DRAFT

NORTHLAKE
CASTAIC, LOS ANGELES COUNTY, CALIFORNIA

WESTERN SPADEFOOT TOAD (*Spea hammondii*)

IMPACT ASSESSMENT

AND

HABITAT MITIGATION AND MONITORING PLAN

July 2022 [Revised March and June 2023 and April 2024]

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I. INTRODUCTION/BACKGROUND

The project involves the phased development of up to 3,150 residential units, 9.2 acres of commercial uses, 13.9 acres of industrial uses, 799.5 acres of parks and open space, a 22.9-acre school site and a 1.4-acre pad for a future fire station (Project). Subsequent to the publication of the Final SEIR, the Regional Planning Commission requested that the Applicant include an affordable housing component in the Project. The Applicant made minor revisions to the Project to include an affordable component. Specifically, the Applicant eliminated 108,283 square feet (SF) of industrial use and 13,197 SF of commercial uses and reallocated 323 units from the Phase 2 area of the Project to the Phase 1 area. The County of Los Angeles Planning Commission approved the NorthLake Project [Exhibits 1 and 2] on April 18, 2018, and the Los Angeles County Board of Supervisors approved the Project on April 2, 2019. Exhibit 1 is a Regional Map for the site and Exhibit 2 is a vicinity map showing the project location.

On January 11, 2021 the Los Angeles Superior Court ruled (Court Ruling) on the Center For Biological Diversity and Endangered Habitats League v. County Of Los Angeles, et al, and Real Parties in Interest, NorthLake Associates, et al, Case No. 19STCPO1610, finding that relative to the Western Spadefoot Toad (WST) that the Supplemental Environmental Impact Report (SEIR) was deficient in failing to adequately delineate the WST baseline and failing to provide adequate mitigation measures for the relocation of the WST. The ruling on the WST is as follows:

> ***ISSUE THREE: THE BASELINE AND MITIGATION MEASURES PROVIDED IN THE SEIR TO PROTECT THE WESTERN SPADEFOOT TOADS ARE NOT SUFFICIENT UNDER CEQA:***
>
> *A project has a significant effect on the environment if it will eliminate a species of special concern from the Project site. Guidelines 15065. Section l 5065(a) provides:*
>
> > *A lead agency shall find that a project may have a significant effect on the environment ... where there is substantial evidence ... that any of the following conditions may occur (1) The project ... threaten[s] to eliminate a plant or animal community ....*
>
> *In that event, section 15065(b)(2) requires the project proponent to:*
>
> > *implement mitigation requirements relating to such species and habitat pursuant to an approved habitat conservation plan or natural community conservation plan.*[1]

[1] The Court appears to have taken CEQA Guidelines Section 15065(b)(2) out of context. Section 15065(b)(2) provides "Furthermore, where a proposed project has the potential to substantially reduce the number or restrict the range of an endangered, rare or threatened species, the lead agency need not prepare an EIR solely because of such an effect, if: (A) the project proponent is bound to implement mitigation requirements relating to such species and habitat pursuant to an approved habitat conservation plan or natural community conservation plan." Here, the County prepared a comprehensive SEIR, and there is no approved habitat conservation plan or natural community conservation plan applicable to the Project site. As such, Section 15065(b)(2) is inapplicable.

The Western spadefoot toad ("WST") is a California species of special concern. AR 3665 (CDFW letter); see AR 3644 defining "species of special concern." A self-sustaining WST population exists at the Project site in and adjacent to Grasshopper Canyon. AR 3689. The WST habitat in Grasshopper Creek and nearby seasonal wet areas will be eliminated by the Project. Grasshopper Canyon itself will be filled in and levelled for building sites. The DSEIR acknowledges the Project will destroy the WST habitat along Grasshopper Canyon.

> *Since this Grasshopper Canyon population is one of few known populations in the region and Project impacts would result in the loss of these populations (or a substantial portion thereof), impacts to this species would be considered significant ... AR 1943.*

The County has approved Mitigation Measure 5.2-9 to relocate the WST population to a new habitat that the applicant is to create (at an as-yet unspecified location) and monitored for five years.

The parties dispute, first, the sufficiency of the baseline biological surveys for the site, and, thus, dispute not only the number of individuals in the WST community that are to be relocated but also the number and characteristics of the breeding pools that will have to be created to sustain the population in a new habitat. The applicant's Biological Technical Report, Appendix D relies on a single biological survey for its count of WST: "The western spadefoot was observed incidentally during previous amphibian surveys, and in the focused surveys conducted for the species in 2014 (Bon Terra 2000b, 2014c)." AR 1943. Petitioners argue the BonTerra's surveys underestimate the WST population on the site because the surveys were taken during draught years when the WST numbers were reduced.

The parties dispute, secondly, that the mitigation measures ensure that the relocation of the WST to a new habitat will be successful. The Biological Technical Report asserts that "[i]mplementation of Mitigation Measure 9 [MM 2.5-9) would reduce this impact [on the WST] to less than significant level. " Id. Petitioners argue the mitigation measures are inadequate to assure that result.

The mitigation measures approved by the County to mitigate the loss of WST habitat will require that the existing WST population on the project site be captured and relocated to new WST habitat. The DSEIR promises:

> *"Implementation of MM 5.2-9 which requires a western spadefoot relocation program, would reduce this impact to a less than significant level through translocation of individuals to suitable habitat. This measure would result in substantial avoidance of direct impacts to the western spadefoot and as a result the western spadefoot is expected to persist in the region following project implementation." AR 1943.*

The actual mitigation measure MM 2.5-9 reads in its entirety:

A relocation program for western spadefoot toad will be conducted prior to construction during the spring at the height of the breeding season for this species.... Results of the relocation program shall be provided to the CDFW and the LACDRP.

(a) Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the prior appropriate season. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e.2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond as well as others.

(b) The intent of the Relocation Plan is to capture and relocate as many western spadefoot toads as possible. Western spadefoot toads shall be relocated on or off site to an area of suitable habitat, as reviewed by the CDFW and the LACDRP. The relocation site shall be of similar (or better) quality as the habitat within the project impact area where the western spadefoot toads are captured. If no suitable habitat is available for relocation, suitable habitat shall be created.

Petitioners, to reiterate, argue that the WST relocation project violates CEQA because
(l) the baseline definition of the WST population understates the extent of the habitat of the species on the Project site; and (2) the mitigation plan to relocate the existing WST population is unformulated and therefore does not assure the WST will be successfully introduced at another location.

These arguments, in the Court's view, are well taken.

The applicant has prepared a detailed relocation plan for the Western spadefoot toad. There is the Relocation Plan itself (AR 7831-7846) and a feasibility analysis (AR 8385-8417). The Relocation Plan specifies the steps that are to be taken to remove the WST population (including larvae, tadpoles and mature specimens) from their existing habitat and to replant them in or near pools that have been constructed to match the dimensions and depths of the pools from the original habitat and inoculized with soils from their original habitat. The pools would be situated in areas having similar vegetation to the original habitat. The feasibility study identifies six sites that could be constructed to recreate the original habitat (two at the site's north end and two on the adjacent state recreational area). The pools apparently are to be replenished by rainfall only.

The Relocation Plan, however, is designed to duplicate the conditions for the WST habitat that were identified in the 2014 BonTerra Psomos focused survey. That survey and earlier incidental surveys were allegedly taken in drought years, and, therefore, as petitioners argue, underestimate the extent of the WST habitat and the number of WST individuals. (In drought years the adult WST may stay underground in hibernation.) The parties have not, so far as the Court can ascertain, provided the rainfall data for the years in which the surveys were taken nor established whether

those years had below average rainfall. The petitioners, however, assert that surveys taken in 2014 and general surveys taken in 2004 and 2005 were drought years. This issue was raised during the public comment periods, and the Court is unable to find evidence in the record to refute that the surveys were taken in drought years. The issue bears on whether the implementation of MM 2.5-9 will reduce the impact on the WST to less than significant. Petitioners argue that there are 8 to 10 seasonable pools in which the WST have been observed to breed and where larvae and tadpoles live, but the Relocation Plan intends to construct only three breeding pools. If petitioners are correct, Relocation Plan is inadequate to maintain the WST population.

The County's biologist, Joseph Decruyenaere, criticized the SEIR, telling the Planning Commission: "Mitigation for the spadefoot needs to address impacts to all 8 previously documented breeding pools, not just the two that have been observed since 2014. " AR 25823. The CDFW in its June 15, 2017 letter spotted the same problem, telling the Planning Commission: "the Department considers the 2014 surveys not adequate for determining the extent of the western spadefoot toad." AR 7395.

The Errata later [sic] attempted to address this issue by requiring additional surveys to determine the extent of the WST habitat. The Errata (AR 8330) provides:

> *Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the two prior appropriate seasons prior to the issuance of a grading permit. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e. 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond as well as others.*

The Relocation Plan as a mitigation measure is intended to reduce the impacts of the destruction of the WST habitat to less than significant. This requires that the habitat that is to be destroyed must be measured in a manner that obtains its maximum dimensions so that those potential dimensions may be realized in the new circumstances at the site where the WST is relocated. The applicant's focus on its 2014 (or 2015) survey is inadequate because it ignores information indicating that with average or greater than average rainfall the extent of the WST habitat is larger with more breeding pools to support a larger WST population. The Errata, in other words, is inadequate because it establishes a restriction on the number of breeding ponds that will be duplicated at the new WST habitat, e.g. those identified in the 2014 survey plus any identified in "two prior appropriate seasons" before a grading permit is issued. This restricts the extent of a recreated WST colony because it establishes fewer than the maximal number of breeding pools. What happens if the applicant establishes three breeding pools based on the 2014 survey and a year later there is deluge rainfall? The site unlike Grasshopper Canyon may not naturally expand the number of breeding pools. The WST has survived in Grasshopper Canyon through wet years and draught years. The evidence indicates Grasshopper Canyon has the potential to increase its number of breeding pools in wet years and thus to support a larger WTS population. This potential will be lost if the applicant mechanically duplicates the number of

breeding pools that it finds from surveys taken before the grading of Grasshopper Canyon begins.

Concluding on the first issue, the applicant has not established a baseline for the WST habitat that must be re-created to preserve the WST population presently existing on the Project site. The mitigation measure for the WST is inadequate for that reason.

On the second issue, petitioners argue the relocation plan provided in MM 5.2-9 is inadequate. While the MM 5.2-9 requires the newly created habitat be monitored for five years the steps that will be taken to ensure success are unspecified. (The amphibian relocation plan is described in the SEIR, Appendix C (Biological Resources Plan) at AR 7839.) The CDFW also raised objections to the relocation plan. AR 7390-7405 (CDFW letter of June 15, 2017). The CDFW notes the applicant has not identified a specific site for relocation and does not promise that successful transplantation can be accomplished. AR 7396. The CDFW, as a trustee agency, does not have authority to approve or disapprove a project; however, it is required to be consulted and may comment as to projects that involve fish and wildlife, rare and endangered native plants, wildlife areas and ecological reserves.

The promise the applicant will create a habitat in which the transplanted WST population will flourish is deferred mitigation. The parties concede that the success of an alternate habitat is uncertain and will require on-going attention during and maybe beyond the monitoring period. The standard governing the acceptability of deferred mitigation measures is provided in Guidelines section 15126.4(a)(l)(B), reading:

> *Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review, provided the agency (1) commits itself to the mitigation; (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard that will be considered, analyzed, and potentially incorporated in the mitigation measure.*

The Court does not find a specific response to the contention that the applicant's deferred mitigation for the loss of the WST habitat does not provide sufficient detail, lacking particularly a specified location for a successful reconstruction of the Grasshopper Canyon WST community. The applicant relies on the September 13, 2018 letter from Glenn Lukos Associates (the Tony Bomkamp letter) to supply substantial evidence that the applicant will succeed in transplanting the WST population. The Bomkamp letter does not make any commitment; it merely points to the process described in the SEIR (AR 7839) and says Bomkamp personally has been involved in establishing "seasonal pool for

western spadefoot toads" in Orange County, without providing further detail. AR 16011.

More is required by Guidelines section 15126 for mitigation measures that are deferred. The MM standards required for future projects are that the mitigation measure itself "inform [the lead agency] what it is to do and what it must accomplish, and they commit [the agency] to mitigating impacts before proceeding." See, Center for Biological Diversity v. Department of Fish & Wildlife (2015) 234 Cal. App.4th 214, 240, 245. The deferred mitigation to create a new habitat for the WST community is inadequate in detail and commitment. The mitigation measures to assure relocation of the WST population at the Project site does not comply with CEQA requirements.

II. IMPACT ASSESSMENT

The purpose of this WST Assessment (Impact Assessment) and Habitat Mitigation and Monitoring Plan (HMMP) is to evaluate potential impacts to WST associated with the Project and to develop a feasible and effective mitigation program that reduces the potential impacts to less than significant in accordance with the California Environmental Quality Act (CEQA) Appendix G Guidelines. The Court Ruling includes certain statements that are addressed as part of the Impact Assessment component of this document as well aspects of the proposed HMMP to ensure that the HMMP fully and accurately addresses the concerns raised by the Court Ruling.

Before setting forth the proposed mitigation program, the following issues relative to potential impacts to WST and associated habitat are addressed below:

- Status of the WST within northern Los Angeles County
- Identification of the specific features on the Project site occupied by the WST
- Quantification of the habitat area on the Project site occupied by the WST

This HMMP proposes to collect additional data regarding the WST population within the occupied features as part of pre-construction monitoring. Nevertheless, the performance standards are "habitat based" with the recognition, that with creation of suitable habitat and translocation of a substantial number of egg masses and larvae, the translocated population will be self-sustaining and will persist for the long-term. The habitat-based impact analysis is necessary because the previous surveys that identified WST within seasonal pools on the site did not include a census regarding the number of WST egg masses, larvae, or metamorphs. Thus, the available baseline data does not include numbers of egg masses, larvae, or metamorphs that could be used to inform the performance standards for the proposed pond creation and translocation program. Therefore, the impact assessment and mitigation is focused on the total area of documented occupied habitat. As discussed below, impacts to the WST will be fully mitigated through the creation of an equal or greater area of suitable habitat in conjunction with the translocation of WST egg masses, larvae, and metamorphs during a minimum of two seasons with ideal conditions for such relocation efforts, which will occur only after the hydrology performance standards for the created pools have been achieved to ensure that the relocation of egg masses, larvae, and metamorphs will be successful.

A. Status of WST in Castaic and Nearby Areas of Los Angeles County

The Court Ruling reiterated comments that were submitted on the SEIR. Specifically, the Court Ruling stated:

> *Since this Grasshopper Canyon population is one of few known populations in the region and Project impacts would result in the loss of these populations (or a substantial portion thereof), impacts to this species would be considered significant ... AR 1943.*

The Court suggests that WST are very rare within the Castaic area and the surrounding areas of northern Los Angeles County. Exhibit 3 shows WST locations from the California Natural Diversity Database (CNDDB) from the Whitaker Peak and surrounding 7.5 Minute Quadrangles.[2] Including the Northlake site, a total of 35 locations for the WST are shown on Exhibit 3 plus additional locations nearby to the southeast. While all of these are not extant, many are, and based on the extent and distribution, it is expected that other populations that have not been formally identified add to the regional population associated with the depicted portion of northern Los Angeles County. As such, just within the surrounding area, there are many known WST populations in addition to the one located at the Project site. As such, WST populations are not rare in the nearby areas.

