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October 10, 2012

Mr. William R. Hess
William R. Hess Law Offices
5455 Wilshire Blvd, Suite 2100
Los Angeles, California 90036

VIA EMAIL
wllmhss@aol.com

Subject: Assessment of Potential Effects of Operation of the D.E.L.T.A. Rescue Sanctuary on Unarmored Threespined Stickleback (UTS), Los Angeles County, California.

Dear Mr. Hess:

This report presents the findings of an assessment of the potential effects of operations on the D.E.L.T.A. Rescue Sanctuary, hereinafter referred to as the 'project site', in the Community of Acton, Los Angeles County, California (See Exhibit 1). This assessment was conducted to provide a basic understanding of the site's hydrology and potential effects of site activities on the adjacent Santa Clara River and more specifically, the potential effect on the Federally Endangered unarmored threespine stickleback (UTS) that is known to occur in the Soledad Canyon area of the Santa Clara River. This report is not to be considered a standard hydrological or toxicological study, but rather as a preliminary analysis to evaluate the concern at a cursory level.

SITE TOPOGRAPHY AND HYDROLOGY

The project site is located within the easternmost extent of the Santa Clara River watershed adjacent to an unnamed tributary that runs parallel to Arrastre Creek and Arrastre Canyon Road. The project site lies on the shallow slopes at the western end of the San Gabriel Mountains (See Exhibit 2).The area consists of low rolling hills separated by ravines and drainages which are mainly ephemeral stream beds, remaining dry throughout the majority of the year (See Exhibit 3). Being situated at a topographical low point and within an arid, semi-desert climate, the area receives approximately nine inches of rain and less than one foot of snow per year. Due to the low quantity of precipitation, most of the surrounding tributaries flow only during significant seasonal storms or winter thaw from the surrounding mountains. The project site itself sits approximately .25 miles from the nearest intermittent/perennial tributary, Arrastre Creek, although during significant rain events flow may be present in the unnamed drainage bordering the project site (Impact Sciences 2012). In evaluating the local hydrological features, the risks to the project site in the event of a 1% annual chance flood (100 year flood) appear to be slight (See Exhibit 4), as flood hazards to the project area have been labeled as 'undetermined yet possible'. This labeling by the Los Angeles County Department of Public Works (LACDPW) only applies to approximately 3.5 acres of the property's total 115 acres According to the FEMA Flood Zone Map, the project site has a very low potential of experiencing any type of substantial sheet flow due to storm or flood
events (DPW of Los Angeles County 2012)

SITE USE DESCRIPTION

The project site is used as an active animal sanctuary, housing approximately 1500 abandoned animals (mostly dogs) on 115 acres of low-lying hills at the base of the north-western extent of the San Gabriel Mountains (See Exhibit 3). The project site consists of approximately 400 outdoor holding pens or living spaces for the rescued animals. Holding pens are open air, consisting of hay bale dog houses. Compacted decomposed granite is the dominant ground cover which has been placed throughout the project site. Animal activity on the project site includes the deposition of waste in both solid (excrement) and liquid (urine) forms. Project Site management is comprehensive and the animals are cared for multiple times per day including routine disposal of solid animal waste. The most possible impact would stem from potential contamination caused by organic waste resulting from animal urine. Dog urine is 98% water, however the remaining 2% is rich in organic compounds and ions including; urea (consisting mainly of nitrogen), creatine, uric acid, carbohydrates, enzymes, fatty acids, hormones, sodium, potassium, chloride, magnesium, calcium and ammonia (a byproduct of decomposing nitrogen in urea). In total, approximately .11 liters (.03gal.) of organic waste are produced per day, per acre on the project site (Table 1 below).

