Camp, Blue Jay Camp, and others (Carrico et al., 1982:4-46). In 1893, President Benjamin Harrison created the San Bernardino Forest Reserve, which became a national forest in 1907 (Knight et al., 1962:23). Gus Knight's Big Bear Hotel opened in 1888, and attracted many tourists into the mountains until it burned down in 1900. It was replaced, however, and eventually evolved into the Pine Knot Lodge. The community of Big Bear Lake grew up around the lodge, supported by the increasing popularity of all mountain resorts (Carrico et al., 1982:4-69).

The advent of the automobile caused a dramatic increase in the mountain recreational industry, which for years had struggled with limited, and somewhat difficult, access into the rugged, steep terrain. The first automobile reached the crest of the San Bernardino Mountains in 1907. In 1910, the first truck to make the top was hauling cement for the Lake Arrowhead Dam (Knight et al., 1962:29). The early automobile routes were expensive toll roads and they were dangerous to drive. Finally in 1915, the “Rim of the World Drive” up Waterman Canyon was completed as a public highway open to motorized vehicles.

**Rim of the World Drive.** Dedicated on July 17 and 18, 1915, the Rim of the World Drive was touted as a 101-mile-long scenic auto route that was immediately recognized as a true wonder of engineering and beauty, where rugged canyons and mountain peaks were conquered and nature’s wonder was miraculously revealed at every turn. The “Rim” route opened the mountains to a new generation of tourists, campers, and holiday seekers. By 1917, the regular holiday pilgrimages had begun in earnest, and mountain auto stages had established regular service over what was now a State highway (Hatheway, 2009).

By the mid-1920s, California highway planners and engineers realized that the capacity of the now famous Rim of the World Drive had exceeded all expectations. On a holiday weekend such as Memorial Day or Labor Day, it could take up to four hours to reach the crest from San Bernardino, and lines of traffic snaked up the mountain until well after midnight. As a result, a “High-Gear” road was planned that eliminated dreaded switchbacks, and ideally allowed the driver of a totally stock automobile to travel from San Bernardino to the mountain crest entirely in high gear. First planned in the mid-1920s, construction was underway by 1928, the switchbacks were eliminated by 1931, and the completed highway was officially opened on October 21, 1933. Scenic rockwork and chains were later added as part of a W.P.A. funded program to increase the safety and beauty of the drive. On February 10, 1936, the Lake Arrowhead Women’s Club honored highway engineer E. Q. Sullivan for his work on the newly improved highway (Hatheway, 2009).

Construction of the high gear road on the Rim of the World Drive was a genuine breakthrough. By the early 1930s, mountain resorts and communities were linked to the valley by a blacktop highway, better facilitating the huge Memorial Day, Fourth of July, and Labor Day weekend traffic blowouts. Roadway improvements continued, and by the late 1960s, the present four lane route was completed “up the hill.” The segment of the Rim of the World Drive/Highway 18 from the Crestline Cut-Off to Rim Forest was completed during the years 1930–1933. Today the historic Rim of the World Drive threads its way through the most urbanized mountains in America. Assembled from many component parts and continuously realigned and rebuilt from 1915 to the late-1960s, it is the very “backbone” of the San Bernardino Mountains connecting all towns, resorts, and recreation areas (Hatheway, 2009).

**Town of Rimforest.** The area in the vicinity of today’s Rimforest community is reported to have once been known as Redwood Springs Ranch, under the ownership of Samuel A. Thompson (Hatheway, 2011). Little development activity took place in the area until April 1, 1921, when Thompson was granted rights to Lots 10 and 13 of Section 29, and Lots 11, 12, and 16 of Section 30, Township 2 North, Range 3 West of the San Bernardino Meridian, California, comprising nearly 47 acres (BLM, 2014). Thompson, and his wife Mary, quickly subdivided their newly acquired land. Today, the central portion of the San Bernardino Mountain community of Rimforest is primarily comprised of four tracts filed between 1921 and 1946. The first two tracts were filed by S. A. Thompson and Mary E. Thompson in 1921 and 1929. Rim of the World Subdivision Number 1 was filed in 1921, and Rim of the World Subdivision No. 2: Tract No. 2414 was filed in 1929. Two tracts, Tract No. 2797 and Tract No. 2986, were subdivided in 1946 (Hatheway, 2011).

