CALENDAR ITEM
C39

A 33 10/13/16
PRC 9239.9
S 16 R. Collins

RESCISSION OF LEASE AUTHORIZATION AND ISSUANCE OF A GENERAL LEASE – PUBLIC AGENCY USE

LESSEE:
California Department of Fish and Wildlife

APPLICANT:
U.S. Bureau of Reclamation

PROPOSED LEASE:

AREA, LAND TYPE, AND LOCATION:
Sovereign land in the historic bed of the Colorado River, Moabi Regional Park, near Needles, San Bernardino County.

AUTHORIZED USE:
Construction, operation, maintenance, and monitoring of open backwater, wetland and upland habitat, and ancillary structures.

LEASE TERM:
49 years, beginning October 13, 2016.

CONSIDERATION:
The public use and benefit; with the State reserving the right at any time to set a monetary rent if the Commission finds such action to be in the State's best interests.

SPECIFIC LEASE PROVISIONS:

1. Within 60 days of completion of construction of the open backwater, wetland and upland habitat, and ancillary structures, Lessee shall provide Lessor a set of as-built drawings and revised Exhibits A and B describing the as-built location of the improvements. The revised Exhibits A and B shall be incorporated into the Lease and shall supersede corresponding Exhibits upon review and written approval by the Commission's Executive Officer or designee.

2. Lessee's long-term monitoring and maintenance of the lease premises will be consistent with the "Mohave Valley Conservation Area Restoration Development & Monitoring Plan" (Management and Monitoring Plan), as may be amended from time to time, attached as Exhibit D and by this reference made a part hereof. Lessee will provide Lessor with all revisions or updates to the Management and Monitoring Plan and will provide copies of all annual reports at Lessor's request, prepared pursuant to the Management and Monitoring Plan.

3. Lessee acknowledges that the Lease Premises described in Exhibit A and shown on Exhibit B are currently subject to existing Lease No. PRC 3321.9, a General Lease – Public Agency Use to the County of San Bernardino Regional Parks Department (County).

   a. Lessee shall provide Lessor with a copy of a letter of concurrence or other written correspondence obtained from the County acknowledging Lessee's Management and Monitoring Plan and stipulating non-objection to the Management and Monitoring Plan prior to commencement of such restoration activities on the lease premises.

   b. Lessee shall coordinate with the County to ensure that no activities conducted within the lease premises interfere, conflict with, or otherwise impact the County's use of the lease premises.

BACKGROUND:

On December 18, 2015, the Commission adopted a Mitigated Negative Declaration and a Mitigation Monitoring Program, and authorized a General Lease – Public Agency Use to the California Department of Fish and Wildlife for the construction, operation, maintenance, and monitoring of open backwater, wetland and upland habitat, and ancillary structures (Calendar Item C89, December 18, 2015). On February 9, 2016, the Commission authorized the correction of Exhibit C - Mitigation Monitoring Program in its prior authorization (Calendar Item C65, February 9, 2016).

Subsequent to the Commission's authorization of Lease No. PRC 9239.9, the California Department of Fish and Wildlife declined to execute the lease and identified the U.S. Bureau of Reclamation (Bureau or Applicant) as the appropriate party to hold the lease. The lease authorized to California

Department of Fish and Wildlife was never executed and Commission staff is recommending that the Commission rescind that authorization and authorize issuance of the proposed lease to the Bureau.

The Bureau is the federal implementing agency for the Lower Colorado River Multi-Species Conservation Program (MSCP) within California and is responsible for the design, construction, operation, and long-term maintenance and monitoring of the proposed Mohave Valley Conservation Area Backwater Project (Project). The Bureau has applied for a lease to construct, operate, maintain, and monitor the open backwater, wetland and upland habitat, and ancillary structures comprising the Project.

STAFF ANALYSIS AND RECOMMENDATION:

Authority:

Public Resources Code sections 6005, 6216, and 6301; California Code of Regulations, title 2, section 2000, subdivision (b).

Public Trust and State's Best Interests Analysis:

The MSCP is a 50-year multi-stakeholder federal and non-federal partnership, which was created to balance the use of lower Colorado River water resources with the conservation of native species and their habitats. The MSCP is designed to conserve at least 26 species and their habitats between Lake Mead and the United States border with Mexico.

