

December 23, 2021

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**VIA EMAIL**  
**MarLee@dpw.lacounty.gov**

**Subject:** Status Report for the Oak Woodland Habitat Revegetation/Mitigation Program for the Santa Anita Dam Riser Modification and Reservoir Sediment Removal Project, Los Angeles County, California

Dear Ms. Lee:

This Status Report provides a summary of November–December 2021 site conditions for Los Angeles County Public Works’ (Public Works’) mitigation site at the Santa Anita Lower Sediment Placement Site (SPS) associated with the *Oak Woodland Habitat Revegetation/Mitigation Program (OWHRMP) for the Santa Anita Dam Riser Modification and Reservoir Sediment Removal Project* (Psomas 2016 [Revised]). The OWHRMP describes the creation of 5.5 acres of oak woodland habitat and 2.5 acres of sage scrub habitat as compensation for impacts associated with the Santa Anita Dam Riser Modification and Reservoir Sediment Removal Project. Mitigation site performance is subject to the approval of the California Department of Fish and Wildlife (CDFW) and the City of Arcadia. The mitigation site locations are shown in Exhibits 1, 2, and 3. Photographs of the site are provided in Attachment A.

### **MITIGATION MAINTENANCE AND MONITORING**

Mitigation site preparation (consisting of initial non-native vegetation removal, soil conditioning, placement of coarse woody debris and boulders, irrigation system construction, enclosure fencing, and erosion control measures) was performed from September 2013 through December 2013. Mitigation site installation (planting and seeding) was performed in two phases: Phase I occurred in January/February 2014, and Phase II occurred in December 2014. The seven-year to ten-year maintenance and monitoring period began on January 1, 2015 (the ten-year maintenance/monitoring period may be completed after seven years if the program’s performance criteria are met early, subject to the approval of the CDFW and the City of Arcadia). Psomas has served as the Biological Monitor for the mitigation program since its inception and is responsible for vegetation surveys, wildlife surveys, monitoring, and supervision of maintenance activities.

The Restoration Contractor, Nakae & Associates, Inc. (Nakae) (Psomas’ subcontractor), is performing habitat maintenance on the 8.0-acre mitigation site and a total of 7.38 acres of weed abatement buffer areas (Buffer Areas) that Public Works is maintaining on a voluntary basis to reduce weed proliferation. Nakae promptly removes non-native plant species when they are observed during regular maintenance activities. To the extent practicable, weeds are removed prior to seed production/dispersal to avoid re-infestation of the site. All herbicide use on the mitigation site was suspended in April 2019 per Public Works’ direction. Psomas’ Biological

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Monitor performs nesting bird surveys and monitoring between February 1<sup>st</sup> and September 15<sup>th</sup> of each year (as stipulated in the CDFW Streambed Alteration Agreement and mitigation measures contained in the Environmental Impact Report for the sediment removal project) to ensure that maintenance activities do not adversely impact sensitive biological resources. Intensive manual removal of weeds is performed year-round in areas that are not designated as environmentally sensitive (e.g., nesting bird areas) by the Biological Monitor.

Nakae also performs regular maintenance of the concrete drainages and inlets on the Lower SPS, the exclusionary fencing on the deck of the Lower SPS, and the wildlife ‘drinker’ tanks that were placed at the northeast corner of the site. The most recent cleanout of sediment and debris in the Lower SPS drainages and inlets occurred in October of 2021.

Psomas’ Restoration Ecologist periodically places flagging tape on some of the native ‘volunteer’ trees/shrubs (i.e., naturally occurring native plants that were not purposely installed via planting or seeding) that occur on the site, such as mule fat (*Baccharis salicifolia* ssp. *salicifolia*) and laurel sumac (*Malosma laurina*). Nakae removes the flagged plants to avoid excessive cover of these native tree/shrub species that is inconsistent with project goals. Psomas coordinates with Nakae on the identification of native/non-native plant species and methods of weed removal.

