FINAL

Vector Management Plan for the Newland Sierra Project

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Prepared for:

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FIGURES

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1 INTRODUCTION

1.1 Purpose of the Report

The purpose of this report is to identify and evaluate best management practices (BMPs) that will be implemented on the proposed Newland Sierra Project (hereafter referred to as "project" or "proposed project") Site to minimize vector breeding sources. Specifically, this report addresses the potential for vectors associated with the Saddleback Park component of the project, which would include parking for approximately five horse trailers and 12 vehicles, picnic areas, equestrian facilities, a public restroom area, a trail head, and two detention basins.

1.2 Project Description

The Newland Sierra Project (also referred herein as "Community" or "project") is a 1,985-acre mixed-use community within the unincorporated area of San Diego County designed in accordance with the County of San Diego General Plan Community Development Model. The majority of the Community is within the Twin Oaks community of the North County Metropolitan Subregional Plan area, and a portion is within the Bonsall Community Planning area. The Specific Plan includes a residential component consisting of 2,135 dwelling units, which equates to an overall density of 1.08 dwelling units per acre (du/ac) over the entire 1,985 acres. The Community Development Model influenced the design and pattern of the seven neighborhoods (also referred to as "planning areas") with the highest densities located in the Town Center. The Town Center includes a maximum of 81,000 square feet of general commercial uses, as well as educational and park uses. The Community also includes open space, parks, pocket parks, overlooks, trails, bike lanes, pathways, and a 6-acre school site.

Saddleback Park is a proposed 1.4-acre public park located off Camino Mayor Road on the northern portion of the Site with access to the open space trails. Amenities would include parking for approximately five horse trailers and 12 vehicles, picnic areas, equestrian facilities, a public restroom area, a trail head, and two bioretention basins. This facility would be a day-use-only equestrian park, with no boarding capabilities. The facility would be monitored and maintained by a third party through the Homeowner's Association, and there would be no full-time staff on site.

1.3 Environmental Setting

The project Site is located within an unincorporated portion of San Diego County within the North County Metropolitan Subregional Plan area, as shown in Figure 1, Regional Map, and Figure 2, Vicinity Map. The North County Metropolitan Subregional Plan area is composed of many non-contiguous "island" areas interspersed among the cities of Escondido, San Diego, San Marcos, Vista, and Oceanside, with the most easterly portion adjacent to Valley Center. The North County Metropolitan Subregional Plan area includes the communities of Hidden Meadows

and Twin Oaks. The project Site is located in the community of Twin Oaks. The project Site is directly west of Interstate (I) 15, north of State Route (SR) 78, and south of SR-79. The cities of Escondido and San Marcos are approximately 1 mile south of the Site.

The project Site is located within the northern portion of the Merriam Mountains, a narrow chain of low mountains generally running north/south with a variety of east/west-trending ridgelines and scattered peaks. These mountains originate near the northern end of the urban parts of the city of Escondido and are bordered by Gopher Canyon Road to the north, I-15 to the east, and Twin Oaks Valley Road to the west. The Merriam Mountains are approximately 8.5 miles long, and the project Site is situated on approximately 3 miles of the northern portion of the Merriam Mountains.

The project Site is primarily undeveloped. A number of dirt roads and trails that provide access to each parcel and service roads for the existing water infrastructure traverse the project Site. Portions of the Site have been and continue to be used for various unauthorized land uses, including horseback riding, hiking, mountain biking, off-roading, motorcycling, shooting, and occasional dumping. An abandoned quarry is located in the northwest portion of the Site, fronting Twin Oaks Valley Road, and an abandoned private landing strip is located in the north-central portion of the Site.

Surrounding land uses to the north, west, and south of the project Site include large-lot, single-family development and avocado groves. Many of the prominent ridges surrounding the Site are occupied by existing homes. Lawrence Welk Village and the community of Hidden Meadows are located to the east of the project Site across I-15. South of the Site is a mobile home park, Golden Door Properties LLC, and estate development along the border of the city of San Marcos and the unincorporated portion of the County of San Diego.