The Applicant has authorization to use the upland adjoining the lease premises. The Project would help meet the restoration requirements of the MSCP through the construction, operation, maintenance, and monitoring of backwater, marsh, and upland habitat on sovereign land located at the Colorado River within Moabi Regional Park (Park). The County operates the Park under Lease No. PRC 3321.1, a General Lease - Public Agency Use. The Park currently occupies approximately 350 acres of sovereign land for public recreational purposes including campgrounds, a small boat marina, a water treatment plant, and an Off-Highway Vehicle (OHV) facility. Currently, due to dense non-native vegetation, OHV access is limited to the perimeter and small pockets of the existing OHV area; it is expected that access will be increased after construction is complete.

In cooperation with the County, the Project would create the backwater, marsh and upland habitat by excavating the historic bed of the Colorado River and depositing the material on the adjacent OHV area currently under lease to the County. After construction of the Project, the

approximately 50 acres of new backwater habitat will be credited toward the requirements of the MSCP. Additionally, a portion of the parcel (approximately 99 acres) will be used for staging during construction and re-vegetated in some areas with native upland plant species and the remainder will be used as an OHV facility.

The Project will be completed in the following four Phases:

- **Phase 1 – Vegetation Clearing.** During Phase 1, all non-native vegetation will be removed within the 149-acre area.

- **Phase 2 – Excavation and Construction.** During Phase 2, approximately 1.2 million cubic yards of material will be excavated (dry excavation) from the backwater channel and an inlet and outlet to the Colorado River will be created. The excavated material will be placed directly adjacent to the backwater channel and will be sculptured into the OHV area to enhance the facility. In addition, ancillary structures including water control structures, roadways, bridges, and primitive boat ramp (for use by authorized personnel) will be constructed.

- **Phase 3 – Establishment/Re-vegetation.** During Phase 3, four types of habitats will be established and re-vegetated, consisting of a mix of open deep backwater habitat, shallow marsh habitat, cottonwood/willow habitat, and upland habitat.

- **Phase 4 – Monitoring and Reporting.** During Phase 4, the Applicant will conduct fish surveys, habitat assessment, zooplankton and phytoplankton monitoring, and water quality monitoring. An annual report will be prepared by the Applicant summarizing the Project's status and the status of covered species. Exhibit D - Mohave Valley Conservation Area Restoration Development & Monitoring Plan, has been prepared to assist the Applicant manage and maintain the Project area.

In order to maintain the backwater channel depth to at least 10 feet, dredging operations are anticipated to be required every 10 to 15 years to manage sediment accumulation. The dredge deposition pipe will be placed in either the inlet or the outlet to the backwater channel and extend

on the bottom of the Colorado River for the deposition of dredged material to be placed in the State of Arizona. Dredged material will not be sold.

During dredging and other construction activities, public access to sovereign land within the Project area will be closed. However, once construction is complete, public access to the Project area, including sovereign land, will be reopened and enhanced via a boat launch ramp for recreational use of non-motorized watercraft within the Project area. Also, the Project will restore habitat for struggling native aquatic and terrestrial species.

The proposed lease is for a 49-year term and requires the lessee to operate, maintain, monitor the Project area, and prepare annual reports. The proposed lease contains terms designed to minimize potential impacts to Public Trust resources during construction of the improvements, including prohibiting refueling and regulating equipment use on the lease premises. This wildlife and aquatic habitat restoration project, with recreational enhancement features, is a water-dependent use that is generally consistent with the common law Public Trust Doctrine. As such, Commission staff believes this particular use of public land, by the Applicant, for public benefit is consistent with the common law Public Trust Doctrine. For all the reasons above, Commission staff believes the issuance of this lease will not interfere with Public Trust needs at this time and at this location, is consistent with the common law Public Trust Doctrine, and is in the best interests of the State.

OTHER PERTINENT INFORMATION:

1. This action is consistent with Key Action 1.2.4 of the Commission's Strategic Plan to prioritize the use of sovereign lands, where appropriate, for open space, wetlands, riparian habitat and habitat preservation, restoration, and enhancement, including through habitat management plans, mitigation agreements, with public agencies, private parties, and other conservation efforts, consistent with applicable law.

2. **Rescission of Lease Authorization:** Rescission of the lease authorization is not a project as defined by the California Environmental Quality Act (CEQA) because it is an administrative action that will not result in direct or indirect physical changes in the environment.

   Authority: Public Resources Code section 21065 and California Code of Regulations, title 14, section 15378, subdivision (b)(5).