B. Identification of Specific Features Occupied by the WST

WST was observed on the NorthLake Project site during various general and focused amphibian surveys as well as during focused surveys for listed fairy shrimp within seasonal pools. As discussed below, contrary to various statements that the fairy shrimp surveys in 2004/2005 occurred during a drought year; the 2004/2005 rainfall season was nearly double of normal seasonal rainfall with approximately 36 inches[3] of rain compared with the average of approximately 20 inches. Exhibit 4 depicts Vernal Pool (VP) 1, VP 2, VP 6, and Stock Pond (SP) 1. While numerous ephemeral ponds and features have been observed on the Project site over time with respect to various surveys for different species, at no time have more than 3 features been observed to contain WST and one additional feature was observed to contain potential WST habitat, despite no WST being observed.

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[2] The California Natural Diversity Database (CNDDB) is an inventory of the status and locations of rare plants and animals in California maintained by the California Department of Fish and Wildlife (CDFW). (https://wildlife.ca.gov/Data/CNDDB.) CNDDB staff work with partners to maintain current lists of rare species, as well as to maintain an ever-growing database of GIS-mapped locations for these species.

[3] The January 17, 2006 BonTerra Fairy Shrimp Focused Survey included the following: "The precipitation from the winter of 2004-05 was well above average. The average rainfall for northwestern Los Angeles County is 20 inches per year. The accumulated rainfall for the months of October 2004 to February 2005 was 44 inches at the Del Valle Weather Station, approximately six miles to the southwest of the project site (Table 1) [based on the monthly totals cited by BonTerra the total from October 2004 through February 2005 actually was 34.59 inches and with an additional 1.24 inches in March which BonTerra included in the 2006 BonTerra Fairy Shrimp Focused Survey, thus the total was 35.83 inches]."

1. 2004/2005 Wet Season Fairy Shrimp Surveys

A determination for the extent of suitable habitat for WST is possible from the data collected during wet-season fairy shrimp surveys in 2004/2005, which was one of the wettest rainfall years in the last 50 years[4]. Appendix A of the January 17, 2006, BonTerra fairy shrimp report documents the results of the surveys including descriptions of eight ponded features identified during the surveys.[5] Ponding was recorded along with water depths during the surveys and the presence of a suite of invertebrates, amphibians (including WST), and other species such as waterfowl. Features identified in that report, including VP 1, VP 2, VP 6, and Stock Pond (SP) 1 exhibited sufficient ponding to support WST as noted in the comments in Appendix A of the report. It is important to note that fairy shrimp surveys during the 2004/2005 survey season began on November 27, 2004 and extended to April 9, 2005 ensuring that the surveys fully captured a sufficient segment of the breeding season for the WST.[6]

Critically, features BonTerra identified as VP 3, VP 4, VP 5, and VP 7 during the surveys in 2005 and documented in the 2006 Report were too shallow (i.e., no more than a few inches at maximum depth) and dried out throughout the course of the surveys and thereby lacked sufficient depth and duration to support WST. This is particularly important information, because if these features were too shallow and therefore failed to pond for sufficient duration during the 2004/2005 rainfall season, which was an exceptionally wet year, their lack of suitability for WST is unambiguously established. No amphibians or fairy shrimp were detected in these features during an extra-optimal year. For these features, there is no potential for WST to successfully breed. Feature VP 6, appears to have exhibited sufficient ponding but did not support WST at the same time they were observed in SP 1 and VP 1 but did support western toad larvae leading to the conclusion that the habitat is at least potentially suitable during such above-average years.

Based on the more than double average rainfall (this is further addressed below) during the 2004/2005 rainfall season, features listed as VP 1, VP 2, and SP 1 in the 2006 BonTerra Report

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[4] The January 17, 2006 BonTerra Fairy Shrimp Focused Survey included the following: "**The precipitation from the winter of 2004-05 was well above average**. The average rainfall for northwestern Los Angeles County is 20 inches per year. The accumulated rainfall for the months of October 2004 to February 2005 was 44 inches at the Del Valle Weather Station, approximately six miles to the southwest of the project site (Table 1) [based on the monthly totals cited by BonTerra the total from October 2004 through February 2005 actually was 34.59 inches and with an additional 1.24 inches in March which BonTerra included in the 2006 BonTerra Fairy Shrimp Focused Survey, thus the total was 35.83 inches]. There was an initial, early rainfall during October 19 and 26, 2004. A total of 4.72 inches fell at the Del Valle Weather Station during October 2004. November 2004 rainfall totaled 0.17 inch at Del Valle. The majority of the rains came during the months of December 2004 through February 2005. The Del Valle Weather Station rainfall total was 6.82 inches in December 2004, 12.46 inches in January 2005, 10.42 inches in February 2005 [and 1.24 inches in March 2005]. The above average rainfall enabled the wet season survey to comprehensively sample the ponds for representative invertebrates present. The ponds inundated on December 27 and 28, 2004, during a rainfall event that delivered 4.5 inches over two days and remained inundated above the 0.39-inch (3 cm) standing water criteria until the final site visit on April 9, 2005."

[5] BonTerra Consulting. January 17, 2006. *Results of Focused Presence/Absence Surveys for Fairy Shrimp at the NorthLake Specific Plan and Castaic High School Project Site, Near the Community of Castaic in Unincorporated Los Angeles County*.

[6] WST breeding season is typically late winter to the end of March. See: S. Morey, 2000. California Wildlife Habitat Relationships System California Department of Fish and Wildlife California Interagency Wildlife Task Group.

are the only features documented to support WST; while one additional feature, VP-6, is the only other feature with potential (at least in extreme rainfall years).

2. 2014 Wet Season Fairy Shrimp Surveys and Western Spadefoot Toad Surveys

In 2014, surveys for fairy shrimp and amphibians, were conducted and the nomenclature for the features mapped and surveyed in 2004/2005 was modified. The features that previously supported WST were identified as Ponds 8, 9, & 7, respectively, in the 2014 90-Day BonTerra fairy shrimp report.[7] As noted in the 90-day report, WST tadpoles were observed in Pond 8 (Previously VP 1) and Pond 7 (Previously SP 1). WST was not observed in Pond 9 (VP 2) due to lack of sufficient ponding in 2014 which exhibited lower-than-average rainfall. BonTerra also conducted focused surveys for WST in 2014 and the results are summarized below (note: the 2014 WST Report used a different nomenclature for the pools than the 2006 and 2014 fairy shrimp reports adding to the potential confusion).

> *Western spadefoot toad was detected at both Pond 1 and Pond 2 during the surveys (Exhibit 4). Western spadefoot toad tadpoles were detected in Pond 2 on March 31, 2014. Advertising adult males and foraging adults of both sexes were observed at Pond 1 on March 31, April 7 and 15, and May 7, 2014. Amplexing (mating) pairs were observed at Pond 1 on April 7 and 15, 2014. Metamorphs were observed at Pond 1 on May 21, 2014. Photographs of Pond 1 and Pond 2 are presented in Attachment A, and photographs of the western spadefoot toad tadpoles, metamorphs, and adults on the project site are presented in Attachment B.*
>
> *Tadpoles observed at Pond 2 were at Gosner stage 26-30[1] a little more than halfway to metamorphosis, and at least one hind limb bud was visible on each of the tadpoles examined. Given that western spadefoot toad larvae have been documented metamorphosing within three weeks of egg-hatching (Lanoo 2005), tadpoles could have potentially metamorphosed within 12 days of the first observation on March 31, 2014. The pool had diminished significantly by the April 7, 2014, survey and no tadpoles were observed. It is unlikely that the tadpoles observed during the March 31 survey had metamorphosed by the second survey on April 7.*
>
> *Up to 15 male spadefoot toads were observed vocalizing at Pond 1 on April 15, representing the peak of breeding activity observed during surveys. The observation of metamorphs on May 21 indicates successful breeding at Pond 1.*[8]

[7] BonTerra Psomas. September 24, 2014. 90-Day Report for the Wet Season Presence/Absence Survey for Vernal Pool Branchiopods Conducted on the NorthLake Specific Plan Project Site, Los Angeles County, California.

[8] BonTerra Psomas. October 2, 2014. Results of Focused Presence/Absence Surveys for the Arroyo Toad and Western Spadefoot Toad on the NorthLake Specific Plan Project Site, Los Angeles County, California

TABLE 1 – POND NOMENCLATURE CLARIFICATION AND WST SURVEY RESULTS

Ponded Features Observed 2004/2005 Fairy Shrimp Survey (AR 3828)[a]	Observed in 2004/05 Fairy Shrimp Survey? (Y/N; Survey ID)	Ponded Features Observed 2014 Fairy Shrimp Survey[b] (AR 3848)	Observed in 2014 Fairy Shrimp Survey (Y/N; Survey ID)	Ponded Features Observed 2014 WST Survey [c] (AR 3904)	Observed in 2014 WST Survey? (Y/N; Survey ID)	Draft Western Spadefoot Toad Relocation Program Identifier[e]
VP 1	**Y** (AR 3833)	Pond 8	**Y** (AR 3868-3871)	Pond 2	**Y** (AR 3897)	Pond 2
VP 2	**Y** (AR 3834)	Pond 9	N		N	Pond 1
VP 3	N	Pond 4	Not Surveyed		N	
VP 4	N	Pond 5	Not Surveyed		N	
VP 5	N	Pond 6	Not Surveyed		N	
VP 6[d]	N		Not Surveyed		N	
VP 7	N		Not Surveyed		N	
SP 1	**Y** (AR 3835)	Pond 7	**Y** (AR 3852 – 3855)	Pond 1	**Y** (AR 3897)	Cattle Pond
		[a] Stock Pond = SP; Vernal Pool = VP; Administrative Record citation = AR, followed by the page number. [b] Ponds 1-3 were different ponds located off site [c] Only ponds shown on Exhibit 4 (Ponds Occupied by WST). [d] VP 6 appears to have exhibited sufficient ponding but did not support WST at the same time they were observed. It is designated as Pond 3 for the purposes of this report. [e] Adopted nomenclature for this report.				

Thus, based on the most optimal conditions for the period during which surveys were conducted on the Project site, there is little question that the SEIR identified the only three sites occupied by WST, despite comments to the contrary including from the County Biologist.

One final note, BonTerra's *DRAFT Western Spadefoot Toad Relocation Program*[9] refers to the three features that have been identified as exhibiting both suitable habitat and supporting the WST as Pond 2 (VP 1, Pond 8), Pond 1 (VP 2, Pond 9) & Cattle Pond (SP 1 and Pond 7). For purposes of this report, the nomenclature in BonTerra's *DRAFT Western Spadefoot Toad Relocation Program* will be used, thus the three features will be identified as Pond 1, Pond 2, and Cattle Pond as set forth and clarified in Table 1, above. In addition, the feature designated VP 6 by BonTerra exhibited suitable ponding but WST were not detected. This feature, which is now designated as Pond 3, will be subject to mitigation as well as being subject to pre-construction surveys and will serve as a potential collection site based on the presence or absence of WST as determined by the

[9] BonTerra Psomas. September 2017. *DRAFT Western Spadefoot Toad Relocation Program* prepared for the FSEIR: NorthLake Specific Plan Residential Development Project, Los Angeles County, California.

pre-construction surveys. As noted, features VP 3, VP 4, VP 5, and VP 7 do not exhibit potential for supporting WST and are not further addressed in this plan.

C. Quantification of the Habitat Area Occupied by the WST

The Court Ruling includes certain statements regarding WST habitat and relocation. Specifically, the Court states:

> *The Relocation Plan, however, is designed to duplicate the conditions for the WST habitat that were identified in the 2014 BonTerra Psomos focused survey. That survey and earlier incidental surveys were allegedly taken in drought years, and, therefore, as petitioners argue, underestimate the extent of the WST habitat and the number of WST individuals. (In drought years the adult WST may stay underground in hibernation.) The parties have not, so far as the Court can ascertain, provided the rainfall data for the years in which the surveys were taken nor established whether those years had below average rainfall. The petitioners, however, assert that surveys taken in 2014 and general surveys taken in 2004 and 2005 were drought years. This issue was raised during the public comment periods, and the Court is unable to find evidence in the record to refute that the surveys were taken in drought years.*

As already noted, the Court's contention that rainfall in 2014 was during a drought period is accurate; however, the statement that 2004/2005 was a drought year is incorrect. As reported above, in the 2006 Fairy Shrimp Report, BonTerra included a detailed table (Table 1 on page 6) with monthly rainfall data showing that the 2004/2005 rainfall year totaled about 35.83 inches, when March is included in the data. Thus, 2004/2005 exhibited nearly double the average rainfall for the region, which is approximately 20 inches, and this detailed information was clearly in the Project record. Furthermore, the extent of the pools was determined during the 2004/2005 rainfall season as described on page 2 of the *DRAFT Western Spadefoot Toad Relocation Program*, BonTerra, that sets for the method for determining the size of the three ponds to be impacted:

> *Brian Leatherman and Justin Wood, Consulting Biologists, visited the site on November 11, 2004 to measure the size and extent of the existing ponds and to search for suitable mitigation pool creation sites. A subsequent preliminary assessment searching for pool creation sites was conducted in summer of 2017 simultaneous with other site surveys conducted by BonTerra Psomas Senior Biologist Marc Blain and Biologist Sarah Thomas.* ***The existing breeding habitat consists of three ponds.*** *Two are naturally occurring ephemeral ponds on the plateau above (east of) Grasshopper Canyon, and one is an artificially created cattle pond near the upper end of Grasshopper Canyon (Exhibit 1). Approximate dimensions and surface area of the respective ponds are shown in Table 1. The total surface area of the existence the surface area of the mitigation pools to be created, is 22,859 square feet.*

Grading for the Project would result in the loss of Pond 1, Pond 2 and the Stock Pond. On page 2 of the *DRAFT Western Spadefoot Toad Relocation Program*, BonTerra sets for the method for determining the size of the three ponds to be impacted. Grading would also impact the feature

originally designated VP 6 and now identified as Pond 3, which was determined to have sufficient ponding for WST; however, WST was not detected during the 2004/2005 surveys or in subsequent surveys. Nevertheless, Pond 3 will be subject to mitigation due to its potential for supporting WST.

Table 1 of the BonTerra Plan (reproduced below as Table 2) includes the following information:

TABLE 2
DIMENSIONS OF EXISTING EPHEMERAL PONDS AND STOCK POND FROM DRAFT WESTERN SPADEFOOT RELOCATION PROGRAM

Pond	Shape	Dimensions (pond diameters	Surface Area*	Perimeter	Estimated Max. Depth
1 (upslope)	Oval	36 x 61 feet	1,847 sq. ft.	145 feet	1 ft. 2 in.
2 (downslope)	Circular	27.5 x 36 feet	791 sq, ft.	99 feet	1 ft. 9 in.
Stock Pond	Oval	123 x 198 feet	20,221 sq. ft.	503 feet	3 ft. 6 in.
* Surface area was estimated by averaging diameters and using the formula A = π r2					

Appendix A of the BonTerra 2006 Fairy Shrimp Report provides dimensions for the pools that were determined during the wet-season surveys, which provide larger estimates for the features, with the caveat that these appear to be estimates; no mention is given in the report of how the dimensions were obtained (as noted below these are inaccurate estimates). Table 3 below uses the largest dimension for each of the three pools.