TABLE 1

ORGANIC WASTE CALCULATION* URINE PRODUCTION/ACRE/DAY
.7632L urine per day ×800 dogs =610.56L 610.56L urine ÷115 acres=5.31L of urine per acre 5.31L urine × .98=5.20L 5.31L-5.20L=.11L Organic waste/per acre/per day
* Calculation is based upon the assumption that the average dog weighs approximately 15.9kg and based upon urine production of 2mL of urine/hour for every kilogram of dog weight. (Geller 2007)

POTENTIAL EFFECTS

The effects of the project site activities on the surrounding environment appear to be very limited. The principal concern is in regards to potential degradation and its effect on downstream populations of UTS in the Santa Clara River, the closest population on record existing approximately 7.5 miles downstream in Agua Dulce Canyon (Impact Sciences 2012). The concerns raised are that in the event of heavy seasonal rain or flooding, the organic waste (excrement and urine) from the animals on the project site could potentially be introduced into the Santa Clara River resulting in decreased water quality and therefore, habitat quality. As mentioned prior, a small section, approximately 3.5 acres of the project site is within the flood zone boundary of a 1% annual chance flood. This being said, considering that those working on the project site remove solid waste on a routine basis, there is little to no possibility that solid animal waste would be introduced into the waterway. Once the organic chemicals are exposed to air they are subject to evaporation, oxidation, photochemical degradation and ultraviolet light. Furthermore, due to the semi-desert, arid environment of the project site and the decomposed granite substrate, evaporation is likely to occur very quickly. Any organic materials remaining after these processes are quickly degraded due to their instability in an unprotected environment (Eric Leopold PhD. Biochemistry).

CONCLUSION

Considering the physical features and management practices of the project site, it can be concluded that there is little opportunity or potential for any measureable impacts to occur to UTS populations or individuals existing within the Santa Clara River due to operations on the project site. Hydrologic data shows that there is little threat, although possible, of a flood or rain event impacting the project site to the point where contaminants or toxins would pose any threat or be exposed to conditions that could potentially introduce them to habitat occupied by UTS. In the event that these organic nutrient salts would be exposed to running water which could potentially introduce them into the tributary to the Santa Clara River, the water level and volume, would provide such a high level of dilution as to nearly completely nullify any effects that the organic compounds might have. Considering the flow rate at this point, any organic compounds would most likely be washed far enough away from the vicinity as to be completely insignificant to UTS populations or individuals.

BonTerra Consulting appreciates the opportunity to be of assistance with this project. If you have any concerns, questions, or comments please contact Marc Blain at (626)651-2000.

Sincerely,

BONTERRA CONSULTING

Thomas E. Smith, Jr., AICP
Principal

Marc T. Blain
Associate, Biological Resources Manager

Attachments: Exhibit 1 – Local Vicinity
Exhibit 2 – 3-Dimensional Topographic Images
Exhibit 3 – Stream Flow Accumulation
Exhibit 4 – FEMA 100 Year Flood Hazard Zones