Based on data from Public Works’ website, the area received a total of 6.87 inches of precipitation between October 1, 2020, and September 30, 2021 (the most recent water year, which ended on September 30). This rainfall total was recorded at the Arcadia Fire Station, which is located 0.5 mile from the Lower SPS at a similar elevation. The normal (annual) seasonal average of precipitation at Public Works’ Arcadia gauge location is 20.93 inches for the period of October 1 to September 30; therefore, the recorded precipitation through September 30, 2021, was approximately 33 percent of the average annual precipitation amount. Irrigation was discontinued on the oak woodland mitigation site in October 2018. Irrigation has not been applied to the sage scrub planting areas (SPS slopes) since June 2015. It is anticipated that no additional irrigation of the oak trees will be required for their long-term establishment unless an extended period of acute drought occurs on the mitigation site.

Prior to the substantial rain events in December 2021, Psomas directed Nakae to install fully bio-degradable, natural jute-encased straw wattles on the ‘Buffer Area 1’ slope to the east of the mitigation site. Nakae installed a total of 200 linear feet of wattles at a spacing of 8 to 10 feet to reduce erosion on these steep slopes. In addition, these steep slope areas were planted and seeded with native species to provide further soil stabilization, as described below.

## **OAK TREE MAINTENANCE AND MONITORING**

Beginning in July 2021, Psomas’ Certified Arborist (Arborist) performed monthly health evaluations of planted oak trees to identify signs of water stress due to recent drought conditions. While most of the planted oaks exhibited good health during the summer and fall of 2021, approximately 20 oaks (5 percent of the plantings) showed marked drought stress (yellowing leaves and general loss of vigor). To aid the survival of the stressed oaks, the Arborist recommended the placement of approximately 2 inches of certified weed-free mulch (Forest Floor™ by Aguinaga Green, Inc.). Nakae applied the specified mulch over the root zone of the drought-stressed oaks in July 2021 under the supervision of the Arborist. Despite the acute drought conditions, the planted oak population performed well in 2021 without the need for resumption of artificial irrigation. This indicates that the oaks are well-rooted and resilient, 3 years after irrigation was terminated in October 2018.

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## OAK ACORN COLLECTION AND PLANTING

Psomas' Restoration Ecologist collected a total of 3–4 pounds of acorns from coast live oaks (*Quercus agrifolia* var. *agrifolia*) within Public Works' Santa Anita flood control facility in November 2021. An additional 3–4 pounds of Engelmann oak (*Quercus engelmannii*) acorns were collected from heritage trees in residential areas of the Cities of Arcadia and Sierra Madre in November 2021. Engelmann oak has a California Rare Plant Rank of 4.2, indicating that they are 'plants of limited distribution (a watch list)'. The Engelmann oak acorns were collected within public rights-of-way. For both oak species, collections were made from at least 15–20 individual trees to incorporate some genetic diversity from within these local tree populations. Once collected, the acorns were stored in accordance with the guidelines of University of California Division of Agriculture and Natural Resources.

The Restoration Ecologist planted a total of 10 acorns, 5 of each species (coast live oak and Engelmann oak), at each of the 37 oak planting locations that did not currently support a surviving oak in December 2021. One location was only able to accommodate 5 acorns (*Q. agrifolia*) due to the presence of a dense/brushy dead oak within the cage. Each acorn was placed approximately 1/2–1 inch below the soil and loosely covered with soil, then covered with a thin layer of leaf litter. The OWHRMP specifies that oak acorns shall be planted each year for the first 5 years of the long-term maintenance period. Therefore, the December 2021 acorn plantings represent Public Works' voluntary efforts beyond Year 5 to provide a robust contingency of acorn seedlings to improve measured oak survival performance during the maintenance period. Based on similar acorn planting events in prior years of the maintenance period, it is anticipated that at least one acorn will germinate at each location. The acorns are expected to establish on rainfall amounts only—no irrigation will be applied to the acorn planting sites.

It is important to note that the overall survival of planted oaks currently exceeds 100 percent on the mitigation site due to the planting of numerous supplemental oaks outside the initially designated 399 oak planting locations. The planted oaks exhibit excellent growth and survival, and there is a diverse mosaic of associated understory vegetation. Many of the oak saplings now exceed 10 to 12 feet in height.