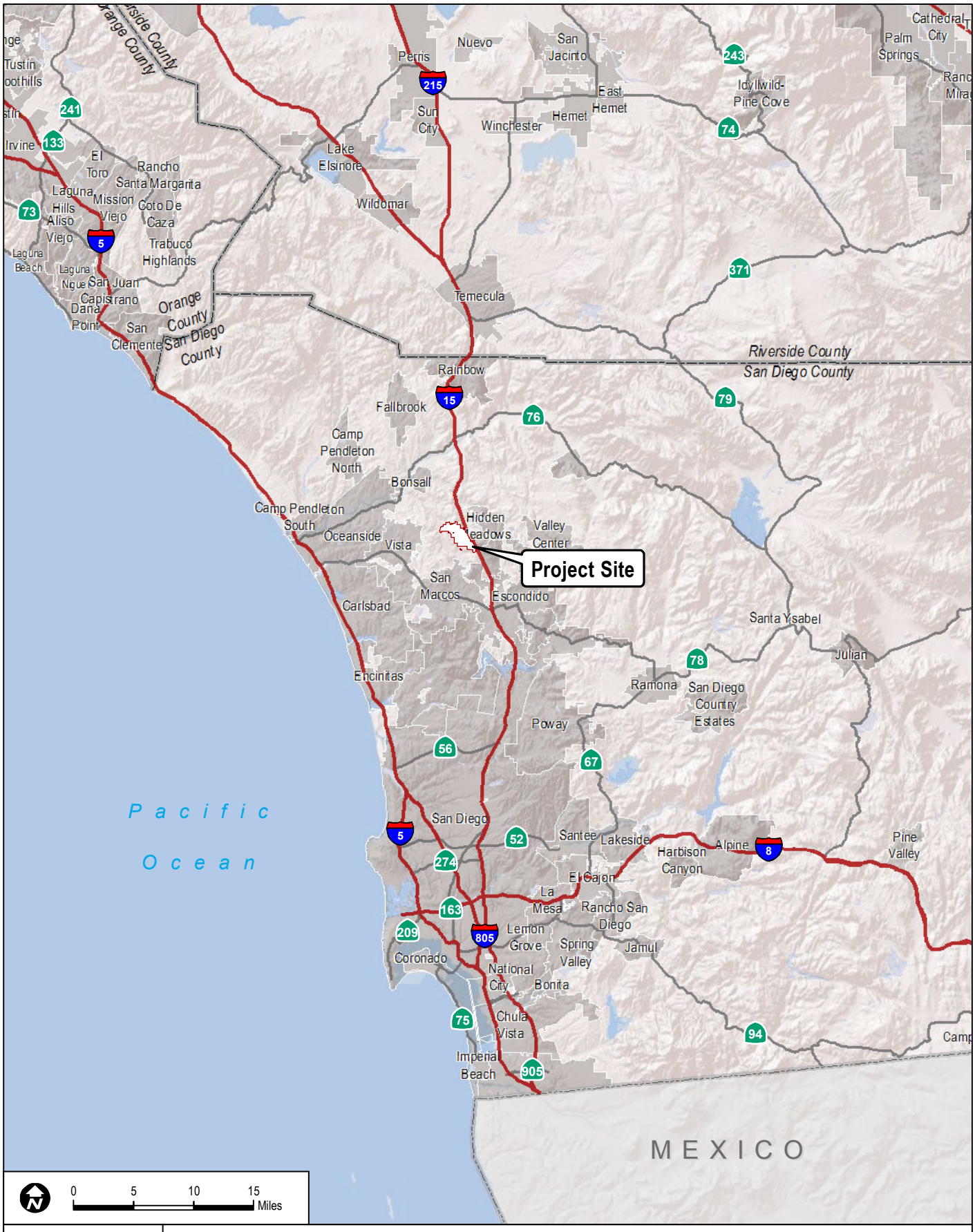

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FIGURE 1

Regional Map

Vector Management Plan for the Newland Sierra Project

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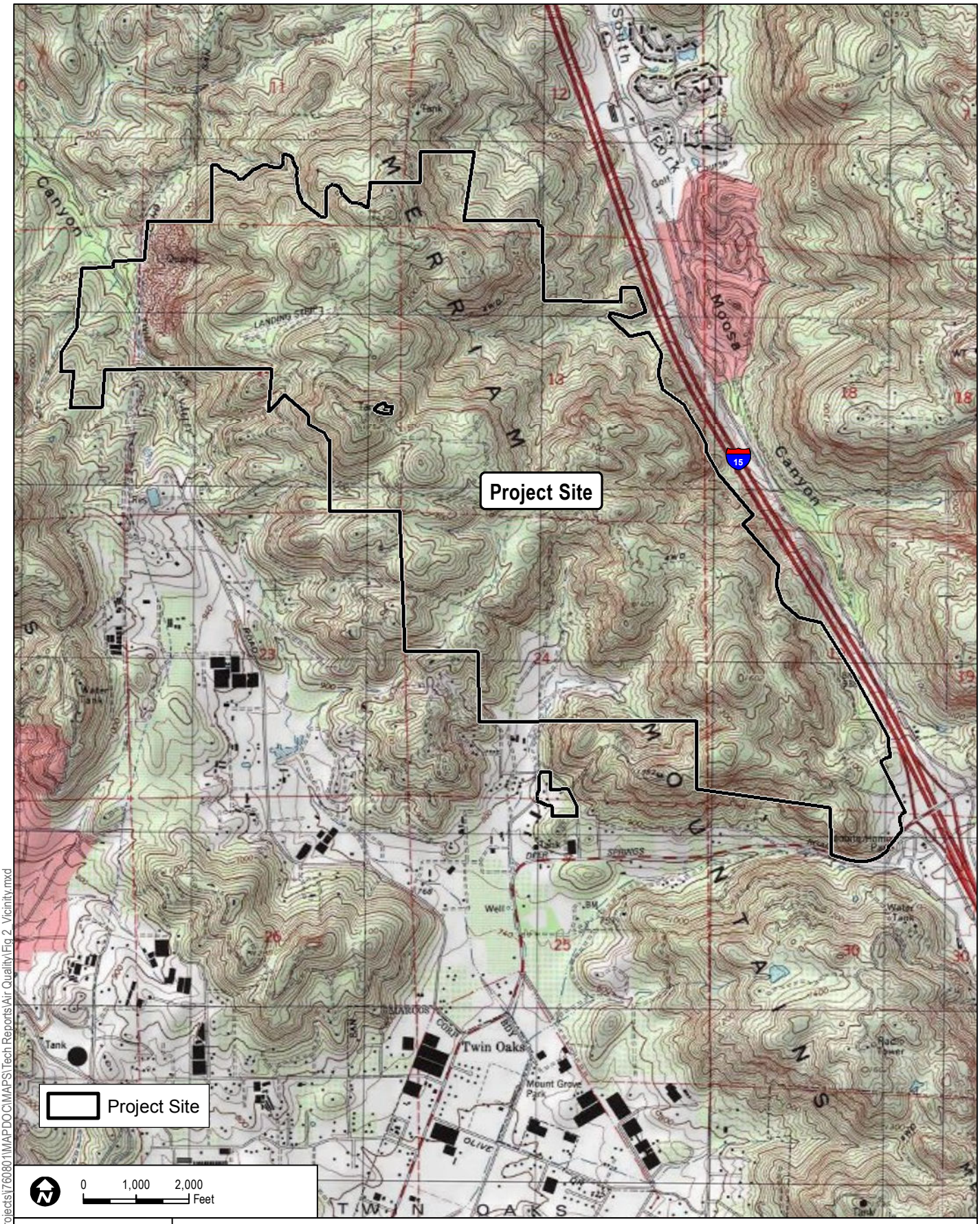

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SOURCE: USGS 7.5-Minute Series San Marcos Quadrangle.

FIGURE 2
Vicinity Map

Vector Management Plan for the Newland Sierra Project

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2 VECTOR MANAGEMENT

2.1 Equestrian Facilities Management Practices

The following measures would apply to the equestrian facilities within Saddleback Park.

Manure Management and Disposal

The respective facility manager will ensure that the following measures are implemented at the equestrian facility:

- The corrals will be cleaned weekly, with immediate disposal to a covered commercial dumpster.
- Covered commercial dumpsters will be placed onto impervious surfaces with appropriate berming.
- Dumpsters will be emptied once a week and taken to the landfill or recycling area of a landfill.
- Prior to the known rainy seasons (September through March), cleaning efforts will be made to remove any accumulations of manure from premises to prevent fly breeding and reduce stormwater runoff. Good drainage is to be maintained to prevent standing pools of water and mosquito breeding.

Water Management Methods

The following measures will be implemented to provide effective reduction of fly and mosquito sources:

- Use non-leak valves on all water devices.
- Properly grade earth surfaces in corrals and hitching post areas for drainage.
- Water will not be allowed to stand for more than 72 hours.
- Leaks in water troughs will be prevented. Regulating water flow with an on/off cycle will be considered to help eliminate the moisture problem. Drip pans under water troughs will be used if necessary. These pans will divert water from the manure and will be emptied as needed.
- Facility users will be requested to report all water leaks to prevent unnecessary wet manure areas or mosquito breeding areas.
- Feed mangers and bins will not be located near water sources, because wet, spilled feed attracts flies and makes a good breeding site.