Historic aerial photographs from 1938 and 1953 indicate that considerable growth took place during the period of time between photographs (Historic Aerials.com, 2014). In 1938, there was little development in the area, and it was confined to construction directly adjacent to Highway 18 (Rim of the World Drive). By 1953, however, additional buildings appear to have been built within the two tracts filed in 1946 (Tract No. 2797 and Tract No. 2986), expanding the limits of the town beyond the frontage of the Highway. Considerable new construction also took place in both directions along Highway 18.

In Lewis Garrett's, *Place Names of the San Bernardino Mountains* (1998), published by the Big Bear Valley Historical Society, he describes the town of Rimforest as a residential and commercial community on Highway 18 near its intersection with Daley Canyon Road, where various lumber, hardware, glass and other building supply and maintenance companies serving the area are located, as well as homes. The first post office at Rimforest opened in 1949 (Hatheway, 2011).

### **3.4.1.5 Rimforest Storm Drain Project**

The proposed project area contains one previously documented cultural resource (Rim of the World Drive; P-36-007049) (Smallwood, 2015). In 1915, the Rim of the World Drive was touted as a 101-mile-long scenic auto route that opened the mountains to a new generation of tourists, campers, and holiday seekers. This built environment resource was originally recorded by the San Bernardino National Forest in 2001. The segment of this resource located within the project area was documented and evaluated during the pedestrian survey of the project area and was recommended as eligible for listing on the California Register of Historical Resources (CRHR). Although no other cultural resources were identified within the project area, the portion of the project around Little Bear Creek was identified as being sensitive for buried archaeological remains.

## **3.4.2 Applicable Regulations, Plans, and Standards**

### **3.4.2.1 State**

#### ***California Environmental Quality Act***

Cultural resource management work conducted as part of the proposed project is to comply with the California Environmental Quality Act (CEQA) Statute and Guidelines, which direct lead agencies to first determine whether cultural resources are "historically significant" resources. CEQA requires that impacts that a project may have on cultural resources be assessed and requires mitigation if significant (or "unique") cultural resources are to be impacted (Section 21083.2 [a-1] and Appendix K). Generally, a cultural resource is considered "historically significant" if the resource is 45 years old or older, possesses integrity of location, design, setting, materials, workmanship, feeling, and association, and meets the requirements for listing on the California Register of Historical Resources (CRHR) under any one of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4. Has yielded, or may be likely to yield, information important in prehistory or history (Title 14 CCR, § 15064.5).

The statutes and guidelines specify how cultural resources are to be managed in the context of projects, such as the proposed Rimforest Storm Drain Project. Briefly, archival and field surveys must be conducted, and identified cultural resources must be inventoried and evaluated in prescribed ways. Prehistoric and historical archaeological resources, as well as built environment resources such as standing buildings, structures, and objects, deemed “historically significant” must be considered in project planning and development.

If a Lead Agency determines that an archaeological site is a historical resource, the provisions of California Public Resources Code (CPRC) §21084.1 and CEQA Guidelines §15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site is to be treated in accordance with the provisions of PRC §21083 regarding unique archaeological resources. The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of a project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines §15064[c][4]).

If human remains of any kind are found during construction activities, CEQA Guidelines Section 15064.5(e) and Assembly Bill 2641 are to be followed. These require that all construction activities cease immediately and the County Coroner and a qualified archaeologist must be notified. The coroner will examine the remains and determine the next appropriate action based on his or her findings. If the coroner determines the remains to be of Native American origin, the Native American Heritage Commission (NAHC) must be notified. The NAHC will then identify a most-likely descendant to be consulted regarding treatment and/or reburial of the remains.

#### ***Native American Heritage Commission***

#### ***Public Resources Code Sections 15064.5(e) and 15064.5(d), et seq.***

This code requires that excavation activities be stopped whenever human remains are uncovered and that the County coroner be called in to assess the remains. If the County coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans as identified by the Native American Heritage Commission and the lead agency, under certain circumstances, should develop an agreement with the Native Americans for the treatment and disposition of the remains.