## SUPPLEMENTAL SEED COLLECTION AND APPLICATION

Psomas' subcontractor S&S Seeds, Inc. (S&S) collected a diversity of supplemental seed materials in the local Santa Anita Wash / Rio Hondo subwatershed in 2021 in coordination with Psomas' Biological Monitor. The seed was collected primarily within the City of Monrovia's Hillside Wilderness Park (HWP), in coordination with the City of Monrovia's HWP Supervisor. The goal of the supplemental seeding effort is to boost native vegetation cover and diversity on various portions of the mitigation site to improve site performance and overall habitat quality.

Psomas' Biological Monitor hand broadcasted the seed in various combinations/mixes in December 2021, shortly before a significant rain event. Psomas' Biologists, along with Nakae personnel, scratched the seed approximately 1/4-inch into the soil surface using heavy metal bow rakes. A portion of the seed species was combined into an herbaceous understory mix for application within (1) the designated herbaceous understory portions of the oak woodland mitigation site (which are maintained to be free of woody shrubs), and (2) patches of cactus and yucca within the Coastal Sage Scrub (CSS) mitigation site. A total of 130 locations were reseeded with the herbaceous understory mix, and a red wire flag was placed in the approximate center of each seeded patch for reference during subsequent weeding activities. The locations of the 130 seeding patches are shown on Exhibit 3. A xeric shrub/herbaceous seed mix was also applied to numerous lower cover patches within the CSS mitigation site (slopes) and portions of the Buffer Area 1 slope (where the straw wattles were installed); however, these seeding areas were not flagged. A transitional seed mix was applied to the upper slopes of the ephemeral drainages. Seed of chaparral yucca (*Hesperoyucca whipplei*) was also sown in areas of the mitigation site that contained

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cactus and yucca. A list of all seed species and quantities that were installed on the site in December 2021 is provided in Attachment B.

### **SUPPLEMENTAL PLANTING**

Psomas' Restoration Ecologist collected a total of 76 cuttings of Vasey's prickly-pear (*Opuntia vaseyi*) (cactus) from the Santa Anita Middle SPS in November 2021. Following a period of scabbing-off in shaded storage, the pads were planted by Nakae on the eastern slope (Buffer Area 1) prior to the onset of substantial seasonal rains in December 2021. The Biological Monitor placed colored wire flags to mark the planting locations of the cactus cuttings, which will be non-irrigated and expected to establish on rainfall amounts only. As they develop roots, the planted cactus pads will enhance soil stability on these steeper slopes that are currently poorly vegetated.

Psomas' Biological Monitor also installed a total of 51 native container plants on the mitigation site in December 2021, including wrinkled rush (*Juncus rugulosus*), basket rush (*Juncus textilis*), coffee fern (*Pellaea andromedifolia*), bird's-foot fern (*Pellaea mucronata*), and California rose (*Rosa californica*). The rushes and roses were planted in moist areas along the spiraling drainages on the site, and the ferns were installed in protected/shaded niches along the north edge of placed boulders on the site. The rose planting locations were selected to provide significant shading, and a native mulch was deeply applied around each planting. It is anticipated that most of these new container plants will survive on rainfall and storm flow alone and that no irrigation will be provided. The container plants were provided by California Botanic Garden (CBG)—Psomas' prior subconsultant for this mitigation program. CBG has been maintaining these materials as a courtesy to support Public Works on this project. All the supplemental container plants and cuttings are of local genetic origin—i.e., the Santa Anita Wash / Rio Hondo subwatershed. A list of the container plants and cuttings species that were installed on the site in December 2021 is provided in Attachment B.

