INDIVIDUAL BIOLOGICAL ASSESSMENT REPORT

Site Name/Facility:	Upper and Lower Alvarado Creek
Master Program Map No.:	59, 60, & 64
Date:	May 27, 2015
Biologist Name/Cell Phone No.:	Jasmine Bakker / 619-708-5990

Instructions: This form must be completed for each storm water facility identified in the Annual Maintenance Needs Assessment report and prior to commencing any maintenance activity on the facility. The Existing Conditions information shall be collected prior to preparation of the Individual Maintenance Plan (IMP) to assist in developing the IMP. The remaining sections shall be completed after the IMP has been prepared. Attach additional sheets as needed.

EXISTING CONDITIONS

The City of San Diego (City) has developed the Master Storm Water System Maintenance Program ([Master Maintenance Program, MMP] City 2011a) to govern channel operation and maintenance activities in an efficient, economic, environmentally, and aesthetically acceptable manner to provide flood control for the protection of life and property. This document provides a summary of the Individual Biological Assessment (IBA) for proposed maintenance activities within the Upper Alvarado Creek Channel (Map 59) and Lower Alvarado Creek Channel (Maps 60 and 61). The IBA is prepared to comply with the MMP's Programmatic Environmental Impact Report ([PEIR] City 2011b). Map numbers correspond to those contained in the MMP.

IBA procedures under the MMP provide the guidelines for a site-specific inspection of the proposed maintenance activity site including access routes, and temporary spoils storage and staging areas. A qualified biologist determines whether or not sensitive biological resources could be affected by the proposed maintenance and potential ways to avoid impacts in accordance with the measures identified in the Mitigation, Monitoring and Reporting Program (MMRP; Attachment 1) of the PEIR and the MMP protocols. This IBA provides a summary of the biological resources associated with the storm water facility, quantification of impacts to sensitive biological resources, and the nature of mitigation measures required to mitigate for those impacts, if any found.

Project Location and Description

The purpose of the project is to maintain the existing storm water facilities by restoring the original design capacity to provide public safety and protection of property. The City is proposing to maintain the Upper and Lower Alvarado Creek channels through the removal of trash, debris, vegetation, and accumulated sediment.

To facilitate the Individual Hydrology and Hydraulic Assessment (IHHA) prepared for the maintenance, the Upper and Lower Alvarado Creek channels were subdivided into separate reaches. The IHHA for the Upper Alvarado Creek evaluated a total of three "reaches". Maintenance in Reaches 2 and 3 is the responsibility of the City of San Diego. Maintenance in Reach 1 is the responsibility of the State of California. Although the IHHA determined that maintenance is only required in Reach 2, an evaluation of Reaches 1 and 3 was performed in the IHHA to understand how upstream and downstream conditions affect the proposed maintenance.

The IHHA for Lower Alvarado Creek evaluated a total of four reaches. Maintenance within Reaches 2A, 2B and 4 is the responsibility of the City of San Diego. Maintenance within Reach 1 is the responsibility of a private owner. Maintenance in Reach 3 is the responsibility of the Metropolitan Transit Development Board. Maintenance is only proposed within those reaches which are maintained by the City of San Diego (Reaches 2A, 2B and 4).

To facilitate the discussion of the potential effects of maintenance within the Upper and Lower Alvarado Channels, segments where maintenance is proposed are assigned an alpha-numeric code. The first portion of the code identifies whether the segment is located in the Upper Alvarado Creek (U) or Lower Alvarado Creek (L). The second portion identifies the reach number used in the IHAA.

A more detailed discussion of the channels is provided below.

Upper Alvarado Creek, Reach 2

Reach 2 of Upper Alvarado Creek (UR2) runs west approximately 335 meters to the beginning of an un-channelized reach of Alvarado Creek on the San Diego State University (SDSU) campus, near the bend in Alvarado Court. The easternmost 30 meters of the channel is fully lined with concrete. The remaining 305 meters is a natural-bottom channel with a concrete apron on the north side and a natural bank on the south side. The bottom is mostly cobbled where it is visible. The channel in UR2 is trapezoidal in shape with dimensions of 5.8 meters wide at the bottom, 11.3 meters wide at the top, 2.7 meters deep, and slopes of 1:1 on both sides. Most of UR2 is densely vegetated with freshwater marsh or southern willow scrub vegetation. UR2 receives storm flows from:

- The upstream reach of Alvarado Creek,
- A concrete-lined storm water channel draining Reservoir Drive, and
- Adjacent developed lands on Alvarado Court and undeveloped lands on the slope north of Cleo Street.

UR2 discharges into an un-channelized reach of Alvarado Creek that is densely vegetated with southern willow scrub and southern arroyo willow riparian forest. The slopes immediately south of UR2 are inside the City's Multi-Habitat Planning Area (MHPA).

Lower Alvarado Creek, Reach 4

Reach 4 of Lower Alvarado Creek (LR4) runs west approximately 160 meters from a culvert under a parking lot at 4579 Mission Gorge Place to a point behind an industrial building at 4533 Mission Gorge Place. It is bordered by development on both sides for its entire length. LR4 is a concrete trapezoidal channel with dimensions of 7.6 meters wide at the bottom, 15 meters wide at the top, 2.4 meters deep, and slopes of 1.5:1 on both sides. LR4 is densely vegetated with non-native riparian and southern willow scrub vegetation, which is supported by a large amount of accumulated sediment. LR4 receives storm flows from:

- A multiple concrete box culvert under a parking lot and driveway associated with light industrial buildings, and
- Adjacent developed lands on Mission Gorge Place and Alvarado Canyon Road.

LR4 discharges into an earthen-lined reach of Alvarado Creek that continues southwest to LR2B.

Lower Alvarado Creek, Reach 2B

Reach 2B of Lower Alvarado Creek (LR2B) runs southwest approximately 120 meters west to a culvert under Fairmount Avenue. It is bordered by development on both sides for its entire length. LR2B is a concrete trapezoidal channel with dimensions of 9.1 meters wide at the base, 14 meters wide at the top, 2.4 meters deep, and slopes of 1:1 on both sides. LR2B is vegetated with freshwater marsh and southern willow scrub vegetation. LR2B receives storm flows from:

- The upstream reach of Alvarado Creek, and
- Adjacent developed lands.

LR2B discharges into a triple, 96- by 144-inch concrete box culvert under Fairmount Avenue.

Lower Alvarado Creek, Reach 2A

Reach 2A of Lower Alvarado Creek (LR2A) runs west for approximately 135 meters from a culvert under Fairmount Avenue to a point approximately 120 meters upstream of the confluence of Alvarado Creek and the San Diego River. It is bordered by development on both sides for its entire length. The eastern 105 meters of LR2A is a concrete trapezoidal channel with dimensions of 9.1 meters wide at the bottom, 14 meters wide at the top, 2.4 meters deep, and slopes of 1:1 on both sides. The western 30 meters of LR2A is an earthen channel with rip rap sides. LR2A is densely vegetated with southern willow scrub, freshwater marsh, and non-native riparian vegetation. LR2A receives storm flows from:

- LR2B by way of a triple 96- by 144-inch concrete box culvert under Fairmount Avenue, and
- Adjacent developed lands.

LR2A discharges into the final 120 meters of Alvarado Creek, which is an earthen channel that terminates in the San Diego River. Lands downstream of LR2A are densely vegetated with southern willow scrub and southern arroyo willow riparian forest, and the MHPA is approximately 75 meters (250 feet) downstream.

Parcels adjacent to UR2 are zoned RS-1-7 (high-density single-family residential), CO-1-2 (commercial office), and RS-1-1 (low-density single-family residential). Parcels adjacent to LR4 are zoned IL-3-1 (light industrial / commercial), and parcels adjacent to LR2B and LR2A are zoned IL-3-1 and CV-1-1 (commercial visitor). According to the Federal Emergency Management Agency (FEMA), all four reaches are inside the 1 percent Annual Chance Flood area. The channels are within the San Diego River Hydrologic Unit. The City's MHPA designation lies along the south side of UR2 and approximately 2,380 square feet (0.05 acre) of the maintenance at the eastern end of UR2 lies within the MHPA (Figure 4a). The maintenance associated with the Lower Alvarado River would not occur within an MHPA designation. The nearest MHPA designation in Lower Alvarado Creek lies approximately 250 feet west of the end maintenance within LR2A.

Previous Maintenance Activities

Maintenance was performed in UR2, LR2A, and LR2B between January 19 and February 14, 2011. Photos taken immediately post-maintenance indicate that LR2B, LR4, and UR2 were completely cleared of vegetation in early February 2011 (URS 2014). Based on analysis in 2014 (URS 2013), wetland impacts from 2011 maintenance totaled 0.41 acre in UR2 and 0.75 acre in LR2A, LR2B and LR4.

Proposed Maintenance

<u>Upper Alvarado Creek</u>

Maintenance in UR2 is expected to remove up to 1,000 cubic yards of material in order to restore the original capacity of the channel to convey storm water. Equipment involved in the maintenance will include a dozer, a front-end loader, track steer, Gradall, excavator, concrete truck, backhoe, and a dump truck. Diversion pumps will be placed at the upstream and downstream ends of the maintenance area. Water will be pumped around the maintenance area in a pipe and discharged downstream of the maintenance area.

The dozer will enter and exit the channel at the location designated on the IMP, which is an existing concrete ramp leading into the channel. The dozer will push material to the access ramp where the front-end loader will transfer the material to a dump truck for disposal at the Miramar landfill.

Street sweepers will sweep adjacent public rights-of-way and immediate truck loading sites nightly. Upon completion of the maintenance, any sandbags placed will be removed. The equipment will be transported back to the City yard.

In order to control erosion during the period when the natural plant communities re-establish following maintenance, a check dam will be installed across the channel approximately 200 feet east of the downstream limit of the proposed maintenance area. The check dam will slow the velocity of storm water, allowing suspended sediments to settle before being transported downstream. The check dam will be supported by 18-inch fence posts placed within concrete footings with a diameter of 2 feet and a depth of 3 feet. A total of six fence posts will be installed. Four of the fence posts will be located on the channel bottom. The other two will be located at the top of each side of the channel. An 18-inch-high, galvanized, steel fence will be stretched across the channel and secured to the fence posts. Once the City has determined that the channel vegetation has recovered sufficiently to control erosion, the fence and posts, including footings, will be removed.

Lower Alvarado Creek

Maintenance in Lower Alvarado Creek will involve removal of sediment and vegetation to restore the original capacity of the channels to convey storm water. Based on channel conditions, maintenance in the segments will require different approaches. In all cases, street sweepers will sweep adjacent public rights-of-way and immediate truck loading sites nightly. Upon completion of the maintenance, any sandbags placed will be removed. The equipment will be transported back to the City yard.

The proposed maintenance approaches for each segment in the Lower Alvarado Creek are summarized below.

LR4: Up to 600 cubic yards of material is expected to be removed in LR4. Equipment involved in the maintenance will include a Gradall, a front-end loader, and a dump truck. A diversion pump will be placed at the upstream and downstream ends of the maintenance area. Water will be pumped around the maintenance area in a pipe, and discharged downstream of the maintenance area. The front-end loader will be lowered into the channel from an existing paved asphalt parking lot located at the rear of 4561 Mission Gorge Place, as designated on the IMP. The Gradall will be positioned above the channel at the same location. The front-end loader will push material to the Gradall. The Gradall will scoop up the material and transfer it to a dump truck for disposal at the Miramar landfill.

LR2B: Up to 400 cubic yards of material is expected to be removed in LR2B. Equipment involved in the maintenance will include a Gradall, a skid steer, and a dump truck. A diversion pump will be placed at the upstream end of the maintenance area. Water will be pumped around the maintenance area in a pipe, and discharged downstream of the maintenance area. The skid steer will be lowered into the channel behind 5733 Fairmount Avenue. The Gradall will be positioned above channel at the same location. The skid steer or front-end loader will push material to the Gradall. The Gradall or front-loader will scoop up the material and transfer it to a dump truck for disposal at the Miramar landfill.

LR2A: Up to 300 cubic yards of material is expected to be removed in LR2A. Equipment involved in the maintenance will include a Gradall, a front-end loader or a skid steer, and a dump truck. A diversion pump will be placed at the upstream end of the maintenance area.

Water will be pumped around the maintenance area in a pipe, and discharged downstream of the maintenance area. Equipment involved in the maintenance will include a Gradall, a skid steer or front-end loader and a dump truck. The skid steer or front-end loader will be lowered into the channel from an existing paved asphalt parking lot behind 5732 Fairmount Avenue. The Gradall will be positioned above channel at the same location. The skid steer or front-end loader will push material to the Gradall. The Gradall will scoop up the material and transfer it to a dump truck for disposal at the Miramar landfill.

Due to the potential for standing water at the downstream end of LR2A, a second pump may be required at the west end to withdraw standing water and allow operation of the skid steer. In this event, an inflatable dam would be placed at the west end of the proposed maintenance to keep water from backing up into the maintenance area. A pump located in parking lot behind 4242 Camino del Rio North would draw water from the upstream portion of the dam. The water would be carried in a hose around the dam and discharged back into the channel.

Unlike the Upper Alvarado Creek, no check dam is proposed at the downstream end of the proposed maintenance within Lower Alvarado Creek.

Survey Methods and Date:

Desktop Literature Review

HELIX Environmental Planning, Inc. (HELIX) conducted a review of existing project documentation and permits as part of this IBA. Document review included the MMP; PEIR (City 2011b) and Appendices; and draft applications for U.S. Army Corps of Engineers (USACE) Clean Water Act (CWA) Section 404 Nationwide Permit, California Regional Water Quality Control Board (RWQCB) CWA Section 401 Water Quality Certification, and California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement.

Potential occurrence of special-status species within the project site was determined by a habitat suitability assessment, a review of records from the California Natural Diversity Database (CNDDB), species occurrence data from the U.S. Fish and Wildlife Service (USFWS) Carlsbad Office's Listing of Multiple Species Database, and the California Native Plant Society (CNPS) rare plant online inventory. A half-mile radius was used to specifically assess the potential for sensitive species for the Upper and Lower Alvarado Creek maintenance areas. A CNDDB search was conducted for the USGS 7.5-minute La Mesa quadrangle, which encompasses the maintenance area.

Biological Survey and Site Assessment

HELIX conducted an initial biological survey and site assessment, including a California Rapid Assessment Method (CRAM) of wetland conditions, of the four reaches of Upper and Lower Alvarado Creek on November 5, 2014. HELIX also conducted a rare plant survey on April 20, 2015. Surveys were conducted on foot and achieved 100 percent visual coverage of all reaches. Vegetation communities were mapped in accordance with the City's Biology

Guidelines (City 2012) and following classifications described by Holland (1986). Data collected during surveys included comprehensive species lists, habitat suitability assessments for sensitive species, data for completion of a CRAM following the methods outlined in the User's Manual: *California Rapid Assessment Method for Wetlands and Riparian Areas v. 6.1* (California Wetlands Monitoring Workgroup [CWMW] 2013) and other training materials located on the CRAM website (www.cramwetlands.org), and data for completion of a USACE Wetland Determination Data Form for 1 sample point in UR2, LR2A, LR2B, and LR4. Vegetation communities and sensitive species were mapped on a 150-scale (1 inch = 150 feet) map with a 2012 aerial photograph base map. Representative photographs were taken during the survey and are provided in this report. Plants were identified according to The Jepson Manual: Vascular Plants of California (Baldwin *et al.* [2012]).

Biological Resources:

Stream Type: **Perennial** ▣ **Intermittent** □ **Ephemeral** □

Stream type designations are based on USGS topographical map stream designations and field visit review of the channels. Alvarado Creek is shown on the USGS La Mesa quadrangle map. All four reaches are presumed to have perennial sources of water from urban runoff.

Vegetation:

For purposes of this IBA, only vegetation or land covers within the proposed maintenance areas, including associated work areas (i.e., access and loading areas), are described below. One additional vegetation type (Non-native Riparian, class 65000 in Oberbauer's 2008 revision of Holland [1986]) was mapped within this maintenance area. Pure stands of invasive species, such as giant reed (*Arundo donax*), Mexican fan palm (*Washingtonia robusta*), and castor bean (*Ricinus communis*), are classified as Non-native Riparian. One of the purposes of this vegetation category is to identify invasive wetland vegetation that is exempt from mitigation requirements under condition 9e of the Master Coastal Development Permit (CDP), which is applied to all storm water facility maintenance per requirement 15 of Site Development Permit 1134892 related to the MMP.

A total of 7 vegetation communities or land cover types were identified during the survey: developed land (concrete channel with or without surface water), disturbed habitat, non-native riparian, freshwater marsh (including disturbed phases), non-native vegetation/ornamental, open water, and southern willow scrub (including disturbed phase; Table 1; Figure 4a and 4b). See PEIR Appendix D.1 (Biological Resources Report) for general descriptions of vegetation communities/land cover types (City 2011b). A list of plant species observed during the November 5, 2014 survey is provided as Attachment 2.

Table 1
EXISTING LAND COVERS BY CHANNEL REACH (acres*)

Vegetation Community or Land Cover Type (Holland Code[1])	City MSCP Habitat Designation/ Tier	Earthen			Concrete-Lined					TOTAL
		UR2	LR2A	Sub total	UR2	LR2A	LR2B	LR4	Sub total	
Freshwater Marsh (52400)	Freshwater Marsh/None	0.28	0.06	0.34	0.02	0.09	0.09	0.09	0.29	0.63
Southern Willow Scrub (63320)	Riparian Scrub/None	0.07	0.00	0.07	0.01	0.08	0.14	0.14	0.38	0.44
Wetlands Subtotal		0.35	0.06	0.41	0.04	0.17	0.23	0.23	0.67	1.08
Open Water (64140)	Natural Flood Channel/None	0.01	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.03
Non-native Riparian (65000)	Riparian Scrub/None	0.08	0.00	0.08	0.02	0.00	0.00	0.02	0.04	0.12
Disturbed Habitat (11300)	Disturbed Wetland/None	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01
Non-native Vegetation/ Ornamental (12000)	Other Uplands/Tier IV	0.03	0.01	0.04	0.01	0.03	0.00	0.00	0.03	0.07
Developed - Concrete Channel	Channelized Stream	0.00	0.00	0.00	0.04	0.01	0.05	0.04	0.14	0.14
Non-wetland Waters Subtotal		0.11	0.03	0.15	0.07	0.04	0.05	0.06	0.22	0.37
Wetlands and Non-wetland Waters Total[2]		**0.46**	**0.08**	**0.56**	**0.11**	**0.21**	**0.28**	**0.30**	**0.89**	**1.45**
Non-native Vegetation/ Ornamental (12000)	Other Uplands/Tier IV	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04	0.04
Developed Land (12000)[3]	Other Uplands/Tier IV	0.00	0.00	0.00	0.17	0.01	0.39	0.13	0.69	0.69
Uplands Total		**0.00**	**0.00**	**0.00**	**0.17**	**0.04**	**0.39**	**0.13**	**0.73**	**0.73**
GRAND TOTAL		**0.46**	**0.09**	**0.56**	**0.28**	**0.25**	**0.67**	**0.42**	**1.63**	**2.17**

*Acreages are rounded to the nearest 0.01 acre; thus, subtotals and totals reflect rounding
[1] Includes classes added by Oberbauer (2008)
[2] Total reflects WUS and Waters of the State (i.e., WUS acreage is the same as Waters of the State acreage)
[3] Includes clean concrete and upland vegetation in concrete-lined channels

Upper Alvarado Creek, Reach 2 (Map 64)

With the exception of the easternmost 30 meters, which is all concrete, UR2 is an earthen-bottom channel with a concrete bank on the north side and an earthen bank on the south side. This 0.51-acre channel reach supports a dense growth of freshwater marsh, southern willow scrub, non-native riparian, and non-native vegetation. The access and loading area for this channel is 0.23 acre.

Freshwater Marsh (0.30 acre)
Cattail (*Typha* sp.) is the dominant species present in UR2. A total of 0.30 acres of freshwater marsh occurs in UR2, which includes the earthen channel and the 0.01 acres that occurs in the portion of the concrete-lined ramp within the access and loading area.

Southern Willow Scrub (0.08 acre)
Goodding's black willow (*Salix gooddingii*) and arroyo willow (*Salix lasiolepis*) form thickets along the edges of the channel. In some places these thickets include some non-native Mexican fan palm (*Washingtonia robusta*) and are mapped as a disturbed phase.

Open Water (0.01 acre)
Portions of unvegetated channel with a natural earthen bottom and surface water were mapped as open water.

Non-native Riparian (0.09 acre)
This community consists of pure stands of Mexican fan palm along the edges of the channel and a large patch of castor bean at the western end of the reach. A total of 0.09 acres of non-native riparian occurs in UR2, which includes the earthen and concrete portions of the channel and the 0.01 acre of of castor bean within the access and loading area.

Non-native Vegetation/Ornamental (0.04 acre)
Hottentot-fig (*Carpobrotus edulis*) grows on the south bank at the base of the slope and forms mats that hang into the channel. A total of 0.04 acre occurs in UR2, which includes the 0.0 acre that occurs within the access and loading area.

Disturbed Habitat (0.01 acre)
The access and loading area consists of 0.01 acre of disturbed habitat comprising sparsely vegetated unpaved area between the parking lot and channel.

Developed Land (0.17 acre of upland and 0.04 acre of wetland)
The access and loading area consists of 0.17 acre of developed land consisting of the parking lot adjacent to the maintenance area and 0.04 acre of concrete-lined channel. Portions of the concrete-lined north side of the channel support scattered individuals of upland weeds such as fountain grass (*Pennisetum setaceum*).

Lower Alvarado Creek, Reach 4 (Map 60)

LR4 is a concrete-lined trapezoidal channel with a large accumulation of sediment and densely vegetated with freshwater marsh, southern willow scrub, and non-native riparian vegetation. The vegetation/land covers described below comprise a 0.31-acre maintenance area and 0.11-acre access and loading area.

Freshwater Marsh (0.09 acre)
California bulrush (*Schoenoplectus californicus*) is the dominant species present, with cattail and American bulrush (*Schoenoplectus americanus*) sub-dominant. This community also includes scattered individuals of giant reed (*Arundo donax*) and castor bean.

Southern Willow Scrub (0.14 acre)
Arroyo willow forms dense thickets along the edges of the channel that include several large individual trees.

Non-native Riparian (0.02 acre)
A large patch of Mexican fan palm, castor bean, and umbrella sedge (*Cyperus involucratus*) occurs in the center of the reach.