- Regular weekly inspections by maintenance personnel will ensure that all watering devices are working, have proper air-gap back-flow prevention, and are not breeding grounds for mosquitoes. There are no watering ponds or large water storage containers proposed. However, should ponds or areas of standing water be considered in the future, use of mosquito fish will be incorporated to control mosquito breeding.

General Sanitation Management Methods

A general cleanup program will supplement the manure and water management efforts. Good sanitary methods are as follows:

- Remove damp or spilled feed from around facility.
- Store all garbage, fruit and vegetable waste, and pet droppings in tight lid containers. Fruit and vegetable waste and pet droppings will be collected in the manure management bins for removal to an off-site landfill or recycling area. Trash and garbage will be stored in tight lid containers until off-grounds disposal is possible.
- Maintenance personnel will control weeds to improve sun penetration and air movement so that the grounds remain dry and to avoid breeding of flies, rodents, mosquitoes, and other potential pests (e.g., by removing breeding habitats).
- Yellow jacket and fly traps will be used if those insects are attracted to the garbage.

Feed Storage

Feed and supplement storage will not be allowed on site.

Rodent Control

No rodent poisons are proposed, as they are dangerous to other animals. Snap traps or live traps will be used as necessary. If rodent baits are used in the future, they will be contained in approved tamper-resistant bait stations and used according to the label. If severe rodent problems occur, a licensed Private Pest Control Operator will be employed.

Pesticides and Larvicides

No use of pesticides is planned in the equestrian park except for an insecticide (Py-Tech or similar product) to reduce fly and mosquito breeding, which will be applied by a licensed professional. Hydrated lime may be used in some areas to reduce odors, which may also be effective in reducing fly breeding.

2.2 Bioretention Basins Management Practices

The project would include two bioretention basins to provide flow control for Saddleback Park. These basins could result in vector production through the pooling or ponding of water for time sufficient to permit the emergence of adult mosquitoes. To prevent such infestation, the primary method would be to ensure that captured water is discharged within 48 hours, which is too short for the mosquitos to complete their breeding cycle. Other methods typically include making the habitat less suitable for mosquito breeding, such as vegetative management and/or chemical control, as necessary.

The basins would be designed to either exclude vectors from enclosed sources of standing water, or for rapid discharge, completely draining within 72 hours to prevent basins from becoming sources for vectors. As necessary, should standing water for longer than 72 hours be required, a third option is to make the breeding habitat less suitable. Mosquito larvicides may be applied within the basins to deter mosquito breeding. The U.S. Environmental Protection Agency reports that, when used properly, mosquito larvicides are of no concern for human health, and do not pose risks to wildlife or the environment.

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3 LONG-TERM MAINTENANCE

The Specific Plan includes a Public Facilities Maintenance and Public Services Plan to ensure that the park facility is properly maintained and regularly cleaned such that vector sources are controlled. Implementation of these conditions would ensure that vector sources generated on site (as discussed in Sections 2.1 and 2.2, above) do not become a public safety issue.

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4 SUMMARY OF MITIGATION MEASURES TO MINIMIZE VECTORS

4.1 Equestrian Facilities Management Practices

Manure Management and Disposal

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- Regular inspections by maintenance personnel will ensure that all watering devices are working, have proper air-gap back-flow prevention, and are not mosquito breeding sites. There are no watering ponds or large water storage containers proposed.

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- Remove damp or spilled feed from around facility.

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- Maintenance personnel will control weeds to improve sun penetration and air movement so that the grounds remain dry and to avoid breeding of flies, rodents, mosquitoes, and other potential pests (e.g., by removing breeding habitats).
- Yellow jacket and fly traps will be used if those insects are attracted to the garbage.

4.2 Bioretention Basins Management Practices

The basins will be designed to either exclude vectors from enclosed sources of standing water or for rapid discharge, completely draining within 72 hours to prevent basins from becoming sources for vectors. As necessary, should standing water for longer than 72 hours be required, a third option is to make the breeding habitat less suitable. Mosquito larvicides may be applied within the basins to deter mosquito breeding. The U.S. Environmental Protection Agency reports that, when used properly, mosquito larvicides are of no concern for human health and do not pose risks to wildlife or the environment.

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7 SIGNATURES

The measures identified herein are considered part of the proposed project design and will be carried out as part of project implementation. I understand the breeding of mosquitoes is unlawful under the State of California Health and Safety Code Section 2060-2067. I will permit the County of San Diego, Vector Surveillance and Control program to place adult mosquito monitors and to enforce this document as needed.

Property Owner _____

Project Applicant _____

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