### **MITIGATION PERFORMANCE**

The mitigation site supports an excellent diversity of plant and animal species, and the vegetation structure and cover continue to develop. During the sixth annual monitoring survey that was performed in the spring of 2021, it was determined that the mitigation site exceeded several of the seven-year to ten-year vegetative performance criteria (e.g., minimum percent coverage of the site by native plant species) that are listed in the OWHRMP. As of December 2021, a total of 149 native plant species have been observed on the site since the start of mitigation installation in September 2013, including trees, shrubs, sub-shrubs, vines, succulents, herbs, grasses, ferns, spike-moss, and emergent plant species. The diversity of plant species offers year-round habitat values for wildlife, as various shrubs/herbs bloom and set fruits/seeds over a long time period.

A total of 114 native vertebrate wildlife species (94 native bird species) have been observed on the site, in addition to numerous native invertebrate species (e.g., butterflies, beetles, bees, dragonflies) since project initiation in September 2013. A total of 15 different species of native birds have been documented to utilize the mitigation site for nesting purposes since project initiation.

Various habitat enhancements that were incorporated into the mitigation site's design (e.g., natural snags, coarse woody debris, brush piles, boulder assemblages) provide valuable cover for wildlife species and habitat niches for the establishment of a variety of plant species (e.g., ferns). The Psomas team installs various smaller branches amongst the placed boulders on the site on an ongoing basis to provide additional perches for wildlife.

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Several ‘camera traps’ (motion-activated video cameras) were installed on the mitigation site to provide 24-hour wildlife imagery to enhance the Biological Monitor’s field observations. Wildlife species—including numerous bird species, lizards, coyote (*Canis latrans*), bobcat (*Lynx rufus*), southern mule deer (*Odocoileus hemionus*), mountain lion (*Puma concolor*), common gray fox (*Urocyon cinereoargenteus*), and black bear (*Ursus americanus*)—have been observed via camera traps. In August 2021, Psomas observed a suspected wood rat ‘midden’ (a habitation/nest constructed of fine woody material) associated with one of the created boulder assemblages. A camera trap was positioned near the assemblage, and nocturnal videos confirmed the occupation of the midden by a native woodrat (likely to be Bryant’s woodrat [*Neotoma bryanti intermedia*]) which is a California Species of Special Concern and a new species to be recorded on the mitigation site. A notable recent observation was made of Lewis’s woodpecker (*Melanerpes lewis*) via a camera trap oriented upward into a placed snag. This bird species had not been observed on the mitigation site since 2014. The Biological Monitor subsequently observed Lewis’s woodpecker using snags on the mitigation site in December 2021. A bobcat was recorded via camera trap perching atop one of the tall snags on the site on August 29, 2021.

The CDFW has authorized Public Works to discontinue the requirement for surveys of the reference site for the duration of the mitigation program. Qualitative and quantitative monitoring of the mitigation site will continue through Years 7 to 10 until the mitigation program has been signed off by the CDFW and the City of Arcadia.

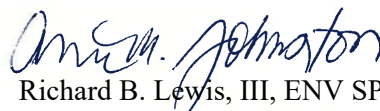
Please call Richard Lewis at 626.351.2000 with any questions regarding this report.

Sincerely,

**P S O M A S**



Ann M. Johnston  
Principal, Resource Management



Richard B. Lewis, III, ENV SP  
Senior Project Manager

Enclosures:    Exhibit 1 – Project Vicinity  
                  Exhibit 2 – Sediment Placement Site Locations  
                  Exhibit 3 – Mitigation Site Location (Lower Sediment Placement Site)  
                  Attachment A – Site Photographs  
                  Attachment B – Supplemental Seed and Plant Species (December 2021)