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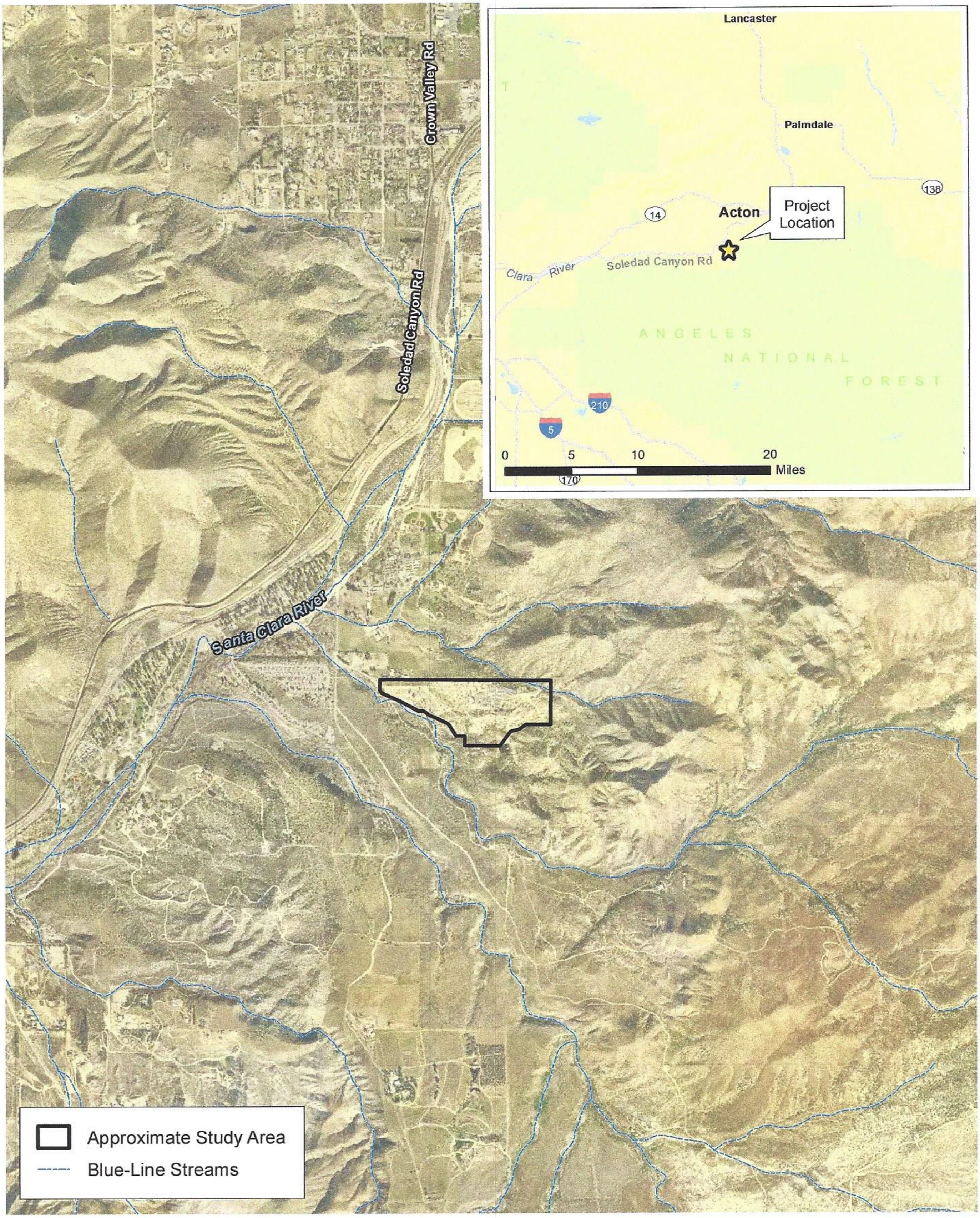
REFERENCES

Geller, J. 2007 (February). Normal Dog Urine Volume. DogChannel.com. http://www.dogchannel.com/media/dog-information/dog-vet-geller-dvm/dog-urine.aspx.pdf

Huntington Dog Owners Group (H-Dog). n.d. Dog Parks do not Harm the Environment. Huntington, NY: H-Dog. http://www.lidog.org/environment.htm.

Impact Sciences, 2012 (January). *D.E.L.T.A Rescue Biota Report, County Project R2011-00090 (RCUP201100007)*. Pasadena, CA: Impact Sciences.

Los Angeles County Department of Public Works (LACDPW). 2012 (10/1/2012). *Flood Zone Determination Website*. Los Angeles, CA: Los Angeles Department of Public Works. Dpw.lacounty.gov



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Local Vicinity

Exhibit 1

DELTA Rescue Sanctuary Biological Resources Study

N W E S

2,000 1,000 0 2,000 Feet

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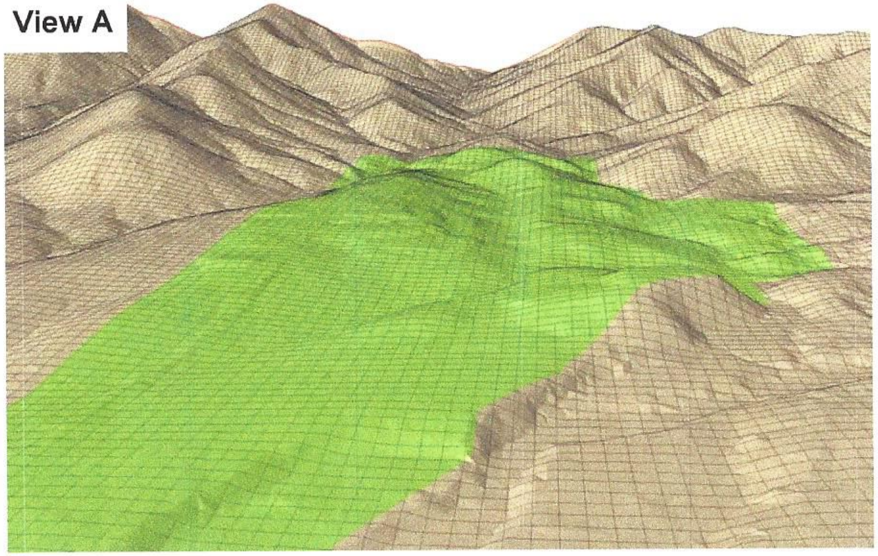