3. **Issuance of New Lease:** Pursuant to the Commission's delegation of authority and the State CEQA Guidelines (Cal. Code Regs., tit.14, § 15025), Commission staff prepared a Mitigated Negative Declaration (MND) identified as CSLC MND No. 786, State Clearinghouse No. 2015101098, for the Project. The MND was prepared and circulated for public review pursuant to the provisions of CEQA, and adopted by the Commission on December 18, 2015 (Calendar Item C89, December 18, 2015). On February 9, 2016, a correction was authorized by the Commission to correct Exhibit C – Mitigation Monitoring Program (Calendar Item C65, February 9, 2016). The MND stated that the lease holder would be the California Department of Fish and Wildlife; however, based on the circumstances described above, the Bureau will be the new lease holder as authorized in this Calendar Item.

   On December 18, 2015, the Commission found that, based upon the entire record before the Commission, including the Initial Study, the MND, and the comments received in response thereto, there is no substantial evidence that the program may have a significant effect on the environment; California Code of Regulations, title 14, section 15074, subdivision (b). A Mitigation Monitoring Program was prepared in conformance with the provisions of CEQA (Pub. Resources Code, § 21081.6) and is provided in Exhibit C. Implementation of the MMP will be a condition of the new lease to the Bureau.

4. This activity involves lands identified as possessing significant environmental values pursuant to Public Resources Code section 6370 et seq., but such activity will not affect those significant lands. Based upon the staff's consultation with the persons nominating such lands and through the CEQA review process, it is the staff's opinion that the project, as proposed, is consistent with its use classification.

APPROVALS OBTAINED:

California Department of Fish and Wildlife
California Regional Water Quality Control Board, Colorado River Basin Region
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service

EXHIBITS:

A. Land Description
B. Site and Location Map
C. Mitigation Monitoring Program
D. Mohave Valley Conservation Area Restoration Development & Monitoring Plan

RECOMMENDED ACTION:

It is recommended that the Commission:

CEQA FINDING:

Issuance of New Lease: Find that the MND, CSLC No. 786, State Clearinghouse No. 2015101098, and a Mitigation Monitoring Program were prepared by Commission staff and adopted on December 18, 2015, pursuant to the provisions of CEQA.

Find that the Commission reviewed and considered the information contained in the previously adopted MND, and that in the Commission's independent judgment the scope of activities to be carried out under the lease to be issued under this authorization has been adequately analyzed.

PUBLIC TRUST AND STATE'S BEST INTERESTS:

Find that the proposed lease will not substantially interfere with public rights to navigation and fishing or with the Public Trust needs and values at this location at this time, is consistent with the common law Public Trust Doctrine, and is in the best interests of the State.

SIGNIFICANT LANDS INVENTORY FINDING:

Find that this activity is consistent with the use classification designated by the Commission for the land pursuant to Public Resources Code section 6370 et seq.

AUTHORIZATION:

1. Rescind previous authorization approved on December 18, 2015 for the issuance of Lease No. PRC 9239.9, a General Lease – Public Agency Use, to the California Department of Fish and Wildlife.

2. Rescind previous authorization approved on February 9, 2016 for the correction to the previous lease authorization.

3. Authorize issuance of a General Lease – Public Agency Use to the U.S. Bureau of Reclamation beginning October 13, 2016, for a term of 49 years, for construction, operation, maintenance, and monitoring of open backwater, wetland and upland habitat, and ancillary structures as described in Exhibit A and shown on Exhibit B (for reference purposes only) attached and by this reference made a part hereof; consideration is the public use and benefit.

4. Authorize the Executive Officer, or designee, to replace Exhibit A and B in the Lease upon review of as-built plans if the as-built location of the improvements differs from the design location.

EXHIBIT "A"

PRC 9239.9

LAND DESCRIPTION

A parcel of State sovereign land lying in the natural bed of the Colorado River, being adjacent to Section 36, Township 8 North, Range 23 East, and Section 1, Township 7 North, Range 23 East, San Bernardino Meridian, San Bernardino County, California, more particularly described as follows:

COMMENCING at a 2 ½" iron pipe with 3" standard Bureau of Land Management brass cap marked as the witness point to the meander corner common to Section 36, T 8 N, R 23 E and Section 1, T 7 N, R 23 E; thence N 87°33'39" E along the line common to said Sections 36 and 1 to the low water mark of the historic bed of the Colorado River, said point being the POINT OF BEGINNING; thence northerly along the low water mark of the historic bed of the Colorado River the following twenty-two (22) courses:

1. N 16° 01' 42" E, 41.71 feet
2. N 71° 44' 26" W, 300.42 feet
3. N 17° 27' 57" W, 54.33 feet
4. N 69° 04' 03" E, 184.43 feet
5. N 42° 54' 05" W, 205.59 feet
6. S 49° 31' 10" W, 84.92 feet
7. N 06° 50' 19" W, 327.74 feet
8. N 10° 04' 24" E, 200.25 feet
9. N 66° 29' 35" E, 124.74 feet
10. N 08° 50' 11" E, 280.33 feet
11. N 34° 10' 51" W, 91.02 feet
12. S 64° 34' 52" W, 122.18 feet
13. N 03° 59' 59" E, 270.33 feet
14. N 27° 22' 45" E, 216.55 feet
15. N 07° 44' 22" W, 109.92 feet
16. N 55° 11' 47" W, 75.39 feet
17. N 05° 05' 53" E, 197.97 feet
18. N 59° 03' 22" E, 125.52 feet
19. N 08° 29' 39" W, 419.39 feet
20. N 19° 09' 05" W, 381.49 feet
21. N 17° 40' 46" W, 249.17 feet
22. N 24° 54' 30" W, 315.40 feet

Thence along a line parallel with and 25 feet northeasterly of the approximate centerline of an existing paved road existing paved road the following two (2) courses:

1. Along a non-tangent curve to the right, having a radius of 250.00 feet, through a central angle of 25°24'29", for an arc distance of 110.86 feet (chord: S 75° 39' 29" E, 109.96')
2. S 62° 57' 15" E, 90.81 feet

Thence leaving the line parallel with said first mentioned road N30° 58' 13"E, 409.38' to the northeasterly boundary of the parcel leased by San Bernardino County from the State of California as Lease No. PRC 3321.9, and shown on a drawing of survey by the California State Lands Commission

dated June 6, 2010, Records of the State lands Commission; thence S 39°14'36" E along the northeasterly line of said lease parcel 169.79 feet; thence leaving the northeasterly line of said lease parcel shown on Record of Survey No. 11-060, S 30°58'13" W, 353.98 feet; thence along a line parallel with and 25 feet northeasterly of the approximate centerline of the previously mentioned existing paved road the following seven (7) courses:

1. Along a non-tangent curve, concave southwesterly, having a radius of 775.00 feet, through a central angle of 11°31'59", for an arc distance of 156.00 feet (chord: S 46°40'25" E, 155.76')
2. S 40°54'22" E, 126.27 feet
3. Along a curve to the right, having a radius of 625.00 feet, through a central angle of 10°40'50", for an arc distance of 116.51'
4. S 30°13'33" E, 386.07 feet
5. Along a curve to the left, having a radius of 275.00 feet, through a central angle of 6°04'19", for an arc distance of 29.14 feet
6. Along a curve to the right, having a radius of 325.00 feet, through a central angle of 7°53'18", for an arc distance of 44.74 feet
7. S 28°24'35" E, 22.60 feet;

Thence S 58°33'24" W, 50.00 feet; thence along a line parallel with and 25 feet southwesterly of the previously mentioned existing paved road the following sixteen (16) courses:

1. S 28° 24' 35" E, 75.71 feet
2. Along a curve to the left, having a radius of 1525.00 feet, through a central angle of 04°33'54", for an arc distance of 65.92 feet
3. S 30° 53' 11" E, 71.71 feet
4. Along a curve to the left, having a radius of 2525.00 feet, through a central angle of 24°21'43", for an arc distance of 201.17 feet
5. S 35° 27' 04" E, 307.25 feet
6. Along a curve to the left , having a radius of 1125.00 feet, through a central angle of 04°21'59", for an arc distance of 85.74 feet
7. Along a curve to the right, having a radius of 1075.00 feet, through a central angle of 04°09'28", for an arc distance of 78.01 feet
8. S 35°39'36" E, 45.85 feet
9. Along a curve to the left , having a radius of 4025.00 feet, through a central angle of 05°23'26", for an arc distance of 378.69 feet
10. S 41° 03' 02" E, 303.77 feet
11. Along a curve to the left, having a radius of 3025.00 feet, through a central angle of 04°00'43", for an arc distance of 211.82 feet
12. S 45° 03' 45" E, 330.53 feet
13. Along a curve to the left , having a radius of 1025.00 feet, through a central angle of 01°43'31", for an arc distance of 30.86 feet
14. S 46° 47' 16" E, 305.69 feet
15. Along a curve to the left , having a radius of 4025.00 feet, through a central angle of 03°35'47", for an arc distance of 252.64 feet