cc:        Marc Blain, Psomas



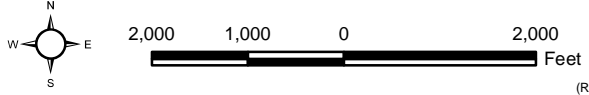


	On-Site Mitigation
	Reference Site

### Project Vicinity

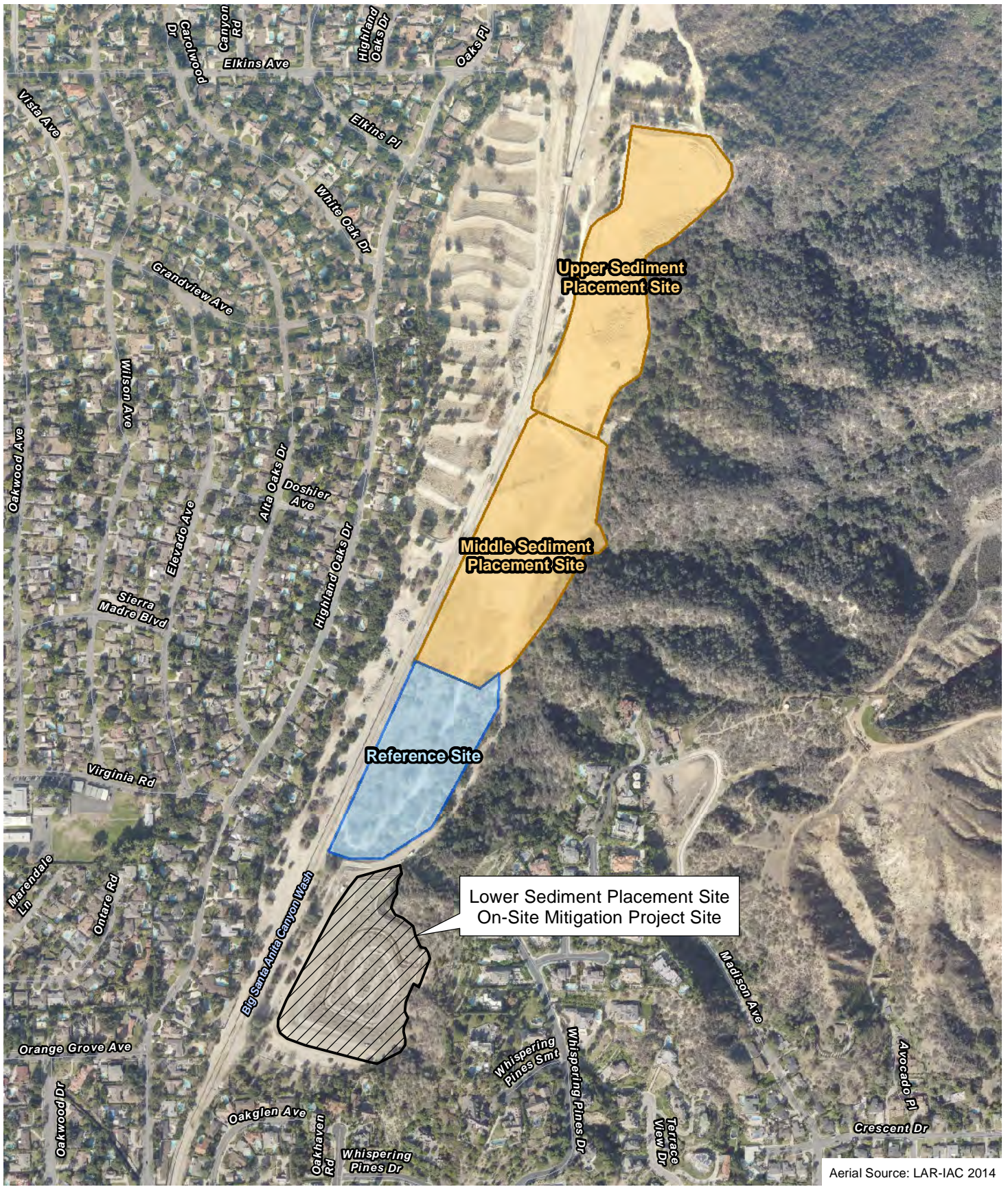
### Exhibit 1

Status Report: Oak Woodland Habitat Revegetation/Mitigation Program;  
 Santa Anita Dam Riser Modification and Reservoir Sediment Removal Project



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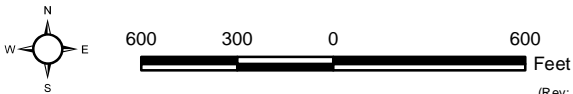