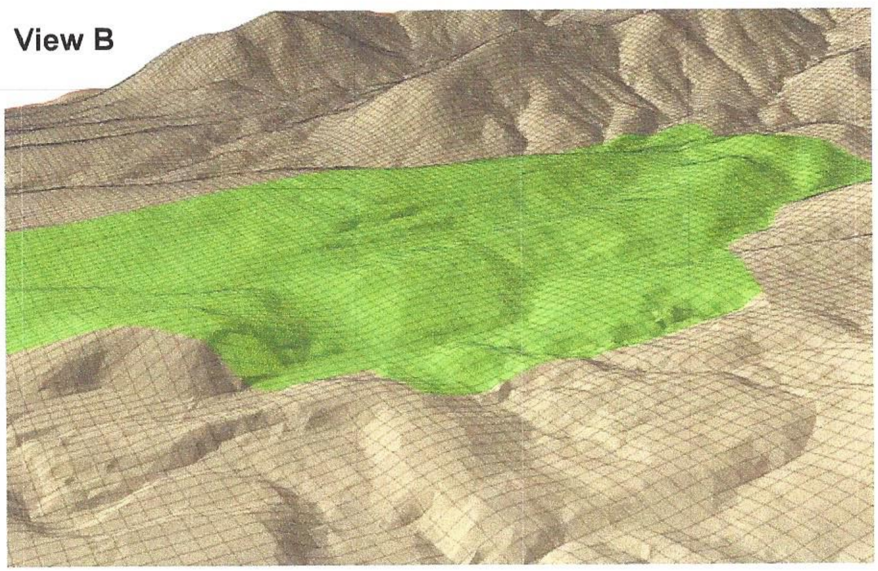

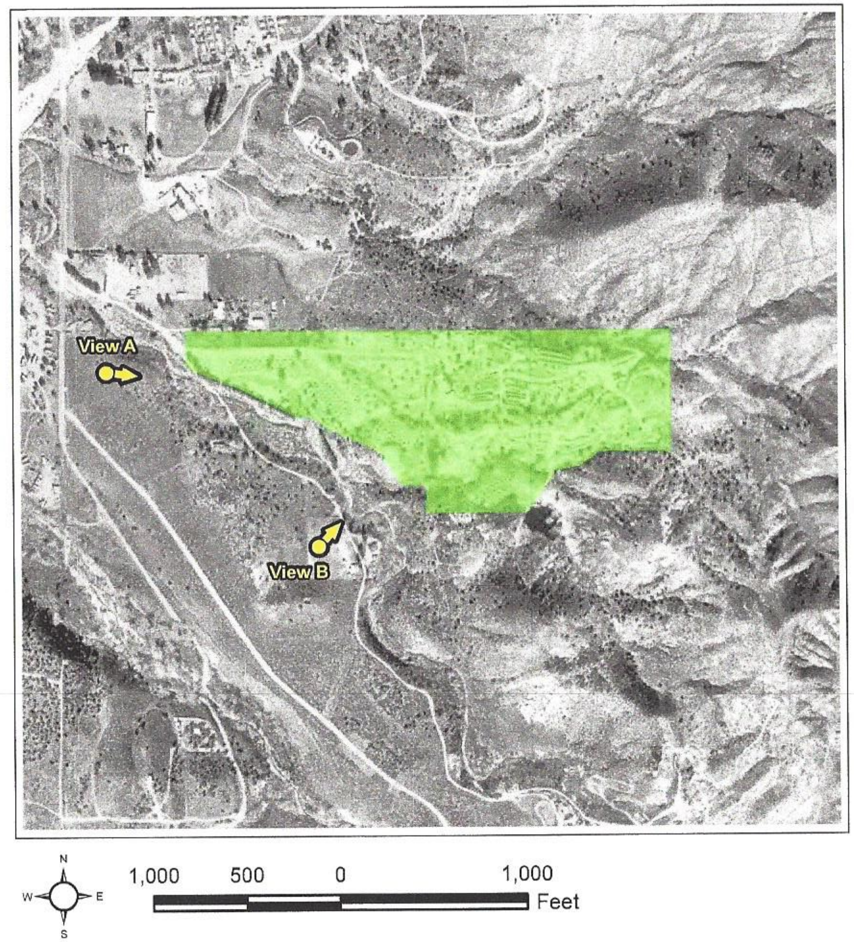

Project Area

3-Dimensional Topographic Images