### **3.4.2.2 Local**

#### ***County of San Bernardino***

The County of San Bernardino General Plan has the following policies regarding cultural resources:

- **Policy CO 3.1:** Identify and protect important archaeological and historic cultural resources in areas of the County that have been determined to have known cultural resource sensitivity.
- **Policy CO 3.2:** Identify and protect important archaeological and historic cultural resources in all lands [where activity] involves disturbance of previously undisturbed ground.
- **Policy CO 3.3:** Ensure that important cultural resources are avoided or impacts minimized to protect Native American beliefs and traditions.
- **Policy CO 3.5:** Ensure that important cultural resources are avoided or minimized to protect Native American beliefs and traditions.



### 3.4.3 Environmental Impacts and Mitigation Measures

#### 3.4.3.1 Significance Criteria

The proposed project would result in significant impacts to cultural resources if it would:

- *Criterion CR1: Cause a substantial adverse change in the significance of a historical or archaeological resource as defined by State of California guidelines.*
- *Criterion CR2: Disturb human remains, including those interred outside of formal cemeteries.*

Under all of these criteria, adverse changes and impacts include the following:

- Physical, visual, or audible disturbance resulting from construction, operation, and development that would affect the integrity of a resource or the qualities that make it eligible for the CRHR;
- Exposure of cultural resources to vandalism or unauthorized collecting;
- A substantial increase in the potential for erosion or other natural processes that could affect significant cultural resources; or
- Neglect of a significant cultural resource that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe.

#### 3.4.3.2 Impact Assessment Methodology

Cultural resources are places or objects that are important for historical, scientific, and religious reasons and are of concern to cultures, communities, groups, or individuals. These resources may include buildings and architectural remains, archaeological sites and other artifacts that provide evidence of past human activity, human remains, or Traditional Cultural Properties.

Within the State of California there are provisions in CEQA, its Guidelines, and other provisions of the California Public Resources Code for the protection and preservation of significant cultural resources (i.e., “historical resources” and “unique archaeological resources”). The CEQA Guidelines provide four ways in which a resource can be a “historical resource,” and thus a cultural resource meriting analysis: (1) the resource has been formally determined eligible for, or listed on, the National Register of Historic Places (§5024.1(d)(1)); (2) the resource is listed on the CRHR; (3) the resource is included in a local register of historical resources (pursuant to §5020.1(k) of the Public Resources Code), or identified as significant in an historical resources survey (meeting the criteria in §5024.1(g) of the Public Resources Code); or (4) the lead agency determines the resource is “historically significant” by assessing CRHR listing guidelines that parallel the federal criteria. (§15064.5(a)(1)-(3) of the CEQA Guidelines (as amended)). To qualify as a historical resource under (1), (2) or (4), the resource must also retain the integrity of its physical identity that existed during its period of significance. Integrity is evaluated with regard to retention of location, design, setting, materials, workmanship, feeling, and association (14 C.C.R. 4852(c)). Finally, under California State law, Native American human remains and associated grave goods are granted special consideration.

#### ***Direct and Indirect Effects Analysis***

Direct impacts to cultural resources are those associated with project development, construction, and co-existence. Construction usually entails surface and subsurface disturbance of the ground, and direct impacts to archaeological resources may result from the immediate disturbance of the deposits, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, excavation, or

demolition of overlying structures. Construction can have direct impacts on historical built-environment resources when those buildings or structures must be removed to make way for new buildings or structures or when the vibrations of construction impair the stability of historical buildings or structures nearby. New buildings or structures can have direct impacts on historical built environment resources when the new buildings or structures are stylistically incompatible with their neighbors and the setting, or when the new buildings or structures produce a harmful effect to the materials or structural integrity of the historical built environment resources, such as emissions or vibrations.

Generally speaking, indirect impacts to archaeological resources are those that may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource components due to improved accessibility. Similarly, historical built environment resources can suffer indirect impacts when project construction creates potentially damaging noise and vibration, improved accessibility and vandalism, or greater weather exposure.