16. S 50° 23' 03" E, 200.26 feet

Thence along the arc of a curve to the right, having a radius of 25.00 feet, through a central angle of 92°35'37", for an arc distance of 40.40 feet; thence along a line which is parallel with and 25 feet northwesterly of the approximate centerline of an (second) existing paved road the following fifteen (15) courses:

1. S 42°12'35" W, 50.37 feet
2. Along a curve to the left, having a radius of 225.00 feet, through a central angle of 09°20'37", for an arc distance of 36.69 feet
3. S 32° 51' 58" W, 92.20 feet
4. Along a curve to the left, having a radius of 525.00 feet, through a central angle of 15°59'22", for an arc distance of 146.51 feet
5. S 16° 52' 36" W, 136.92 feet
6. Along a curve to the right , having a radius of 975.00 feet, through a central angle of 14°46'06", for an arc distance of 251.31 feet
7. S 31° 38' 42" W, 198.70 feet
8. Along a curve to the right , having a radius of 475.00 feet, through a central angle of 15°14'01", for an arc distance of 126.29 feet
9. S 46° 52' 44" W, 180.34 feet
10. Along a curve to the left , having a radius of 325.00 feet, through a central angle of 06°27'18", for an arc distance of 36.61 feet
11. S 40° 25' 26" W, 41.62 feet
12. Along a curve to the left , having a radius of 200.00 feet, through a central angle of 38°13'32", for an arc distance of 133.43 feet
13. S 02° 11' 54" W, 132.17 feet
14. Along a curve to the right, having a radius of 275.00 feet, through a central angle of 13°22'54", for an arc distance of 64.23 feet
15. S 15° 34' 48"W, 66.42 feet

Thence leaving the line which is parallel with the (second) existing paved road S 77° 05' 11" E, 96.58 feet; thence N 88° 58' 36" E, 90.36 feet; thence N 76° 27' 58" E, 266.82 feet; thence N 48° 17' 11" E, 119.08 feet; thence S 51° 44' 43" E, 298.09 feet; thence S 82° 43' 46" W, 368.94 feet; thence S 76° 06' 39" W, 151.62 feet; thence N 81° 28' 14" W, 160.83 feet; thence N 71° 31' 46" W, 124.13 feet;

Thence S 15° 34' 48" W parallel with and 25 feet westerly of the approximate centerline of last mentioned (second) existing paved road, 58.29 feet;

Thence northerly, along the low water mark of the historic bed of the Colorado River the following four (4) courses:

1. N 58° 26' 46" W, 95.08 feet
2. N 85° 20' 12" W, 109.20 feet
3. S 21° 49' 01" E, 259.00 feet
4. S 88° 59' 31" W, 99.31 feet

Thence along a line parallel with and 20 feet northeasterly of the approximate centerline of an (third) existing paved road the following seven (7) courses:

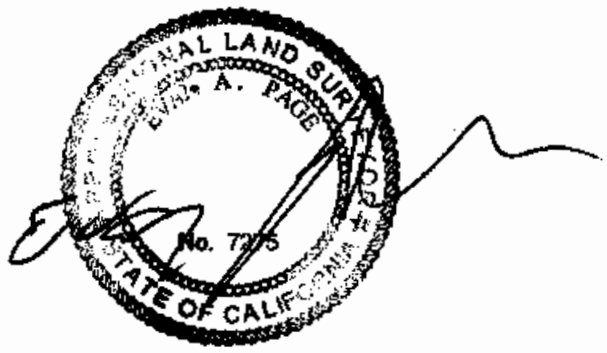
1. N 66° 49' 49" W, 89.59 feet
2. Along a curve to the right, having a radius of 1180.00 feet, through a central angle of 04°18'13", for an arc distance of 88.63 feet
3. N 62° 31' 36" W, 111.04 feet
4. Along a curve to the right, having a radius of 380.00 feet, through a central angle of 06°02'10", for an arc distance of 40.03 feet
5. N 56° 29' 26" W, 212.85 feet
6. Along a curve to the right, having a radius of 580.00 feet, through a central angle of 02°26'10", for an arc distance of 24.66 feet
7. N 54° 03' 16" W, 7.39 feet

Thence along the meander line of low water of the right bank of the Colorado River as shown on Record of Survey No. 11-060 the following four (4) courses:

1. N 33° 47' 44" W, 750.02 feet
2. N 86° 55' 33" W, 140.41 feet
3. N 35° 14' 17" W, 352.79 feet
4. N 16°01'42" E, 345.52 feet to the POINT OF BEGINNING.