TABLE 3
MAXIMUM DIMENSIONS OF EPHEMERAL PONDS AND STOCK POND FROM 2006 FAIRY SHRIMP ESTIMATES

Pond	Shape	Surface Area (square meters)	Surface Area (square feet)*	Perimeter	Estimated Max. Depth
1 (upslope)	Oval	481	5,177 sq.ft.	Not Provided	51 cm (20.4 in.)
2 (downslope)	Circular	179.8	1,937 sq, ft.	Not Provided	56 cm (22.4 in.)
Stock Pond	Oval	123 x 198 feet	64,583 sq. ft.	Not Provided	210 cm (84 in.)
* Surface area was estimated by averaging diameters and using the formula A = π r2					

Based on a review of aerial photographs over a period of years, between 1994 and 2021 the normal ponding area is less that the maximum dimensions stated in Table 3 and larger than the dimensions in Table 2. Exhibit 4 is an aerial photograph that shows the limits of WST occupied ponds with the near-maximum ponding derived from an aerial photograph from April, 2011 as shown.[10] The

[10] Aerial photographs that show unambiguous ponding were examined on Google Earth Pro© include 6/1994, 12/2005, 3/2006, 7/2008, 6/2009, 4/2011, 12/2013, 8/2014, 5/2015, 2/2016, 7/2017, and 8/2019. As noted, the aerial from 4/2011 shows the pool at capacity and the areas was calculated using ArcGIS.

images for Ponds 1 and 2 are from December 2017, which show a very clear outline of the maximum or near-maximum extent of potential ponding (the same range of years was used for these ponds as well). VP-6 is depicted on Exhibit 4, the near-maximum extent from the 2006 Fairy Shrimp Report has been included in Table 4. Table 4 establishes the baseline for WST habitat "that must be re-created to preserve the WST population presently existing on the Project site." (Court Ruling at p. 17.)

TABLE 4
REVISED DIMENSIONS OF EXISTING EPHEMERAL PONDS AND STOCK POND

Pond	Shape	Dimensions	Surface Area	Perimeter[1]	Estimated Depth[2]
1 (upslope)	Oval	NA	2,600 square feet	190 feet	1 foot 2 inches
2 (downslope)	Circular	NA	1,300 square feet	110 feet	1 foot 9 inches
Stock Pond	Oval	NA	35,284 square feet	790 feet	3 feet 6 inches
3	Oval	NA	2,178 square feet	177 feet	14 inches
Total			41,362 square feet (0.95 acre)		
				[1] Perimeter measurements are based on review of aerial photographs over a period of years, between 1994 and 2021.	[2] Depths are from Table 1 of the BonTerra *DRAFT Western Spadefoot Toad Relocation Program*

D. Summary of Impacts to Habitat

Based on the above evaluation, the NorthLake site contains three features that were documented to support the WST, as WST were only observed at these three features; one additional feature designated VP-6 in the 2006 BonTerra fairy shrimp report and designated Pond 3 for this plan was observed to support the western toad during the 2004/2005 surveys but no WST were observed and this feature is not occupied by WST. Thus, a total of 0.95 acre of habitat for the WST will be potentially impacted by the Project as shown in Table 4. The loss of 0.95 acre of habitat for the WST would be considered significant before mitigation. With mitigation, the impacts would be reduced to less than significant.

E. Quantification of Impacts to Upland Habitat

Section II(B)(2) above provides a summary of WST observations within the Stock Pond and Seasonal Pond 1 during the 2014 focused surveys as well as for Pond 2 and Vernal Pond 6, to the extent that these last two features remain occupied during suitable years. Assuming occupation, the upland habitat for the Stock Pond and seasonal pools, using CDFW's standard value of a 1,000-foot radius from the ponds, accounts for a total of approximately 188 acres of upland habitat that would occur in the development area. As discussed below, the restoration ponds are adjacent to undeveloped lands under the ownership of NorthLake and well as lands within the State-owned Castaic Recreation Area

that would remain undeveloped. Thus, there will be sufficient upland areas adjacent to the created ponds to support WST foraging and aestivation.

III. HABITAT MITIGATION AND MONITORING PLAN

Development of a feasible and effective mitigation program requires an understanding of the habitat requirements of WST so that created habitat exhibits suitable conditions to allow for a complete breeding cycle for WST. Habitat requirements for the WST are set forth below; however, before describing the conditions that will be necessary to establish it is helpful to consider some historical background for WST in California as set forth in *Amphibian Declines: The Conservation Status of the United States Species*:

> *Western spadefoot toads have been eliminated wherever urban development and irrigated agriculture have destroyed areas where they once lived (e.g., Fisher and Shaffer, 1996). On the other hand, as with all North American spadefoot toads,* ***western spadefoot toads readily breed in ephemeral artificial impoundments such as stock tanks and pools that form at the base of road and railroad grades, and they have colonized many areas where natural pools are rare or nonexistent****. Thus, the distribution of western spadefoot toads probably differs from historical conditions…*
>
> *…Historical versus Current Abundance. Patterns of abundance have been influenced substantially by human activities.* ***Wherever human activities have created ephemeral impoundments where natural pools are rare or absent, western spadefoot abundance is probably higher than in the past. Examples can be found in the Coast Ranges south of San Francisco Bay, which have an abundant supply of manmade stock tanks****, and in places along the eastern edge of the Great Valley and the nearby foothills, where a variety of human activities on the grazing lands have created breeding pools where suitable natural pools are rare or absent.*[11]

The observations document the shift in habitat use from natural vernal pools and other seasonal wetlands to artificial features such as stock ponds. This is true of the NorthLake site, where about 90-percent of the occupied habitat consists of an artificial stock pond and shows that creation of habitat for WST occurs inadvertently in a variety of settings. Thus, creation of suitable habitat for WST is not difficult in the proper setting with suitable soils and topography. Breeding habitat requirements are described by Morey:

> *Breeding habitat. Western spadefoot toads breed most frequently in temporary pools such as vernal playas, vernal pools, stock tanks, and pools that form at the base of road and railroad grades, but they occasionally breed in intermittent*

[11] Morey, Stephen. 2005. Western Spadefoot in Michael Lannoo (Ed). *Amphibian Declines: The Conservation Status of the United States Species*. Accessed online at: https://amphibiaweb.org/cgi/amphib_query?where-genus=Spea&where-species=hammondii.

streams where larvae develop in more or less isolated pools as the streams dry. In order to support metamorphosis, breeding pools must remain filled long enough to accommodate at least the minimum larval period—in nature about 30 d (days). There is almost always substantial mortality due to desiccation among larvae born in pools lasting fewer than 35 d (days) after the eggs are laid (Feaver, 1971; Morey, 1998). Nevertheless, it is not uncommon for western spadefoot toads to breed in pools that remain filled for only 3–4 wk, usually with unfortunate consequences for larvae. Feaver (1971), for example, observed the desiccation of entire cohorts of larvae in 17 of 23 vernal pools in the Central Valley (Fresno County).

Given these considerations, establishment of the ponds that hold water for a minimum of 60 days during normal rainfall years is the goal to ensure that the created ponds exhibit optimal conditions for persistence and maturation of WST larvae resulting in metamorphosis in most years when breeding occurs. A detailed discussion of WST ecology/biology is provided below.

A. Western Spadefoot Toad Ecology/Biology

The biology, life history, and ecological requirements of WST are relatively well known. This species has a narrow home range and often forms large aggregations around breeding sites that include a variety of shallow pool types, such as vernal pools, seasonal ponds and can include artificial basins and even road ruts. Specific adaptive traits that allow WST to utilize ephemeral pools for breeding also provides rationale for successful relocation of the species to created pool habitats. These traits include accelerated embryonic and larval development in rapidly drying temporary pools, a high tolerance to heat, and a broad food base for larvae and adults that includes many common invertebrate species. These and other aspects of its life history make WST highly vulnerable to local extinction, but also make WST an ideal candidate for inclusion in an adaptive management program, including a capture and release program.

1. Species Description

WST is a 1.5- to three-inch toad characterized by its relatively smooth skin, a dusky green or gray dorsum with tubercles tipped in orange, and a whitish venter without markings. WST is easily distinguished from other toad species in the south coast region by its pale gold eyes with a vertical elliptical pupil ("cat's eye"), teeth in their upper jaw, and the wedge-shaped spade found on each hind foot. Juvenile toads are similar to adults, but they often have more distinct spotting. The call of this toad is a coarse trill, but to some it sounds snore-like, lasts about one second, and is audible at great distances.

2. Habitat Ecology, Reproduction, and Natural History

WST occupy coastal sage scrub, chaparral, woodlands, grasslands or mixed grassland/sage scrub habitats associated with vernal pools and other ephemeral seasonal ponds. However, there is a strong selection for grassland habitats by WST.[12,13] WST have been shown to burrow in areas characterized

[12] Morey, S. 2000. Western Spadefoot (*Spea hammondii*). California Wildlife Habitat Relationships Systems, California Department of Fish and Wildlife.

[13] Baumberger, K. L., Eitzel, M. V., Kirby, M. E., & Horn, M. H. 2019. Movement and habitat selection of the western spadefoot (*Spea hammondii*) in southern California. PloS one, 14(10).

by non-native grass duff in the genera *Bromus* and *Avena*.[13] In addition to inhabiting vernal pools, WST will also occupy artificial features such as stock ponds, abandoned borrow sites, and other types of depressional areas created by activities such as construction or off-road vehicle use. The presence of vernal pools, rain pools, and other seasonal ponds are key to the survival of the species, which are essential for breeding and egg laying. In fact, their entire post-metamorphic home range is centered on such pools.

WST is almost entirely nocturnal and most above ground activity is restricted to rainy nights during the breeding season. Holland and Goodman (1998) note that breeding efforts are directly associated with rainfall.[14] After periods of warm rain (10 Celsius – 12.8 degrees Celsius), typically in late winter and early spring, WST emerge from burrows and often form large (>1,000 individuals) aggregations. The critical thermal minimum for WST is 9 degrees Celsius and this species waits until water temperatures are at least 10 degrees Celsius before laying eggs.[15,16] Breeding usually takes place between January and March, but WST may emerge and become surface active between October and April if rain thresholds are met.

WST enter the water only to breed. Water temperature is critical to breeding, and temperatures between 9 degrees Celsius and 30 degrees Celsius are required for WST to successfully reproduce.[17] The duration of standing water is also critical and must be present for approximately four or more weeks in order for the larvae to metamorphose.[18] Morey observed that successful metamorphosis occurred in pools that filled between 36 to 133 days; the fastest time he observed completion of larval development was 30 days.[19] The breeding pools must be free of fish, bullfrogs, and crayfish in order for WST to successfully reproduce and metamorphose. Holland and Goodman (1998)[14] also report that toads may use pools in riparian and stream habitats with suitable conditions for breeding, which are also free of exotic pests.

Eggs are deposited in irregular small clusters, about 25-30 centimeters in diameter, which are attached to vegetation or debris in shallow temporary pools or infrequently in ephemeral stream pools. Eggs usually hatch within six days, but hatching is also water temperature dependent.

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[14] Holland, D.C., and R.H. Goodman Jr. 1998. A guide to the amphibians and reptiles of MCB Camp Pendleton, San Diego County, California. Final report prepared for AC/S Environmental Security Resources Management Division under Contract M00681-94-0039.

[15] Brown, H.A. 1966. Temperature adaptation and evolutionary divergence in allopatric populations of the spadefoot toad, *Scaphiopus hammondii*. PhD Dissertation, University of California, Riverside, California.

[16] Brown, H.A. 1967. Embryonic temperature adaptations and genetic compatibility of two allopatric populations of the spadefoot toad, *Scaphiopus hammondii*. Evolution 21: 742-761.

[17] Newman, R.A. 1998. Ecological constraints on amphibian metamorphosis: interactions of temperature and larval density with responses to changing food level. Oecologia 115: 9-16.

[18] Feaver, P.E. 1971. Breeding pool selection and larval mortality of three California amphibians: *Ambystoma tigrinum californiense* Gray, *Hyla regilla* Baird and Girard, and *Scaphiopus hammondii* Girard. MA Thesis, Fresno State College, Fresno, California.

[19] Morey, S. R. 1996. Pool duration influences age and body mass at metamorphosis in the western spadefoot toad: implications for vernal pool conservation. Pp. 86-91. In: Witham, C., E. Bauder, D. Belk, W. Ferren, and R. Ornduff (editors). Ecology, conservation, and management of vernal pool ecosystems. Proceeding from a 1996 conference. California Native Plant Society, Sacramento, CA.

WST exhibit numerous adaptations to successfully breed in rapidly drying temporary pools, including rapid embryonic and larval development, cannibalism, a high tolerance to heat, and the production of growth inhibitors that affect other larvae.[14]

WST larvae consume detritus, plankton, and algae, but they are also carnivorous. WST tadpoles forage on dead vertebrates and many other invertebrates[20], including fairy shrimp, mosquito larvae, smaller tadpole species[21], butterfly and moth larvae, beetles, termites, ants,[22,23] crickets, flies, earthworms, and any other invertebrates that are small enough to swallow.[24,25,26] Complete larval development occurs rapidly, often within three weeks[14], but may take as long as 11 weeks in cooler conditions. The rate of development is controlled by water temperature, evaporation, and availability of food resources. Larvae subjected to water volume reduction (rapid drying) show significant acceleration of metamorphosis.[27] Individuals may take up to two years to mature.[28]

WST do not move far from breeding pools during the year,[29] where they remain in underground burrows for a relatively long period of dormancy (aestivation) for eight to nine months. The burrows are approximately one meter in depth. The soils associated with these burrows are usually hard and compact during the dry summer months[30] and often contain significant amounts of clay, or silt mixed with indurate layers of gravel or cobbles.

IV. WESTERN SPADEFOOT TOAD MITIGATION

BonTerra prepared a *DRAFT Western Spadefoot Relocation Program* (BonTerra Plan) dated September 2017. BonTerra incorporated the most up-to-date information regarding WST biology into the plan and included sound elements in the relocation program including such factors as pond design. As such, this plan incorporates the best aspects of the BonTerra Plan while proposing additional components to provide the optimal HMMP for the WST. As noted above, the focus of

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[20] Bragg, A.N. 1964. Further study of predation and cannibalism in spadefoot tadpoles. Herpetologica 20: 17-24.
[21] Bragg, A.N. 1962. Predation on arthropods by spadefoot tadpoles. Herpetologica 18: 144.
[22] Dimmett, M. A., and R. Ruibal. 1980a. Exploitation of food resources by spadefoot toads *(Scaphiopus*). Copeia 4: 854-862.
[23] Whitaker, J.O., D. Rubin, and J.R. Munsee. 1977. Observations on food habits of spadefoot toads, genus *Scaphiopus*. Herpetologica 33: 468-475.
[24] Stebbins, R.C. 1972. Amphibians and reptiles of California. California Natural History Guides (31). University of California Press, Berkeley, Los Angeles, London.
[25] Morey, S. R., and D. A. Guinn. 1992. Activity patterns, food habits, and changing abundance in a community of vernal pool amphibians. Pp. 149-158. *In*: D. F. Williams, S. Byrne, and T. A. Rado (editors), Endangered and sensitive species of the San Joaquin Valley, California: Their biology, management, and conservation. The California Energy Commission, Sacramento, California, and the Western Section of the Wildlife Society.
[26] Farrar, E.S., and J.D. Hey. 1997. Carnivorous spadefoot *(Spea bombifron*s) tadpoles and fairy shrimp in western Iowa. Journal of the Iowa Academy of Science 104: 4-7.
[27] Denver, R.J., N. Mirhadi, and M. Phillips. 1998. Adaptive plasticity in amphibian metamorphosis: response of *Scaphiopus hammondii* tadpoles to habitat dessication. Ecology 79: 1859-1872.
[28] Denver, R.J. 1998. Hormonal correlates of environmentally induced metamorphosis in the western spadefoot toad, *Scaphiopus hammondi*. General and Comparative Endocrinology 110: 326- 336.
[29] Zeiner, D. C., W. F. Laudenslayer, Jr., and K. E. Mayer (editors). 1988. California's wildlife. Volume I. Amphibians and reptiles. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, California.
[30] Ruibal, R., L. Tevis, Jr., and V. Roig. 1969. The terrestrial ecology of the spadefoot toad *Scaphiopus hammondi*i. Copeia 3: 571-584.

this HMMP is on replacement of suitable habitat for WST through establishment of three seasonal pools with optimal hydrology. The proposed translocation of egg masses, larvae (tadpoles) and metamorphs during two average or above-average rainfall seasons from the impacted pools to established pools will ensure that the project impacts are fully mitigated.