### **3.4.3.3 Project Impacts**

This section analyzes impacts to historical resources (CRHR-eligible) identified within the proposed project. The cultural resources literature and records search for the proposed project indicated that 55 cultural resource studies have been conducted previously within a one-mile radius of the proposed project area. Of these, four studies included various portions of the project area. The records search also noted 44 previously documented cultural resources within a one-mile radius of the proposed project area. One of these resources, Rim of the World Drive (P-36-007049), was located within the proposed project area. Although no newly identified cultural resources were recorded during the pedestrian survey, the segment of the Rim of the World Drive that intersects the project area was documented and found to be eligible for listing on the CRHR. To date, no specific TCPs have been identified within the project area. Finally, information gathered from the cultural resource literature, records searches, and field surveys was also used to assess the potential for encountering previously unrecorded cultural resources within the project area; results of this assessment indicate that the Little Bear Creek portion of the project area exhibits a high potential for buried archaeological remains.

***Criterion CR1: Cause a substantial adverse change in the significance of a historical or archaeological resource as defined by State of California guidelines.***

**Impact CUL-1: Construction, operation, and maintenance of the proposed project would demolish, destroy, relocate, or disturb the cultural resource in a manner that would diminish its integrity or materially impair the significance of the resource (Class II)**

One CRHR-eligible cultural resource, Rim of the World Drive (P-36-007049), is located within the project area. However, the project proposes to trench under the historical resource. As such, the proposed project will not demolish, destroy, relocate, or disturb the features that contribute to the integrity of this resource. Unknown buried resources (prehistoric and historical archaeological sites) could be inadvertently unearthed during ground-disturbing activities associated with project construction, particularly in the Little Bear Creek portion of the project area. Direct impacts to potentially significant cultural resources without mitigation would be a significant impact (Class I). The procedures and provisions in Mitigation Measure (MM) CUL-1a (Construction monitoring) and MM CUL-1b (Treatment of previously unidentified cultural resources), below, address inadvertent discoveries and provide detail on how these activities would be implemented to reduce impacts to a less-than-significant level (Class II).

Operation and maintenance of the proposed project would not result in any disturbance of cultural resources. In addition, indirect impacts to cultural resources are not anticipated for the project.

## Mitigation Measures

**MM CUL-1a Construction monitoring.** Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of prehistoric and historical resources that could be encountered within the project area. A monitor(s) shall be present for all ground disturbing activities that involve excavation within the Little Bear Creek portion of the project area. A monitoring program shall be developed and implemented by the County of San Bernardino, Department of Public Works or San Bernardino County Flood Control District (County) to ensure the effectiveness of monitoring.

A Native American monitor may be required at culturally sensitive locations specified by the County following project scoping with Native American tribes. The County shall retain and schedule any required Native American monitors.

**MM CUL-1b Treatment of previously unidentified cultural resources.** If previously unidentified cultural resources are unearthed during construction activities, construction work in the immediate area of the find shall be halted and directed away from the discovery until a qualified archaeologist assesses the significance of the resource. Once the find has been inspected and a preliminary assessment made, the County of San Bernardino, Department of Public Works or San Bernardino County Flood Control District will make the necessary plans for evaluation and treatment of the find(s).

Mitigation Measure CUL-1a (Construction Monitoring) shall also be implemented for Impact CUL-1b.

***Criterion CR2: Disturb human remains, including those interred outside of formal cemeteries.***

**Impact CUL-2: Construction, operation, and maintenance of the proposed project could uncover, expose, and/or damage human remains (Class II)**

No formal cemeteries or human remains are known to be located within the project area. However, there is always the possibility that unmarked burials may be unearthed during construction. The procedures and provisions in MM CUL-2 (Properly treat human remains), below, provides detail on how this activity would be implemented, in the unlikely event of an accidental discovery of any human remains, to reduce impacts to a less-than-significant level (Class II).

## Mitigation Measure

**MM CUL-2 Properly treat human remains.** The County of San Bernardino, Department of Public Works or San Bernardino County Flood Control District (County) shall follow all State laws, statutes, and regulations that govern the treatment of human remains. Avoidance and protection of inadvertent discoveries which contain human remains shall be the preferred protection strategy with complete avoidance of impacts to such resources protected from direct project impacts by project redesign.