Aerial Source: LAR-IAC 2014















## Sediment Placement Site Locations

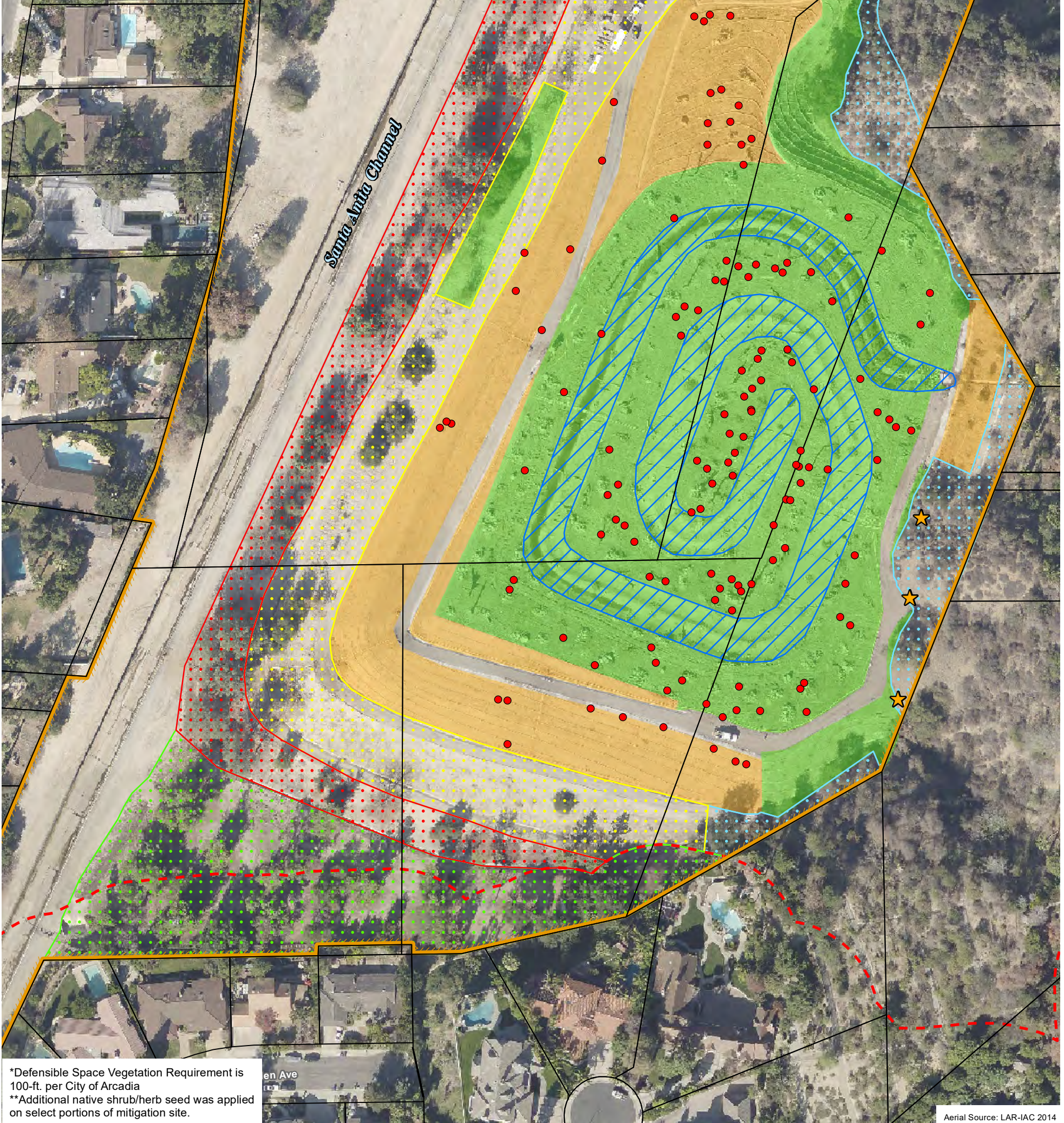
## Exhibit 2

Status Report: Oak Woodland Habitat Revegetation/Mitigation Program;  
 Santa Anita Dam Riser Modification and Reservoir Sediment Removal Project