A. Summary of Plan

This Plan proposes to relocate soils from the original breeding ponds affected by Project grading. The WST breeding pool habitat removed by the Project will be mitigated through the establishment of 1.07 acres of WST breeding pond habitat that is adjacent to larger areas of open space on NorthLake holdings and State-owned open space. An additional key component of the program is management of pools established for WST and adjacent upland aestivation habitats. Implementation of this program will ensure the long-term preservation of the species and its habitat. The mitigation program will be conducted under the direction of a qualified biologist with appropriate experience in habitat restoration, vernal pools, and knowledge of the ecology and life cycle of WST.

The key components of this mitigation creation plan include:

(1) identifying sites for potential WST pond establishment;
(2) identifying sites for clay salvage to be used in pool creation as needed;
(3) establishment of the 1.07 acres of WST breeding pond habitat within three ponds on the site (total acreage as opposed to number of ponds is all that is relevant);
(4) native revegetation along the perimeter of the ponds and the incorporation of a buffer area;
(5) implementation of a hydrological monitoring program to ensure that adequate ponding is present for optimal larval development in established pools;
(6) translocation of soil from the original breeding ponds and VP 6 to the created WST breeding ponds, and relocation of healthy egg masses, larvae, and/or metamorphs from the original breeding ponds to the created ponds for a minimum of two successful breeding cycles;
(7) enhancement of the aquatic and terrestrial environment surrounding the created ponds, including relocation of algal and invertebrate inoculum from the original breeding ponds to the mitigation pools that would provide a food base for WST larvae;
(8) measures to restrict public access from future unintended impacts/maintenance at the created pond site;
(9) measures to ensure the created ponds are suitable for foraging and breeding prior to salvage and translocation efforts; and
(10) implementation of a monitoring program, lasting up to ten years, that would track the progress of the mitigation project. The mitigation program will follow the general standards of practice for minimizing disease transmission among amphibians[31].

1. Identifying Sites for Pond Creation

The site selection process consisted of a site survey of the Project Site and adjacent areas under NorthLake ownership to determine if there was/were suitable location(s) for WST pond establishment. Suitable areas for seasonal pond creation were identified within NorthLake ownership. Specifically, suitable areas on terraces above Grasshopper Creek were identified

[31] Declining Amphibian Populations Task Force. 1998. The DAPTF fieldwork code of practice. Froglog 27.

downstream and beyond the southern boundary of the development within NorthLake ownership. The location of three ponds is depicted on Exhibits 5 and 6 and the grading for each of the ponds has been designed by the project civil engineer. The ponds will be constructed in open space and exhibit a minimum of 500-foot buffers from development, with buffers extending well beyond 1,000 feet as shown on Exhibit 6. Currently, a public trail/road extends along the northern edge of the proposed ponds. During grading of the ponds, the roads will be relocated to the north to provide a minimum of 20 feet between the ponds and road edge closest to the ponds. In addition, post-and-cable fencing will be placed between the public trail/road with appropriate signage to prevent access by the public into the ponds.

As part of site selection, this HMMP has identified specific sites(s)/area(s) that would be protected and depicts these site(s)/area(s) on accompanying exhibits. The plan specifies what resource(s) would occur/be protected in conserved site(s)/area(s) on Exhibit 9. The Santa Monica Mountains Conservancy (SMMC) will serve as landowner, land manager, and endowment holder for the Marple Canyon spiny rush preservation site. The Mountains Recreation and Conservation Authority (MRCA) will serve as the Conservation Easement (CE) Grantee. Likewise, the SMMC is a potential landowner, land manager, and endowment holder for the mitigation areas within NorthLake holdings, with the MRCA holding the CE (the applicant is also exploring other entities that meet the above requirements and as of yet, no decision has been made regarding the long-term management of NorthLake holdings where mitigation would be conducted). The plan provides specific information on how the Lead Agency would enforce the long-term protection and funding of mitigation lands.

2. Identifying Sources of Clay Onsite for Pool Creation

The project biologist will consult with the project's soils/geotechnical consultant to identify area of clay suitable for use in creating pool linings or bottoms to maximize water-holding capacity and thereby ensuring ponding durations sufficient to support WST as discussed in more detail under Section 5 below.

3. Pond Design and Creation Methods

The created ponds will be constructed as relatively deep seasonal ponds that would support ponding depths during average or above average rainfall years (30-42 inches of ponding)[32,33] with the ability to sustain the hydrology for sufficient durations (minimum of 60 days) to support the full WST lifecycle.

The mitigation program has incorporated design measures proven to be successful for relocating amphibian species that breed in seasonal ponds.[34,35] To ensure the created ponds have appropriate

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[32] De Weese, J. Vernal pool construction monitoring methods and habitat replacement evaluation. Pp. 217-223 *in* Witham et al. (eds.) Ecology, conservation, and management of vernal pool ecosystems. California Native Plant Society, Sacramento.

[33] Rowe, C. and W. Dunson. 1993. Relationships among abiotic parameters and breeding effort by three amphibians in temporary wetlands of central Pennsylvania. Wetlands 13: 237-246.

[34] Weyrauch, S. and J. Amon. 2002. Relocation of amphibians to created seasonal ponds in southwestern Ohio. 2002. Ecological Restoration 20: 31-36.

[35] Biebighauser, T. 2003. A guide to creating vernal ponds. U.S. Forest Service, Morehead, KY.

hydrology for optimum fitness of WST, i.e., 60 days or longer, the ponds will be located within valleys, specifically on terraces with sufficient watershed that will naturally capture slope runoff to support adequate ponding. The terraces are well-above the flowline of Grasshopper Creek and are not subject to erosion or flooding from the stream. Each pond as determined during the design by the project engineer, exhibits a supporting watershed between seven and ten times larger than the created pond. As needed, berms will be constructed on the downstream or down-gradient perimeter of each pond to further enhance ponding potential. In addition, based on soils at the creation site, depicted on Exhibit 7, which is largely Sorrento loam, 2 – 5 percent slopes and also Castaic-Balcom silty clay loam, a clay layer would be installed reaching a depth of approximately 12 inches below the surface to create an impermeable layer to provide the necessary ponding duration. The clay liner will be a minimum of 12 inches thick and will extend beyond the ultimate perimeter of the created pond by roughly ten feet. The created ponds will exhibit a depth of up to 42 inches at maximum ponding depth.[36] Therefore, the created ponds will equal or exceed the habitat potential of the original breeding ponds by providing a longer and more consistent inundation period.

Grading will be conducted in a manner that will minimize disturbance to the surrounding landscape, native vegetation, and wildlife use of the mitigation site. The areas where the ponds would be created support a predominance of non-native grassland and do not support areas of native scrub or chaparral. Specifically, the areas where the ponds would be created consist of grasslands dominated by rip gut brome (*Bromus diandrus*), slender wild oats (*Avena barbata*) and hare barley (*Hordeum murinum leporinum*) and would most closely match the *Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance: Wild oats and annual brome grasslands alliance in the Manual of California Vegetation.[37] Exhibit 8 includes vegetation cover in the areas of the proposed ponds and areas immediately adjacent. A biological monitor will be present on site to ensure that any adjacent native habitats or other sensitive biological resources will not be disturbed during project grading. Pond hydrology will rely entirely on seasonal precipitation and overland run off from the surrounding watershed.

In addition, project design will incorporate construction of low soil mounds adjacent to the ponds to provide easily accessible burrowing and aestivation habitats that will further enhance aestivation areas surrounding the pools. Areas for aestivation are necessary for the life cycle of WST and other amphibians associated with created ponds.[38,39] The mounds will be graded in a manner that does not reduce hydrological input to the pools from the surrounding watershed. Thus, sufficient space between the mounds will be provided to ensure that water is not blocked from entering the pools.

Prior to grading, the perimeter of the ponds will be clearly marked on the surface of the ground according to the appropriate micro-site design and size. A transit or other appropriate surveying instrument will be used to record elevations to 0.10 foot at various locations both inside and outside of the created ponds. Following the excavation and grading of the ponds, the excavated soil will

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[36] The depths for Pond 1, Pond 2 and the Cattle Pond are provided in Table 4.
[37] https://vegetation.cnps.org/alliance/535
[38] Gibbons, J. 2003. Terrestrial habitat: A vital component for herpetofauna of isolated wetlands. Wetlands: 23: 630-635.
[39] Ruibal, R. et al. 1969. The terrestrial ecology of the spadefoot toad, *Scaphiopus hammondi*i. Copeia 3: 571-584.

be used to construct WST burrowing habitat in the form of elongate soil mounds that will extend the length of the pond and will be approximately two to three feet in height.

If grading occurs within the nesting bird season, a qualified biologist will conduct a nesting bird survey within three days of grading, and if no active nests are located within 150 feet of the grading boundary, work may proceed. These surveys shall include the areas within 300 feet of the edge of the grading areas.

Following completion of grading, which will relocate the trails to the north as noted above [depicted on Exhibit 5], fencing will be installed to prevent public access and would consist of three-strand post and cable fencing. Signage would also be installed on the fencing to notice the public that the pools support special-status species that are protected under state law.

4. Native Revegetation

Native revegetation of the perimeter of the ponds shall provide species diversity and composition consistent with mixed grassland/sage scrub habitat surrounding the original breeding ponds. All species in the plant palette are native to the site and the soils on the site are suitable for the plant palette. As depicted on Exhibit 7, the areas around the ponds where the small-flowered filaree and paniculate tarplant would be planted consist of a mix of the Sorrento loam and Castaic Balcom clay loam, both of which would be suitable for paniculate tarplant with the California macrophyla occurring on the Castaic Balcom clay loam. Because the original breeding ponds do not exhibit a tree canopy, no tree canopy is proposed for the area around the mitigation pools. It is also important to note that the revegetation program is not required mitigation for impacts to specific vegetation alliances and reference sites are not proposed. Rather, the plant palette and performance standards were selected to ensure that the proposed native habitat would enhance WST foraging and nearby aestivation areas with vegetation components typical of upland areas occupied by WST within the region. The proposed plant palette is not an exact analog for vegetation alliances on the site; rather consist of native scrub and grassland species common on the site and are known to perform well in revegetation efforts.

The revegetation area shall be seeded and planted with container stock and will extend between 15 and 50 feet around the edge of the created ponds (based on site conditions) to provide non-breeding season habitat for WST, with the container stock located near the edge of the planting zone to protect the pools from deep rooted species. The seed palette shall not include any woody riparian trees or large shrubs as they grow deep root systems that may weaken the clay liner (if needed) and cause ponding failure over time should such species colonize the pools. As WST utilizes non-native grasses and duff as habitat, complete removal of non-native grasses shall not be necessary beyond that which occurs during grading needed as a part of this mitigation program and subsequent weeding during the five-year maintenance period. For the 15-to 50-foot revegetation area, the seed mix will be selectively applied around the perimeter of the created ponds in areas of habitat that requires enhancement. Habitat requiring enhancement shall be defined as areas of low or no cover by native species or areas where vegetation was removed during grading. The Project Biologist shall determine these areas of undesirable habitat within the 15- to 50-foot buffer for each pond establishment area prior to seed installation to determine the areas subject to revegetation. Due to variation in seed and container stock availability, seeding rates and quantities as well as container stock may be adjusted at the time of mitigation

implementation under the discretion of the Project Biologist. A sample container stock and seed palette is outlined in Table 4 below. Seed and container stock will be sourced from onsite or from areas of north Los Angeles County. Performance Standards for the revegetation areas around the ponds are provided below and were determined based on milestones to be achieved to meet the final five-year goal of 70-percent cover by native species. As noted, with the approach, it will not be necessary to rely on reference sites in order to provide suitable upland habitat for WST.

a. Monitoring Plan for Grassland and Scrub Revegetation Areas

First-Year Monitoring

Success Standard: A minimum of 30-percent coverage by native species;
100-percent of proposed canopy species present;
50-percent of proposed understory present
No greater than 40-percent coverage by non-native species.

Second-Year Monitoring

Success Standard: A minimum of 40-percent coverage by native species;
100-percent of proposed canopy species present
60-percent of proposed understory present
No greater than 30- percent coverage by non-native species.

Third-Year Monitoring

Success Standard: A minimum of 50-percent coverage by native species;
100-percent of proposed canopy species present
60-percent of proposed understory present
No greater than 20- percent coverage by non-native species.

Fourth-Year Monitoring

Success Standard: A minimum of 60-percent coverage by native species;
100-percent of proposed canopy species present
75-percent of proposed understory present
No greater than 10- percent coverage by non-native species.

Fifth-Year Monitoring

Success Standard: A minimum of 70-percent coverage by native species;
100-percent of proposed canopy species present
85-percent of proposed understory present
No greater than 5- percent coverage by non-native species with zero tolerance for species considered highly invasive by Cal-IPC.

TABLE 5
Sample Container Stock and Seed Palette

Botanic Name	**Common Name**	
Canopy Container Stock (one-gallon containers)		**Plants/Acre**
Artemisia californica	California sagebrush	100
Eriogonum fasciculatum	California buckwheat	100

Salvia leucophylla	Purple sage	50
Salvia mellifera	Black sage	50
	Container Stock Total	**300**
Understory Seed Mix		**Lbs/Acre**
Acmispon glaber	Deerweed	0.5
Corethrogyne filaginifolia	Common sandaster	4.0
Croton setiger	Turkey-mullein	4.5
Deinandra fasciculata	Clustered tarweed	3.0
Eriogonum fasciculatum	California buckwheat	2.0
Festuca microstachys	Small fescue	2.0
Hordeum brachyantherum	Meadow barley	2.0
Stipa pulchra	Purple needlegrass	2.0
Stipa lepida	Foothill needlegrass	0.5
	Total Seed	**20.5**

5. Hydrological Monitoring Program

Following completion of grading of the created pools, they will be monitored during the first rainy season, following construction and must exhibit ponding for a minimum of 60 days during an average or above-average rainfall season before eggs, larvae, and/or metamorphs can be translocated from the impact pools. The rainy season in California generally ranges from October through April. Due to the high variability of rainfall in California, the monitoring period may be shifted from year to year depending on the actual occurrence of rainfall. Hydrological monitoring will occur following the first rainfall event of one inch or greater in a 24-hour period. Visits will be conducted at each pond following storm events of one inch or greater during a 24-hour period. Subsequent visits shall occur on a weekly basis until no ponding is observed (because these systems are dynamic, each pond is treated separately). Air and water temperature, pH, specific conductance, general turbidity, and aquatic invertebrates observed in the ponds will also be sampled at regular intervals. During drought conditions or years where rainfall amounts are below average, hydrology would be augmented through introduction of potable water that would be added to the ponds via water trucks. Where this occurs, the ponds would be filled to the capacity typical of a normal rainfall year to determine whether the ponds are capable sustained ponding for the 60-day minimum period required before translocation can occur.