If human remains are unearthed during construction activities, construction work in the immediate area of the discovery shall be halted and directed away from the discovery until the county coroner can determine whether the remains are those of a Native American. If they are those of a Native American, the following would apply:

- a. The coroner shall contact the Native American Heritage Commission.
- b. If discovered human remains are determined to be Native American

remains, and are released by the coroner, these remains shall be left in situ and covered by fabric or other temporary barriers.

- c. The human remains shall be protected until the County, the landowner, and the Native American Heritage Commission come to a decision on the final disposition of the remains.
- d. According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052).

#### **3.4.4 Level of Significance After Mitigation**

Unknown buried resources (prehistoric and historical archaeological sites) could be inadvertently unearthed during ground-disturbing activities associated with project construction. Destruction of potentially significant cultural resources without mitigation would be a significant impact (Class I). However, implementation of MM CUL-1a (Construction monitoring) and MM CUL-1b (Treatment of previously unidentified cultural resources) would ensure that impacts to unanticipated archaeological discoveries are reduced to a less-than-significant level (Class II).

No human remains are known to be located within the project area. However, there is always the possibility that unmarked burials could be inadvertently unearthed during excavation activities, which could result in damage to these human remains. In the unlikely event of an accidental discovery of any human remains in a location other than a dedicated cemetery, MM CUL-2 (Properly treat human remains) would be implemented to reduce impacts to a less-than-significant level (Class II).

## 3.6 Hydrology and Water Quality

This section describes the potential effects on hydrology and water quality that would result from construction and operation of the proposed project. The following discussion addresses the existing environmental conditions in the project area, identifies and analyzes potential environmental impacts of the proposed project, and recommends measures to reduce or avoid significant impacts that are anticipated from project construction, operation, and maintenance. This section also describes existing laws and regulations that are relevant to hydrology and water quality. In some cases, compliance with these existing laws and regulations would reduce or prevent potential impacts that might otherwise occur with implementation of the proposed project.

### 3.6.1 Environmental Setting

The proposed project is located in the community of Rimforest, which sits within the southwestern portion of San Bernardino County on the crest of the San Bernardino Mountains. The project area is located within the administrative boundary of the San Bernardino National Forest and includes both forest and non-forest land. The community of Lake Arrowhead is located approximately 2 miles to the northeast, and the City of San Bernardino is located approximately 6 miles to the south-southwest. The proposed project is located within the Transverse Ranges geomorphic province, which is defined by a series of east-west trending mountain ranges in southwestern California that were formed partially due to movement along the San Andreas Fault (CGS, 2002). To the west of the San Bernardino Mountains, the Transverse Ranges geomorphic province also includes the San Gabriel Mountains and the Santa Ynez Mountains (CGS, 2002). The Antelope Valley and the Mojave Desert lie to the north. The Los Angeles basin, the San Jacinto Mountains, and the Colorado Desert lie to the south.

The topography of the project area is characterized primarily by the east-west trending crest of the San Bernardino Mountains. The community of Rimforest sits on a relatively flat bench that is located north of the crest of the San Bernardino Mountains and south-southeast of a ridge associated with Strawberry Peak (USGS, 2015). This bench sits at an elevation of approximately 5,650 feet above mean sea level (USGS, 2015). From this bench, a series of north to south trending ridges and valleys drop off sharply to the south. Severe erosion on this steep southern face has driven the need for development of the proposed project. Slopes to the north are substantially less steep. To the north and northwest, the project area is bound by a ridge associated with Strawberry Peak. To the northeast, the project area slopes slightly downhill towards Little Bear Creek (USGS, 2015). The headwaters of Strawberry Creek, which drains to the Santa Ana River and eventually to the Pacific Ocean, are located on the southern portion of the project area. The headwaters of Little Bear Creek, which drains to Lake Arrowhead, are located on the northern and eastern portions of the project area (USGS, 2015).

Climate in the project area is cooler and wetter than that of the Los Angeles basin to the south. Based on measurements from Lake Arrowhead (the nearest climate station), the summers are mild, with overall mean temperatures in the upper 60s degrees Fahrenheit, average maximum temperatures in the low 80s, and average minimum temperatures in the mid-50s (WRCC, 2015a). The winters are relatively cold, with overall mean temperatures in the upper 30s, average maximum temperatures in the mid- to upper 40s, and average minimum temperatures in the upper 20s (WRCC, 2015a). The average annual precipitation is approximately 40 inches (WRCC, 2015b). The majority of precipitation occurs from December through March. During these months, precipitation typically falls at least partially as snowfall. January is the wettest month, with a mean monthly precipitation total of 8.58 inches (WRCC, 2015b). In contrast, the

summer months are very dry; the mean total summer precipitation (for June, July, and August) is less than one inch (WRCC, 2015b).