Developed Land (0.04 acre of wetland and 0.13 acre of upland)
Developed land includes 0.04 acre of unvegetated portions of the channel with or without surface water. A total of 0.13 acre occurs in upland areas, which includes the concrete slope of the channel and 0.11 acre associated with the paved parking lot of the access and staging area.

Lower Alvarado Creek, Reach 2B (Map 59)

LR2B is a concrete-lined trapezoidal channel with extensive southern willow scrub and freshwater marsh vegetation along the northern edge. The vegetation/land covers described below comprise a 0.28-acre maintenance area and 0.39-acre access and loading area.

Freshwater Marsh (0.09 acre)
A strip of freshwater marsh occurs at the southern edge of the southern willow scrub and in a large patch at the west end of the reach. This community consists of California bulrush and cattail. Several individuals of Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) grow in the freshwater marsh in this reach.

Southern Willow Scrub (0.14 acre)
Goodding's black willow forms thickets along the northern edge of the channel. The disturbed phase of this community includes Mexican fan palm, giant reed, and castor bean.

Developed Land (0.05 acre of wetland and 0.39 acre of upland)
Developed land includes 0.05 acre of unvegetated portions of the channel with or without surface water. A total of 0.39 acre of developed land occurs in upland areas, comprised of the paved parking lot of the access and staging area.

Lower Alvarado Creek, Reach 2A (Map 59)

LR2A is a concrete-lined trapezoidal channel with extensive freshwater marsh, southern willow scrub, and non-native riparian vegetation. The vegetation/land covers described below comprise a 0.29-acre maintenance area and 0.05-acre access and loading area.

Freshwater Marsh (0.15)
California bulrush, American bulrush, cattail, and Mexican rush (*Juncus mexicanus*) form a dense freshwater marsh at the west end of this reach. Several individuals of Southwestern spiny rush occur in this community as well. A disturbed phase of freshwater marsh includes castor bean, giant reed, celery (*Apium graveolens*), umbrella sedge, and the sensitive native Palmer's sagewort (*Artemisia palmeri*).

Southern Willow Scrub (0.08 acre)
Large individual Goodding's black willow trees form an extensive canopy over the central portion of LR2A.

Open Water (0.02 acre)
Portions of unvegetated channel with a natural earthen bottom and surface water were mapped as open water.

Non-native Riparian (<0.01 acre)
Less than 0.01 acre of giant reed occurs at the southern edge of the channel near the western end of LR2A (and is part of the larger stand of giant reed outside the maintenance area); the acreage of this vegetation community was rounded to 0.00 acre and is recorded as 0.00 acre in Table 1.

Non-native Vegetation/Ornamental (0.07 acre)
A total of 0.07 acre of non-native vegetation/ornamental occurs in LR2A, which includes the 0.01 acre in earthen portions of the channel, 0.03 acre in concrete-lined portions of the channel, and 0.04 acre in upland areas. These areas cumulatively add to 0.07 acres, due to rounding. Ivy (*Hedera helix*) grows over portions of the south side of the channel at the western end, having spread from landscaped areas in the adjacent parking lot. The upland areas are dominated by ivy, fountain grass and fennel (*Foeniculum vulgare*), which is associated with the access and loading area.

Developed Land (0.01 acre of wetland and 0.01 acre of upland)
Unvegetated portions of the channel with or without surface water are mapped as developed land and totaled 0.01 acre of concrete-lined channel within the maintenance area. The access and loading area includes 0.01 acre of developed land outside but adjacent to the channel.

Special Status Species:

No federal or state-listed plant species were detected during the biological survey. Two low-sensitivity plant species were observed in the westernmost reaches (LR2A and LR2B) of Lower Alvarado Creek: southwestern spiny rush and Palmer's sagewort have a California Rare

Plant Rank of 4.2, which indicates species of limited distribution. Approximately 3 individuals of southwestern spiny rush occur in LR2B and 4 individuals in LR2A. Palmer's sagewort is present in LR2A in an area of disturbed freshwater marsh that had been flattened by recent storm flows at the time of the survey, making an exact count impossible. Numbers were estimated at 20 – 50 individuals.

No federal or state-listed animal species, or other sensitive species, were detected during the biological survey. Special-status species have been reported within 0.5 mile of the project work areas (Figures 5a and 5b). Sensitive species records that have been documented in CNDDB and USFWS databases.

Wildlife Value:

Freshwater marsh and riparian scrub within the maintenance area provide habitat for wildlife, including potential nesting and foraging songbirds and small mammals. A list of the 12 wildlife species detected during the biological survey and site assessment is provided below.

- Anna's Hummingbird (*Calypte anna*)
- Black Phoebe (*Sayornis nigricans*)
- Bewick's Wren (*Thyromanes bewickii*)
- Bushtit (*Psaltriparus minimus*)
- California Towhee (*Pipilo crissalis*)
- Common Raven (*Corvus corax*)
- Lesser Goldfinch (*Carduelis psaltria*)
- Mallard (*Anas platyrhynchos*)
- Song Sparrow (*Melospiza melodia*)
- Spotted Towhee (*Pipilo maculatus*)
- Yellow-rumped Warbler (*Setophaga coronata*)
- Wrentit (*Chamaea fasciata*)

Are there current level of anthropogenic influences on habitat with the project footprint (e.g., homeless encampment, illegal dumping)? Yes ☐ No ▣

If yes, describe the influence:

Are there any conservation easements which have been previously recorded within the maintenance area? Yes ☐ No ▣

If yes, describe them and their purpose:

Jurisdictional Areas:

In addition to the general biological survey and site assessment, HELIX also conducted a jurisdictional delineation on November 5, 2014 (Attachment 3). The jurisdictional delineation was conducted to identify and map potential jurisdictional waters and wetlands, including WUS subject to the regulatory jurisdiction of the USACE pursuant to Section 404 of the federal CWA; streambed and riparian habitat subject to the regulatory jurisdiction of the CDFW pursuant to Section 1600 of the California Fish and Game Code; and wetlands pursuant to the City's Environmentally Sensitive Lands (ESL) regulations.

USACE wetland boundaries were determined using three criteria (vegetation, hydrology, and soils) established for wetland delineations as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Arid West Regional Supplement (USACE 2008). Areas were determined to be non-wetland WUS if there was evidence of regular surface flow (*e.g.*, bed and bank) but either the vegetation or soils criterion was not met.

CDFW jurisdictional boundaries (i.e., Waters of the State) were determined based on the presence of riparian vegetation or regular surface flow.

City wetland boundaries were based on the definition of wetlands pursuant to the City's ESL regulations of the Municipal Code (San Diego Municipal Code Section 143.0101 *et seq*.), and include areas characterized by any of the following conditions: (1) All areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation, including but not limited to salt marsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodlands, riparian scrub, and vernal pools; (2) Areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities because human activities have removed the historic wetland vegetation or catastrophic or recurring natural events or processes have acted to preclude the establishment of wetland vegetation as in the case of salt pannes and mudflats; (3) Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands; and (4) Areas mapped as wetlands on Map C-713 as shown in Chapter 13, Article 2, Division 6 (Sensitive Coastal Overlay Zone).

Proposed maintenance of the Upper and Lower Alvarado Creek channels would result in impacts to 1.31 acres of wetlands and waters under the jurisdiction of USACE, RWQCB, CDFW, and City (Table 2; Figure 6). Note that for the Upper and Lower Alvarado Creek channels, the impacts to jurisdictional wetlands and waters is the same across all agencies. In addition it would result in the temporary displacement of up to 12 square feet based on four fence post footings (2 feet in diameter) in the channel bottom. The impact is considered temporary because the fence posts will be left in place for the amount of time for the vegetation to recover.

Table 2
IMPACTS TO WATERS OF THE U.S./WATERS OF THE STATE/CITY WETLANDS (acres*)

Vegetation Community or Land Cover Type (Holland Code[1])	City MSCP Habitat Designation/Tier	Earthen	Concrete-Lined	TOTAL
Freshwater Marsh (52400)	Freshwater Marsh/None	0.34	0.29	0.63
Southern Willow Scrub (63320)	Riparian Scrub/None	0.07	0.38	0.45
	Wetlands Total	0.41	0.67	1.08
Open Water (64140)	Natural Flood Channel/None	0.03	0.00	0.03
Non-native Riparian (65000)	Riparian Scrub/None	0.08	0.04	0.12
Disturbed Habitat (11300)	Disturbed Wetland/None	0.00	0.01	0.01
Non-native Vegetation/Ornamental (12000)	Other Uplands/Tier IV	0.04	0.03	0.07
	Non-wetland Waters Total	0.15	0.08	0.23
	WUS, Waters of the State, City Wetlands TOTAL	**0.56**	**0.75**	**1.31**

*Acreages are rounded to the nearest 0.01 acre; thus, totals reflect rounding
[1]Includes classes added by Oberbauer (2008)

Of the 1.31 acres of WUS/Waters of the State/City Wetlands identified in Table 2, 0.56 acre would be associated with earthen-bottom channel and the remaining 0.75 acre would be associated with concrete-lined channels.

CRAM

The ecological function of the Alvarado Creek channels was assessed using CRAM. The purpose of CRAM is to provide a rapid, standardized, and scientifically defensible assessment of the status of a wetland. Two CRAM practitioners (HELIX biologists George Aldridge and Jasmine Bakker) conducted the CRAM assessment on November 5, 2014. The CRAM assessment was conducted within three Assessment Areas (AAs), as follows: AA-1 covers Upper Alvarado R2, AA-2 covers Lower Alvarado R4 and R2B, and AA-3 covers Lower Alvarado R2A (one AA was deemed to be representative of both LR4 and LR2B as they support the similar vegetation communities and receive hydrologic inputs from similar sources).

A summary of the CRAM results are provided in Table 3; the results are explained in text following Table 3. The CRAM assessment data sheets and maps are provided in Attachment 6 and explain how the scores were calculated.

Table 3*
CRAM DATA SUMMARY

CRAM ATTRIBUTES	METRICS	AA-1 SCORE*	AA-2 SCORE*	AA-3 SCORE*
Buffer and Landscape Context	Stream Corridor Continuity	3	3	3
	Buffer Sub-metrics:			
	- Percent of Assessment Area with Buffer	9	3	3
	- Average Buffer Width	3	3	3
	- Buffer Condition	9	3	3
	Attribute Score (Raw/Final)	**9.84/40.99**	**6.0/25.0**	**6.0/25.0**
Hydrology	Water Source	6	6	6
	Channel Stability	3	3	3
	Hydrologic Connectivity	3	3	3
	Attribute Score (Raw/Final)	**12.0/33.0**	**12.0/33.0**	**12.0/33.0**

* Continued on next page

Table 3 (cont.)
CRAM DATA SUMMARY

CRAM ATTRIBUTES	METRICS		AA-1 SCORE*	AA-2 SCORE*	AA-3 SCORE*
Structure	Physical	Structural Patch Richness	6	3	6
		Topographic Complexity	3	3	3
	Attribute Score (Raw/Final)		**9.0/37.5**	**6.0/25.0**	**9.0/37.5**
	Biotic	Plant Community Sub-metrics:			
		- Number of Plant Layers Present	9	9	6
		- Number of Co-dominant Species	3	9	6
		- Percent Invasion	9	9	3
		Horizontal Interspersion	3	6	3
		Vertical Biotic Structure	3	6	3
	Attribute Score (Raw/Final)		**13.0/36.11**	**21.0/58.33**	**11.0/30.56**
		OVERALL AA SCORE	**37**	**35**	**32**

*Possible scores range from a low of 3 to a high of 12 (with scores of 6 and 9 considered moderate in this assessment). The Raw/Final Attribute Scores are explained in the following discussions of each CRAM Attribute.

Buffer and Landscape Context

Stream Corridor Continuity refers to the spatial association with other areas of aquatic resources, such as other wetlands, and it is assumed that wetlands close to each other interact and are benefited both ecologically and hydrologically. All three AAs received a low score for Stream Corridor Continuity because the wetland areas are separated by non-wetland areas of concrete-lined channels and culverts, etc.

A buffer is the area adjoining an AA that is in a natural or semi-natural state and is currently not dedicated to anthropogenic uses that would severely detract from its ability to entrap contaminants, discourage visitation into the AA by people and non-native predators, or otherwise protect the AA from stress and disturbance. For the Buffer Sub-metrics, AA-1 scored highest because 50 percent of AA-1 has a buffer with an average width of 52 meters and is providing some wetland protection. AA-2 and AA-3 have no buffers.

Hydrology

Water Sources include direct inputs of water into an AA, as well as any diversions of water from an AA. Water Sources directly affect the extent, duration, and frequency of saturated or ponded conditions within an AA. Consistent, natural inflows of water to a wetland are important for their ability to perform and maintain most of their intrinsic ecological, hydrological, and societal functions and services. All three AAs received moderate scores for Water Sources.

Channel Stability is assessed as the degree of channel aggradation (i.e., net accumulation of sediment on the channel bed causing it to rise over time) or degradation (i.e., net loss of sediment from the bed causing it to be lower over time). All three AAs received a low score for Channel Stability as each represents a concrete-lined channel but that contains, for example, some plant hummocks/sediment mounds, cobbles, and/or in-channel bars.

Hydrologic Connectivity describes the ability of water to flow into or out of a wetland, or to accommodate rising flood waters without persistent changes in water level that can result in stress to wetland plants and animals. It promotes the exchange of water, sediment, nutrients, and organic carbon. Since all three AAs consist of concrete-lined channels with steep slopes, and each contains, for example, plant hummocks/sediments mounds that can impede the flow of water, floodwaters can rise quickly and result in stress to wetland plants and animals. Therefore, each AA received a low score for Hydrologic Connectivity.

Physical Structure

Structural Patch Richness is the number of different obvious types of physical surfaces or features that may provide habitat for aquatic, wetland, or riparian species. This metric is different from Topographic Complexity (described below) in that it addresses the number of different patch types; Topographic Complexity evaluates the spatial arrangement and interspersion of the patch types. AA-1 and AA-3 received a moderate score for Structural Patch Richness in that they support five patch types each out of a total of 11. AA-2, which received a low score for Structural Patch Richness, supports three out of a total of 11 patch types.

Topographic Complexity refers to the micro- and macro-topographic relief within a wetland due to abiotic features and elevations gradients. Since each of the three AAs represents a concrete-lined channel, there is little Topographic Complexity present, and each received a low score for this CRAM attribute.

Biotic Structure

Plant Community Sub-metrics

AA-1 scored moderately for the number of plant layers present (three layers) but low for the number of co-dominant species (i.e., the dominant plant species richness in each plant layer for the AA as a whole; four species for AA-1). AA-1 also scored moderately for the percent invasion of co-dominant species in the plant layers (i.e., 25 percent).

AA-2 scored moderately for the number of plant layers (three layers), for the number of co-dominant species (10 species), and for the percent invasion (30 percent).

AA-3 scored moderately for the number of plant layers (two layers) and for the number of co-dominant species (six species) but scored low for the percent invasion (50 percent).

Horizontal Interspersion

Horizontal Interspersion refers to the variety and interspersion of plant "zones." The existence of multiple horizontal plant zones indicates a well-developed plant community and predictable sedimentary and bio-chemical processes. Richer native communities of plants and animals tend to be associated with greater zonation and more interspersion. AA-1 and AA-3 are represented by three plant zones but scored low for Horizontal Interspersion. AA-2, while also represented by three plant zones, received a moderate score due to less spacing between zones.

Vertical Biotic Structure

Vertical Biotic Structure is the degree of overlap among plant layers (i.e., those used to assess the Plant Community Sub-metrics described above). The overall ecological diversity of a wetland tends to correlate with the vertical complexity of the wetland vegetation. AA-1 and AA-3 demonstrated minimal plant layer overlap and received a low score for this CRAM attribute. AA-2 demonstrated a greater degree of overlap resulting in a moderate score.

Overall CRAM Score

Overall CRAM scores are calculated by averaging the scores for each of the four CRAM Attributes. CRAM scores represent the percent of best achievable wetland conditions, and the overall CRAM score depends more on the diversity and levels of all its services than the level of any one service. The diversity and levels of services of a wetland increase with its structural complexity and size. Given the Alvarado Creek channels are concrete-lined (or partially concrete-lined) flood control channels within urbanized areas, the structural complexity and size of the three AAs are limited and thus, each of the AAs score low. The overall CRAM score of 37 for AA-1 was the highest, followed by scores of 35 for AA-2 and 32 for AA-3.

Sensitive* Plant Species Observed:	**Sensitive* Animal Species Observed/Detected:**
Yes ☒ No ☐	Yes ☐ No ☒
If yes, what species were observed and where? If yes, complete a California Native Species Field Survey Form and submit it to the California Natural Diversity Database.	If yes, what species were observed/detected and where? If yes, complete a California Native Species Field Survey Form and submit it to the California Natural Diversity Database.
Southwestern spiny rush (*Juncus actus* ssp. *leopoldii*) in Reaches LR2A and LR2B; Palmer's sagewort (*Artemisia* palmeri) in LR2A (see Attachment 4 for CNDDB Field Survey Forms).	
* Sensitive species shall include those listed by state or federal agencies as well as species that could be considered sensitive under Sections 15380(b) and (c) and 15126(c) of the CEQA Guidelines.	* Sensitive species shall include those listed by state or federal agencies as well as species that could be considered sensitive under Sections 15380(b) and (c) and 15126(c) of the CEQA Guidelines.

Is any portion of the maintenance activity within an MHPA? Yes ☒ No ☐

If yes, describe which portions are within an MHPA:

Approximately 2,380 square feet (0.05 acre) of the maintenance at the eastern end of UR2 lies within the MHPA (Figure 4a). The maintenance associated with the Lower Alvarado River would not occur within an MHPA designation.

Is there moderate or high potential for listed animal species to occur in or adjacent to the impact area? Yes ☒ No ☐

If yes, which species (check all that apply) and describe any surveys which should be undertaken to determine whether those species could occur within the maintenance area:

- ☒ Least Bell's vireo
- ☐ Southwestern willow flycatcher
- ☐ Arroyo toad
- ☐ Coastal California gnatcatcher
- ☐ San Diego fairy shrimp
- ☐ Riverside fairy shrimp
- ☐ California least tern
- ☐ Light-footed clapper rail
- ☐ Western snowy plover
- ☒ Other: Nesting birds and raptors

Least Bell's Vireo

Least Bell's vireo (*Vireo bellii pusillus*; LBV) has been reported from the San Diego River's dense riparian forest immediately west of LR2A (Figure 5b). This species is listed as Endangered under the federal and state Endangered Species Acts, and inhabits mature riparian scrub and forest with a well-developed canopy and stratified understory. While the potential for LBV to reside inside the work area of LR2A is low and not conducive to LBV breeding due to a poorly-developed understory, extensive patches of non-native vegetation, and immediate adjacency to commercial development and busy roadway, there is potential for LBV to nest near LR2A and for individuals to forage inside the work area in LR2A.

Migratory Bird Treaty Act Protected Birds

The potential exists for birds protected by the Migratory Bird Treaty Act (MBTA) to nest in trees in and adjacent to the maintenance area. The MBTA prohibits deliberate take of birds, eggs, and active nests without a permit from the USFWS. Permits are issued for specific categories of deliberate take (e.g., scientific collection, removal of depredating birds); however, not for incidental take (take that is the unintended result of an otherwise lawful action). As no incidental take permits can be issued under MBTA, no conditions to avoid incidental take can be placed on discretionary permits pursuant to MBTA (such conditions would constitute a *de facto* incidental take permit). In practice, reasonable diligence to avoid take of birds and/or active nests, such as pre-construction nesting bird surveys, is considered sufficient to avoid prosecution under MBTA.

Attach documentation supporting the determination of the presence or absence of listed animal species with a moderate or high potential to occur (e.g. California Natural Diversity Database records searches).

Figures 5a and 5b depict CNDDB and USFWS database records within one-half mile of the project sites. No sensitive species have been reported within the work areas, and records of sensitive species within 0.5 mile are in areas separated from the work areas by unsuitable habitat. Therefore, the potential for sensitive species other than least Bell's vireo reported within 0.5 mile to occur within the work area is considered very low.

Is there moderate or high potential for a listed plant species to occur in or adjacent to the impact area? Yes ☒ No ☐

If yes, identify which species may occur and describe any surveys which should be undertaken to determine whether those species could occur within the maintenance area:

No federal or state-listed plant species have a moderate or high potential to occur within the maintenance area. As identified above, two sensitive plant species (CNPS List 4.2) were observed within the maintenance area: southwestern spiny rush in LR2A and LR2B and Palmer's sagewort in LR2A. However, the potential for these species to occur elsewhere within the maintenance area is low as these species would likely have been detected in other areas had they been present. A spring rare plant survey is recommended to determine the extent of their occurrence within the Alvarado Creek channels.

Attach documentation supporting the determination of the presence or absence of listed plant species with a moderate or high potential to occur (e.g. California Natural Diversity Database records searches).

See Attachment 5 for CNDDB Field Survey Forms

Could maintenance disrupt the integrity of an important habitat (i.e., disruption of a wildlife corridor and/or an extensive riparian woodland: Yes ☐ No ☒

If yes, discuss which habitat could be impacted and how:

Could work be conducted during the avian breeding season (January 15 – August 31) without the need for pre-construction nesting surveys: Yes ☐ No ☒

As discussed earlier, nesting birds have potential to occur within or adjacent to the area of the proposed channel maintenance. Thus, pre-construction nesting surveys are necessary to help ensure no impacts to avian species occur and that the project would comply with the MBTA and MMP's PEIR MMRP.

If yes, provide justification:

Is it anticipated that maintenance activities would generate noise in excess of 60 dB(A) L_{EQ}? Yes ☒ No ☐

An Individual Noise Assessment (INA) was conducted for the proposed maintenance operations in LR2A to determine the noise levels expected to be generated by the equipment proposed to be used during maintenance. Other reaches do not have potential for noise impacts to listed species. As discussed above, equipment to be used during maintenance is expected to include a skid steer, Gradall, dump truck and dewatering pump. According to the IMP, the Gradall, dump truck, and pump are expected to operate only near the east end of LR2A, while the skid steer and the pump are expected to operate up to the west end of LR2A. This equipment combination was assumed as a single noise source.