Permanent stations for photo-documentation will be established during the first monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year and shall reflect the progress of the mitigation effort.

6. Translocation of Western Spadefoot Toad Eggs, Larvae, and/or Metamorphs

The original breeding ponds were last surveyed in 2014 and surveys will be conducted for two years, during average or above average rainfall years, for presence of WST eggs, larvae, and/or metamorphs prior to grading within 1,000 feet of the breeding ponds. During these two survey seasons, data will be collected regarding the number of egg masses, larvae, metamorphs and adults

for use in refining the translocation component of the program. Once the hydrological performance standard has been achieved, translocation of eggs, larvae and metamorphs can occur. In the event WST eggs, larvae, and/or metamorphs are detected once WST ponds are constructed and hydrology performance standards achieved, the translocation program would be conducted such that egg masses, larvae, and/or metamorphs are relocated in a manner that ensures the highest probability of success. This would include even distribution of egg masses, larvae and metamorphs among the three created ponds (given that the area of the created ponds exceeds that of the impacted ponds, even distribution would ensure that overcrowding does not occur in the created pools). Translocation events shall occur for a minimum of two successful breeding cycles to ensure that no further translocation events are warranted. Specifically, translocation efforts over two or more years would ensure that egg masses and larvae from WST that are aestivating in earlier seasons would be captured. The goal of the program is to translocate the vast majority of egg masses, larvae and metamorprhs during the two (or more years) that the translocation is conducted. Egg masses, larvae, and/or metamorphs would be collected from the original breeding ponds using a dip-net, placed into a sterile bucket, and immediately translocated to the created ponds. Equipment used for WST translocation will be sterilized prior to each translocation event to prevent the spread of disease. A drift fence and pit-trap array would be utilized adjacent to the original breeding ponds to capture any potential WST adults to be translocated to the created ponds.

Biological systems are highly dynamic and because the ephemeral/seasonal ponds used for breeding by WST can vary dramatically from year to year or even from rainfall event to rainfall event, the Project Biologist will have discretion as set forth below in implementation of the mitigation program. Emphasis will be placed on monitoring the created ponds in concert with the original breeding ponds and to implement the relocation in a manner that ensures the highest potential for long-term success as described above. Due to the variable nature of winter and spring storm systems, it is possible that rainfall totals from the same storm can vary significantly over a limited area such that ponds that exhibited extensive ponding during previous monitoring may show substantially reduced ponding while other ponds have filled. The Project Biologist will have discretion to make in-field decisions based on expertise and experience to ensure the highest probability of success. An example of such discretion would be in a case where the original breeding ponds are drying down very quickly after eggs are laid or when the larvae are very small. In such an instance, it may be necessary to collect all of the eggs and larvae and relocate them before the pond dries down and the opportunity for relocation of WST eggs and/or larvae is lost. Translocation of WST from the original breeding ponds to the created ponds may occur during the entire mitigation program, provided the original breeding ponds have not been impacted by project development.

Because there is good access to the Stock Pond, if determined necessary by the Project Biologist, potable water could be added as noted above by water truck to extend ponding duration, thereby extending the period wherein collection could occur, which in turn would maximize the number of egg masses, larvae, and metamorphs that would be translocated. Similarly, should the created ponds require augmented hydrology due to low rainfall conditions, such augmentation of the hydrology for the created ponds would occur.

7. Inoculum Collection

A flat-end shovel, or similar instrument will be used to carefully scrape intact areas of the existing ponds prior to grading consisting of about a 3 cm thick of the surface layer biomass from the original breeding ponds. Inoculum will be placed in boxes and relocated to the created ponds that have met the appropriate hydrologic parameters. The inoculum will be evenly spread by hand and then lightly raked into the soil surface of the ponds using the flat end of the rake.

8. Pond Creation Habitat Suitability

The created ponds shall demonstrate the ability to support foraging and breeding habitat prior to any salvage efforts. Following the completion of grading and installation of the clay liner, the ponds shall be artificially filled with water and monitored on a weekly basis to determine if they support ponding periods of 60 days or longer. Alternatively, if pond creation is completed four weeks prior to the first rain event of the year, the ponds shall instead be filled through natural means and monitored on a weekly basis to determine the ponding duration.

These created ponds will be constructed to function as seasonal features, with no connectivity to a permanent water source. Ponding durations of a maximum of five months are expected to occur during only above-average rainfall years, and ponds would remain dry throughout the remainder of the year. Seasonal ponds do not support WST predators, including fish, bullfrogs, and crayfish that require perennial water for survival. Therefore, these created ponds will not support predators of WST egg masses and/or metamorphs.

9. Responsible Parties for Project Implementation

Applicant:
Woodridge Capital Partners, LLC
1999 Avenue of the Stars, STE 2850
Los Angeles, CA 90067
Thomas DiPrima
Telephone: (310) 824-7093

Preparers of Plan:
Glenn Lukos Associates, Inc.
1940 E Deere Avenue, Suite 250
Santa Ana, California 92705
Contact: Tony Bomkamp
Telephone: (949) 837-0404

10. Annual Presence/Absence Surveys

Annual presence/absence surveys for other potential on-site breeding habitat areas shall be conducted at an appropriate time of year as determined by the Project Biologist.

11. Ten-Year Monitoring Period

A ten-year monitoring program, as described in detail below, shall commence following the completion of pond creation and initial WST/Inoculum translocation event.

12. Schedule

Grading of the created ponds and associated watershed will occur outside the rainy season and outside the avian nesting season and thus would occur between August 15 and October 15. Hydrology monitoring to ensure that the ponds hold water for at least 60 days during an average or above-average rainfall year will begin at the start of the rainy season that immediately follows grading of the created ponds. Monitoring of the existing pools for WST egg masses and larvae, will be conducted concurrently with the hydrology monitoring of the created pools. Grading of the ponds to be impacted cannot be initiated until it has been demonstrated that the created pools have successfully achieved the hydrology performance standards and egg masses and/or larvae have been successfully translocated to the creation ponds. Table 5 below provides a conceptual schedule for grading of the mitigation pool with the associated components to ultimately transfer WST larvae and egg masses from impact ponds to created ponds. As described in the Performance Standard subsections below, it will be necessary to meet hydrology performance standards before WST can be translocated and the existing pools can be subject to impacts. Very low or low rainfall years could prevent performance standard achievement for hydrology, which in turn could result in schedule delays.

Table 6: Conceptual Schedule for Pond Creation Milestones

Activity	Timeline
Identify Site and Prepare Grading Plans	Completed
Identify Areas of Clay Soils	Complete before Grading
Grade and Create 1.07 acres of Mitigation WST Ponds	Summer/Fall Year 1
Revegetate Pond Perimeter of Created Ponds	Fall/Winter Year 1
• Monitor Revegetation Area	Year 1 – Spring
• Monitor Revegetation Area	Year 2 – Spring
• Monitor Revegetation Area	Year 3 – Spring
• Monitor Revegetation Area	Year 4 – Spring
• Monitor Revegetation Area	Year 5 – Spring
Initiate Hydrology Monitoring of Created Ponds	Winter/Spring Year 1
Continue Hydrology Monitoring of Created Ponds	Winter/Spring Year 2
Initiate Inoculum Collection from Impact Ponds	Summer/Fall Year 1
Continue Inoculum Collection	Summer/Fall Year 2
Introduce Inoculum to Ponds (Assumes Successful Hydrology)	Summer/Fall Year 2
Continue Inoculum Transfer to Ponds	Summer Year 3
Initiate WST Transfer (Assumes Successful Hydrology)	Winter/Spring Year 3
Initiate WST Transfer (Assumes Successful Hydrology)	Winter/Spring Year 4
Document success of initial first year WST Transfer	Spring Year 4

Document success of second year WST Transfer and successful breeding as discussed below.	Spring Year 5
Grading of Impact Pools to Occur at this Milestone (Fall Year 5)	
• Monitor Pools for WST (Initiate following two seasons of successful transfer)	Year 6 – Spring
• Monitor Pools for WST	Year 7 – Spring
• Monitor Pools for WST	Year 8 – Spring
• Monitor Pools for WST	Year 9 – Spring
• Monitor Pools for WST	Year 10 – Spring
• Monitor Pools for WST	Year 11 – Spring
• Monitor Pools for WST	Year 12 – Spring
• Monitor Pools for WST	Year 13 – Spring
• Monitor Pools for WST	Year 14 – Spring
• Monitor Pools for WST	Year 15 – Spring

VII. PERFORMANCE STANDARDS

Following creation of the ponds, confirmation of hydrology performance standards and translocation of inoculum (and WST, including egg masses, larvae, and adults as available), surveys will be performed each year for ten years to determine habitat suitability and presence of WST. Translocation of WST shall occur for a minimum of two successful breeding cycles to ensure that no further translocation events are warranted. Translocation efforts shall be conducted at an appropriate time of year when WST is most likely to be present. As needed, potable water may be used to augment natural hydrology during lower-than-average rainfall years to maximize establishment of the translocated populations. It is likely that during any five-year period in southern California at least two of those years will lack rainfall patterns and intensity to allow for ponding or ponding of sufficient duration sufficient for successful reproduction of WST, thus the need for augmented water in the created ponds. If the performance standards are not achieved by the end of the monitoring period, monitoring will be continued until performance standards are achieved.

A. Ten-Year Monitoring Program

Monitoring of hydrology and WST will begin during the rainy season (generally occurring between October and April) and will be initiated after the first rainfall event of one inch or greater in a 24-hour period during the first rainfall season following pond creation. Visits will be conducted at each pond following storm events of one inch or greater during a 24-hour period until no ponding is observed (because these systems are dynamic, each pond is treated separately). Once a pond retains water, it will be visited weekly until ponding is no longer observed. The following data will be recorded during each weekly visit: depth of surface water in pond, aerial extent of ponding, qualitative observations of pond utilization by WST (if any), estimates of WST egg masses, larvae, and/or metamorphs populations (if any), presence of emergent vegetation, presence of algae, fairy shrimp, water temperature, and electroconductivity. As noted, hydrology may be augmented using potable water to extend ponding duration (and depth) during lower-than average rainfall years, to maximize reproduction and overall population size. At the end of the monitoring period, the data from the ponds

will be combined and evaluated. In instances where rainfall for any year meets or exceeds the average rainfall +/- 25 percent (15-25 inches), then the following performance standards will be evaluated:

1. Hydrological Monitoring/Performance Standard

As noted above, hydrological monitoring will be conducted prior to translocation of inoculum, WST egg masses, tadpoles/larvae and metamorphs. As noted, the created ponds must hold water for a minimum of 60 days during an average rainfall year prior to translocation activities. Hydrological monitoring will also continue as part of the regular ten-year monitoring program is initiated. During each season following the first rain event of one inch or greater, each created pond will be monitored for ponding, including depth, extent, with duration to be calculated as the season continues. Hydrology augmentation may occur at the direction of the Project Biologist to maximize the potential for success. This will allow for documentation of maximum depth, extent and duration of ponding for each created pond. As noted above, during each monitoring visit, air and water temperature, pH, specific conductance, general turbidity, and aquatic invertebrates observed in the ponds will also be recorded.

***Performance Standard*:** Ponding duration of at least 60 days must be documented to occur during average or above average rainfall years prior to translocation of egg masses, larvae, metamorphs, or adults. Ponding duration of at least 60 days must also be documented during the 10-year monitoring period. At the end of the ten-year monitoring period, this performance standard will have been achieved if ponding duration equals or exceeds ponding duration of 60 days during average or above-average rainfall years. It is important to note that during below-average rainfall years, depending on the severity of drought conditions that the created ponds will not pond for sufficient duration to allow WST to reach maturity. Thus, during the ten-year monitoring period, it is to be expected that some years will not pond for 60 days. Nevertheless, the performance standard for hydrology will be considered achieved as long a ponding for 60 days occurs during average rainfall years. Finally, as noted, hydrology may be augmented at the direction of the Project Biologist, especially once breeding is observed and is threatened by declining water levels in the pools due to lower-than average rainfall. In the event that the Project Biologist determines that additional water should be added to any pond occupied by egg masses or larvae, it will be necessary to ensure protection of the egg masses and larvae by discharging water to the pool(s) in a manner that does not disturb the egg masses or larvae and does not result in the erosion of soil into the pool(s). This could be accomplished through temporary placement of large gravel at the discharge site (at the edge of the pool(s)) underlain by plastic that would allow the water to enter the pool(s) slowly and with no sediment.

2. Monitoring for Breeding WST

During each monitoring visit that detects ponding of at least six inches, the ponds will be surveyed for signs of WST breeding which would be indicated by the presence of WST egg masses and/or WST tadpoles. It is important to note, that following translocation of egg masses and larvae it will be necessary for metamorphs to emerge and reach adulthood for future breeding years. Thus, during the monitoring events following translocation, it will be necessary to document emergence of metamorphs, which will be required to ensure breeding in subsequent years. Site grading of the impacted pools may not occur until successful breeding has been documented in at least two of the three created ponds. Successful breeding would be determined by the presence of egg masses that are not present due to translocation but which occur due to reproduction.

***Performance Standard Prior to Grading*:** Prior to Project grading that removes the impacted doner pools, during an average or above-average rainfall year, at least two of three of the created ponds within the pond complex exhibits emergence of metamorphs in each pond to ensure breeding in subsequent years. As noted, Successful breeding would be determined by the presence of egg masses that are not present due to translocation but which occur due to reproduction. Should this occur during a below-average rainfall year, the condition would be satisfied as it would show that the pools are performing as intended. In any case, data regarding successful breeding will be submitted to CDFW for concurrence that sufficient reproduction has occurred to allow impacts to the pools in the development area.

***Performance Standard Post-Grading*:** Following Project grading that removes the impacted donor pools, during an average or above-average rainfall year, at least two of the three created ponds within the pond complex will exhibits breeding as indicated by the presence of WST egg masses, tadpoles/larvae/ or metamorphs, to confirm establishment of breeding WST for each pond complex created. Should this occur during a below-average rainfall year, the condition would be satisfied as it would show that the pools are performing as intended.

VII. ANNUAL MONITORING REPORT

An annual report will be prepared and submitted by December 31st of each calendar year to the County of Los Angeles and CDFW. The annual report will provide a detailed description of mitigation activities, qualitative and quantitative monitoring data related to performance standards, weather conditions, problems encountered, and any remedial measures. These reports will also include the following:

- List of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year;
- Qualitative monitoring data including site conditions and species observations;
- Copies of monitoring photographs;
- Vicinity map indicating location of WST Mitigation Site; and
- Maps identifying monitoring areas, transects, seeding zones, etc. as appropriate.

VII. CONTINGENCY MEASURES

A. Initiating Procedures

If a performance standard is not met for all or any portion of the mitigation project in any monitoring year, or if the approved success criteria are not met, the Project Biologist will prepare an analysis of the cause(s) of failure and, if determined necessary by CDFW and/or the County of Los Angeles, propose remedial actions for approval. If the mitigation site has not met one or more of the success criteria or performance standards, the responsible party's maintenance and monitoring obligations shall continue until CDFW and the County of Los Angeles gives final approval that the mitigation obligations have been satisfied.