DELTA Rescue Sanctuary Biological Resources Study

Exhibit 2

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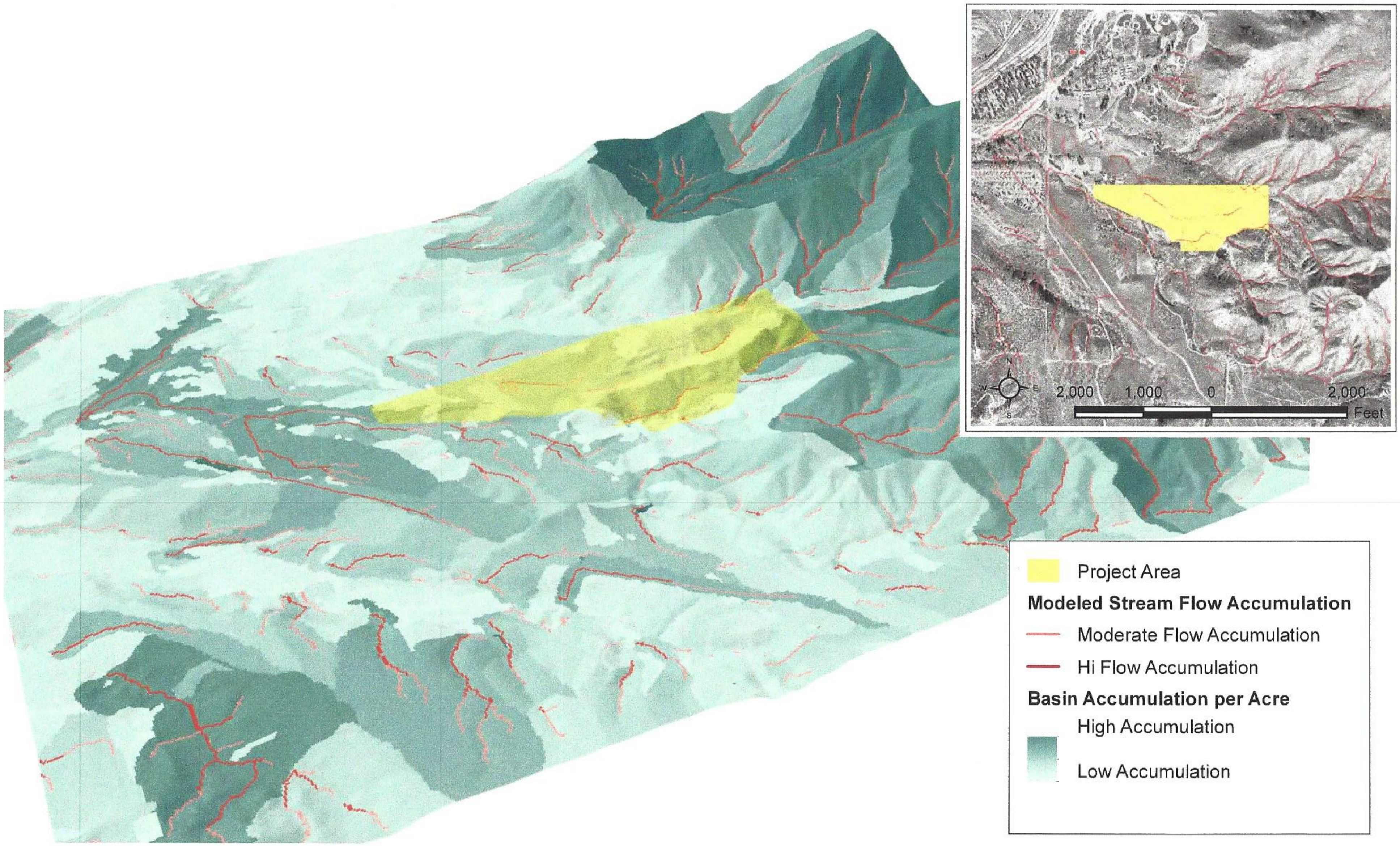