Ambient noise was measured at the confluence of Alvarado Creek and the San Diego River, approximately 250 feet west of the western end of LR2A. Maximum ambient noise at this location was measured as 65.1 dB(A)L_{EQ}, which exceeds the significance threshold of 60 dB(A)L_{EQ} for noise impacts to nesting birds. In this case, construction noise that causes a 3 db(A) increase over ambient would be considered a significant noise impact to nesting birds.

However, the aggregate noise level (the logarithmic sum of all equipment noise sources considering the expected percentage of time each is in operation during one hour) is 60.5 dB(A)L_{EQ}, which would extend the 60 dB(A)L_{EQ} approximately 30 feet into the adjacent habitat. When combined with the existing ambient noise, the ambient would be increased to 66.4 dB(A)L_{EQ}. This increase of 1.3 dB(A) is below the +3dB(A) significance threshold. Consequently, maintenance activities in LR2A would not have a significant noise impact on least Bell's vireo suitable habitat adjacent to the maintenance area.

<u>If yes, what measures should be taken to avoid adverse impacts on avian bird breeding within or adjacent to the maintenance?</u>

Maintenance activities would not cause a significant noise impact to least Bell's vireo suitable habitat given the influence of the ambient freeway noise resulting in ambient noise level of 65.1 dB(A)L_{EQ} and minimal increase (< 3 dB(A) L_{EQ}) in noise levels resulting from proposed maintenance activities.

Biological Resource Conditions Relative to Original Survey Conducted for MASTER PROGRAM Final Program EIR (May 2010) (vegetation communities present, including adjacent uplands; general habitat quality/level of disturbance):

The majority of habitat mapping and jurisdictional delineation work for the PEIR was conducted by HELIX in late winter and early spring of 2007 and 2008. Based on 2012 aerial photographs and the 2014 field survey, the following changes have occurred in the Upper and Lower Alvarado Creek channel reaches:

- UR2: this reach was mapped as entirely freshwater marsh and a streambed in 2007-2008. In 2014, patches of southern willow scrub had formed in the center and eastern end of the reach, and disturbed wetland had developed at the western end and along the edges of the channel.

- LR4: this reach was mapped as entirely freshwater marsh in 2007-2008. In 2014, southern willow scrub had come to dominate approximately two-thirds of the reach, and a patch of disturbed wetland had formed in the center of the reach.

- LR2B: this reach was mapped as mostly bare concrete with small patches of freshwater marsh and southern willow scrub in 2007-2008. In 2014, the extent of southern willow scrub was much greater (forming an extensive thicket compared to the small patch reported in 2007-2008), and a large patch of freshwater marsh had developed at the western end of the reach.

- LR2A: in 2007-2008, the eastern half of this reach was mapped as freshwater marsh and the western half as disturbed wetland. In 2014, the eastern half supported disturbed freshwater marsh, a patch of southern willow scrub had developed in the center, and the western half was dominated by freshwater marsh. Disturbed wetland had receded to the sides of the channel in 2014.

The overall quality of the habitats in the channels did not change substantially between 2007-2008 and 2014, except for the expansion of vegetated area in LR2B. The channels are subject to the same levels of trash deposition, noise, and urban runoff as in 2007-2008.

Adjacent upland habitats had not changed in 2014. Except for Diegan coastal sage scrub on the slope south of UR2, all adjacent uplands were developed or disturbed habitat in 2007-2008 and in 2014.

Table 4
MAINTENANCE IMPACTS

Total Impacts:	
All Vegetation/Land Cover Impacts:	**2.04 acres**
Wetland	1.31 acres
Upland (non-native grassland, non-native vegetation/ornamental, disturbed habitat, and developed land)	0.73 acre
Jurisdictional Areas:	
Wetland and Non-wetland Waters (USACE WUS, RWQCB, CDFW, and City Wetlands)	1.31 acres

Is there a moderate or high potential for maintenance to impact an MHPA?
Yes ▣ No ☐

<u>If yes, discuss the potential impacts that could occur from the portion within or adjacent to that MHPA</u>:

UR2 is immediately adjacent to MHPA on its south side. In addition, the most easterly portion of the channel (0.05 acre) is located within the MHPA (Figure 4a). Most of this section of the channel has a concrete bottom but does contain small areas of freshwater marsh and non-native

riparian vegetation. Section 1.5.2, General Management Directives, of the MSCP Sub-Area Plan indicates an assumption that maintenance activities such as vegetation clearing and dredging within flood control channels are necessary and expected to occur. Sections 1.4.1, 1.4.2, and 1.4.3 of the MSCP Sub Area Plan also address flood control and general public utility maintenance. Section 1.4.1 acknowledges that essential public utilities constitute acceptable and compatible use of MHPA lands. Thus, no significant impacts would occur to the MHPA that overlaps the upper 200 feet of Upper Alvarado Creek.

MHPA adjacent to UR2 includes Diegan coastal sage scrub vegetation; however, this area includes no records of coastal California gnatcatcher, and the habitat near the maintenance area is considered to have low potential to support gnatcatcher. Noise impacts from maintenance in UR2 are unlikely to affect the gnatcatcher. Furthermore, to minimize impacts to adjacent MHPA, maintenance activities would conform to MHPA Adjacency Guidelines as discussed in Attachment 5.

Is there moderate or high potential for listed animal species to be impacted?
Yes ☒ No ☐

If yes, which species (check all that apply):

- ☒ Least Bell's vireo
- ☐ Southwestern willow flycatcher
- ☐ Arroyo toad
- ☐ Coastal California gnatcatcher
- ☐ San Diego fairy shrimp
- ☐ Riverside fairy shrimp
- ☐ California least tern
- ☐ Light-footed clapper rail
- ☐ Western snowy plover
- ☒ Other: Nesting birds and raptors

Least Bell's Vireo

Least Bell's vireo could be directly impacted if the bird is utilizing the site during maintenance. Indirect impacts from maintenance noise are not anticipated. As discussed in the Individual Noise Assessment (INA), for the proposed maintenance, at 65.1 dBA L_{EQ} ambient noise levels in the LBV habitat already exceed 60 dBA L_{EQ}. Furthermore, maintenance noise would not increase the ambient noise levels more than 3 dBA L_{EQ}.

Nesting Raptors

Impacts to nesting raptors could occur if maintenance is conducted inside the raptor breeding season (January 15 – August 31).

Nesting Birds Protected Under the Migratory Bird Treaty Act

Nesting birds protected by the MBTA could be impacted if maintenance occurs during the avian breeding season (January 15 through August 31) in areas within or adjacent to avian nesting habitat.

Listed Plant Species

No federally or state-listed plant species have a moderate or high potential to occur within the maintenance areas. Although two sensitive plant species (southwestern spiny rush and Palmer's sagewort) were present, given the small numbers of individuals and low sensitivity status, impacts to these species would not be significant. Also, given the disturbance by natural storm flows, avoidance is not recommended.

MITIGATION

Applicable Maintenance Protocols from the MMP (list the applicable maintenance protocols based on the biological resources occurring or likely to occur on site --include any special protocols required):

BIO-1 Restrict vehicles to access designated in the Master Program.

BIO-3 Conduct a pre-maintenance meeting on-site prior to the start of any maintenance activity that occurs within or adjacent to sensitive biological resources. The pre-maintenance meeting shall include the qualified biologist, field engineer/planner, equipment operators/superintendent and any other key personnel conducting or involved with the channel maintenance activities. The qualified biologist shall point out or identify sensitive biological resources to be avoided during maintenance, flag/delineate sensitive resources to be avoided, review specific measures to be implemented to minimize direct/indirect impacts, and direct crews or other personnel to protect sensitive biological resources as necessary. The biologist shall also review the proposed erosion control methods to confirm that they would not pose a risk to wildlife (e.g., non-biodegradable blankets which may entangle wildlife).

BIO-4 Avoid introduction of invasive plant species with physical erosion control measures (e.g., fiber mulch, rice straw, etc.).

BIO-5 Conduct appropriate pre-maintenance protocol surveys if maintenance is proposed during the breeding season of a sensitive animal species. If sensitive animal species covered by the PEIR are identified, then applicable measures from the MMRP shall be implemented under the direction of a qualified biologist to avoid significant direct and/or indirect impacts to identified sensitive animal species. If sensitive animal species are identified during pre-maintenance surveys that are not covered by the PEIR, the Storm Water Department shall contact the appropriate wildlife agencies and additional environmental review under CEQA will be required.

BIO-6 Remove arundo through one, or a combination of, the following methods: (1) foliar spray (spraying herbicide on leaves and stems without cutting first) when arundo occurs in monotypic stands, or (2) cut and paint (cutting stems close to the ground and spraying or painting herbicide on cut stem surface) when arundo is intermixed with native plants. When sediment supporting arundo must be removed, the sediment shall be excavated to a depth sufficient to remove the rhizomes, wherever feasible. Following removal of

sediment containing rhizomes, loose rhizome material shall be removed from the channel and disposed off site. After the initial treatment, the area of removal shall be inspected on a quarterly basis for up 2 years, or until no re-sprouting is observed during an inspection. If re-sprouting is observed, the cut and paint method shall be applied to all resprouts.

BIO-7 Avoid mechanized maintenance within 300 feet of a Cooper's hawk nest, 900 feet of a northern harrier's nest, or 500 feet of any other raptor's nest until any fledglings have left the nest. Reduced setbacks shall be allowed if the biological monitor determines that the setbacks can be reduced based on the field observations, ambient conditions, life history of the affected birds, and type of maintenance proposed. In the event the biological monitor determines that a reduced setback is appropriate, the biologist shall prepare a letter summarizing the basis for the reduced setbacks and send it to the CDFW and USFWS for concurrence prior to invoking reduced setbacks.

Specific Breeding Bird Mitigation Measures

- In accordance with BIO-5, if work in LR2A is proposed during the breeding season of the LBV (March 15 – September 15), USFWS-protocol surveys and noise analysis would be performed according to Land Use Mitigation Measures 4.1.2 and 4.1.3. The noise analysis, documented in the INA, concluded that no significant noise increase would occur, per Land Use Mitigation Measure 4.1.4, given that noise from maintenance activities would not exceed the allowed levels (60 dB(A) L_{EQ}, or ambient +3 dB if ambient is above 60 dB(A) L_{EQ}); therefore, work does not need to be scheduled outside the breeding season. If work is necessary during the breeding season, pre-construction clearance surveys will be performed in the maintenance area to insure that least Bell's vireo is not present inside the maintenance area at the start of maintenance, and appropriate noise attenuation measures will be employed to reduce construction noise to allowed levels in adjacent suitable habitat.

- In accordance with BIO-5, if maintenance is planned during the avian breeding season (January 15 through August 31), pre-construction nesting surveys shall be conducted within 3 days of initiating maintenance activities and maintenance setback buffers established around active nests in accordance with PEIR Mitigation Measures 4.3.13 and 4.3.16. Reduced setbacks shall be allowed if the biological monitor determines that the setbacks can be reduced based on the field observations, ambient conditions, life history of the affected birds, and type of maintenance proposed. In the event the biological monitor determines that a reduced setback is appropriate, the biologist shall prepare a letter summarizing the basis for the reduced setbacks, and send it to the CDFW and USFWS for concurrence prior to invoking reduced setbacks.

- Flagging will be placed at the west end of the maintenance area within LR2A to keep maintenance from extending into the adjacent habitat.

Applicable PEIR mitigation measures:

General Mitigation 1, 2, 3, and 4;

Biological Resources 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7, 4.3.8, 4.3.9, 4.3.10, 4.3.11, 4.3.13, 4.3.14, 4.3.16, 4.3.18, 4.3.19, 4.3.20, 4.3.21, 4.3.22, 4.3.25

Land Use 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.1.7

Applicable PEIR MMs have been included in their entirety in Attachment 1.

Other mitigation measures: Regulatory permits, agreements, and/or authorizations may require additional conditions to avoid, minimize, and/or mitigate impacts to biological resources.

Environmental Mitigation Requirements (including wetland enhancement, restoration, creation, and/or purchase of wetland credits in a mitigation bank; off-site upland habitat acquisition/payment into the City's habitat acquisition fund):

Uplands

The City of San Diego regulates uplands impacts. The project will impact less than 0.1 acre of non-sensitive upland (Tier IV) habitat present in the channel reaches, including disturbed habitat and non-native/ornamental vegetation. According to the PEIR and City's Biology Guidelines, mitigation is not required for impacts to Tier IV habitats.

Wetlands

The project will impact 1.31 acres of jurisdictional wetlands and waters comprising freshwater marsh, southern willow scrub, non-native riparian, open water, and concrete-lined channel (Table 4). The 1.31 acres of project impacts include minimal impacts resulting from installation of the check dam within UR2 (less than 0.001 acre). The USACE, RWQCB, CDFW, and City have jurisdiction over earthen channels and require mitigation for impacts to wetlands within earthen channels. It is anticipated that USACE, and CDFW will not require compensatory mitigation for impacts within concrete-lined channels. The RWQCB requires compensatory mitigation on a case-by-case basis. The City will require mitigation pursuant to the MMRP for the MMP.

The mitigation requirements of each agency are described below.

USACE/RWQCB/CDFW Jurisdictional Wetlands:

Earthen-bottom Channels

The USACE, RWQCB, and CDFW all have jurisdiction over earthen channels within Upper Alvarado Creek and will require compensatory mitigation for maintenance impacts to wetlands. Impacts to earthen bottom channel from maintenance will amount to 0.56 acre. Mitigation is proposed at a 2:1 ratio for wetland impacts and a 1:1 ratio for non-wetland impacts, resulting in a total mitigation requirement of 0.97 acre (Table 5).

Table 5
USACE/RWQCB/CDFW MITIGATION SUMMARY FOR EARTHEN CHANNELS

Habitat	Impacts to Natural-Bottom Channel (ac)	Mitigation Ratio	Mitigation (ac)
Freshwater Marsh	0.34	2:1	0.68
Southern Willow Scrub	0.07	2:1	0.14
Wetlands Subtotal	**0.41**	**--**	**0.82**
Open Water	0.03	1:1	0.03
Non-native Riparian	0.08	1:1	0.08
Non-native Vegetation/Ornamental	0.04	1:1	0.04
Non-wetland Waters Subtotal	**0.15**	**--**	**0.15**
GRAND TOTAL	**0.56**	**--**	**0.97**

Concrete-lined Channels

The USACE does not regulate activities which occur in concrete-lined channels unless the work involves the placement of fill. Per section 404 (f)(1)(b) of the Clean Water Act, the maintenance of serviceable structures is exempt from USACE regulation, and Lower Alvarado Creek qualifies as a serviceable structure. Maintenance within Lower Alvarado Creek will be limited to removal of sediment and plant material.

While CDFW requires notification of activities within concrete-lined channels, it typically does not require compensatory mitigation for these activities.

The RWQCB determines the need for compensatory mitigation on a case-by-case basis.

City Wetlands:

The City regulates both earthen and concrete-lined channels and requires compensatory mitigation for wetland impacts pursuant to the mitigation ratios specified in Site Development Permit 1134892 for the Master Storm Water System Maintenance Program. As illustrated in Table 6, the proposed maintenance will require mitigation to compensate for 1.31 acres of impact to City wetlands, including freshwater marsh, southern willow scrub, open water, and disturbed wetland. These include all impacts to such vegetation, including vegetation in concrete-lined channels. Impacts to disturbed wetland (disturbed habitat, non-native riparian, and non-native vegetation/ornamental) consisting of pure stands of non-native species such as Mexican fan palm, giant reed, and castor bean, do not require compensatory mitigation under condition 9e of the Master CDP, which is applied to all impacts under the terms of the Settlement Agreement, nor require mitigation under the City's Significance Determination Thresholds (2007, updated 2011). Concrete-lined channels without accumulated sediment and/or vegetation inside the project areas will not be affected by project activities and no impact to such areas will result from the project. Wetland mitigation will be provided at a 4:1 ratio for freshwater marsh, consisting of 1:1 restoration and 3:1 enhancement; and at a ratio of 3:1 for southern willow scrub, consisting of 1:1 restoration and 2:1 enhancement, to comply with the Settlement Agreement. Mitigation for impacts to natural flood channel is required at 2:1, and the City Biology Guidelines state that it should be in the form of out-of-kind mitigation as a vegetated habitat type with higher biological value. The total mitigation requirement for City wetland impacts is 3.93 acres (Table 6).

Table 6
CITY MITIGATION SUMMARY FOR WETLAND IMPACTS TO ALL CHANNELS*

Vegetation Community	Impact to Earthen Channel (ac)	Impact to Concrete-lined Channel (ac)	Total Impact (ac)	Ratio	Mitigation (ac)
Impacts Requiring City Mitigation					
Freshwater Marsh	0.34	0.29	0.63	4:1	2.52
Southern Willow Scrub	0.07	0.38	0.45	3:1	1.35
Open Water (Natural Flood Channel)	0.03	0.00	0.03	2:1	0.06
Subtotal	**0.44**	**0.67**	**1.11**	**--**	**3.93**
Impacts Not Requiring City Mitigation[1]					
Disturbed Habitat	--	0.01	0.01	0:1	0.00
Non-native riparian	0.08	0.04	0.12		
Non-native vegetation/ornamental	0.04	0.03	0.07		
TOTAL	**0.56**	**0.75**	**1.31**	**--**	**3.93**

*Acreages are rounded to the nearest 0.01 acre; thus, totals reflect rounding

[1] Pursuant to the modified SDP for the MMP and the Significance Determination Thresholds (City 2007, updated 2011), mitigation is not required for removal of invasive-dominated non-native habitat.

Mitigation Description/Location:

Mitigation for wetland impacts is proposed at the Stadium Mitigation site in the San Diego River. The location of the mitigation site is shown on Figure 7.

ADDITIONAL COMMENTS OR RECOMMENDATIONS

None.

Individual Biological Assessment Report Figures:

Figure 1: Regional Location Map
Figure 2: Project Vicinity Map (Aerial Photograph)
Figure 3: Project Vicinity Map (USGS Topography)
Figure 4a: Vegetation and Sensitive Biological Resources, Upper Alvarado
Figure 4b: Vegetation and Sensitive Biological Resources, Lower Alvarado
Figure 5a: Sensitive Species, Upper Alvarado
Figure 5b: Sensitive Species, Lower Alvarado
Figure 6a: Waters of the U.S./State and City Wetlands, Upper Alvarado
Figure 6b: Waters of the U.S./State and City Wetlands, Lower Alvarado
Figure 7: Project Site and Mitigation Location

Individual Biological Assessment Report Attachments:

Attachment 1: Applicable PEIR Mitigation Measures
Attachment 2: Plant Species Observed in the Alvarado Creek Channel
Attachment 3: Jurisdictional Delineation Sampling Point Data Form
Attachment 4: CNDDB Field Survey Form
Attachment 5: MSCP Conformance Review: Sections 1.4.2 and 1.4.3
Attachment 6: CRAM Data Sheets and Figures

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Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkeley.

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SITE PHOTOS

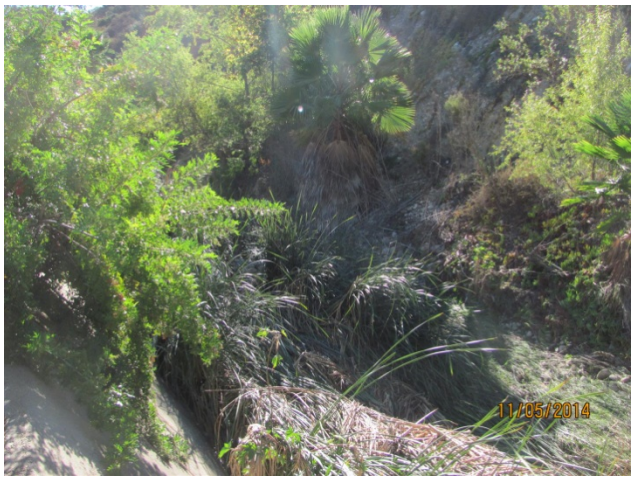


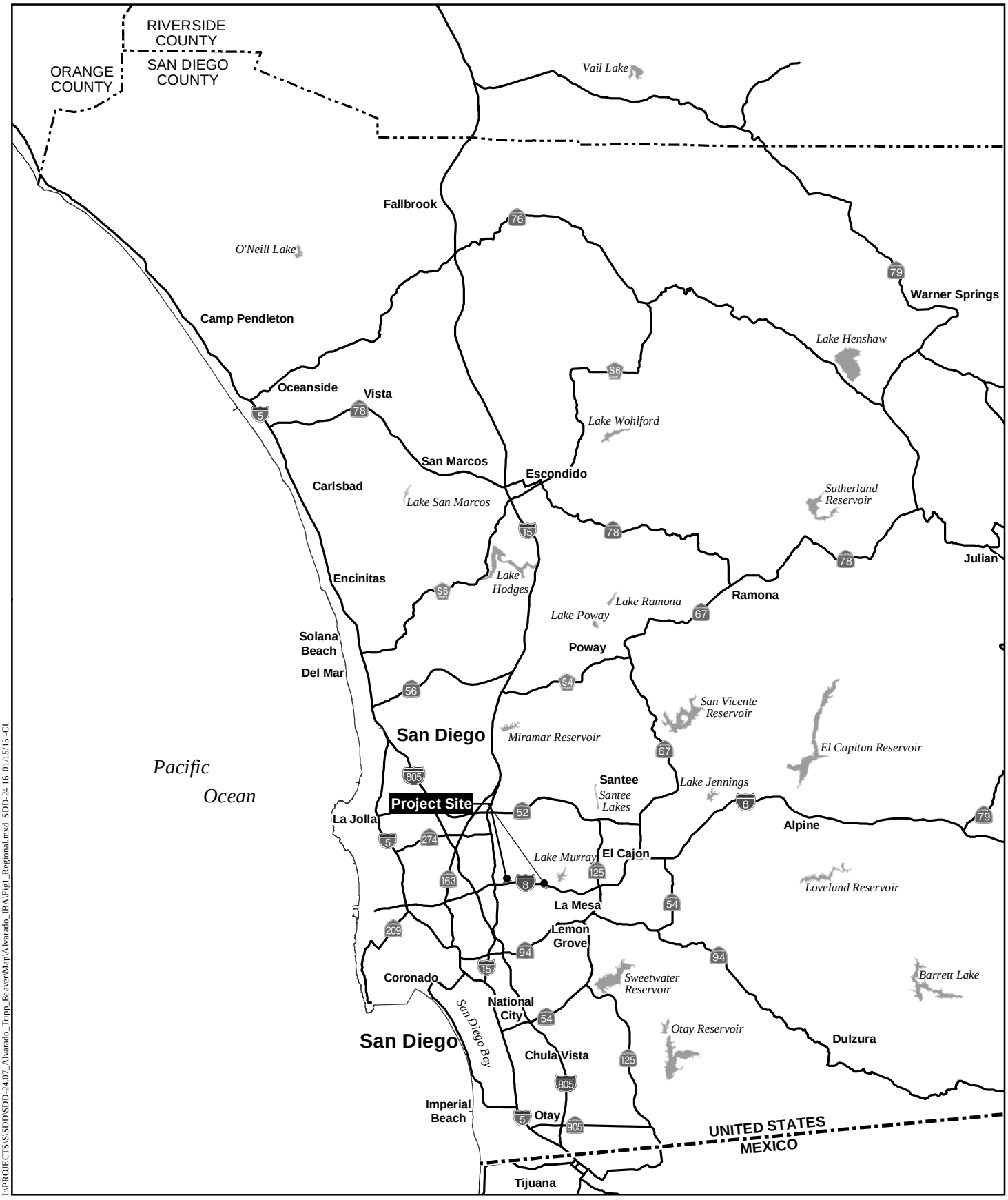
PHOTO NOTES:
Reach Upper 2, looking upstream from near the downstream end.