B. Contingency Mitigation

Although this Plan is expected to be successful, two options are possible, including remediation of the existing pools should they not hold water for sufficient duration, which could include re-installation of the clay liner and/or increasing pool depths. The second option would include alternative location(s) that may be used in the event that any of the proposed areas do not achieve success criteria. Should the proposed plan not be successful for some unanticipated reason, there are nearby sites which can be utilized as replacement site(as) such that the mitigation criteria are fulfilled. Such sites would be presented to the County and CDFW for concurrence prior to utilization. BonTerra identified potential WST pond locations at the north end of the Project Site that could accommodate 0.52 acre of WST habitat.[40] Other potential areas include nearby Marple Canyon which GLA previously identified as a location where up to one acre of seasonal pool habitat could be created.

C. Compensation for Temporal Loss

Should contingency mitigation be required, the Project Biologist will implement measures to compensate for temporal loss of the habitat that has failed. As described above, the proposed plan includes creation of three ponds that would account for 1.07 acres within three ponds and should one or more of the ponds fail, in order to address temporal loss, the replacement ratio would be 1.5 to one (1.5:1) for any of the three ponds that failed to meet performance standards, which can be accommodated in the contingency mitigation sites noted above that provide for approximately 1.5 acres ensuring that an approximate 1.5:1 ratio is achieved.

VIII. RATIONALE FOR EXPECTING SUCCESS

As noted in the introductory comments and associated quotations in Section III above, WST has shifted habitat use in portions of California from vernal pools to artificial ponds such as stock ponds and other ponding features of anthropogenic origin, many of which have created WST breeding areas quite by accident. As such, any assertions that it is difficult to create ponds that are suitable for WST breeding are not necessarily accurate. This is not to discount that attempts to create suitable breeding habitat for WST can fail, because some do fail where they are not properly constructed. GLA has been involved in WST habitat creation projects that have been successful and provide an example of one such effort that has been well-studied since the seasonal ponds were created in 2005 and 2006 on Irvine Mesa in an area known as East Orange which is now part of the Orange County Central Coastal NCCP/HCP Reserve. The 15 created pools overall achieved performance standards after six years of monitoring and included breeding WST in eight of the pools as of the 2009/2010 rainfall season.[41] It is important to note that the performance standards included a number of components that were focused on the quality of the created pools and included hydroperiod (length of ponding) as it was recognized that this is clearly the most critical component of WST pond creation. Presence of fairy

[40] BonTerra. September 2017.*DRAFT* Western Spadefoot Relocation Program. NorthLake Specific Plan Residential Development Project Los Angeles County, California

[41] Glenn Lukos Associates. September 23, 2010. East Orange Planned Community (EOPC) 6th Annual Translocation and Monitoring Report for the Western Spadefoot Toad (*Spea hammondii*). Prepared for the Irvine Company.

shrimp, a common food source for WST larvae were an important pool component and these along with the egg masses and larvae were introduced from the impact pools to the created pools. It was understood that pools with the proper characteristics would ultimately support WST. Thus, as noted below, the results of follow-up studies conducted up to seven years following completion of the initial program, showed that WST had expanded to 12 pools within the 15-pool complex as outlined below.

Follow-up studies conducted in 2016 during a drought found WST breeding in 12 of the 14 pools[42] as reported by Baumberger et al. 2020:

> Twelve of the 14 mitigation pools at Irvine Mesa held water for >30 d. During our 2016 surveys, two of the mitigation pools built by Glenn Lukos Associates, Inc. merged (Pools 5 and 9) and we considered them as one pool (Pool 9). We detected *S. hammondii* tadpoles in eight of the Irvine Mesa mitigation pools but documented successful breeding through metamorphosis at only seven of these pools in April 2016 due to desiccation and/or water quality[43]

Thus, even in a drought year the pools exhibited sufficient ponding for breeding, though as is often the case for WST in such years, desiccation resulted in the loss of many tadpoles. The following rainfall season, 2016/2017 was an above-average rainfall year and resulted in optimal ponding durations for the WST. During the 2017 monitoring it was determined that 12 of the pools supported tadpoles or metamorphs with fairy shrimp in all the pools and extensive breeding was present.[44] An important insight comes from these observations: if properly constructed, with sufficient water holding capacity, ponding duration, and food sources, once established, WST will increase in such ponds until a level of equilibrium is achieved (i.e., self-sustaining population), and the pools arrive at their carrying capacity. Thus, it is not necessary to achieve occupancy of all pools in a pool complex in the short term (*e.g.*, five or even ten years) providing the pools exhibit ponding durations needed for the complete reproductive cycle for WST.

In addition to the successful WST translocation efforts summarized above, WST pools have been successfully created in the Santa Clarita Area, specifically at the Former Whittaker-Bermite Facility in the City of Santa Clarita site as reported by Psomas as reported in the final annual monitoring report.[45] Psomas reported the successful translocation of approximately 184 egg masses, 478 tadpoles, and 27 adult western spadefoots were translocated from OU3/Area 14 Primary and OU2/Area 25 Basins to OU2/Areas 28 and 36, OU2/Areas 1 (OU6) and 1A-South, OU3/Area 14 Secondary, and OU5/Area 11 Basins. The egg masses averaged 15 to 30 eggs per mass, and tadpoles were all small (1cm to 3cm) in length.

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[42] As noted by Baumberger in the excerpt from the 2020 report, Pools 5 and 9 merged and were considered a single pool explaining the difference between 14 or 15 pools that were created.

[43] Baumberger, Katherine L.; Backlin, Adam R.; Gallegos, Elizabeth A.; Hitchcock, Cynthia J.; and Fisher, Robert (2020) "Mitigation Ponds Offer Drought Resiliency for Western Spadefoot (Spea hammondii) Populations," *Bulletin of the Southern California Academy of Sciences*: Vol. 119: Iss. 1. Pp. 5-6.

[44] The Nature Conservancy. 2017. Western Spadefoot (*Spea hammondii*) Breeding Assessment for East Orange, Irvine Mesa, and Shoestring Canyon, Orange County, California, 2017. Unpublished Report.

[45] Results of the Western Spadefoot Pre-Activity Clearance Surveys and Translocation Efforts on the Former Whittaker-Bermite Facility in the City of Santa Clarita, Los Angeles County, California (Streambed Alteration Agreement No. 1600-2010-0366-R5)

IX. PROPOSED MITIGATION MEASURE

The originally approved WST mitigation measure is as follows:

MM 5.2-9 A relocation program for western spadefoot toad shall be conducted prior to construction during the spring at the height of the breeding season for this species (February through May, or as determined by a qualified Biologist monitoring a known location of this species). A detailed methodology for this effort shall be reviewed by the CDFW and the LACDRP prior to implementation of the relocation program. Results of the relocation program shall be provided to the CDFW and the LACDRP.

- Prior to implementing the Spadefoot Relocation Plan, a focused survey will be conducted within the prior appropriate season. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e., 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied pond [sic] as well as others.
- The intent of the Relocation Plan is to capture and relocate as many western spadefoot toads as possible. Western spadefoot toads shall be relocated on or off site to an area of suitable habitat, as reviewed by the CDFW and the LACDRP. The relocation site shall be of similar (or better) quality as the habitat within the project impact area where the western spadefoot toads are captured. If no suitable habitat is available for the relocation, suitable habitat shall be created.

Mitigation Measure 5.2-9 is recommended to be modified as follows:

MM 5.2-9 A mitigation program for western spadefoot toad (WST) shall be implemented prior to construction, ground disturbance, or vegetation removal that would impact the WST breeding habitat, or areas within 1,000 feet of WST-occupied ponds within the Project site. The mitigation program would include the components set forth below. A detailed methodology for this effort shall be reviewed by the CDFW and the LACDRP prior to implementation of the mitigation program. Results of the mitigation program shall be provided to the CDFW and the LACDRP.

- Prior to implementing the Spadefoot Relocation Plan, two focused surveys during average or above-average rainfall years will be conducted within the prior appropriate seasons. If any additional ephemeral ponds are determined to be occupied besides those identified in recent surveys (i.e., 2015), the Spadefoot Relocation Plan will be modified to include replacement of the additional occupied ponds as well as those identified in recent surveys.

- Suitable sites for seasonal pond creation, within the Project open space, specifically within other NorthLake owned properties, have been identified and 1.07 acres of seasonal pond habitat will be created. The specific location of the 1.07-acre pool complex is depicted on Exhibit 5 of the NorthLake Castaic, Los Angeles County, California, Western Spadefoot Toad Impact Assessment and Habitat Mitigation and Monitoring Plan July 2022 (Revised March and June 2023) (HMMP). As described in the WST Mitigation Implementation Plan, three based

on current grading plans. The size of the three pools (1.07 acres) exceeds the maximum combined size of potential WST habitat currently at the Project Site (0.95 acres, as shown in Table 4, above). The WST Mitigation Implementation Plan would address the following issues specific to the site or sites:

- Soil Characteristics and whether clay liner will be necessary
- Pool locations and site access routes for construction
- Types of habitat potentially affected by construction and measures to restore damaged subject to temporary impacts
- Watershed size and characteristics
- Grading plan with cross section for each pool to be created
- Specifications for clay liner (if needed) including source of clay and installation methods
- Upland habitat characteristics, including soil suitability for burrowing and vegetative buffer, will also be addressed in the plan

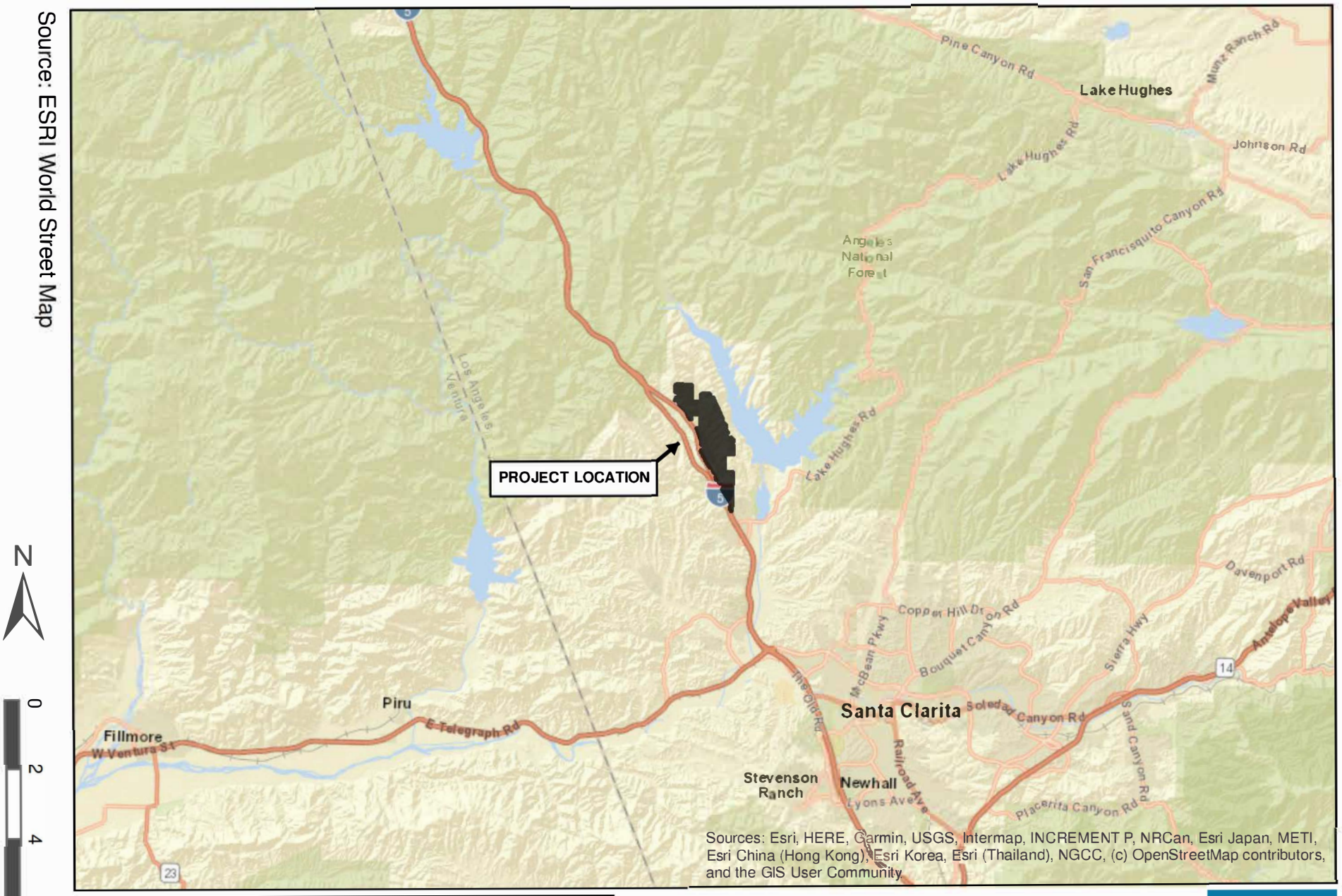
• Following creation of the 1.07-acre pool complex or complexes and prior to grading of the impacted pools, each pool within each complex will be monitored during the rainy season to ensure that the created pools exhibit at least 60 days of ponding during an average or above-average rainfall year.

• Following documentation of adequate ponding for each created pool during an average or above-average rainfall year, and prior to grading of the impacted pools, soil inoculum from the impacted pools will be translocated to the created pools to provide a food source for WST.

• Following documentation of adequate ponding for each created pool during an average or above-average rainfall year, and prior to grading of the impacted pools, WST egg masses, larvae and metamorphs will be translocated to the created pools for at least two wet seasons where WST egg masses, larvae and metamorphs are present in the impact pools and suitable conditions to receive the WST egg masses, larvae and metamorphs are present in the created pools. In addition, data regarding successful breeding will be submitted to CDFW for concurrence that sufficient reproduction has occurred to allow impacts to the pools in the development area.

• During grading of the pools to be impacted, the Project Biologist will be present to rescue any adult WST that would be relocated to the created pool complex.

• Following the two seasons of translocation of WST egg masses, larvae and metamorphs, and successful breeding, the created pools will be monitored for ten years to document the progression of the WST toward the performance standards provided in the WST HMMP prepared for the Project.