Stream Flow Accumulation

Exhibit 3

DELTA Rescue Sanctuary Biological Resources Study

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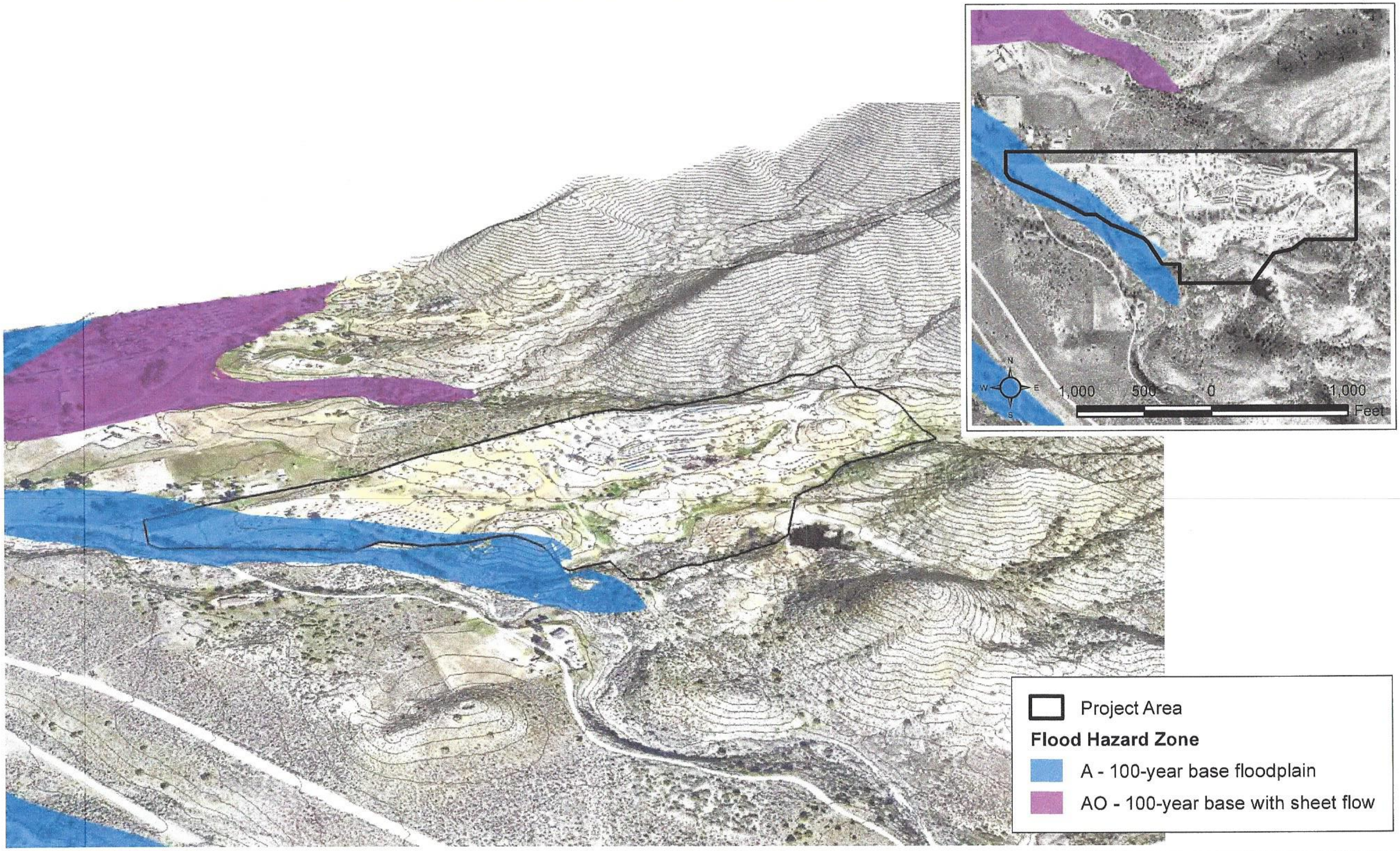

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FEMA 100 Year Flood Hazard Zones

DELTA Rescue Sanctuary Biological Resources Study

Exhibit 4

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