-  Defensible Space Vegetation Requirement (Approximate)\*
  -  Government-Owned Land
  -  Parcel Boundary
  -  Oak Woodland Mitigation (5.50 acres)
  -  Coastal Sage Scrub Revegetation (2.50 acres)
- Weed Abatement Buffer Areas:**
-  Area 1 (0.78 acres; to East Property Line)
  -  Area 2 (2.32 acres)
  -  Area 3a (1.72 acres)
  -  Area 3b (0.45 acres)
  -  Area 4 (1.74 acres)
  -  Area 5 (0.37 Acre)
- Supplemental Planting and Seeding Locations\*\***
-  Supplemental Herbaceous Seed Mix (130 Patches)
  -  Drainage Slope Seed Mix (Outer Slopes of 1.63-Acre Area)
  -  Vasey's Prickly-Pear Cuttings Planting Locations (Center of Polygon)



\*Defensible Space Vegetation Requirement is 100-ft. per City of Arcadia  
 \*\*Additional native shrub/herb seed was applied on select portions of mitigation site.

Aerial Source: LAR-IAC 2014

### Mitigation Site Location (Lower Sediment Placement Site)

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Exhibit 3



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**ATTACHMENT A**  
**SITE PHOTOGRAPHS**





**October 2021.** There was excellent growth and survival of the planted oak species in 2021 despite acute drought conditions during the October 2020 to September 2021 water year.



**October 2021.** Approximately 5 percent of the planted oaks exhibited marked drought stress in 2021. Psomas' subcontractor Nakae & Associates applied mulch to the stressed oaks in July and August 2021.



**December 2021.** Psomas' Biological Monitor planted supplemental oak acorns (coast live oak; Engelmann oak) at the planting locations that currently lack a surviving oak.



**December 2021.** View of high quality planted/seeded native cover along one of the spiraling drainages (designed by Los Angeles County Public Works) on the deck of the Lower Sediment Placement Site.



**December 2021.** Lush blooms on California rose, a planted native shrub.



**October 2021.** View of a portion of the Lower SPS drainage areas under acute drought conditions. A supplemental seed mix was applied to portions of the drainage slopes in December 2021 to improve native vegetation cover and diversity.

## Site Photographs

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**October 2021.** California brickellbush is a late-flowering shrub that provides important late-season food/nectar resources for wildlife.



**November 2021.** Psomas' Biological Monitor continues to place upright woody debris amongst the placed boulder assemblages to provide important perching opportunities for birds and other wildlife species.



**October 2021.** This buckeye, a native butterfly species, is nectaring on long-stem wild buckwheat—a late-blooming, native perennial herb that was re-seeded onto the mitigation site in December 2021.



**December 2021.** Psomas' subcontractor Nakae & Associates (Nakae) is using heavy metal bow rakes to vigorously scratch the native herbaceous seed mix onto a patch with lower vegetation cover on the oak woodland mitigation site.



**November 2021.** Lewis's woodpecker—an uncommon visitor to local foothills habitats—was recently detected via camera trap atop one of the placed snags.



**December 2021.** View of Nakae staff planting cuttings of native Vasey's prickly-pear (cactus) onto the eastern non-mitigation slope in "Buffer Area 1". Native seed was also applied to the cactus planting areas.

## Site Photographs

Status Report: Oak Woodland Habitat Revegetation/Mitigation Program  
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**ATTACHMENT B**