Source: ESRI World Street Map

N

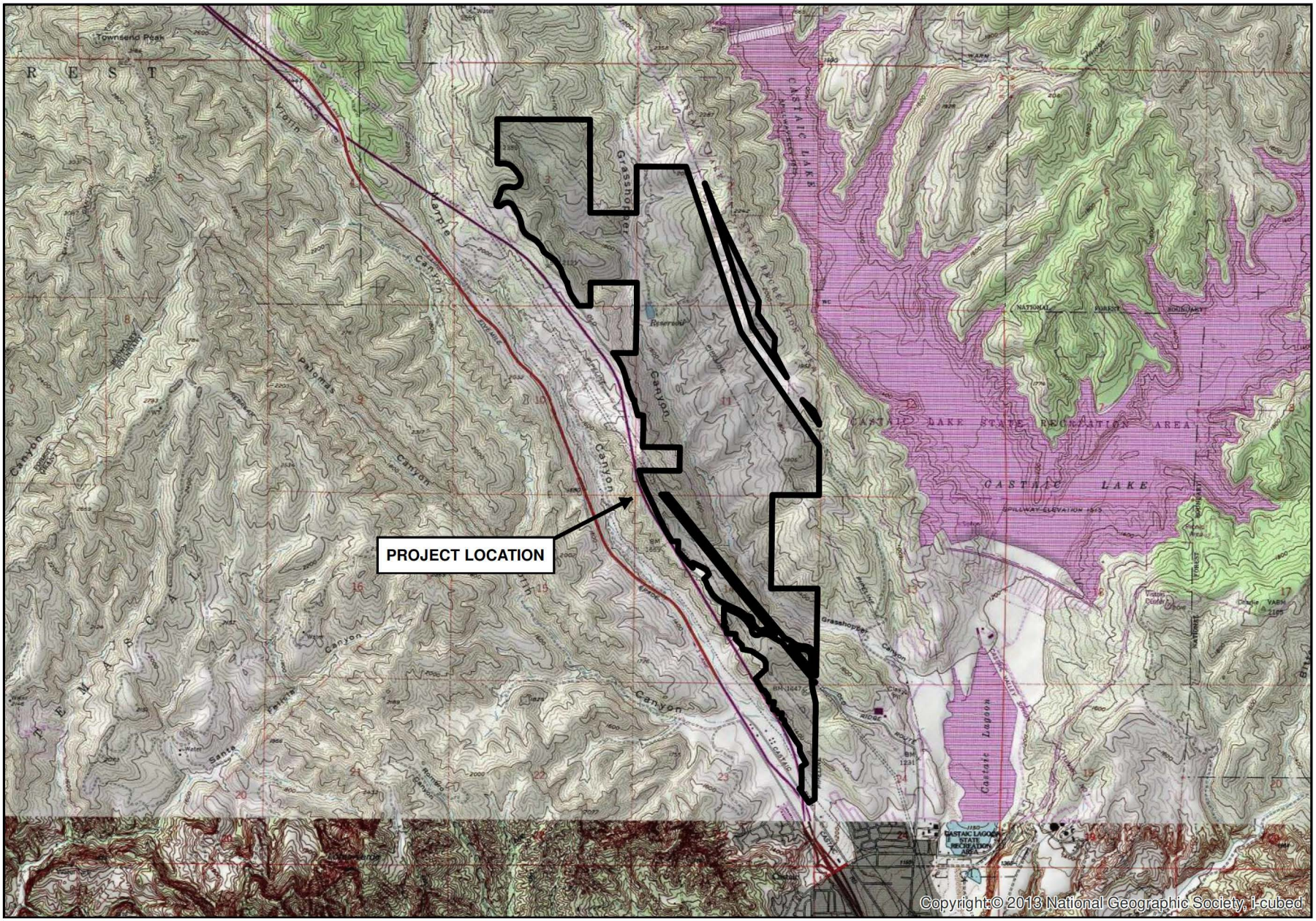
0 2 4 8 Miles

NORTHLAKE SPECIFIC PLAN

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1

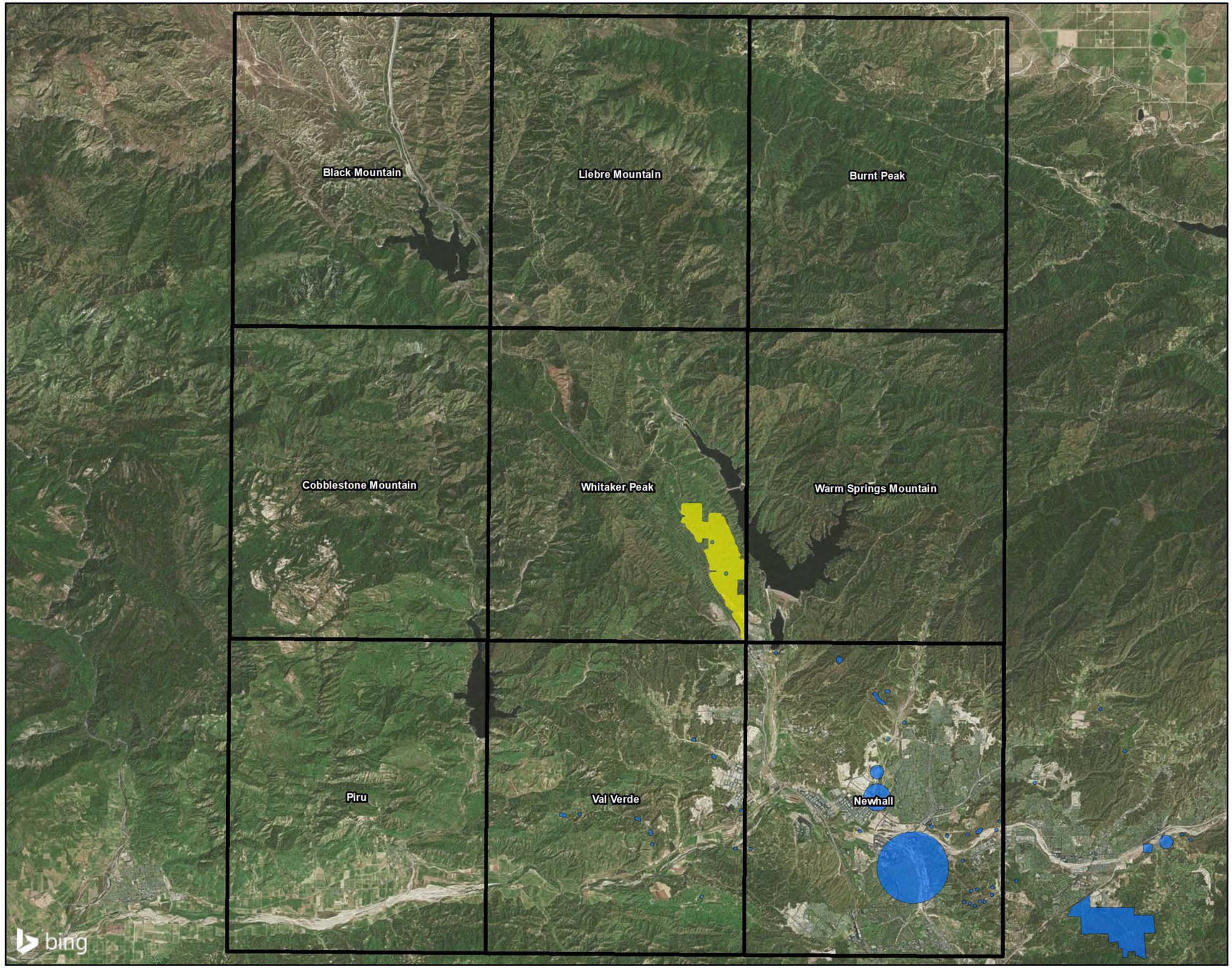


NORTHLAKE SPECIFIC PLAN

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Project Location

USGS Quadrangles

Western Spadefoot CNDDB Observation

N

0 1.5 3 6

Miles

1 inch = 3 miles

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: March 12, 2021

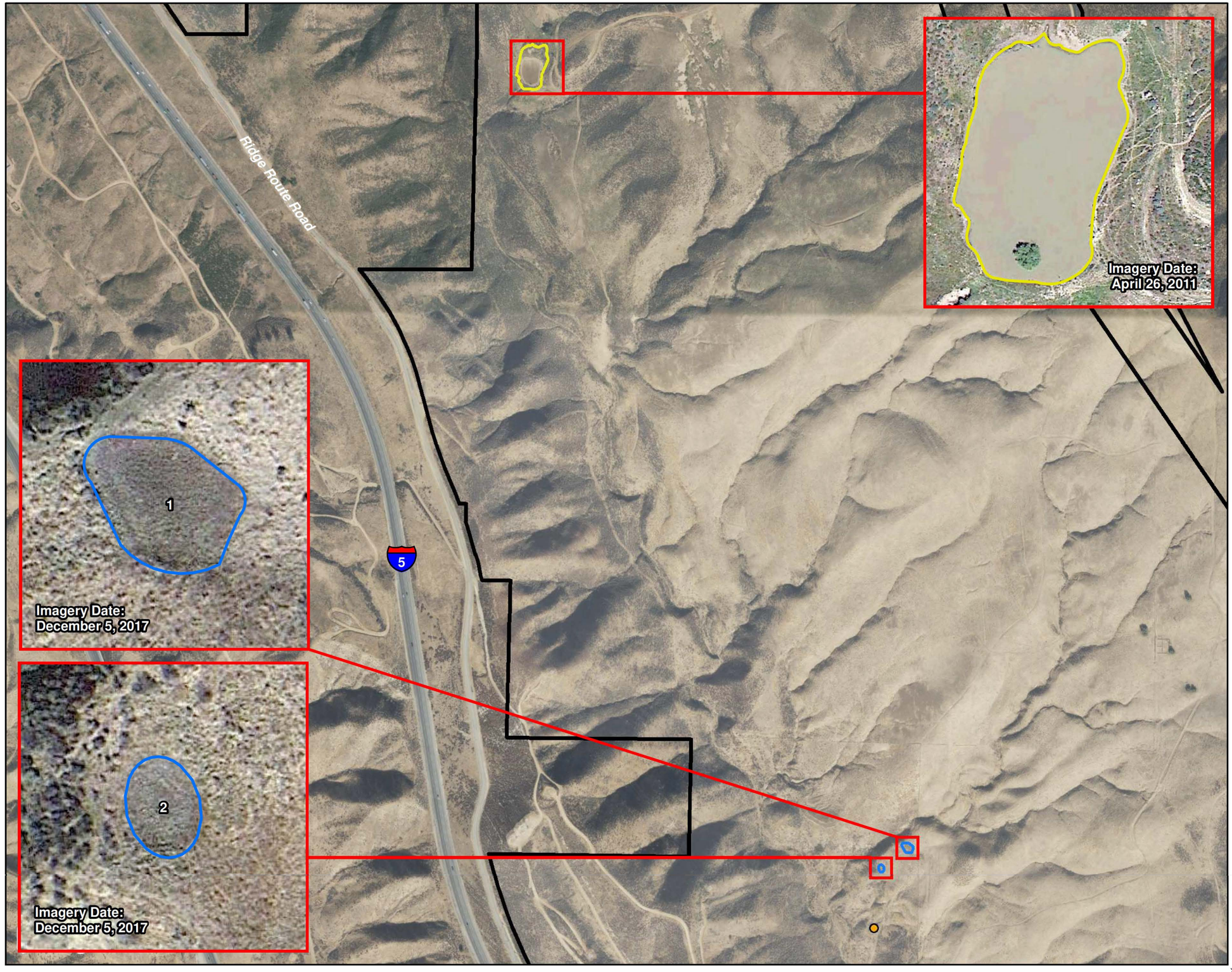
NORTHLAKE SPECIFIC PLAN

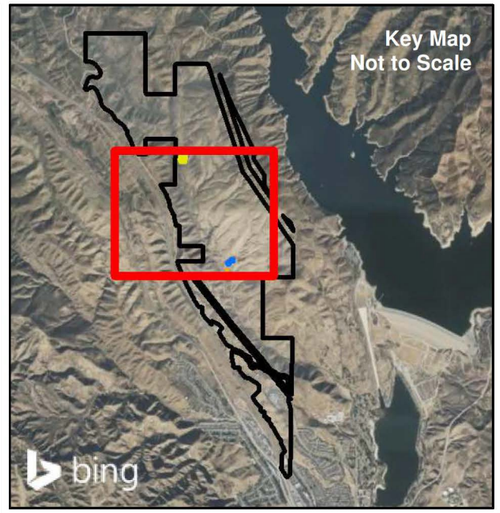
Western Spadefoot CNDDB Map

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\CNDDB_GIS\1115-6_CNDDB_WesternSpadefoot.mxd





Project Location

Stock Pond: 0.80 acre

Seasonal Pond
#1: 0.06 acre
#2: 0.02 acre

Approximate
VP-6 Location

N

0 275 550 1,100
Feet

1 inch = 550 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: May 10, 2022

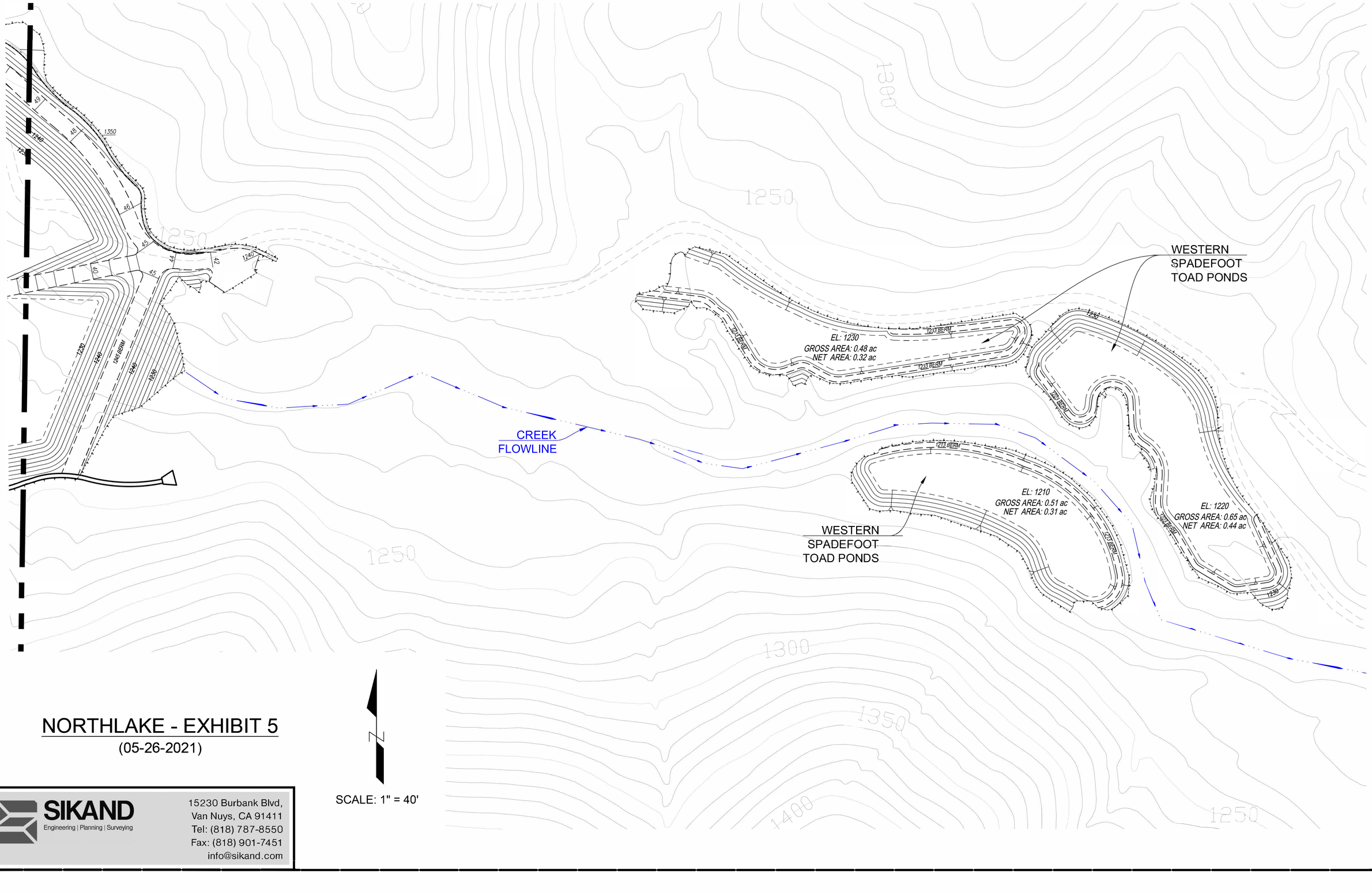
NORTHLAKE SPECIFIC PLAN

Pond Map

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\PondsGIS\1115-6_Ponds.mxd



NORTHLAKE - EXHIBIT 5

(05-26-2021)