PHOTO NOTES: Reach Upper 2, looking downstream from the middle.

PHOTO NOTES:
Reach Upper 2, looking upstream from the middle.

PHOTO NOTES:
Reach Upper 2, looking downstream from the upstream end.

	
PHOTO NOTES: Reach Lower 2A, looking downstream from Fairmount Avenue.	**PHOTO NOTES:** Reach Lower 2B, looking upstream from Fairmount Avenue.
	
PHOTO NOTES: Reach Lower 2B, looking downstream from the upstream end**.**	**PHOTO NOTES:** Reach Lower 2B, looking upstream from the middle**.**



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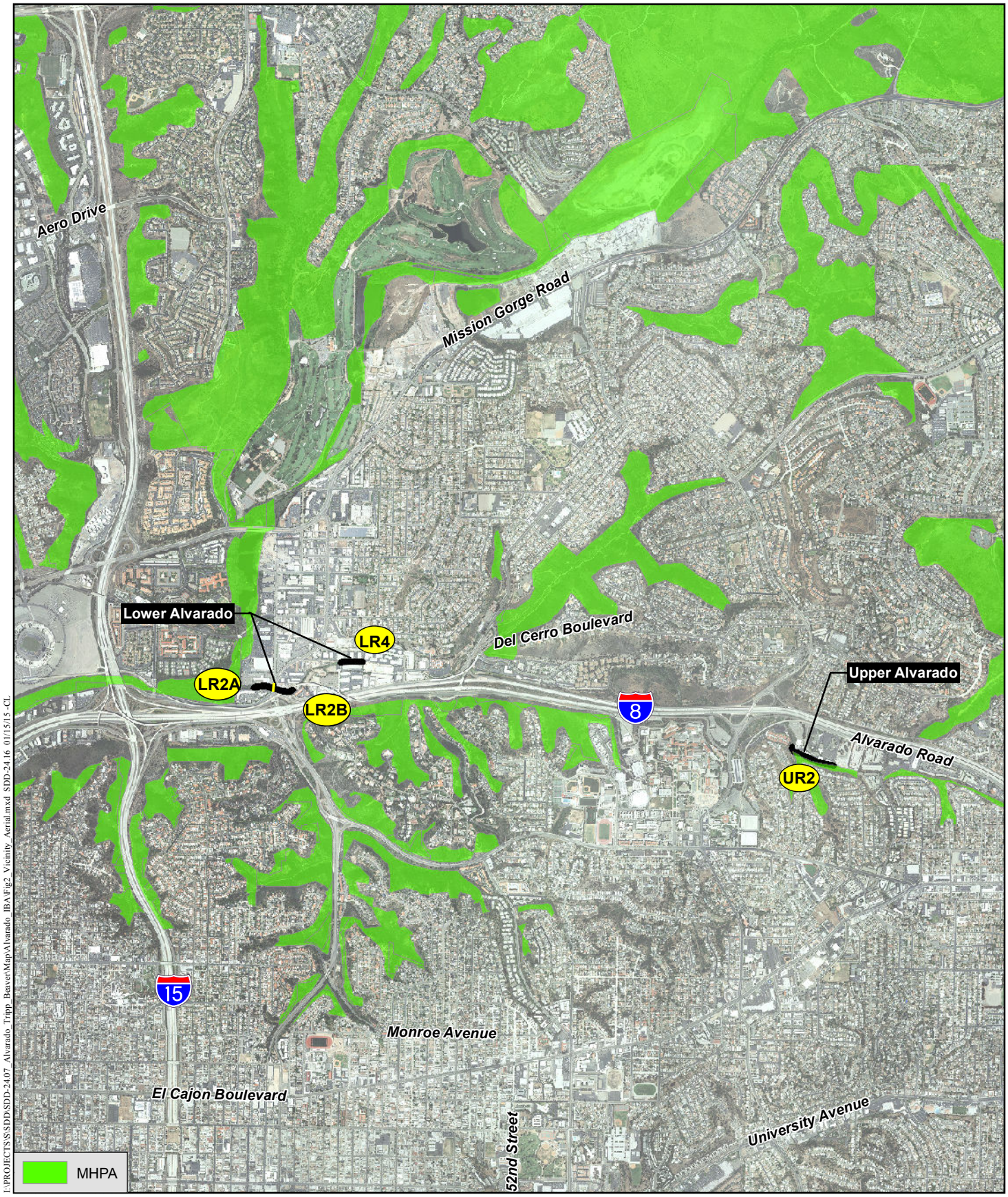
Regional Location Map

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

HELIX Environmental Planning

N 0 8 Miles

Figure 1



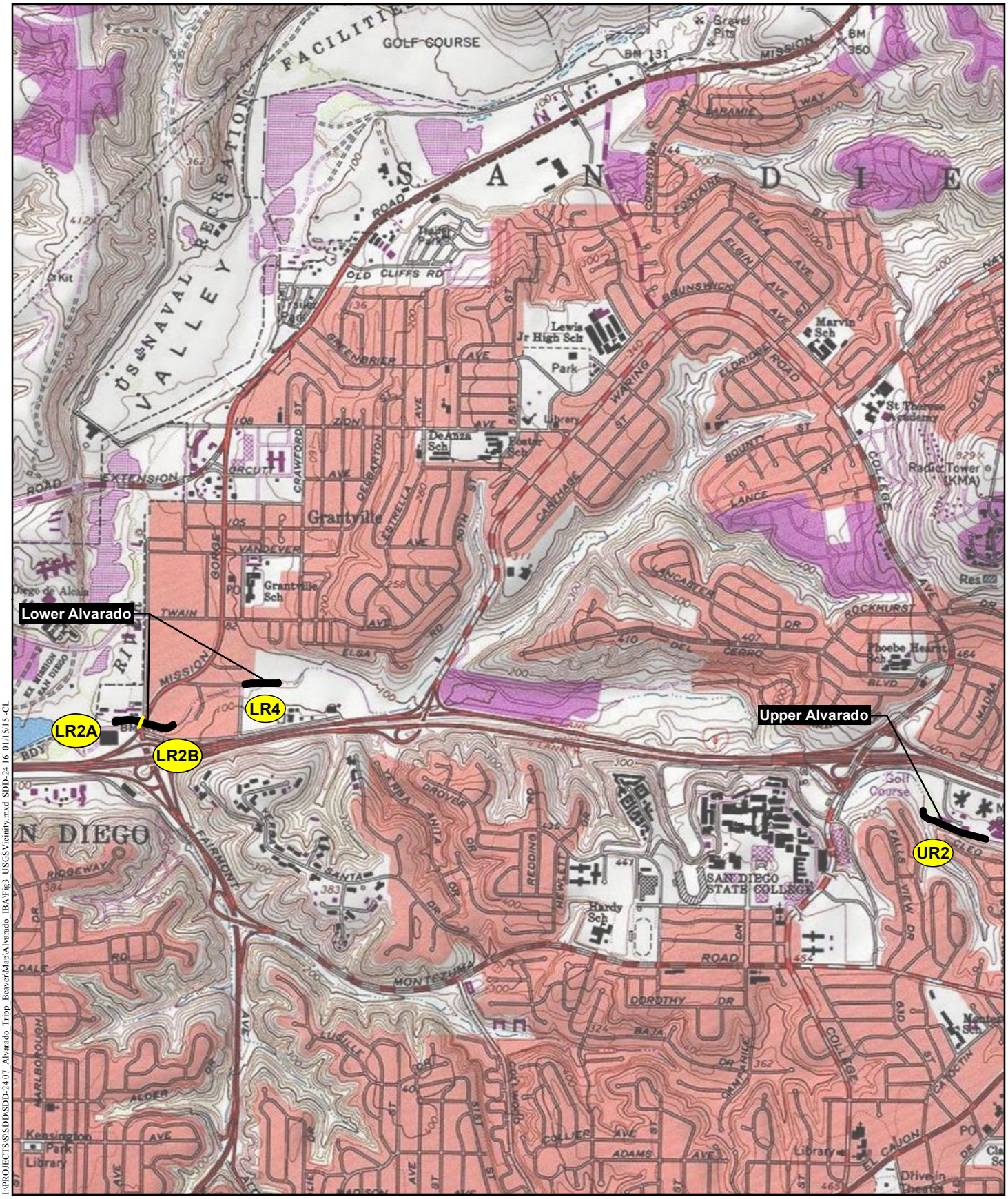
Project Vicinity Map (Aerial Photograph)

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

HELIX Environmental Planning

N 0 3,000 Feet

Figure 2



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Project Vicinity Map (USGS Topography)

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

HELIX Environmental Planning

Figure 3

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Vegetation and Sensitive Biological Resources, Upper Alvarado

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

Figure 4a

HELIX Environmental Planning

N 0 110 Feet

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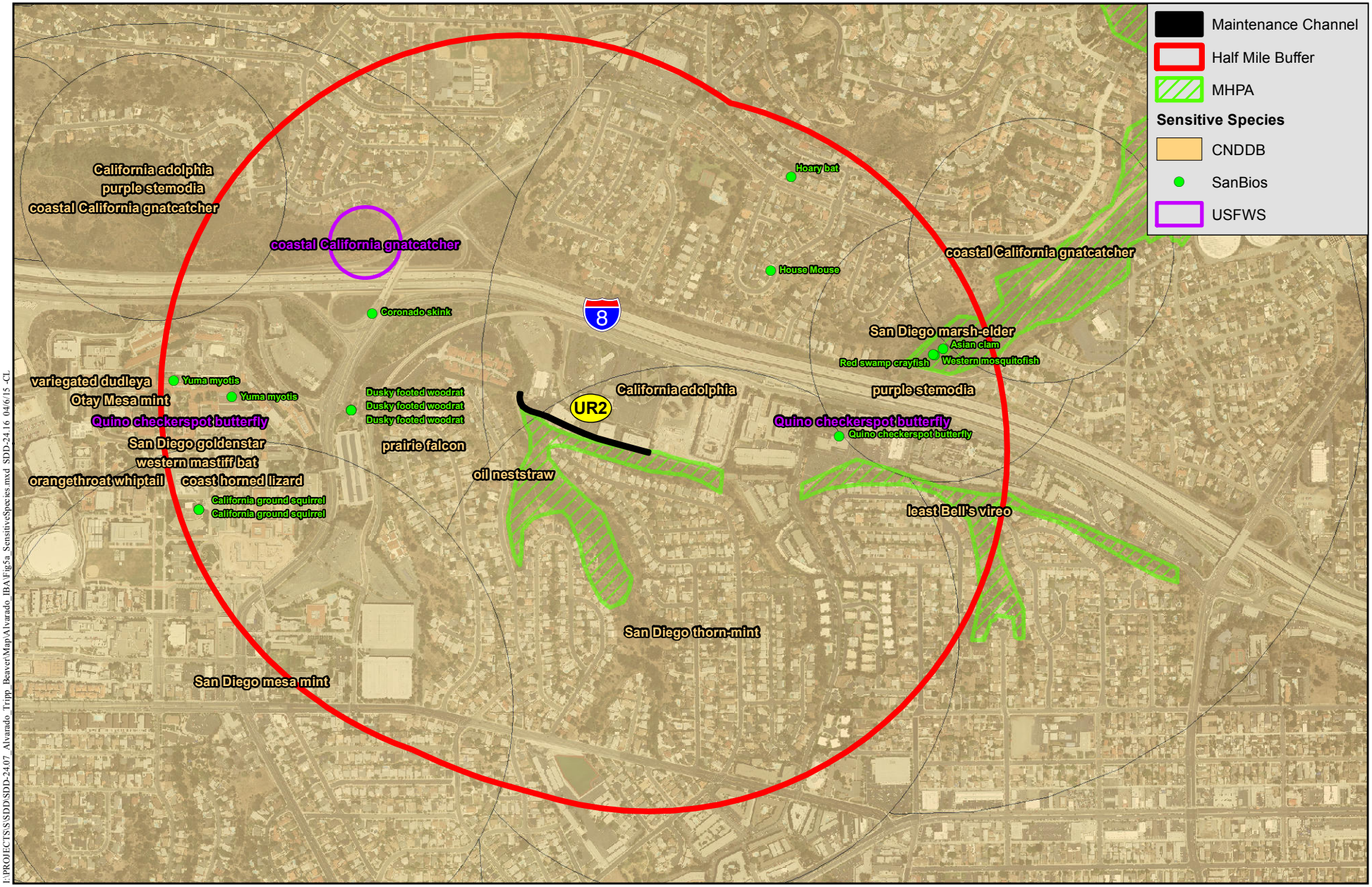
Vegetation and Sensitive Biological Resources, Lower Alvarado

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

Figure 4b

HELIX Environmental Planning

N 0 260 Feet



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Sensitive Species, Upper Alvarado

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

Figure 5a

HELIX Environmental Planning

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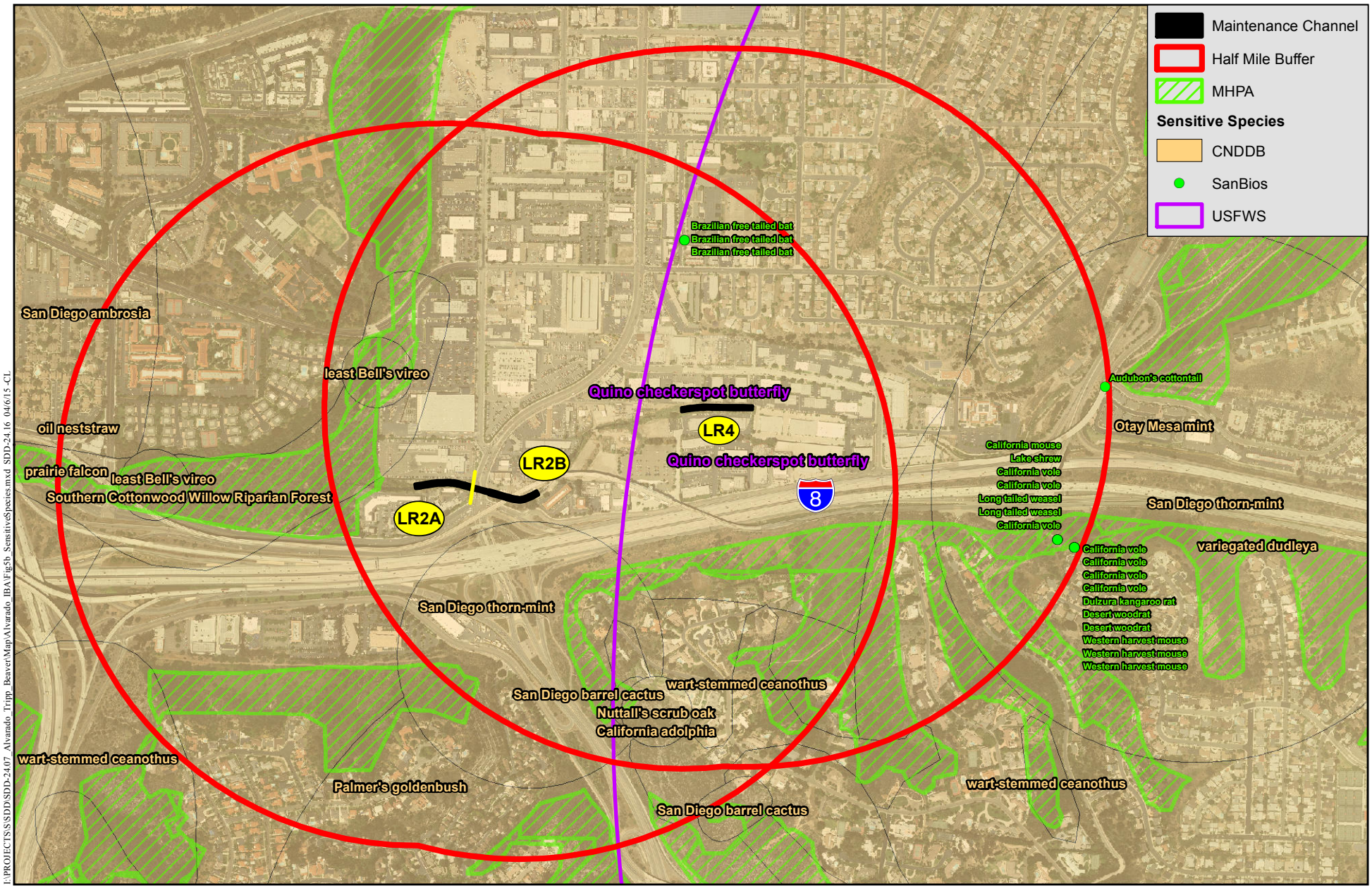

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Sensitive Species, Lower Alvarado

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

Figure 5b

HELIX Environmental Planning

N 0 1,000 Feet

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Waters of the U.S./State and City Wetlands, Upper Alvarado

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

Figure 6a

HELIX Environmental Planning

N 0 110 Feet

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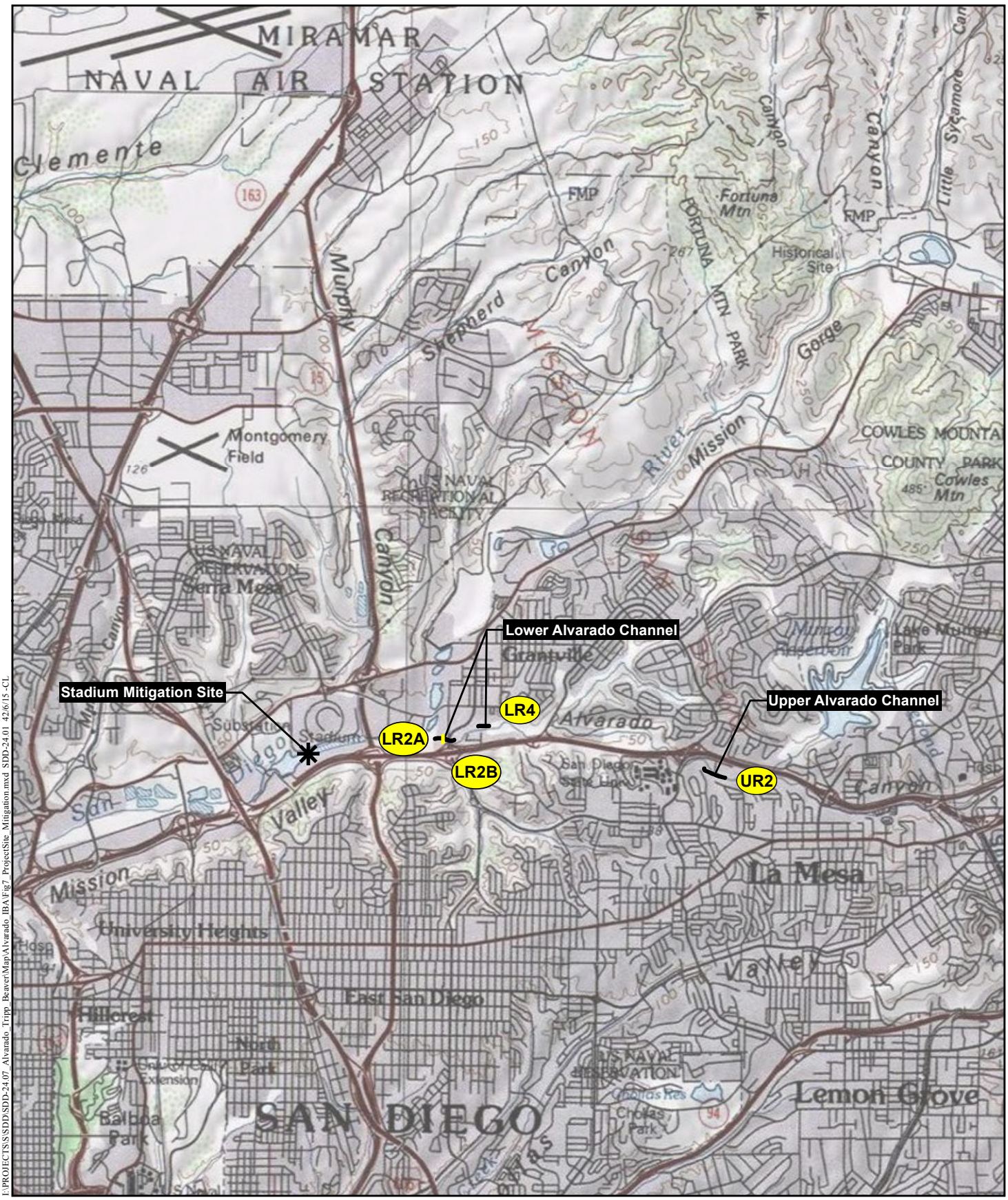
Waters of the U.S./State and City Wetlands, Lower Alvarado

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

Figure 6b

HELIX Environmental Planning

N 0 260 Feet



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Project Site and Mitigation Location

STORM WATER FACILITY MAPS 59, 60, AND 64
(UPPER/LOWER ALVARADO CREEK CHANNELS)

HELIX Environmental Planning

Figure 7

Attachment 1

APPLICABLE PEIR MITIGATION MEASURES

Attachment 1
Applicable PEIR Mitigation Measures

GENERAL

General Mitigation 1: Prior to commencement of work, the ADD Environmental Designee of the Entitlements Division shall verify that mitigation measures for impacts to biological resources (Mitigation Measures 4.3.1 through 4.3.20), historical resources (Mitigation Measures 4.4.1 and 4.4.2), land use policy (Mitigation Measures 4.1.1 through 4.1.13), paleontological resources (Mitigation Measure 4.7.1), and water quality (Mitigation Measures 4.8.1 through 4.8.3) have been included in entirety on the submitted maintenance documents and contract specifications, and included under the heading, "Environmental Mitigation Requirements." In addition, the requirements for a Pre-maintenance Meeting shall be noted on all maintenance documents.