**SUPPLEMENTAL SEED AND PLANT SPECIES (DECEMBER 2021)**

**TABLE B-1  
SUPPLEMENTAL SEED SPECIES (DECEMBER 2021)**

Scientific Name	Common Name	Collection Source Location <sup>b</sup>	Pounds
<b>Herbaceous Seed Mix</b>			
<i>Acmispon maritimus</i>	coastal deervetch	Monrovia	1.04
<i>Clarkia bottsae</i>	punchbowl godetia	Monrovia	0.02
<i>Cryptantha intermedia</i>	intermediate cryptantha	Monrovia	2.20
<i>Eucrypta chrysanthemifolia</i>	chrysanthemum-leaved eucrypta	Monrovia	2.86
<i>Lupinus hirsutissimus</i>	stinging lupine	Monrovia	1.92
<i>Lupinus truncatus</i>	cut leaf lupine	Monrovia	0.94
<i>Malacothrix saxatilis</i>	rocky malacothrix	Monrovia	2.10
<i>Mentzelia micrantha</i>	small-flowered blazing star	Monrovia	0.88
<i>Mirabilis laevis</i>	smooth four o'clock	Monrovia	0.26
<i>Phacelia grandiflora</i>	large-flowered phacelia	Monrovia	2.96
<i>Phacelia minor</i>	wild Canterbury bells	Monrovia	1.96
<i>Pseudognaphalium biolettii</i>	Bioletti's cudweed	Monrovia	0.12
<i>Salvia columbariae</i>	chia	Monrovia	0.66
<b>Subtotal</b>			<b>17.92</b>
<b>Drainage Slopes Mix</b>			
<i>Ambrosia psilostachya</i>	western ragweed	Monrovia	3.00
<i>Artemisia douglasiana</i>	mugwort	Monrovia	2.62
<i>Senecio flaccidus</i> ssp. <i>douglasii</i>	Douglas' threadleaf ragwort	Monrovia	3.10
<b>Subtotal</b>			<b>8.72</b>
<b>Xeric Slopes Mix (Gaps in Shrub Cover)</b>			
<i>Brickellia nevinii</i>	Nevin's brickellbush	Monrovia	2.00
<i>Corethrogyne filaginifolia</i>	filago-leaved sand-aster	Monrovia	1.28
<i>Eriogonum elongatum</i>	long-stem wild buckwheat	Monrovia	1.10
<i>Hazardia squarrosa</i>	saw-toothed goldenbush	Monrovia	2.26
<i>Penstemon spectabilis</i>	spectacular beardtongue	Monrovia	0.10
<b>Subtotal</b>			<b>6.74</b>
<b>Sown Within Oak Cages (37 Planting Locations)</b>			
<i>Quercus agrifolia</i> var. <i>agrifolia</i> <sup>c</sup>	coast live oak	Arcadia / Sierra Madre	2.00
<i>Quercus engelmannii</i> <sup>c</sup>	Engelmann Oak	Arcadia / Sierra Madre	2.00
<b>Subtotal</b>			<b>4.00</b>
<b>Sown as Individual Species in Select Areas</b>			
<i>Carex spissa</i>	San Diego sedge	Monrovia	0.12
<i>Diplacus aurantiacus</i>	orange bush monkeyflower	Monrovia	0.94
<i>Frangula californica</i>	California coffee berry	Monrovia	1.16
<i>Hesperoyucca whipplei</i> <sup>d</sup>	chaparral yucca	Monrovia	3.30
<b>Subtotal</b>			<b>5.52</b>
<b>Total – All Seed (December 2021)</b>			<b>42.90</b>
<p>a Collected by Psomas' subcontractor S&amp;S Seeds in Monrovia Hillside Wilderness Park (HWP).  b All seed was collected within the local Santa Anita Wash / Rio Hondo subwatershed.  c Collected by Psomas.  d Sown in patches that have existing spiniferous scrub species (cactus/yucca).</p>			



**TABLE B-2**  
**SUPPLEMENTAL CONTAINER PLANTS AND CUTTINGS (DECEMBER 2021)**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Collection Source Location<sup>b</sup></b>	<b>Quantity</b>
<i>Juncus rugulosus</i>	wrinkled rush	Monrovia	10
<i>Juncus textilis</i>	basket rush	Arcadia	10
<i>Opuntia vaseyi</i>	Vasey's prickly-pear (cuttings)	Arcadia	76
<i>Pellaea andromedifolia</i>	coffee fern	Monrovia	8
<i>Pellaea mucronata</i>	birds's-foot fern	Monrovia	2
<i>Rosa californica</i>	California rose	Monrovia	20
		<b>Subtotal</b>	<b>126</b>