The bearings and distances of this description based upon the California Coordinate System of 1983, Zone 5.

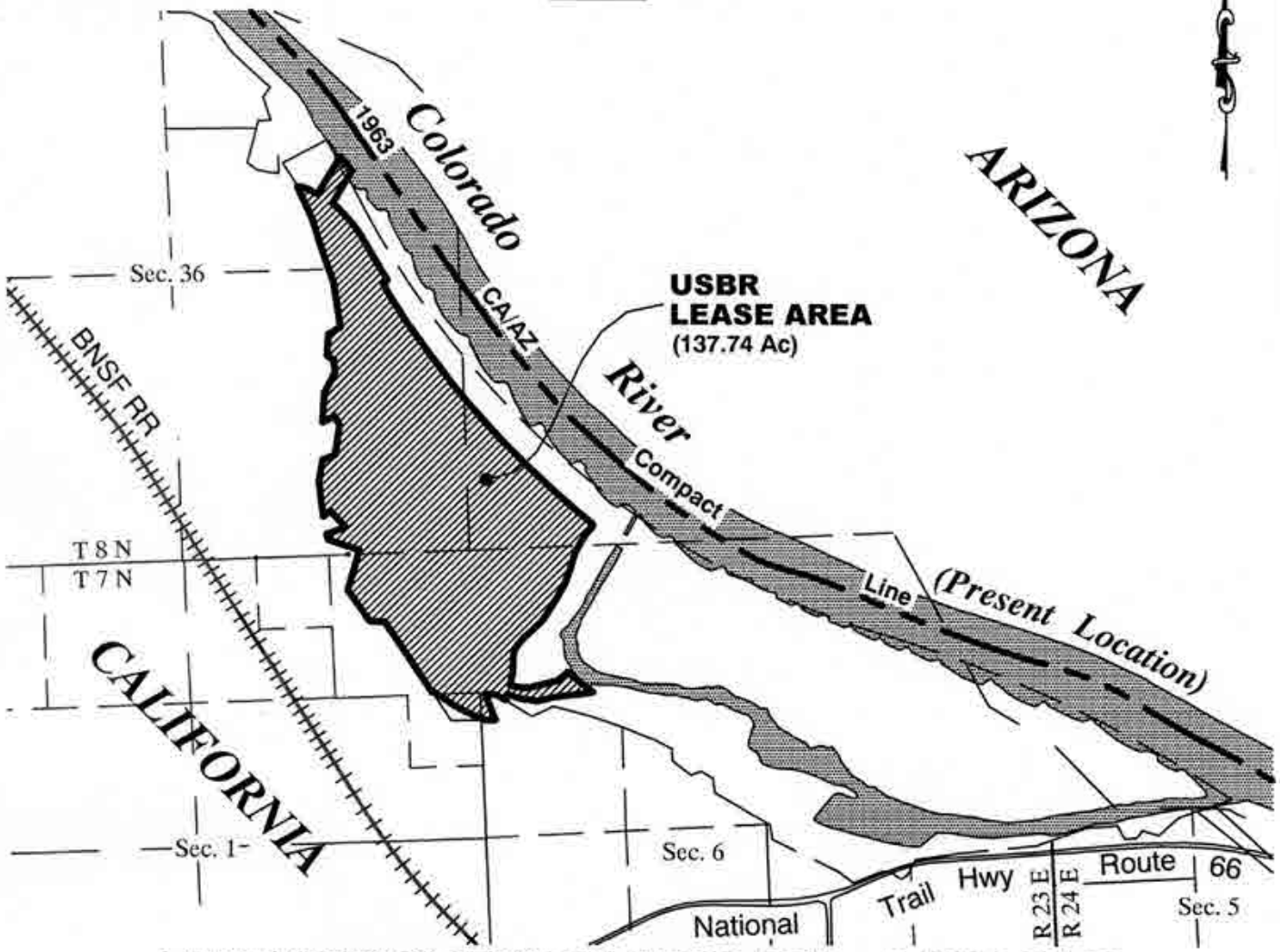
END DESCRIPTION



Dec. 08, 2015

NO SCALE

SITE



MULTI-SPECIES CONSERVATION AREA at PARK MOABI

NO SCALE

LOCATION

MAP SOURCE: USGS QUAD

This Exhibit is solely for purposes of generally defining the lease premises, is based on unverified information provided by the Lessee or other parties and is not intended to be, nor shall it be construed as, a waiver or limitation of any State interest in the subject or any other property.