General Mitigation 2: Prior to the commencement of work, a Pre-maintenance Meeting shall be conducted and include, as appropriate, the MMC, SWD Project Manager, Biological Monitor, Historical Monitor, Paleontological Monitor, Water Quality Specialist, and Maintenance Contractor, and other parties of interest.

General Mitigation 3: Prior to the commencement of work, evidence of compliance with other permitting authorities is required, if applicable. Evidence shall include either copies of permits issued, letters of resolution issued by the Responsible Agency documenting compliance, or other evidence documenting compliance and deemed acceptable by the ADD Environmental Designee.

General Mitigation 4: Prior to commencement of work and pursuant to Section 1600 et seq. of the State of California Fish & Game Code, evidence of compliance with Section 1605 is required, if applicable. Evidence shall include either copies of permits issued, letters of resolution issued by the Responsible Agency documenting compliance, or other evidence documenting compliance and deemed acceptable by the ADD Environmental Designee.

BIOLOGICAL RESOURCES

Mitigation Measure 4.3.1: Prior to commencement of any activity within a specific annual maintenance program, a qualified biologist shall prepare an IBA for each area proposed to be maintained. The IBA shall be prepared in accordance with the specifications included in the Master Program.

Mitigation Measure 4.3.2: No maintenance activities within a proposed annual maintenance program shall be initiated before the City's Assistant Deputy Director (ADD) Environmental Designee and state and federal agencies with jurisdiction over maintenance activities have approved the IMPs and IBAs including proposed mitigation for each of the proposed activities. In their review, the ADD Environmental Designee and agencies shall confirm that the appropriate maintenance protocols have been incorporated into each IMP.

Mitigation Measure 4.3.3: No maintenance activities within a proposed annual maintenance

program shall be initiated until the City's ADD Environmental Designee and Mitigation Monitoring Coordinator (MMC) have approved the qualifications for biologist(s) who shall be responsible for monitoring maintenance activities which may impact sensitive biological resources.

Mitigation Measure 4.3.4: Prior to undertaking any maintenance activity included in an annual maintenance program, a mitigation account shall be established to provide sufficient funds to implement all biological mitigation associated with the proposed maintenance activities. The fund amount shall be determined by the ADD Environmental Designee. The account shall be managed by the City's SWD, with quarterly status reports submitted to DSD. The status reports shall separately identify upland and wetland account activity. Based upon the impacts identified in the IBAs, money shall be deposited into the account, as part of the project submittal, to ensure available funds for mitigation.

Mitigation Measure 4.3.5*:* Prior to commencing any activity that could impact wetlands, evidence of compliance with other permitting authorities is required, if applicable. Evidence shall include copies of permits issued, letters of resolution issued by the Responsible Agency documenting compliance, or other evidence documenting compliance and deemed acceptable by the ADD Environmental Designee.

Mitigation Measure 4.3.6: Prior to commencing any activity where the IBA indicates significant impacts to biological resources may occur, a pre-maintenance meeting shall be held on site with the following in attendance: City's SWD Maintenance Manager (MM), MMC, and Maintenance Contractor (MC). The biologist selected to monitor the activities shall be present. At this meeting, the monitoring biologist shall identify and discuss the maintenance protocols that apply to the maintenance activities.

At the pre-maintenance meeting, the monitoring biologist shall submit to the MMC and MC a copy of the maintenance plan (reduced to 11"x17") that identifies areas to be protected, fenced, and monitored. This data shall include all planned locations and design of noise attenuation walls or other devices. The monitoring biologist also shall submit a maintenance schedule to the MMC and MC indicating when and where monitoring is to begin and shall notify the MMC of the start date for monitoring.

Mitigation Measure 4.3.7: Within three months following the completion of mitigation monitoring, two copies of a written draft report summarizing the monitoring shall be prepared by the monitoring biologist and submitted to the MMC for approval. The draft monitoring report shall describe the results including any remedial measures that were required. Within 90 days of receiving comments from the MMC on the draft monitoring report, the biologist shall submit one copy of the final monitoring report to the MMC.

Mitigation Measure 4.3.8: Within six months of the end of an annual storm water facility maintenance program, the monitoring biologist shall complete an annual report which shall be distributed to the following agencies: the City of San Diego DSD, CDFG, RWQCB, USFWS, and Corps. At a minimum, the report shall contain the following information:

- Tabular summary of the biological resources impacted during maintenance and the mitigation;

- Master table containing the following information for each individual storm water facility or segment which is regularly maintained;

- Date and type of most recent maintenance;

- Description of mitigation which has occurred; and

- Description of the status of mitigation which has been implemented for past maintenance activities.

Mitigation Measure 4.3.9: Wetland impacts resulting from maintenance shall be mitigated in one of the following two ways: (1) habitat creation, restoration, and/or enhancement, or (2) mitigation credits. The amount of mitigation shall be in accordance with ratios in Table 4.3-10 unless different mitigation ratios are required by state or federal agencies with jurisdiction over the impacted wetlands. In this event, the mitigation ratios required by these agencies will supersede, and not be in addition to, the ratios defined in Table 4.3-10. No maintenance shall commence until the ADD Environmental Designee has determined that mitigation proposed for a specific maintenance activity meets one of these two options.

Table 4.3-10
WETLAND MITIGATION RATIOS

WETLAND TYPE	MITIGATION RATIO
Southern riparian forest	3:1
Southern sycamore riparian woodland	3:1
Riparian woodland	3:1
Coastal saltmarsh	4:1
Coastal brackish marsh	4:1
Southern willow scrub	2:1
Mule fat scrub	2:1
Riparian scrub[1]	2:1
Freshwater marsh[2]	2:1
Cismontane alkali marsh	4:1
Disturbed wetland	2:1
Streambed/natural flood channel	2:1

[1] Mitigation ratio within the Coastal Zone will be 3:1
[2] Mitigation ratio within the Coastal Zone will be 4:1

Mitigation locations for wetland impacts shall be selected using the following order of

preference, based on the best mitigation value to be achieved.

1. Within impacted watershed, within City limits.
2. Within impacted watershed, outside City limits on City-owned or other publicly-owned land.
3. Outside impacted watershed, within City limits.
4. Outside impacted watershed, outside City limits on City-owned or other publically-owned land.

In order to mitigate for impacts in an area outside the limits of the watershed within which the impacts occur, the SWD must demonstrate to the satisfaction of the ADD Environmental Designee in consultation with the Resource Agencies that no suitable location exists within the impacted watershed.

Mitigation Measure 4.3.10: Whenever maintenance will impact wetland vegetation, a wetland mitigation plan shall be prepared in accordance with the Conceptual Wetland Restoration Plan contained in Appendix H of the Biological Technical Report, included as Appendix D.3 of the PEIR. Mitigation which involves habitat enhancement, restoration or creation shall include a wetland mitigation plan containing the following information:

- Conceptual planting plan including planting zones, grading, and irrigation;
- Seed mix/planting palette;
- Planting specifications;
- Monitoring program including success criteria; and
- Long-term maintenance and preservation plan.

Mitigation which involves habitat acquisition and preservation shall include the following:

- Location of proposed acquisition;
- Description of the biological resources to be acquired including support for the conclusion that the acquired habitat mitigates for the specific maintenance impact; and
- Documentation that the mitigation area would be adequately preserved and maintained in perpetuity.

Mitigation which involves the use of mitigation credits shall include the following:

- Location of the mitigation bank;

- Description of the credits to be acquired including support for the conclusion that the acquired habitat mitigates for the specific maintenance impact; and

- Documentation that the credits are associated with a mitigation bank which has been approved by the appropriate Resource Agencies.

Mitigation Measure 4.3.11: Upland impacts shall be mitigated through payment into the City's Habitat Acquisition Fund, acquisition and preservation of specific land, or purchase of mitigation credits in accordance with the ratios identified in Table 4.3-11. Upland mitigation shall be completed within six months of the date the related maintenance has been completed.

Table 4.3-11
UPLAND HABITAT MITIGATION RATIOS[1]

Vegetation Type	Tier	Location of Impact with Respect to the MHPA	
		Inside	Outside
Coast live oak woodland	I	2:1	1:1
Scrub oak chaparral	I	2:1	1:1
Southern foredunes	I	2:1	1:1
Beach	I	2:1	1:1
Diegan coastal sage scrub	II	1:1	1:1
Coastal sage-chaparral scrub	II	1:1	1:1
Broom baccharis scrub	II	1:1	1:1
Southern mixed chaparral	IIA	1:1	0.5:1
Non-native grassland	IIIB	1:1	0.5:1
Eucalyptus woodland	IV	--	--
Non-native vegetation/ornamental	IV	--	--
Disturbed habitat/ruderal	IV	--	--
Developed	IV	--	--

[1]Assumes mitigation occurs within an MHPA

(Mitigation Measure 4.3.12 not applicable)

Mitigation Measure 4.3.13: Prior to commencing any maintenance activity which may impact sensitive biological resources, the monitoring biologist shall verify that the following actions have been taken, as appropriate:

- Fencing, flagging, signage, or other means to protect sensitive resources to remain after maintenance have been implemented;

- Noise attenuation measures needed to protect sensitive wildlife are in place and effective; and/or

- Nesting raptors have been identified and necessary maintenance setbacks have been established if maintenance is to occur between January 15 and August 31.

The designated biological monitor shall be present throughout the first full day of maintenance, whenever mandated by the associated IBA. Thereafter, through the duration of the maintenance activity, the monitoring biologist shall visit the site weekly to confirm that measures required to protect sensitive resources (e.g., flagging, fencing, noise barriers) continue to be effective. The monitoring biologist shall document monitoring events via a Consultant Site Visit Record. This record shall be sent to the MM each month. The MM will forward copies to MMC.

Mitigation Measure 4.3.14: Whenever off-site mitigation would result in a physical disturbance to the proposed mitigation area, the City will conduct an environmental review of the proposed mitigation plan in accordance with CEQA. If the off-site mitigation would have a significant impact on biological resources associated with the mitigation site, mitigation measures will be identified and implemented in accordance with the MMRP resulting from that CEQA analysis.

(Mitigation Measure 4.3.15 not applicable)

Mitigation Measure 4.3.16: Maintenance activities shall not occur within the following areas:

- 300 feet from any nesting site of Cooper's hawk (*Accipiter cooperii*);
- 1,500 feet from known locations of the southern pond turtle (*Clemmys marmorata pallida*);
- 900 feet from any nesting sites of northern harriers (*Circus cyaneus*);
- 4,000 feet from any nesting sites of golden eagles (*Aquila chrysaetos*); or
- 300 feet from any occupied burrow or burrowing owls (*Athene cunicularia*).

Mitigation Measure 4.3.17: If evidence indicates the potential is high for a listed species to be present, based on historical records or site conditions, then clearing, grubbing, or grading (inside and outside the MHPA) shall be restricted during the breeding season where development may impact the following species:

- Light-footed clapper rail (between February 15 and August 15);
- Western snowy plover (between March 1 and September 15);
- Least tern (between April 1 and September 15);
- Cactus wren (between February 15 and August 15); or
- Tricolored black bird (between March 1 and August 1.

When other sensitive species, including, but not limited to, the arroyo toad, burrowing owl, or Quino checkerspot butterfly are known or suspected to be present all appropriate protocol surveys and mitigation measures shall be implemented.

Mitigation Measure 4.3.18*:* If a subject species is not detected during the protocol survey, the qualified biologist shall submit substantial evidence to the ADD Environmental Designee and an applicable resource agency which demonstrates whether or not mitigation measures such as noise walls are necessary between the dates stated above for each species. If this evidence concludes that no impacts to this species are anticipated, no mitigation measures would be necessary.

Mitigation Measure 4.3.19: If the SWD chooses not to do the required surveys, then it shall be assumed that the appropriate avian species are present and all necessary protection and mitigation measures shall be required as described in Mitigation Measure 4.3.21

Mitigation Measure 4.3.20: If no surveys are completed and no sound attenuation devices are installed, it will be assumed that the habitat in question is occupied by the appropriate species and that maintenance activities would generate more than 60dB(A) L_{eq} within the habitat requiring protection. All such activities adjacent to the protected habitat shall cease for the duration of the breeding season of the appropriate species and a qualified biologist shall establish a limit of work.

Mitigation Measure 4.3.21: If maintenance occurs during the raptor breeding season (January 15 to August 31), a pre-maintenance survey for active raptor nests shall be conducted in areas supporting suitable habitat. If active raptor nests are found, maintenance shall not occur within 300 feet of a Cooper's hawk nest, 900 feet of a northern harrier's nest, or 500 feet of any other raptor's nest until any fledglings have left the nest.

Mitigation Measure 4.3.22: If removal of any eucalyptus trees or other trees used by raptors for nesting within a maintenance area is proposed during the raptor breeding season (January 15 through August 31), a qualified biologist shall ensure that no raptors are nesting in such trees. If maintenance occurs during the raptor breeding season, a pre-maintenance survey shall be conducted and no maintenance shall occur within 300 feet of any nesting site of Cooper's hawk or other nesting raptor until the young fledge. Should the biologist determine that raptors are nesting, the trees shall not be removed until after the breeding season. In addition, if removal of grassland or other habitat appropriate for nesting by northern harriers, a qualified biologist shall ensure that no harriers are nesting in such areas. If maintenance occurs during the raptor breeding season, a pre-maintenance survey shall be conducted and no maintenance shall occur within 900 feet of any nesting site of northern harrier until the young fledge.

(Mitigation Measure 4.3.23 not applicable)

(Mitigation Measure 4.3.24 not applicable)

Mitigation Measure 4.3.25*:* In order to avoid impacts to nesting avian species, including those species not covered by the MSCP, maintenance within or adjacent to avian nesting habitat shall

occur outside of the avian breeding season (January 15 to August 31) unless postponing maintenance would result in a threat to human life or property.

LAND USE

Mitigation Measure 4.1.1: Prior to commencing maintenance on any storm water facility within, or immediately adjacent to, a Multi-Habitat Planning Area (MHPA), the ADD Environmental Designee shall verify that all MHPA boundaries and limits of work have been delineated on all maintenance documents.

Mitigation Measure 4.1.2: A qualified biologist (possessing a valid Endangered Species Act Section 10(a)(1)(a) recovery permit) shall survey those habitat areas inside and outside the MHPA suspected to serve as habitat (based on historical records or site conditions) for the coastal California gnatcatcher, least Bell's vireo and/or other listed species. Surveys for the appropriate species shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish and Wildlife Service. When other sensitive species, including, but not limited to, the arroyo toad, burrowing owl, or Quino checkerspot butterfly are known or suspected to be present all appropriate protocol surveys and mitigation measures identified in Subchapter 4.3, Biological Resources, required shall be implemented.

Mitigation Measure 4.1.3: If a listed species is located within 500 feet of a proposed maintenance activity and maintenance would occur during the associated breeding season, an analysis of the noise generated by maintenance activities shall be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the ADD Environmental Designee. The analysis shall identify the location of the 60 dB(A) L_{eq} noise contour on the maintenance plan. The report shall also identify measures to be undertaken during maintenance to reduce noise levels.

Mitigation Measure 4.1.4: Based on the location of the 60 dB(A) L_{eq} noise contour and the results of the protocol surveys, the Project Biologist shall determine if maintenance has the potential to impact breeding activities of listed species. If one or more of the following species are determined to be significantly impacted by maintenance, then maintenance (inside and outside the MHPA) shall avoid the following breeding seasons unless it is determined that maintenance is needed to protect life or property.

- Coastal California gnatcatcher (between March 1 and August 15 inside the MHPA only; no restrictions outside MHPA);
- Least Bell's vireo (between March 15 and September 15); and
- Southwestern willow flycatcher (between May 1 and September 1).

Mitigation Measure 4.1.5: If maintenance is required during the breeding season for a listed bird to protect life or property, then the following conditions must be met:

- At least two weeks prior to the commencement of maintenance activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from maintenance activities shall not exceed 60 dB(A) hourly average at the edge of occupied habitat. Concurrent with the commencement of maintenance activities and the maintenance of necessary noise attenuation facilities, noise monitoring shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated maintenance activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season of the subject species, as noted above.

- Maintenance noise shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the maintenance activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the ADD, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of maintenance equipment and the simultaneous use of equipment.

- Prior to the commencement of maintenance activities that would disturb sensitive resources during the breeding season, the biologist shall ensure that all fencing, staking and flagging identified as necessary on the ground have been installed properly in the areas restricted from such activities.

- If noise attenuation walls or other devices are required to assure protection to identified wildlife, then the biologist shall make sure such devices have been properly constructed, located and installed.

Mitigation Measure 4.1.6: A pre-maintenance meeting shall be held with the Maintenance Contractor, City representative and the Project Biologist. The Project Biologist shall discuss the sensitive nature of the adjacent habitat with the crew and subcontractor. Prior to the pre-maintenance meeting, the following shall be completed:

- The Storm Water Division (SWD) shall provide a letter of verification to the Mitigation Monitoring Coordination Section stating that a qualified biologist, as defined in the City of San Diego Biological Resources Guidelines, has been retained to implement the projects MSCP monitoring Program. The letter shall include the names and contact information of all persons involved in the Biological Monitoring of the project. At least thirty days prior to the pre-maintenance meeting, the qualified biologist shall submit all required documentation to MMC, verifying that any special reports, maps, plans and time lines, such as but not limited to, revegetation plans, plant relocation requirements and timing, MSCP requirements, avian or other wildlife protocol surveys, impact avoidance areas or other such information has been completed and updated.

- The limits of work shall be clearly delineated. The limits of work, as shown on the approved maintenance plan, shall be defined with orange maintenance fencing and checked by the biological monitor before initiation of maintenance. All native plants or species of special concern, as identified in the biological assessment, shall be staked, flagged and avoided within Brush Management Zone 2, if applicable.

Mitigation Measure 4.1.7: Maintenance plans shall be designed to accomplish the following.

- Invasive non-native plant species shall not be introduced into areas adjacent to the MHPA. Landscape plans shall contain non-invasive native species adjacent to sensitive biological areas, as shown on the approved maintenance plan.

- All lighting adjacent to, or within, the MHPA shall be shielded, unidirectional, low pressure sodium illumination (or similar) and directed away from sensitive areas using appropriate placement and shields. If lighting is required for nighttime maintenance, it shall be directed away from the preserve and the tops of adjacent trees with potentially nesting raptors, using appropriate placement and shielding.

- All maintenance activities (including staging areas and/or storage areas) shall be restricted to the disturbance areas shown on the approved maintenance plan. The project biologist shall monitor maintenance activities, as needed, to ensure that maintenance activities do not encroach into biologically sensitive areas beyond the limits of work as shown on the approved maintenance plan.

- No trash, oil, parking or other maintenance-related activities shall be allowed outside the established maintenance areas including staging areas and/or storage areas, as shown on the approved maintenance plan. All maintenance related debris shall be removed off-site to an approved disposal facility.

- Access roads through MHPA-designated areas shall comply with the applicable policies contained in the "Roads and Utilities Construction and Maintenance Policies" identified in Section 1.4.2 of the City's Subarea Plan.

(Mitigation Measure 4.1.8 not applicable)

Attachment 2

PLANT SPECIES OBSERVED IN THE ALVARADO CREEK CHANNEL

Attachment 2
Plant Species Observed in the Alvarado Creek Channels

Family	Species Name	Common Name	Habitat[1]
	Native Species[2]		
Asteraceae	*Ambrosia psilostachya*	western ragweed	FWM
	Baccharis salicifolia	mule fat	SWS
Cyperaceae	*Schoenoplectus americanus*	American bulrush	FWM
	Schoenoplectus californicus	California bulrush	FWM
Juncaceae	***Juncus acutus* ssp. *leopoldii***	**spiny rush**	FWM
Onagraceae	*Oenothera elata* ssp. *hookeri*	great marsh evening-primrose	FWM
Platanaceae	*Platanus racemosa*	western sycamore	SWS
Salicaceae	*Salix gooddingii*	Goodding's black willow	SWS
	Salix lasiolepis	arroyo willow	SWS
Typhaceae	*Typha latifolia*	broad-leaved cattail	FWM
	Non-native Species[3]		
Aizoaceae	***Carpobrotus edulis***	**hottentot-fig**	NNV
Anacardiaceae	***Schinus terebinthifolius***	**Brazilian pepper tree**	NNV
Apiaceae	*Apium graveolens*	celery	FWM
	Foeniculum vulgare	**fennel**	DH
Araliaceae	***Hedera helix***	**English ivy**	NNV
Arecaceae	***Washingtonia robusta***	**Mexican fan palm**	DW
Cyperaceae	*Cyperus involucratus*	umbrella plant	FWM
Euphorbiaceae	***Ricinus communis***	**castor-bean**	DW
Fabaceae	*Melilotus indica*	Indian sweet-clover	DH
Poaceae	***Arundo donax***	**giant reed**	DW
	Cynodon dactylon	**Bermuda grass**	DH
	Pennisetum setaceum	**fountain grass**	DEV
	Stipa miliacea	**smilo grass**	DEV, NNV

[1]Habitats: DEV=Developed; DH=Disturbed Habitat; DW=Disturbed Wetland; FWM=Freshwater Marsh; NNV=Non-native Vegetation/Ornamental; SWS=Southern Willow Scrub
[2]Sensitive species in boldface
[3]Invasive species in boldface

Attachment 3

JURISDICTIONAL DELINEATION SAMPLING POINT DATA FORM

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Upper Alvarado Creek - Map 64 City/County: San Diego / San Diego Sampling Date: 11/05/2014

Applicant/Owner: City of San Diego State: CA Sampling Point: 1

Investigator(s): Jasmine Bakker and George Aldridge Section, Township, Range: unsectioned lands, 16S, 2W, La Mesa Quad.