### **3.6.1.1 Surface Water**

Surface watersheds in California are divided into ten hydrologic regions, as defined by the California Department of Water Resources. The proposed project is located on the southwestern boundary of the South Lahontan Hydrologic Region (HR), a large drainage area bounded by the crests of the Sierra Nevada Mountains and the Transverse Ranges that includes the Antelope Valley and the Mojave Desert (CDF, 2004). The southwestern boundary of the South Lahontan HR is shared with the South Coast HR, which contains coastal watersheds in southern California that drain to the Pacific Ocean. Hydrologic Regions are subdivided into Hydrologic Units (HUs), and further into Hydrologic Areas (HAs) and Hydrologic Subareas (HSAs). Within the South Lahontan HR, the proposed project is located within the Mojave HU and the Upper Mojave HA (CDF, 2004). No HSA is defined for this area. Surface water in the Upper Mojave HA eventually drains to the Mojave River. The runoff that would be restored by the proposed project currently flows into Strawberry Creek, which is located within the South Coast HR, the Santa Ana River HU, the Upper Santa Ana River HA, and the Bunker Hill HSA (CDF, 2004). Surface water in the Bunker Hill HSA drains to the Santa Ana River and eventually to the Pacific Ocean.

The proposed project is located at the interface between undeveloped land with natural drainage features and urban development with altered drainage systems, such as underground stormwater systems. There are no named drainages within the project area, and runoff on undeveloped land typically occurs as sheet flow or ephemeral streams. Runoff on developed land either occurs as sheet flow or is intercepted by storm water drainage systems that discharge to the headwaters of Strawberry Creek. The headwaters of Strawberry Creek occupy the southern boundary of the project area. Several named waterbodies are located outside of, but near to, the project area. In addition to Strawberry Creek, the southern slopes of the San Bernardino Mountains are drained by East Twin Creek to the west of the project area and West Fork City Creek to the east of the project area (USGS, 2015). The northern slopes of the mountains are drained by Houston Creek and Dart Creek to the west of the project area and Grass Valley Creek, Little Bear Creek, Burnt Mill Creek, Fleming Creek, and Orchard Creek to the east of the project area (USGS, 2015). The headwaters of Little Bear Creek occupy the northeastern portion of the project area. Lake Arrowhead is located approximately 1.5 miles to the northeast, and Lake Gregory is located approximately 2.25 miles to the northwest (USGS, 2015). The very small Grass Valley Lake is located approximately 2 miles due north of the proposed project (USGS, 2015). For a description of jurisdictional waters that would be affected by the proposed project, please see Appendix 3, Preliminary Jurisdictional Delineation Report.

All of the project area is located within the South Lahontan HR, and the Lahontan Regional Water Quality Control Board (RWQCB) holds jurisdiction over this area (CDF, 2004). However, the runoff that would be restored by the proposed project currently flows into Strawberry Creek, which is located within the South Coast HR and is subject to the jurisdiction of the Santa Ana RWQCB (CDF, 2004). Based on a review of historic topographic maps, alluvial patterns, and aerial photos, it is likely that runoff in the project area flowed towards Little Bear Creek prior to substantial human alterations of the local topography and hydrology (Bonadiman, 2010; Hilltop, 2010). These alterations, including grading and drainage improvements for Highway 18 and the community of Rimforest, likely resulted in changes to the natural runoff pattern such that storm water in the project area now flows towards Strawberry Creek to the south rather than towards Little Bear Creek to the northeast (Bonadiman, 2010; Hilltop, 2010). However, the historic topographic maps do not contain sufficient detail to assess historic runoff patterns with certainty. It is probable but not certain that the actions of the proposed project would direct runoff in the project area towards its historic, natural outlet. Nonetheless, this restoration of the flowpath could require the approval of the State Water