Exhibit B

PRC 9239.9
U.S. Bureau of Reclamation
Park Moabi
GENERAL LEASE -
PUBLIC AGENCY USE
SAN BERNARDINO COUNTY

EAP 08/16

EXHIBIT C
CALIFORNIA STATE LANDS COMMISSION
MITIGATION MONITORING PROGRAM

MOHAVE VALLEY CONSERVATION AREA BACKWATER PROJECT
(State Clearinghouse No. 2015101098)

The California State Lands Commission (CSLC) is the lead agency under the California Environmental Quality Act (CEQA) for the Mohave Valley Conservation Area Backwater Project (Project). In conjunction with approval of this Project, the CSLC adopts this Mitigation Monitoring Program (MMP) for implementation of mitigation measures (MMs) for the Project to comply with Public Resources Code section 21081.6, subdivision (a) and State CEQA Guidelines sections 15091, subdivision (d) and 15097.

The Project authorizes California Department of Fish and Wildlife (CDFW or Applicant) to create, manage, and monitor the backwater habitat in accordance with the terms and conditions of its existing CSLC Lease No. PRC 9239.9.

PURPOSE

It is important that significant impacts from the Project are mitigated to the maximum extent feasible. The purpose of a MMP is to ensure compliance and implementation of MMs; this MMP shall be used as a working guide for implementation, monitoring, and reporting for the Project's MMs.

ENFORCEMENT AND COMPLIANCE

The CSLC is responsible for enforcing this MMP. The Project Applicant is responsible for the successful implementation of and compliance with the MMs identified in this MMP. This includes all field personnel and contractors working for the Applicant.

MONITORING

The CSLC staff may delegate duties and responsibilities for monitoring to other environmental monitors or consultants as necessary. Some monitoring responsibilities may be assumed by other agencies, such as affected jurisdictions, cities, and/or the California Department of Fish and Wildlife (CDFW). The CSLC and/or its designee shall ensure that qualified environmental monitors are assigned to the Project.

Environmental Monitors. To ensure implementation and success of the MMs, an environmental monitor must be on site during all Project activities that have the potential to create significant environmental impacts or impacts for which mitigation is required. Along with the CSLC staff, the environmental monitor(s) are responsible for:

- Ensuring that the Applicant has obtained all applicable agency reviews and approvals;

- Coordinating with the Applicant to integrate the mitigation monitoring procedures during Project implementation (for this Project, many of the monitoring procedures shall be conducted during Phases 1 through 3); and
- Ensuring that the MMP is followed.

The environmental monitor shall immediately report any deviation from the procedures identified in this MMP to the CSLC staff or its designee. The CSLC staff or its designee shall approve any deviation and its correction.

Workforce Personnel. Implementation of the MMP requires the full cooperation of Project personnel and supervisors. Many of the MMs require action from site supervisors and their crews. The following actions shall be taken to ensure successful implementation.

- Relevant mitigation procedures shall be written into contracts between the Applicant and any contractors.
- For this Project, a Worker Environmental Awareness Program (under MM BIO-1) shall be implemented and all personnel would be required to participate.

General Reporting Procedures. A monitoring record form shall be submitted to the Applicant, and once the Project is complete, a compilation of all the logs shall be submitted to the CSLC staff. The CSLC staff or its designated environmental monitor shall develop a checklist to track all procedures required for each MM and shall ensure that the timing specified for the procedures is followed. The environmental monitor shall note any issues that may occur and take appropriate action to resolve them.

Public Access to Records. Records and reports are open to the public and would be provided upon request.