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): C Lat: 32.7763 Long: -117.0617 Datum:

Soil Map Unit Name: Redding Urban Land Complex, 9-30% slopes NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Storm drain channel with cobbled bed. Concrete apron on north side, steep natural slope to uplands on south side.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 3mx10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Washingtonia robusta	10	Y	FACW
2. Salix gooddingii	10	Y	FACW
3. Salix lasiolepis	<1	N	FACW
4.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3mx10m)			
1. Washingtonia robusta	10	N	FACW
2. Typha latifolia	50	Y	OBL
3. Baccharis salicifolia	<5	N	FAC
4. Ricinus communis	5	N	FACU
5.			
	60	= Total Cover	
Herb Stratum (Plot size: 3mx10m)			
1. Carpobrotus edulis	<1	N	UPL
2. Cynodon dactylon	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. N/A			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Vegetation is mostly along the edges of shallow open water, where sediment has accumulated against the concrete apron on the north side or is rooted in natural soil on the south bank. Most of the channel is shallow open water.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
no pit								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✔ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Hydric soil assumed due to submergence in flowing water, presence of obligate wetland species, adn abrupt change to upland vegetation at the channel edges.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✔ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✔ No ___ Depth (inches): 6

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Most of channel bottom is covered with flowing water.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lower Alvarado Creek - East (Mission Gorge Pl.) City/County: San Diego / San Diego Sampling Date: 11/05/2014

Applicant/Owner: City of San Diego State: CA Sampling Point: 3

Investigator(s): Jasmine Bakker and George Aldridge Section, Township, Range: unsectioned lands, 16S, 2W, La Mesa Quad.

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): C Lat: 32.7822 Long: -117.0957 Datum:

Soil Map Unit Name: Riverwash NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil ✔, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Concrete-lined channel almost completely covered with accumulated sediment and cobbles that supports a large mass of OBL and FACW species. Not natural soils.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 3mx10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	40	Y	FACW
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3mx10m)			
1. Typha latifolia	60	Y	OBL
2. Washingtonia robusta	40	Y	FACW
3. Ricinus communis	5	N	FACU
4. Cyperus involucratus	5	N	FACW
5.			
	85	= Total Cover	
Herb Stratum (Plot size: _____)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. N/A			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum <5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Small open water stream with concrete bottom, but otherwise the channel is completely choked with cobbles, sediment, and vegetation accumulated on top of the concrete bottom.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
no pit								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✔ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: concrete

Depth (inches): 6

Hydric Soil Present? Yes ___ No ✔

Remarks:

Soils are accumulated cobbles and sediments approximately 6 inches deep and completely saturated; however, they are not natural soils. All sols and vegetation are within a trapezoidal concrete-lined channel.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✔ Water Marks (B1) (**Riverine**)
- ✔ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✔ No ___ Depth (inches): 2

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flowing water in a small channel surrounded by accumulated sediments and cobbles on top of concrete.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lower Alvarado Creek - West (Mission Gorge Rd) City/County: San Diego / San Diego Sampling Date: 11/05/2014

Applicant/Owner: City of San Diego State: CA Sampling Point: 2

Investigator(s): Jasmine Bakker and George Aldridge Section, Township, Range: unsectioned lands, 16S, 2W, La Mesa Quad.

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): C Lat: 32.7805 Long: -117.1031 Datum:

Soil Map Unit Name: Riverwash NWI classification: Fresh water forested

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ✔, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

Soils are accumulated sediment in a fully concrete-lined channel. Soils are approximately 2-3 inches deep on top of the concrete channel bottom, and not natural soils.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 3mx10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	25	Y	FACW
2. Arundo donax	25	Y	FACW
3.			
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3mx10m)			
1. Schoenoplectus americanus	100	Y	OBL
2. Artemisia palmeri	30	N	UPL
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: 3mx10m)			
1. Juncus mexicanus	15	Y	FACW
2. Apium graveolens	5	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. N/A			
2.			
	____	= Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Few herbs are present, but ground is completely covered by tall bulrushes and sagewort flattened by recent storm flows.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
no pit								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✔ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: concrete

Depth (inches): 2

Hydric Soil Present? Yes ___ No ✔

Remarks:

2-3 inches of mucky soil accumulated on top of a concrete channel bottom. Soil is completely saturated, but not natural soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✔ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✔ No ___ Depth (inches): 2

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flowing water in a small channel surrounded by accumulated shallow sediments on top of concrete. Soil, vegetation, and flowing water are entirely within a trapezoidal concrete-lined channel.

Attachment 4

CNDDB FIELD SURVEY FORM

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov

Date of Field Work (mm/dd/yyyy): 11/05/2014

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Juncus acutus ssp. leopoldii*

Common Name: southwestern spiny rush

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 7 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: George Aldridge
Address: HELIX Environmental Planning, Inc.
7875 El Cajon Bl, La Mesa, CA 91942
E-mail Address: GeorgeA@helixepi.com
Phone: (619) 462-1515

Plant Information

Phenology: 100 % vegetative 0 % flowering 0 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Concrete-lined storm water channel, east and west of Fairmount Avenue at Camino Del Rio North, San Diego, California

County: San Diego Landowner / Mgr.: City of San Diego
Quad Name: La Mesa Elevation: _____
T 16S R 2W Sec n/a, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): USGS topo
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☐
Coordinates:

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Present in freshwater marsh vegetation dominated by cattail (Typha sp.) and bulrush (Schoenoplectus spp.); soil is perched on concrete in a trapezoidal channel; slope is minimal (<1%) and the channel is generally oriented east-west.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☐ Fair ☑ Poor

Immediate AND surrounding land use: Development: commercial, light industrial, transportation corridors

Visible disturbances: some trash and urban runoff

Threats: channels are scheduled for cleaning, which will remove all vegetation

Comments: These individuals are growing in soil accumulated in a concrete-lined storm water channel and will be removed as part of scheduled channel cleaning to restore storm flow capacity.

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☐ By another person (name): _____
- ☑ Other: recognized by sight

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Attachment 5

MSCP CONFORMANCE REVIEW: SECTIONS 1.4.2 AND 1.4.3

Attachment 5
MSCP CONFORMANCE REVIEW: SECTION 1.4.2 AND SECTION 1.4.3
UPPER- AND LOWER- ALVARADO CREEK CHANNELS

Section 1.4.2 General Planning Policies and Design Guidelines	
Roads and Utilities - Construction and Maintenance Policies:	Compliance
1. All proposed utility lines (e.g., sewer, water, etc.) should be designed to avoid or minimize intrusion into the MHPA. These facilities should be routed through developed or developing areas rather than the MHPA, where possible. If no other routing is feasible, then the lines should follow previously existing roads, easements, rights-of-way and disturbed areas, minimizing habitat fragmentation.	Not applicable.
2. All new development for utilities and facilities within or crossing the MHPA shall be planned, designed, located and constructed to minimize environmental impacts. All such activities must avoid disturbing the habitat of MSCP covered species, and wetlands. If avoidance is infeasible, mitigation will be required.	Not applicable.
3. Temporary construction areas and roads, staging areas, or permanent access roads must not disturb existing habitat unless determined to be unavoidable. All such activities must occur on existing agricultural lands or in other disturbed areas rather than in habitat. If temporary habitat disturbance is unavoidable, then restoration of, and/or mitigation for, the disturbed area after project completion will be required.	Project access and loading is located in developed or disturbed/ruderal areas.
4. Construction and maintenance activities in wildlife corridors must avoid significant disruption of corridor usage. Environmental documents and mitigation monitoring and reporting programs covering such development must clearly specify how this will be achieved, and construction plans must contain all the pertinent information and be readily available to crews in the field. Training of construction crews and field workers must be conducted to ensure that all conditions are met. A responsible party must be specified.	Maintenance will not occur within any MHPA-designated wildlife corridors.
5. Roads in the MHPA will be limited to those identified in Community Plan Circulation Elements, collector streets essential for area circulation, and necessary maintenance/emergency access roads. Local streets should not cross the MHPA except where needed to access isolated development areas.	Not applicable.
6. Development of roads in canyon bottoms should be avoided whenever feasible. If an alternative location outside the MHPA is not feasible, then the road must be designed to cross the shortest length possible of the MHPA in order to minimize impacts and fragmentation of sensitive species and habitat. If roads cross the MHPA, they should provide for fully functional wildlife movement capability. Bridges are the preferred method of providing for movement, although culverts in selected locations may be acceptable. Fencing, grading and plant cover should be provided where needed to protect and shield animals, and guide them away from roads to appropriate crossings.	Not applicable.
7. Where possible, roads within the MHPA should be narrowed from existing design standards to minimize habitat fragmentation and disruption of wildlife movement and breeding areas. Roads must be located in lower quality habitat or disturbed areas to the extent possible.	Not applicable.
8. For the most part, existing roads and utility lines are considered a compatible use within the MHPA and, therefore, will be maintained. Exceptions may occur where underutilized or duplicative road systems are determined not to be necessary as identified in the Framework Management Plan.	Not applicable.

Attachment 5 MSCP CONFORMANCE REVIEW: SECTION 1.4.2 AND SECTION 1.4.3 UPPER- AND LOWER- ALVARADO CREEK CHANNELS	
Section 1.4.2 General Planning Policies and Design Guidelines (cont.)	
Roads and Utilities - Construction and Maintenance(cont.)	
Fencing, Lighting, and Signage	
1. Fencing or other barriers will be used where it is determined to be the best method to achieve conservation goals and adjacent to land uses incompatible with the MHPA. For example, use chain link or cattle wire to direct wildlife to appropriate corridor crossings, natural rocks/boulders or split rail fencing to direct public access to appropriate locations, and chain link to provide added protection of certain sensitive species or habitats (e.g., vernal pools).	Not applicable.
2. Lighting shall be designed to avoid intrusion into the MHPA and effects on wildlife. Lighting in areas of wildlife crossings should be of low-sodium or similar lighting. Signage will be limited to access and litter control and educational purposes.	No lighting will be installed as part of the project.
Materials Storage	
Prohibit storage of materials (e.g., hazardous or toxic, chemicals, equipment, etc.) within the MHPA and ensure appropriate storage per applicable regulations in any areas that may impact the MHPA, especially due to potential leakage.	Temporary storage of hazardous materials such as equipment fuel will follow all applicable guidelines.
1. Mining operations include mineral extraction, processing and other related mining activities (e.g. asphaltic processing). Currently permitted mining operations that have approved restoration plans may continue operating in the MHPA. New or expanded mining operations on lands conserved as part of the MHPA are incompatible with MSCP preserve goals for covered species and their habitat unless otherwise agreed to by the wildlife agencies at the time the parcel is conserved. New operations are permitted in the MHPA if: 1) impacts have been assessed and conditions incorporated to mitigate biological impacts and restore mined areas; 2) adverse impacts to covered species in the MHPA have been mitigated consistent with the Subarea Plan; and 3) requirements of other City land use policies and regulations (e.g. Adjacency Guidelines, Conditional Use Permit) have been satisfied. Existing and any newly permitted operations adjacent to or within the MHPA shall meet noise, air quality and water quality regulation requirements, as identified in the conditions of any existing or new permit, in order to adequately protect adjacent preserved areas and covered species. Such facilities shall also be appropriately restored upon cessation of mining activities.	Not applicable.
2. All mining and other related activities must be consistent with the objectives, guidelines, and recommendations in the MSCP plan, the City of San Diego's Environmentally Sensitive Lands Ordinance, all relevant long-range plans, as well as with the State Surface Mining and Reclamation Act (SMARA) of 1975.	Not applicable.
3. Any sand removal activities should be monitored for noise impacts to surrounding sensitive habitats, and all new sediment removal or mining operations proposed in proximity to the MHPA, or changes in existing operations must include noise reduction methods that take into consideration the breeding and nesting seasons of sensitive bird species.	Not applicable.

Attachment 5 MSCP CONFORMANCE REVIEW: SECTION 1.4.2 AND SECTION 1.4.3 UPPER- AND LOWER- ALVARADO CREEK CHANNELS	
Section 1.4.2 General Planning Policies and Design Guidelines (cont.)	
Mining, Extraction, and Processing Facilities	
4. All existing and future mined lands adjacent to or within the MHPA shall be reclaimed pursuant to SMARA. Ponds are considered compatible uses where they provide native wildlife and wetland habitats and do not conflict with conservation goals of the MSCP and Subarea Plan.	Not applicable.
5. Any permitted mining activity including reclamation of sand must consider changes and impacts to water quality, water table level, fluvial hydrology, flooding, and wetland and habitats upstream and downstream, and provide adequate mitigation.	Not applicable.
Flood Control	
1. Flood control should generally be limited to existing agreements with resource agencies unless demonstrated to be needed based on a cost benefit analysis and pursuant to a restoration plan. Floodplains within the MHPA, and upstream from the MHPA if feasible, should remain in a natural condition and configuration in order to allow for the ecological, geological, hydrological, and other natural processes to remain or be restored.	Project implementation would remove vegetation within the existing storm water channels to assure proper flood control function, the natural configuration of the storm water facilities would not be modified. The project is consistent with flood control maintenance that occurred when the MSCP was established. The project also conforms to the MMP and PEIR.
2. No berming, channelization, or man-made constraints or barriers to creek, tributary, or river flows should be allowed in any floodplain within the MHPA unless reviewed by all appropriate agencies, and adequately mitigated. Review must include impacts to upstream and downstream habitats, flood flow volumes, velocities and configurations, water availability, and changes to the water table level.	The project would not construct barriers or result in substantial modification to the existing channels. The project is not within the MHPA.
3. No riprap, concrete, or other unnatural material shall be used to stabilize river, creek, tributary, and channel banks within the MHPA. River, stream, and channel banks shall be natural, and stabilized where necessary with willows and other appropriate native plantings. Rock gabions may be used where necessary to dissipate flows and should incorporate design features to ensure wildlife	The project does not include placement of riprap, concrete, or other man-made materials. The project is not within the MHPA.
Section 1.4.3 – Land Use Adjacency Guidelines	
Drainage	
1. All new and proposed parking lots and developed areas in and adjacent to the preserve must not drain directly into the MHPA. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials and other elements that might degrade or harm the natural environment or ecosystem processes within the MHPA. This can be accomplished using a variety of methods including natural detention basins, grass swales or mechanical trapping devices. These systems should be maintained approximately once per year, or as often as needed, to ensure proper functioning. Maintenance should include dredging out of sediments if needed, removing exotic plant materials, and adding chemical- neutralizing compounds (e.g. clay compounds) when necessary and appropriate.	The project will not result in the construction of new paved or developed areas that would drain into the MHPA. Existing drainage patterns would be maintained.

Attachment 5 MSCP CONFORMANCE REVIEW: SECTION 1.4.2 AND SECTION 1.4.3 UPPER- AND LOWER- ALVARADO CREEK CHANNELS	
Section 1.4.3 – Land Use Adjacency Guidelines (cont.)	
Toxics	
2. Land uses, such as recreation and agriculture, that use chemicals or generate by- products such as manure, that are potentially toxic or impactive to wildlife, sensitive species, habitat, or water quality need to incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA. Such measures should include drainage/detention basins, swales, or holding areas with non-invasive grasses or wetland-type native vegetation to filter out the toxic materials. Regular maintenance should be provided. Where applicable, this requirement should be incorporated into leases on publicly owned property as leases come up for renewal.	Standard construction BMPs will be installed during maintenance activities. The project would comply with state and local water quality regulations
Lighting	
3. Lighting of all developed areas adjacent to the MHPA should be directed away from the MHPA. Where necessary, development should provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the MHPA and sensitive species from night lighting.	No lighting will be installed as part of the project.
Noise	
4. Uses in or adjacent to the MHPA should be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas, recreational areas, and any other use that may introduce noises that could impact or interfere with wildlife utilization of the MHPA. Excessively noisy uses or activities adjacent to breeding areas must incorporate noise reduction measures and be curtailed during the breeding season of sensitive species. Adequate noise reduction measures should also be incorporated for the remainder of the year.	Whenever possible, maintenance will be conducted outside the avian breeding season to avoid noise impacts to nesting birds. If maintenance must take place during the breeding season, pre-maintenance surveys will be conducted and appropriate nest setbacks established (as necessary) and noise attenuation measures implemented, if needed.
Barriers	
5. New development adjacent to the MHPA may be required to provide barriers (e.g., non-invasive vegetation, rocks/boulders, fences, walls, and/or signage) along the MHPA boundaries to direct public access to appropriate locations and reduce domestic animal predation.	Not applicable.
Invasives	
6. No invasive non-native plant species shall be introduced into areas adjacent to the MHPA.	The project would not introduce non-native species into the MHPA.

Attachment 5 MSCP CONFORMANCE REVIEW: SECTION 1.4.2 AND SECTION 1.4.3 UPPER- AND LOWER- ALVARADO CREEK CHANNELS	
Section 1.4.3 – Land Use Adjacency Guidelines (cont.)	
Brush Management	
7. New residential development located adjacent to and topographically above the MHPA (e.g., along canyon edges) must be set back from slope edges to incorporate Zone 1 brush management areas on the development pad and outside of the MHPA. Zones 2 and 3 will be combined into one zone (Zone 2) and may be located in the MHPA upon granting of an easement to the City (or other acceptable agency) except where narrow wildlife corridors require it to be located outside of the MHPA. Zone 2 will be increased by 30 feet, except in areas with a low fire hazard severity rating where no Zone 2 would be required. Brush management zones will not be greater in size that is currently required by the City's regulations. The amount of woody vegetation clearing shall not exceed 50 percent of the vegetation existing when the initial clearing is done. Vegetation clearing shall be done consistent with City standards and shall avoid/minimize impacts to covered species to the maximum extent possible. For all new development, regardless of the ownership, the brush management in the Zone 2 area will be the responsibility of a homeowners association or other private party. For existing project and approved projects, the brush management zones, standards and locations, and clearing techniques will not change from those required under existing regulations.	Not applicable.
Grading/Land Development	
8. Manufactured slopes associated with site development shall be included within the development footprint for projects within or adjacent to the MHPA.	Not applicable.

Attachment 6

CRAM DATA SHEETS AND FIGURES

Project Name	**City Stormwater Task Order 7 (and Task Order 16)**
Site Number	SDD-24.07 (and SDD-24.16)
Date of Assessment	11/5/2014
Assessors	Jasmine Bakker/George Aldridge
Wetland Class	Riverine
Wetland Subclass (conf/nonconf)	Confined

	CRAM Raw Metric Scores	**Upper Alvarado**	**Lower Alvarado West**	**Lower Alvarado East**
	Metric	**AA-1**	**AA-2**	**AA-3**
metric	Stream Corridor Continuity	3	3	3
submetric	% of AA with Buffer	9	3	3
submetric	Average Buffer Width	3	3	3
submetric	Buffer Condition	9	3	3
metric	Water Source	6	6	6
metric	Channel Stability	3	3	3
metric	Hydrologic Connectivity	3	3	3
metric	Structural Patch Richnes	6	3	6
metric	Topographic Complexity	3	3	3
submetric	PC: No. of plant layers	9	9	6
submetric	PC: No. of codominants	3	9	6
submetric	PC: Percent Invasion	9	9	3
metric	Horizontal Interspersion	3	6	3
metric	Vertical Biotic Structure	3	6	3
	Overall AA Score	**37**	**35**	**32**
Raw	**Buffer and Landscape Connectivity**	**9.84**	**6.00**	**6.00**
Final	**Buffer and Landscape Connectivity**	**40.99**	**25.00**	**25.00**
	Riparian Continuity	3	3	3
	Buffer Submetrics	6.84	3.00	3.00
	% of AA with Buffer	9	3	3
	Average Buffer Width	3	3	3
	Buffer Condition	9	3	3
Raw	**Hydrology**	**12.00**	**12.00**	**12.00**
Final		**33.33**	**33.33**	**33.33**
	Water Source	6	6	6
	Channel Stability	3	3	3
	Hydrologic Connectivity	3	3	3
Raw	**Physical Structure**	**9.00**	**6.00**	**9.00**
Final		**37.50**	**25.00**	**37.50**
	Structural Patch Richness	6	3	6
	Topographic Complexity	3	3	3
Raw	**Biotic Structure**	**13.000**	**21.00**	**11.00**
Final		**36.111**	**58.333**	**30.556**
	PC: No. of plant layers	9	9	6
	PC: No. of codominants	3	9	6
	PC: Percent codominant invasive	9	9	3
	Plant Community Metric	7	9	5
	Horizontal Interspersion	3	6	3
	Vertical Biotic Structure	3	6	3
	Overall AA Score	**37**	**35**	**32**

Basic Information Sheet: Riverine Wetlands

CRAM Site ID: Upper Alvarado Creek (Map 64)				
Project Site ID: AA-1				
Assessment Area Name: Upper Alvarado Ck PRE-IMPACT CRAM				
Project Name: SDD-24,07	**Date (m/d/y)**	11	05	2014

Assessment Team Members for This AA:

Jasmine Bakker

George Aldridge

Average Bankfull Width:

Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:**

Upstream Point Latitude: **Longitude:**

Downstream Point Latitude: **Longitude:**

Wetland Sub-type:

☒ Confined ☐ Non-confined

AA Category:

☐ Restoration ☐ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training

☒ Other: Pre-impact

Did the river/stream have flowing water at the time of the assessment? ☒ yes ☐ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

☒ perennial ☐ intermittent ☐ ephemeral

Photo Identification Numbers and Description:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	Geo. 5	Upstream			
2	Jas. 3	Middle ~~Left~~ up			
3	Jas. 2	Middle ~~Right~~ Down			
4	Jas. 1	Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description:

Comments:

Scoring Sheet: Riverine Wetlands

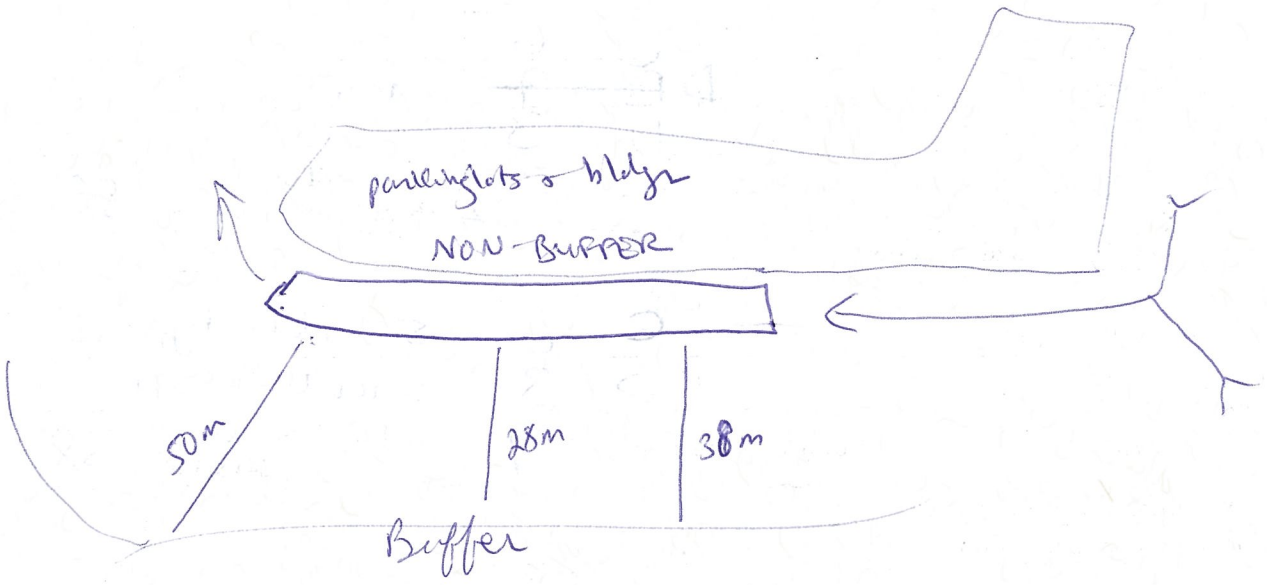
AA Name: Upper Alvarado (AA-1)			(m/d/y)	11	5	2014
Attribute 1: Buffer and Landscape Context			**Comments**			
Aquatic Area Abundance Score (D)	Alpha. D	Numeric 3	both up- & down-stream > 200m			
Buffer:						
Buffer submetric A: Percent of AA with Buffer	B	9	50 %o			
Buffer submetric B: Average Buffer Width	D	3	52m average width			
Buffer submetric C: Buffer Condition	B	9				
Raw Attribute Score = D+[C x (A x B)$^{1/2}$]$^{1/2}$ (use numerical value to nearest whole integer)		10	**Final Attribute Score = (Raw Score/24) x 100**			41
Attribute 2: Hydrology						
Water Source	Alpha. C	Numeric 6				
Channel Stability	~~D B~~	~~9~~	concrete			
Hydrologic Connectivity	D	3				
Raw Attribute Score = sum of numeric scores		~~18~~ 12	**Final Attribute Score = (Raw Score/36) x 100**			~~50~~ 33
Attribute 3: Physical Structure						
Structural Patch Richness	Alpha. C	Numeric 6	5 patch types			
Topographic Complexity	D	3	concrete-lined			
Raw Attribute Score = sum of numeric scores		9	**Final Attribute Score = (Raw Score/24) x 100**			38
Attribute 4: Biotic Structure						
Plant Community Composition (based on sub-metrics A-C)						
Plant Community submetric A: Number of plant layers	Alpha. B	Numeric 9	3 layers			
Plant Community submetric B: Number of Co-dominant species	D	3	4 co-dominants			
Plant Community submetric C: Percent Invasion	B	9	25% invasive			
Plant Community Composition (*average of submetrics A-C rounded to nearest whole integer*)		7				
Horizontal Interspersion	D	3	minimal/no interspersion			
Vertical Biotic Structure	D	3	minimal overlap			
Raw Attribute Score = sum of numeric scores		13	**Final Attribute Score = (Raw Score/36) x 100**			36
Overall AA Score (average of four final Attribute Scores)						~~41~~ 37

Worksheet for Riparian Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA	
Segment No.	Length (m)	Segment No.	Length (m)
1 all non-buffer		1 all non-buffer but approx 200m is	
2		2	
3		3	
4		4	
5		5	
Upstream Total Length		Downstream Total Length	

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.



Percent of AA with Buffer: _____ %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	59
B	74
C	112
D	28
E	34
F	35
G	38
H	38
Average Buffer Width	52

Worksheet for Assessing Channel Stability for Riverine Wetlands.

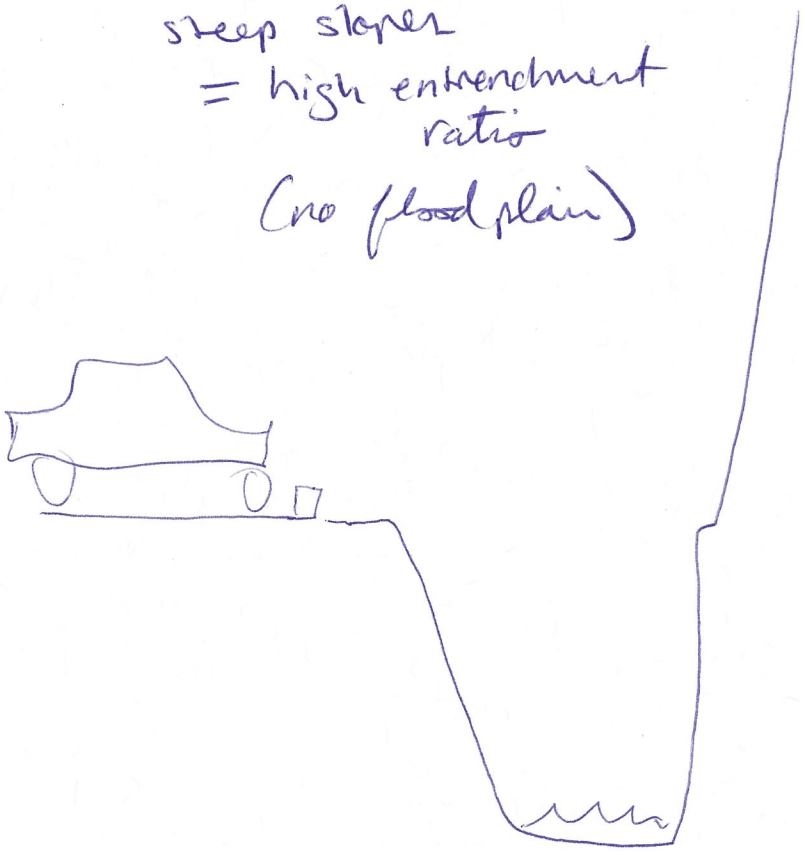
Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☑ ☐ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.
	☐ Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
	☐ There is leaf litter, thatch, or wrack in most pools.
	☐ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
	☐ There is little or no active undercutting or burial of riparian vegetation.
	☑ ☐ There are no densely vegetated mid-channel bars and/or point bars that support perennial vegetation.
	☐ Channel bars consist of well-sorted bed material.
	☐ There are channel pools, the spacing between pools tends to be regular and the bed is not planar through out the AA
	☑ ☐ The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐ The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	☐ There are abundant bank slides or slumps.
	☐ The lower banks are uniformly scoured and not vegetated.
	☐ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
	☐ An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation.
	☐ The channel bed appears scoured to bedrock or dense clay.
	☐ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).
	☐ The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐ There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.
	☐ There are partially buried living tree trunks or shrubs along the banks.
	☑ ☐ The bed is planar overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced.
	☐ There are partially buried, or sediment-choked, culverts.
	☑ ☐ Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.
	☐ There are avulsion channels on the floodplain or adjacent valley floor.
Overall	☐ **Equilibrium** ☐ **Degradation** ☐ **Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

Steps	Replicate Cross-sections ⟶	TOP	MID	BOT
Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.			
Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).			
Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.			
Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.			
Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).			
Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			

Concrete-lined channel, steep slopes = high entrenchment ratio (no floodplain)



Structural Patch Type Worksheet for Riverine wetlands

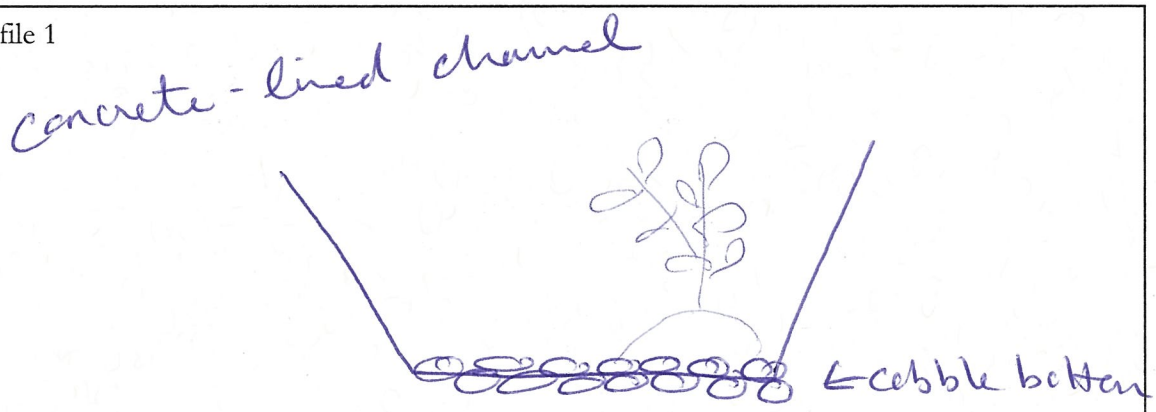
Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below).

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1**
Bank slumps or undercut banks in channels or along shoreline	**1**	**1**
Cobble and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1**
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**1**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**	**1**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**16**	**11**
No. Observed Patch Types (enter here and use in Table 14 below)		5

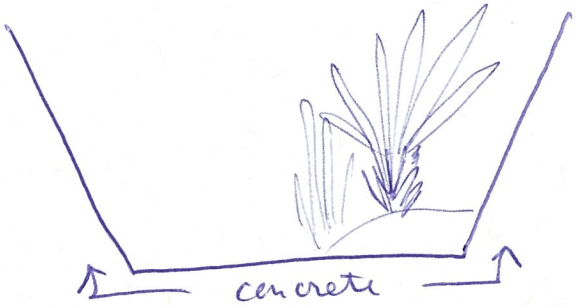
Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

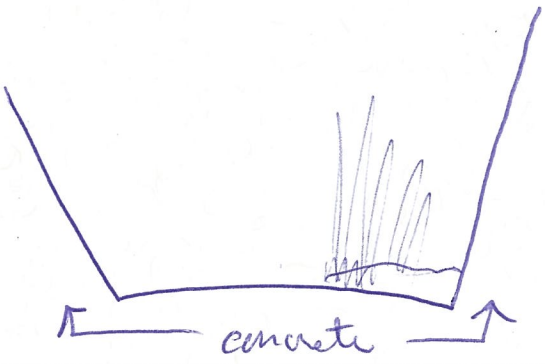
Profile 1



Profile 2



Profile 3



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

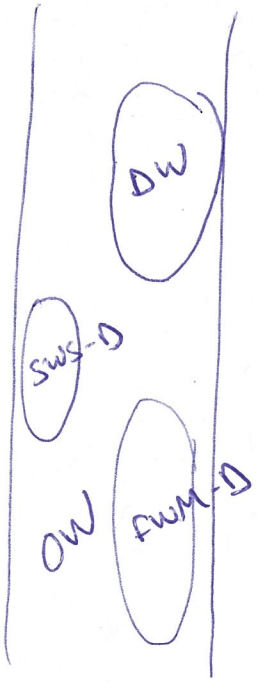
Special Note:

* *Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Iwasob	Y	Iwasob	Y
Typdom	N	Typlat	N
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	4
Salpyr	N		
Iwasob	Y		
		Percent Invasion (enter here and use in Table 18)	25%

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.

	**Assigned zones:** **1)** **2)** **3)** **4)** **5)** **6)**

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows	X	
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	X	
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)	X	
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management FUTURE!		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed	X	
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential	X	
Industrial/commercial	X	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

CRAM Site ID: Alvarado Ck Lower (west) AA-2				
Project Site ID:				
Assessment Area Name: Alvarado Ck Lower (west) PRE-IMPACT CRAM				
Project Name: SDD-24.07	**Date (m/d/y)**	11	05	2014
Assessment Team Members for This AA:				
Jasmine Bakker				
George Aldridge				
Average Bankfull Width:				
Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:**				
Upstream Point Latitude:	**Longitude:**			
Downstream Point Latitude:	**Longitude:**			

Wetland Sub-type:

☒ Confined ☐ Non-confined

AA Category:

☐ Restoration ☐ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training

☒ Other: Pre-impact

Did the river/stream have flowing water at the time of the assessment? ☒ yes ☐ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

☒ perennial ☐ intermittent ☐ ephemeral

Photo Identification Numbers and Description:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	Jas. 7	Upstream			
2	Geo. 20	Middle ~~Left~~ R			
3	~~Geo. 21~~	Middle ~~Right~~ Down			
4	~~Geo. 23~~	Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description:

Concrete-lined channel west of Fairmount Ave

Comments:

AA-2

Scoring Sheet: Riverine Wetlands

AA Name: Lower Alvarado (AA-2) west				(m/d/y)	11	5	2014
Attribute 1: Buffer and Landscape Context					**Comments**		
Aquatic Area Abundance Score (D)			Alpha. D	Numeric 3			
Buffer:							
Buffer submetric A: Percent of AA with Buffer	Alpha. D	Numeric 3			Ø No buffer		
Buffer submetric B: Average Buffer Width	D	3					
Buffer submetric C: Buffer Condition	D	3					
Raw Attribute Score = D+[C x (A x B)$^{1/2}$]$^{1/2}$ (use numerical value to nearest whole integer)				6	**Final Attribute Score = (Raw Score/24) x 100**		25
Attribute 2: Hydrology							
Water Source			Alpha. C	Numeric 6			
Channel Stability			D	3	concrete		
Hydrologic Connectivity			D	3			
Raw Attribute Score = sum of numeric scores				12	**Final Attribute Score = (Raw Score/36) x 100**		33
Attribute 3: Physical Structure							
Structural Patch Richness			Alpha. D	Numeric 3	3 patch types		
Topographic Complexity			D	3	concrete-lined		
Raw Attribute Score = sum of numeric scores				6	**Final Attribute Score = (Raw Score/24) x 100**		25
Attribute 4: Biotic Structure							
Plant Community Composition (based on sub-metrics A-C)							
Plant Community submetric A: Number of plant layers	Alpha. B	Numeric 9			3 layers		
Plant Community submetric B: Number of Co-dominant species	B	9			10 species		
Plant Community submetric C: Percent Invasion	B	9			30% invasion		
Plant Community Composition (*average of submetrics A-C rounded to nearest whole integer*)				9			
Horizontal Interspersion			C	6			
Vertical Biotic Structure			C	6			
Raw Attribute Score = sum of numeric scores				21	**Final Attribute Score = (Raw Score/36) x 100**		58
Overall AA Score (average of four final Attribute Scores)					35		

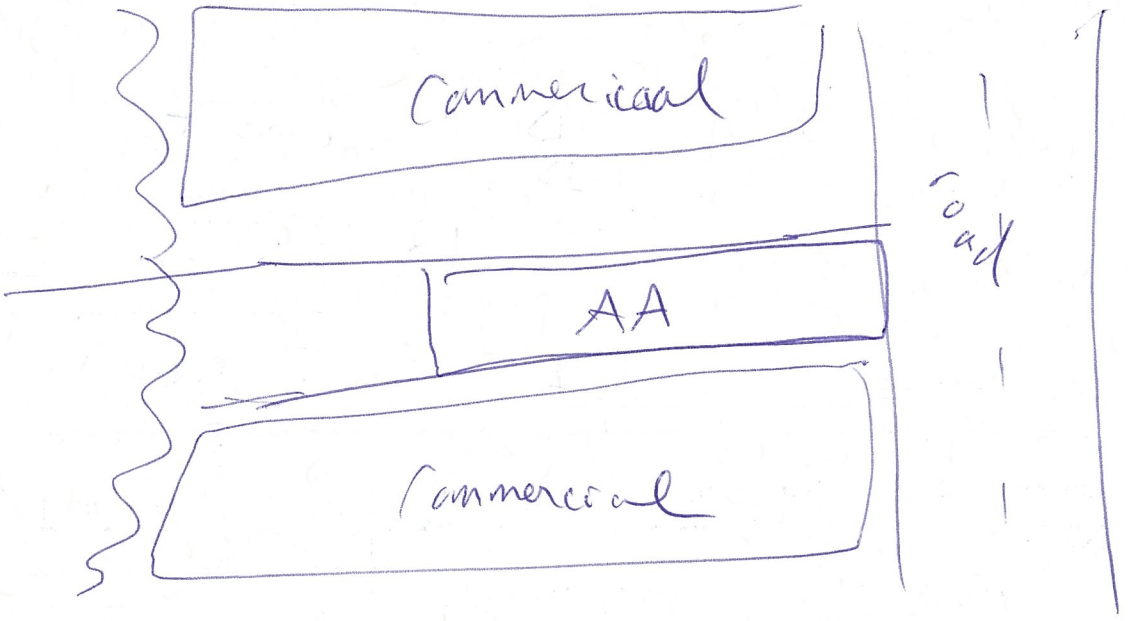
AA-2

Worksheet for Riparian Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA	
Segment No.	Length (m)	Segment No.	Length (m)
1 all non-buffer		1 ~~all non-buffer~~	
2		2	100
3		3	80
4		4	
5		5	
Upstream Total Length		Downstream Total Length	

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.



Percent of AA with Buffer: 0 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	
B	
C	
D	
E	
F	
G	
H	
Average Buffer Width	0

Worksheet for Assessing Channel Stability for Riverine Wetlands.

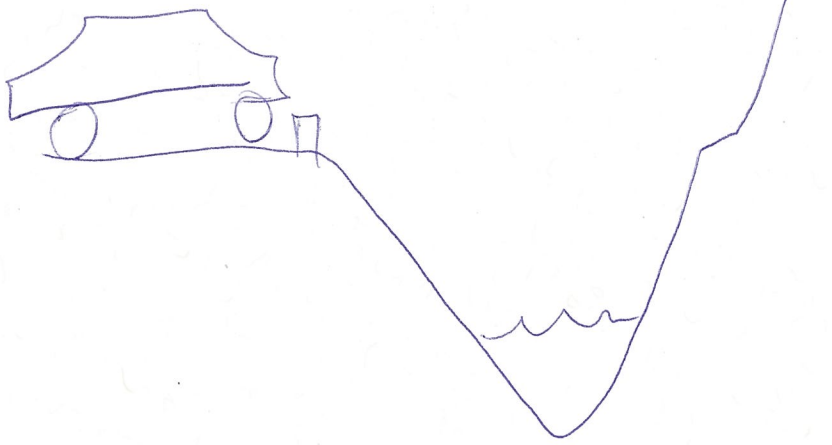
Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☐ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐ Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☑ There is leaf litter, thatch, or wrack in most pools. ☐ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☐ There is little or no active undercutting or burial of riparian vegetation. ☐ There are no densely vegetated mid-channel bars and/or point bars that support perennial vegetation. ☐ Channel bars consist of well-sorted bed material. ☐ There are channel pools, the spacing between pools tends to be regular and the bed is not planar through out the AA ☐ The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐ The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐ There are abundant bank slides or slumps. ☐ The lower banks are uniformly scoured and not vegetated. ☐ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐ An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐ The channel bed appears scoured to bedrock or dense clay. ☐ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐ The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐ There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐ There are partially buried living tree trunks or shrubs along the banks. ☑ The bed is planar overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐ There are partially buried, or sediment-choked, culverts. ☑ Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐ There are avulsion channels on the floodplain or adjacent valley floor.
Overall	☐ **Equilibrium** ☐ **Degradation** ☐ **Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

Steps	Replicate Cross-sections ⟶	TOP	MID	BOT
Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.			
Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).			
Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.			
Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.			
Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).			
Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			

Concrete-line channel
steep slopes



AA-2

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below).