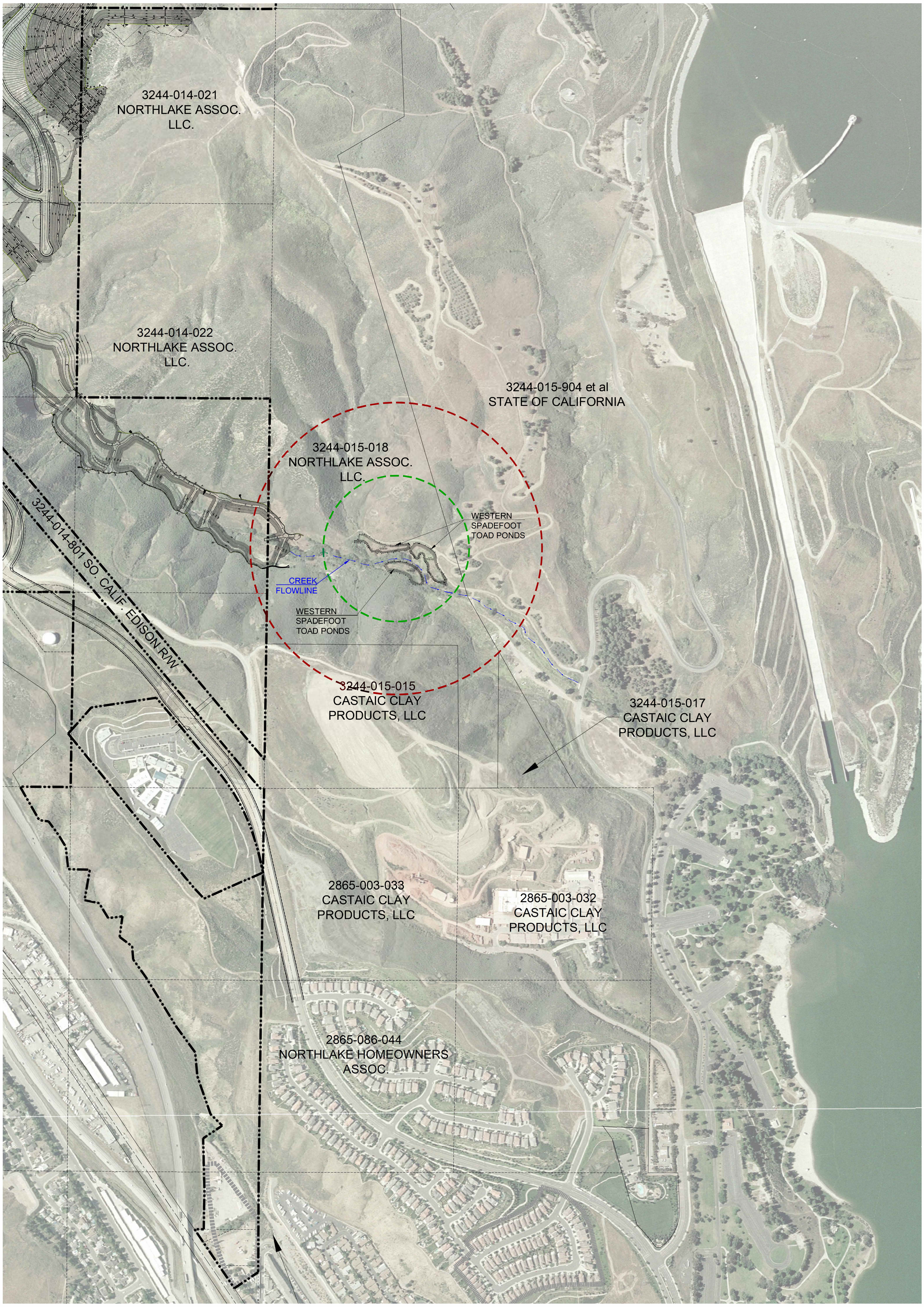
N

SCALE: 1" = 40'

SIKAND
Engineering | Planning | Surveying

15230 Burbank Blvd,
Van Nuys, CA 91411
Tel: (818) 787-8550
Fax: (818) 901-7451
info@sikand.com

X:\Civil\3D\5090-03\Exhibits\EXH - Northlake Exhibit 3.dwg



NORTHLAKE - EXHIBIT 6

(05-26-2021)

SIKAND
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15230 Burbank Blvd,
Van Nuys, CA 91411
Tel: (818) 787-8550
Fax: (818) 901-7451
info@sikand.com

N

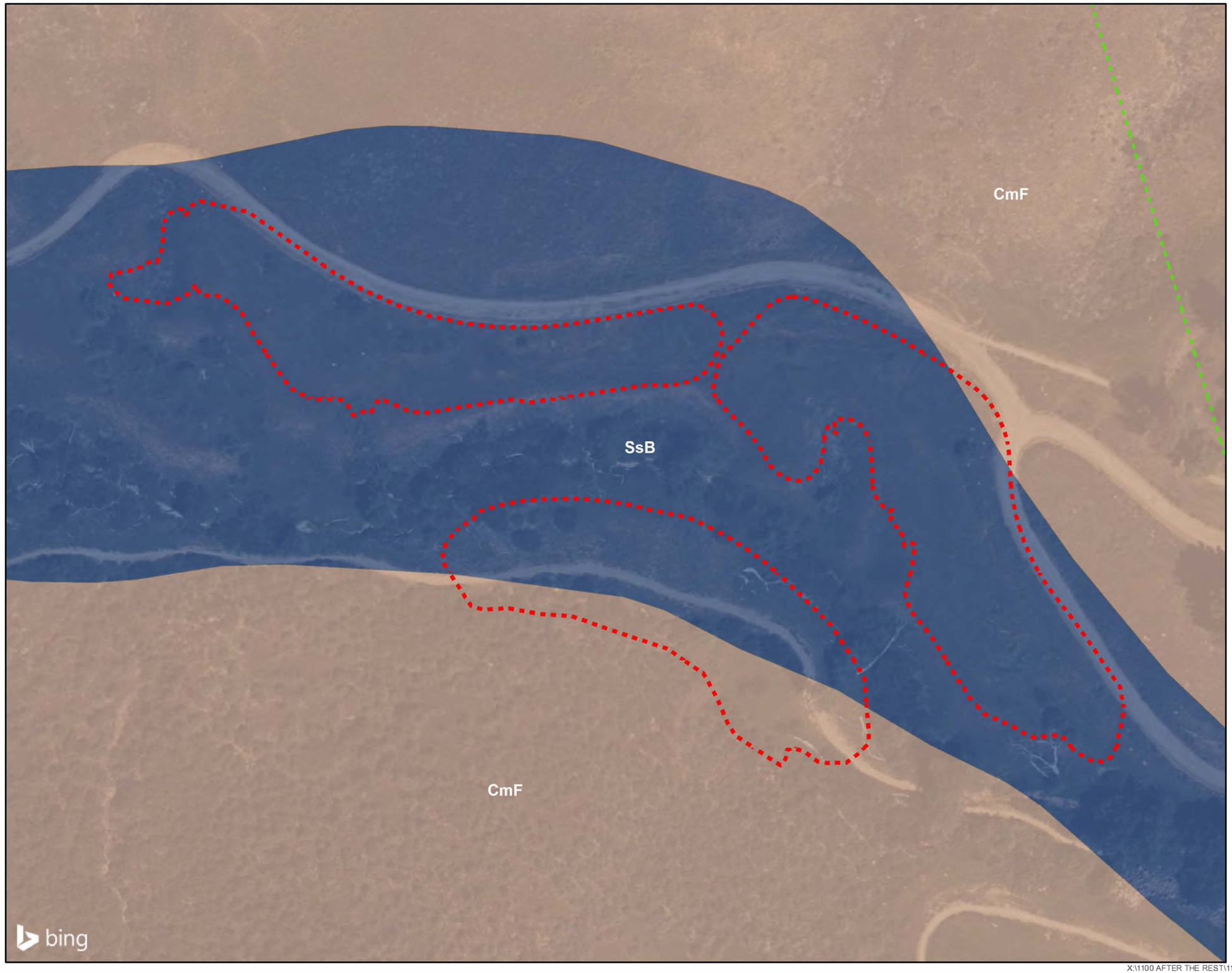
SCALE: 1" = 300'

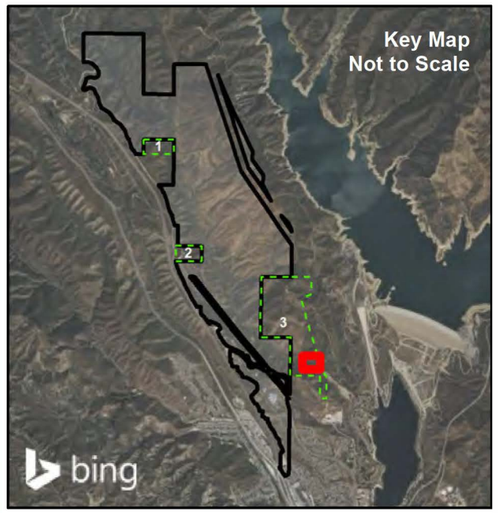
LEGEND:

- - - - - 500' RADIUS

- - - - - 1000' RADIUS

X:\Civil3D\5090-033\Exhibits\EXH - Northlake Exhibit 4.dwg





Project Location

Offsite Area

Basin Limits

CmF — Castaic-Balcom silty clay loams, 30 to 50 percent slopes

SsB — Sorrento loam, 2 to 5 percent slopes

0 25 50 100
Feet

1 inch = 60 feet

N

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: March 9, 2023

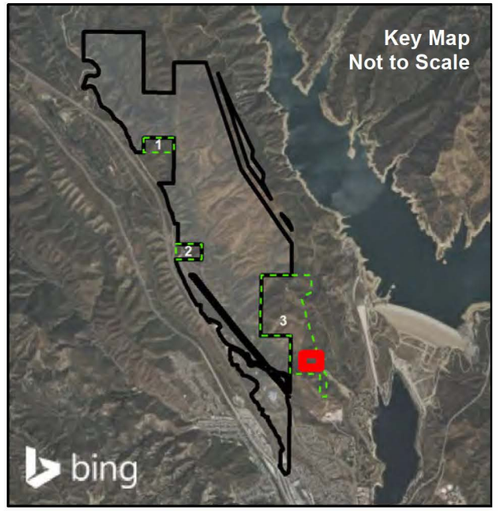
NORTHLAKE SPECIFIC PLAN

Soils Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 7

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\ImpactsGIS\1115-06_SoilImpacts_OffsiteArea3Basins.mxd



Project Location

Offsite Area

Basin Limits

Coastal Sage Scrub

Grassland

Riparian

Developed

0 30 60 120

Feet

1 inch = 60 feet

N

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: March 9, 2023

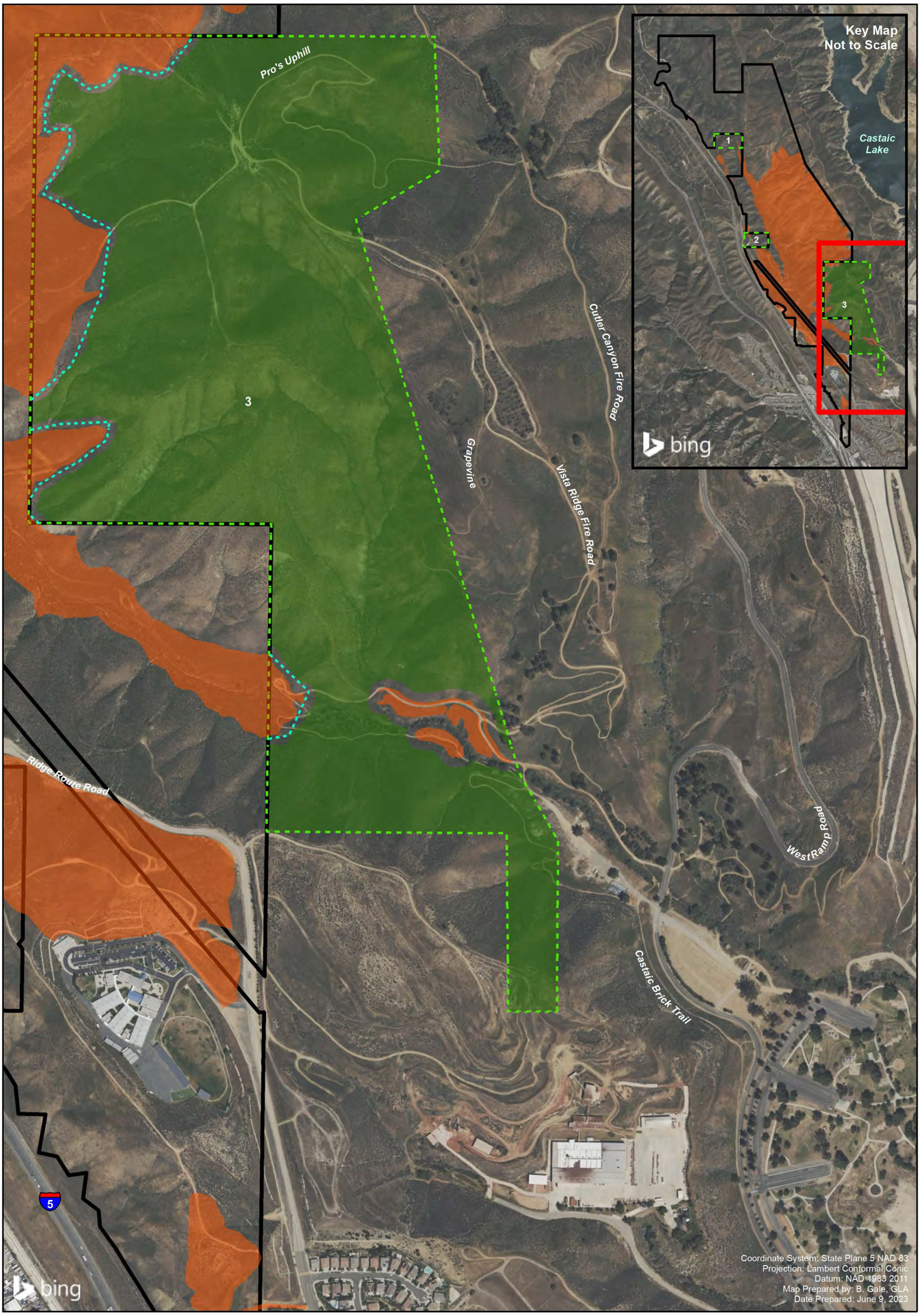
NORTHLAKE SPECIFIC PLAN

Vegetation Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 8

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\ImpactsGIS\1115-06_VegImpacts_OffsiteArea3Basins.mxd



Onsite Project Site

Offsite Project Ownership

Development Footprint

Offsite Easement Limits

Proposed WST Conservation Area (154.70 ac.)

N

0 250 500 1,000

Feet

1 inch = 500 feet

NORTHLAKE SPECIFIC PLAN

WST Conservation Area

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\1100 AFTER THE REST\1115-06WOOD\1115-06_GIS\MitigationGIS\1115-6_ WSTConservationArea.mxd