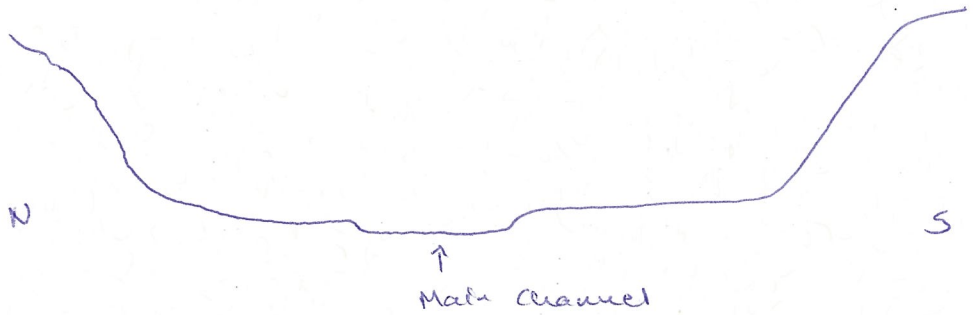
STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1** ✓
Bank slumps or undercut banks in channels or along shoreline	**1**	**1**
Cobble and/or Boulders	**1**	**1**
Debris jams	**1**	**1**
Filamentous macroalgae or algal mats	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1** ✓
Point bars and in-channel bars	**1**	**1**
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1** ✓
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**1**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**	**1**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**16**	**11**
No. Observed Patch Types (enter here and use in Table 14 below)		3

Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Profile 1

Profile 2



Profile 3

AA2

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

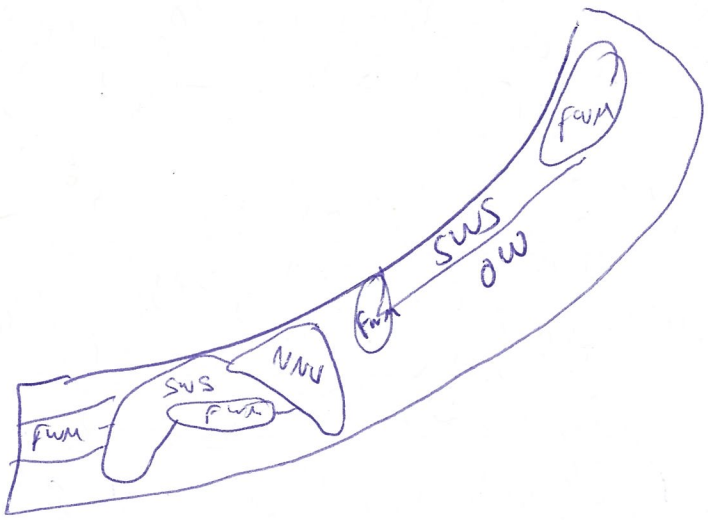
Special Note:

* *Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
		Juncex	
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
Juncu		Typlom	
Wasoob	Y	Ricsom	Y
~~Artpat~~ Eut occ		Schame	
		Bacsal	
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	10
Salgoo			
Arudon	Y		
Salla		**Percent Invasion (enter here and use in Table 18)**	30%

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) FWM
2) SWS
3) OW
4) NNV
5)
6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

AA-2

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows	X	
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	X	
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)	X	
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed	X	X
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial	X	X
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Basic Information Sheet: Riverine Wetlands

CRAM Site ID: Alvarado Ck ~~Upper~~ Lower (East)				
Project Site ID: AA-3				
Assessment Area Name: PRE-IMPACT CRAM				
Project Name: SDD-24.07	**Date (m/d/y)**	11	5	2014

Assessment Team Members for This AA:

Jasmine Bakker

George Aldridge

Average Bankfull Width:

Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m)**:**

Upstream Point Latitude: **Longitude:**

Downstream Point Latitude: **Longitude:**

Wetland Sub-type:

☒ Confined ☐ Non-confined

AA Category:

☐ Restoration ☐ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training

☒ Other: Pre-impact

Did the river/stream have flowing water at the time of the assessment? ☒ yes ☐ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

☒ perennial ☐ intermittent ☐ ephemeral

Photo Identification Numbers and Description:

	Photo ID No.	Description	Latitude	Longitude	Datum
1	Jas. 9	Upstream			
2	GEO. 25	Middle ~~Left~~ UP			
3	GEO. 26	Middle ~~Right~~ Down			
4		Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description:

Concrete lined channel east of Fairmount Ave, surrounded by urban development

Comments:

AA-3

Scoring Sheet: Riverine Wetlands

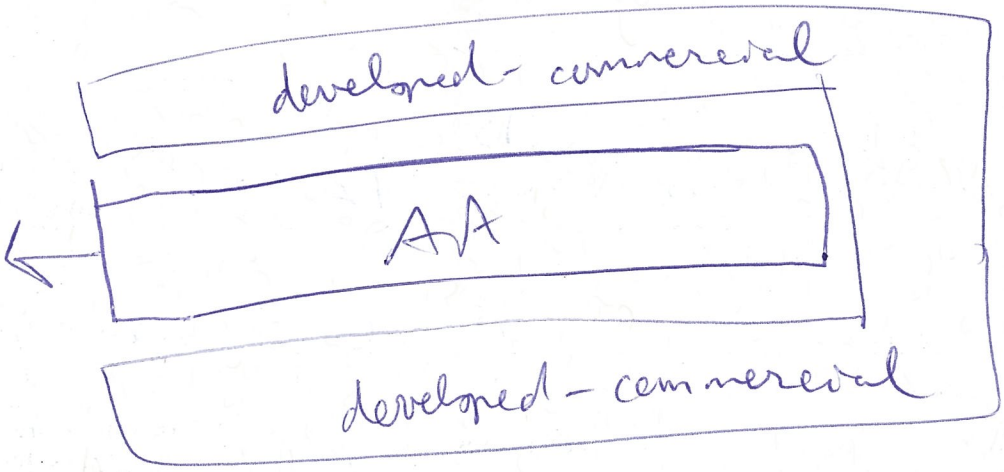
AA Name: Lower Alvarado (AA-3) east				(m/d/y)	11 / 5 / 2014	
Attribute 1: Buffer and Landscape Context				**Comments**		
Aquatic Area Abundance Score (D)			Alpha. D / Numeric 3			
Buffer:						
Buffer submetric A: Percent of AA with Buffer	Alpha. D	Numeric 3		Ø No buffer		
Buffer submetric B: Average Buffer Width	D	3				
Buffer submetric C: Buffer Condition	D	3				
Raw Attribute Score = D+[C x (A x B)^{½}]^{½} (use numerical value to nearest whole integer)			6	**Final Attribute Score = (Raw Score/24) x 100**		25
Attribute 2: Hydrology						
			Alpha. / Numeric			
Water Source			C / 6			
Channel Stability			D / 3	concrete		
Hydrologic Connectivity			D / 3			
Raw Attribute Score = sum of numeric scores			12	**Final Attribute Score = (Raw Score/36) x 100**		33
Attribute 3: Physical Structure						
			Alpha. / Numeric			
Structural Patch Richness			C / 6	5 path types		
Topographic Complexity			D / 3	concrete-lined		
Raw Attribute Score = sum of numeric scores			9	**Final Attribute Score = (Raw Score/24) x 100**		38
Attribute 4: Biotic Structure						
Plant Community Composition (based on sub-metrics A-C)						
Plant Community submetric A: Number of plant layers	Alpha. C	Numeric 6		2 layers		
Plant Community submetric B: Number of Co-dominant species	C	6		6 species		
Plant Community submetric C: Percent Invasion	D	3		50% invasion		
Plant Community Composition (*average of submetrics A-C rounded to nearest whole integer*)			5			
Horizontal Interspersion			D / 3	minimal interspersion		
Vertical Biotic Structure			D / 3			
Raw Attribute Score = sum of numeric scores			11	**Final Attribute Score = (Raw Score/36) x 100**		31
Overall AA Score (average of four final Attribute Scores)				32		

Worksheet for Riparian Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA	
Segment No.	Length (m)	Segment No.	Length (m)
1 all non-buffer		1 all non-buffer	
2		2	
3		3	
4		4	
5		5	
Upstream Total Length		Downstream Total Length	

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.



Percent of AA with Buffer: 0 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	
B	
C	
D	
E	
F	
G	
H	
Average Buffer Width	0

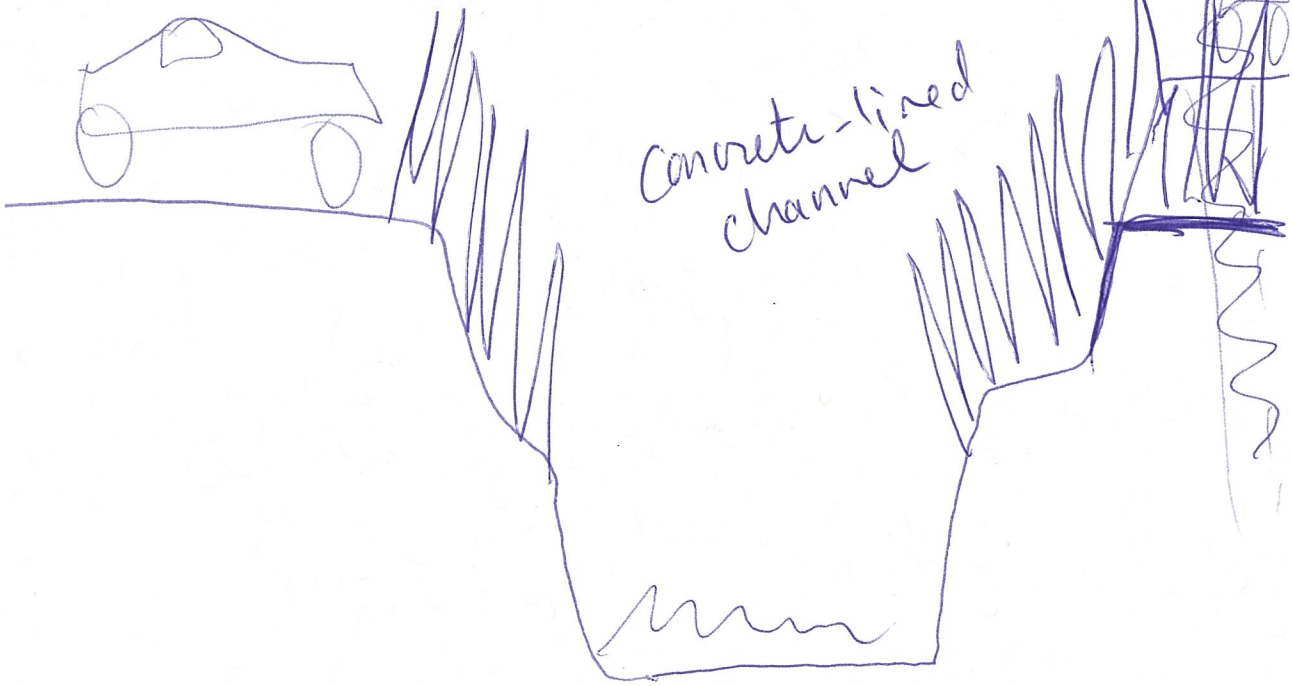
Worksheet for Assessing Channel Stability for Riverine Wetlands.

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☐ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA. ☐ Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it. ☐ There is leaf litter, thatch, or wrack in most pools. ☐ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area. ☐ There is little or no active undercutting or burial of riparian vegetation. ☐ There are no densely vegetated mid-channel bars and/or point bars that support perennial vegetation. ☐ Channel bars consist of well-sorted bed material. ☐ There are channel pools, the spacing between pools tends to be regular and the bed is not planar through out the AA ☐ The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐ The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs. ☐ There are abundant bank slides or slumps. ☐ The lower banks are uniformly scoured and not vegetated. ☐ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel. ☐ An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation. ☐ The channel bed appears scoured to bedrock or dense clay. ☐ Recently active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided). ☐ The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐ There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year. ☐ There are partially buried living tree trunks or shrubs along the banks. ✓☐ The bed is planar overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced. ☐ There are partially buried, or sediment-choked, culverts. ✓☐ Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour. ☐ There are avulsion channels on the floodplain or adjacent valley floor.
Overall	☐ **Equilibrium** ☐ **Degradation** ☐ **Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA.

Steps	Replicate Cross-sections ⟶	TOP	MID	BOT
Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.			
Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).			
Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.			
Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.			
Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).			
Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			



AA-3

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below).

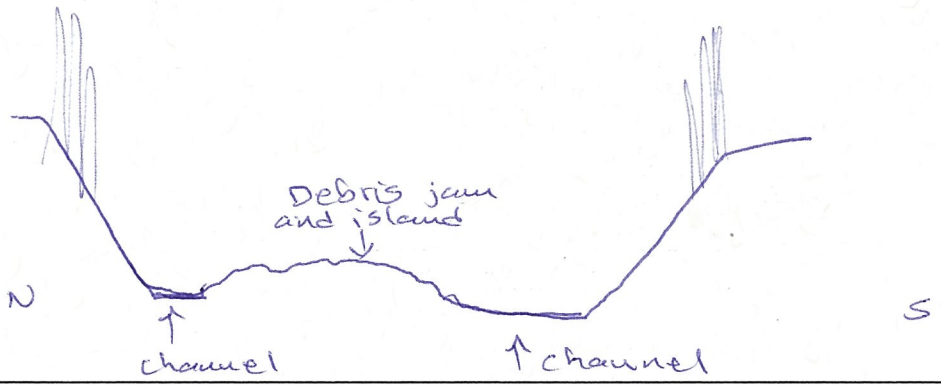
STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)**
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	**1**	**1** ✓
Bank slumps or undercut banks in channels or along shoreline	**1**	**1**
Cobble and/or Boulders	**1**	**1** ✓
Debris jams	**1**	**1** ✓
Filamentous macroalgae or algal mats	**1**	**1**
Pannes or pools on floodplain	**1**	**N/A**
Plant hummocks and/or sediment mounds	**1**	**1** ✓
Point bars and in-channel bars	**1**	**1** ✓
Pools or depressions in channels (wet or dry channels)	**1**	**1**
Riffles or rapids (wet or dry channels)	**1**	**1**
Secondary channels on floodplains or along shorelines	**1**	**N/A**
Standing snags (at least 3 m tall)	**1**	**1**
Submerged vegetation	**1**	**N/A**
Swales on floodplain or along shoreline	**1**	**N/A**
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	**1**	**1**
Vegetated islands (mostly above high-water)	**1**	**N/A**
Total Possible	**16**	**11**
No. Observed Patch Types (enter here and use in Table 14 below)		**5**

Worksheet for AA Topographic Complexity

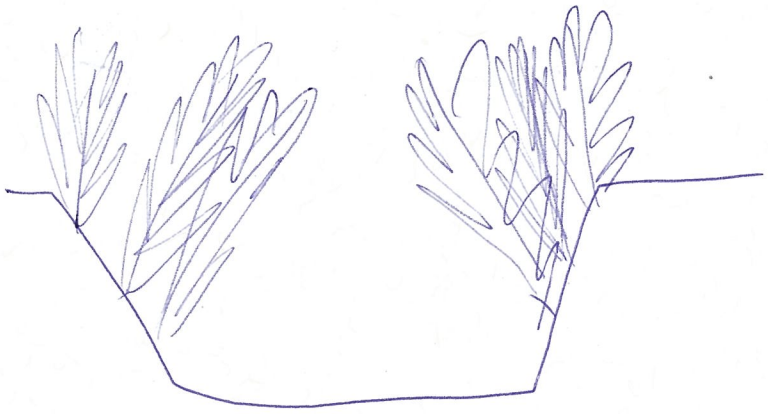
At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

Profile 1

Profile 2



Profile 3



AA-3

Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

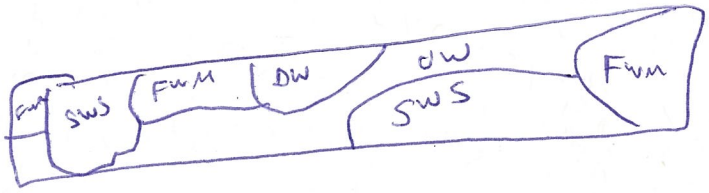
Special Note:

* *Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming	Invasive?	Short (<0.5 m)	Invasive?
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
		Typdom	N
		Riccom	Y
		~~Wasobs~~	—
		Schame	N
		Wasobs	Y
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	6
Salaqo	N		
Arudon	Y		
		Percent Invasion (enter here and use in Table 18)	50

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) FwM
2) SwS
3) DW
4) DW
5)
6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	No		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

AA-3

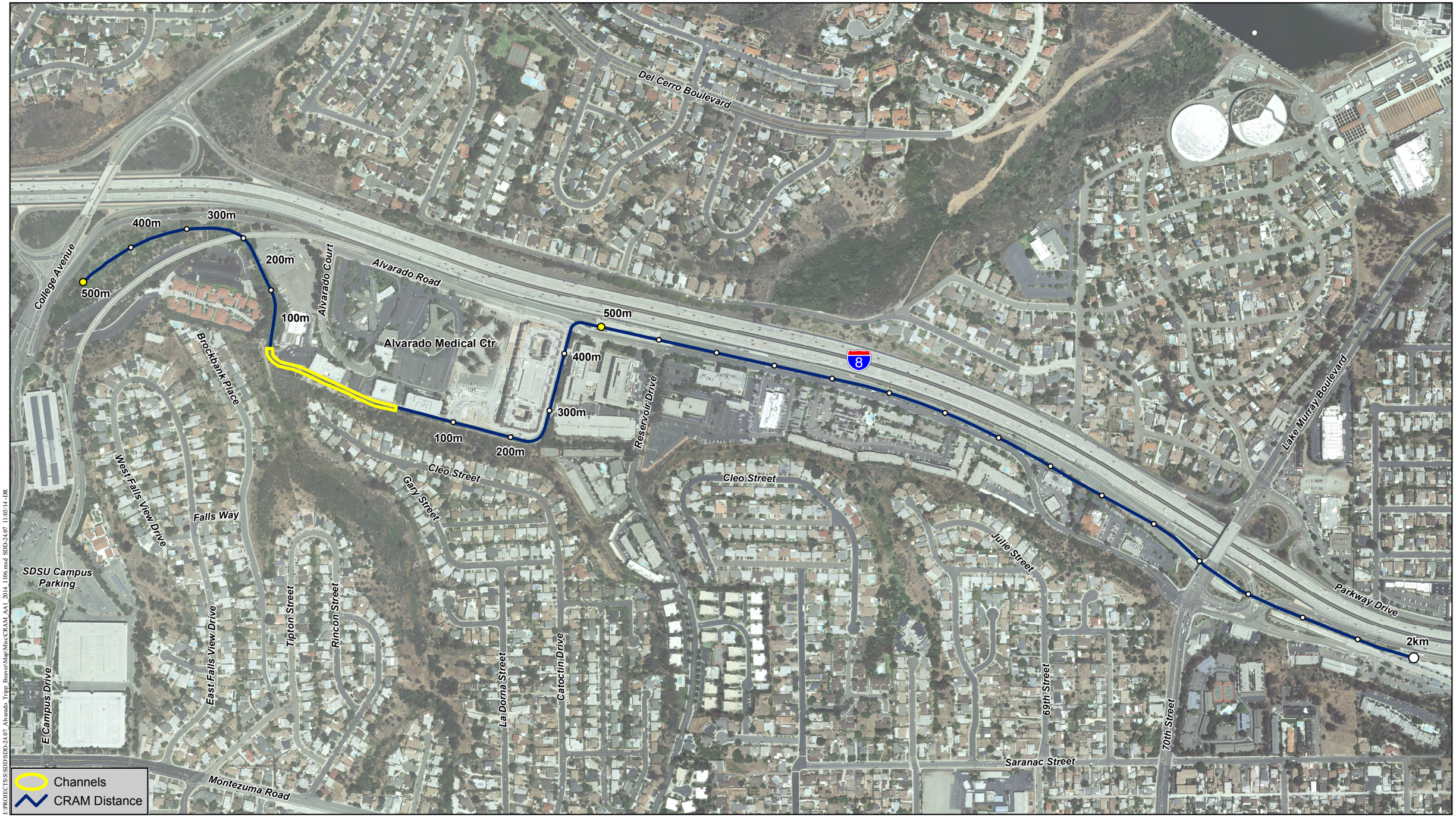
Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)	X	
Flow diversions or unnatural inflows	X	
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)	X	
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)	X	
Dike/levees		
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)		
Vegetation management FUTURE		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed	X	X
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse	X	
Comments		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation		
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer		
Comments		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial	X	X
Military training/Air traffic		
Dams (or other major flow regulation or disruption)		
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	X	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands (golf courses, soccer fields, etc.)		
Passive recreation (bird-watching, hiking, etc.)		
Active recreation (off-road vehicles, mountain biking, hunting, fishing)		
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		



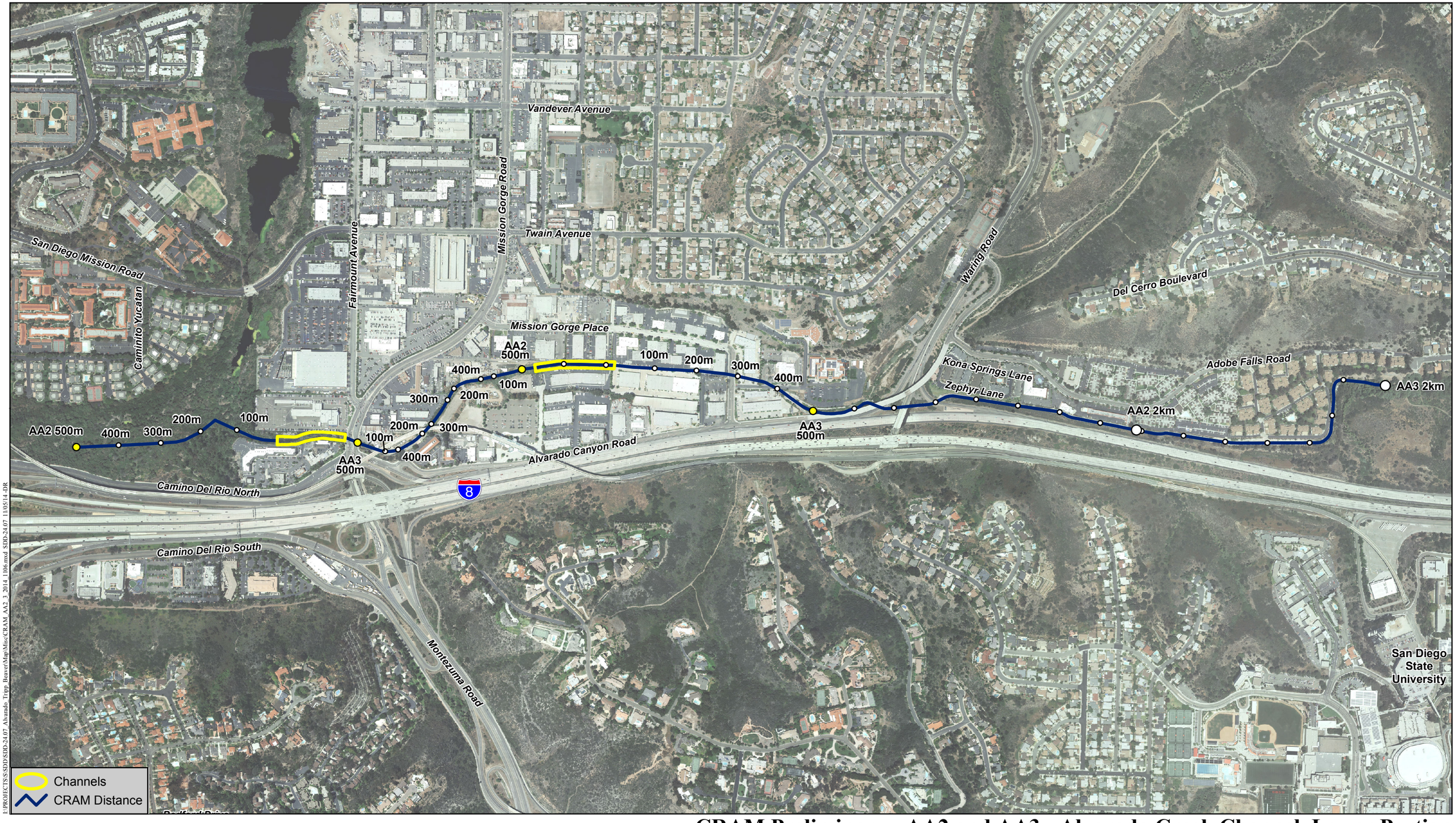
I:\PROJECTS\SSD\SDD-24.07 Alvarado Tripp Beaver\Map\Misc\CRAM_AA1_2014_1106.mxd SDD-24.07 11/05/14 - DR

CRAM Preliminary - AA1 - Upper Alvarado Creek Channel

ALVARADO, TRIPP, BEAVER CHANNELS

HELIX Environmental Planning

0 500 Feet



CRAM Preliminary - AA2 and AA3 - Alvarado Creek Channel, Lower Portion

ALVARADO, TRIPP, BEAVER CHANNELS

HELIX Environmental Planning

0 700 Feet

F:\PROJECTS\SSDD\SDD-24.07_Alvarado_Tripp_Beaver\Map\Misc\CRAM_AA4_2014_1106.mxd SDD-24.07 11/05/14 - DR

CRAM Preliminary - AA4 - Tripp Channel

ALVARADO, TRIPP, BEAVER CHANNELS

HELIX Environmental Planning

0 625 Feet