MITIGATION MONITORING TABLE

This section presents the Mitigation Monitoring Program (Table C-1) for the following environmental disciplines: Biological Resources, Cultural and Paleontological Resources/Traditional Cultural Properties/Sacred Sites, Hazards/Hazardous Materials/Human Health and Safety, Hydrology and Water Quality, and Transportation/Traffic. All other environmental disciplines were found to have less than significant or no impacts and are therefore not included below. The table lists the following information, by column:

- Potential Impact;
- Mitigation Measure (full text of the measure);
- Location (where impact occurs and mitigation measure should be applied);
- Monitoring/Reporting Action (action to be taken by monitor or Lead Agency);
- Timing (before, during, or after construction; during operation, etc.).
- Responsible Party; and

- Effectiveness Criteria (how the agency can know if the measure is effective).

Table C-1. Mitigation Monitoring Program

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Timing	Responsible Party	Effectiveness Criteria
Biological Resources						
Special-Status Species	**MM BIO-1. Worker Environmental Awareness Program (WEAP).** Prior to initiating work at the site, an education program (WEAP) will be provided by the Project Biologist to workers. The WEAP shall include: • Brief life history; • Ecology; • Identification; • Legal protections afforded all potentially occurring special-status plant and animal species as well as the identified protective measures; and • Implications of noncompliance. All persons employed or otherwise working on the Project sites shall attend a WEAP presentation prior to performing any work on site.	Not Applicable	Submit a copy of the training material, duration of training, attendees sign-in sheet to CSLC before starting work.	Before work	Applicant/ Contractors/ CSLC	Minimize/Avoid impacts to special status species
	MM BIO-2: Designated Project Biologist. At least 30 days before initiating Project activities, the Project proponent shall obtain the California Department of Fish and Wildlife's written approval for a designated Project Biologist/biological field contact representative. The Project Biologist shall be on site during initial Project activities and as necessary to oversee activities described for monitoring breeding and nesting (**MM BIO-3**) avoidance measures and may halt Project activities that are in violation. In addition, all occurrences of MSCP covered species and California sensitive species observed in the Project area will be submitted to the CNDDB by the Project Biologist or the long-term site monitor, as appropriate (information and forms at http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp).	Project Site and Vicinity	Submit name and contact information of Biologist, and any monitoring records to CSLC before starting work	Before work and during work; during long-term monitoring	Applicant/ Contractors/ CDFW	Minimize impacts to migratory birds and special status species

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	MM BIO-3 Bird Breeding Season Avoidance. To the extent feasible, all work for Phases 1 and 2 shall be conducted outside the breeding season (September 1 through February 28) to reduce the possibility of abandonment, or commenced prior to occupation by sensitive birds in the spring in order to prevent occupation and breeding/nesting. If ground disturbance or vegetation clearing is needed during the breeding/nesting season for any phase, a pre-construction survey will be completed by the Project Biologist and a minimum 100-foot buffer will be enforced around all nests until the young have fledged.	Sensitive habitat areas	Comply and coordinate with the appropriate CDFW staff.	Before work and during work	Applicant/ Contractors/ CDFW	Minimize impacts to migratory birds and special status species
Invasive Species	**MM BIO-4. Reduce Terrestrial Invasive Species.** All vehicles and equipment entering and leaving the site will be properly cleaned to avoid spreading non-native invasive species.	Project Site and Vicinity	Comply	Before work and during work	Applicant Contractors	Minimize spread of terrestrial invasive species
	MM BIO-5. Reduce Aquatic Invasive Species. All vehicles and equipment will be appropriately washed by implementing the "Clean, Drain, Dry" philosophy to prevent the spread of aquatic invasive species like the quagga mussel https://www.wildlife.ca.gov/Conservation/Invasives/Quagga-Mussels.	Project Site and Vicinity	Comply	Before work and during work	Applicant/ Contractors	Minimize spread of aquatic invasive species
Cultural and Paleontological Resources/Traditional Cultural Properties/Sacred Sites						
Cultural Resources and Human Remains	**MM CUL-1. Discovery of Unanticipated Cultural Resources.** Should additional cultural materials such as archaeological and/or historical resources be uncovered during earthmoving activities, all work in that area shall cease immediately and a qualified archeologist shall be retained to access the findings and CSLC staff shall be contacted immediately. Earthmoving shall be diverted no closer than 100 feet temporarily around the deposits until they have been evaluated, recorded, excavated, and/or recovered as	Project Site and Vicinity	Comply and coordinate with CSLC	During work	Applicant/ Contractors/ CSLC	Minimize impacts to cultural resource

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	necessary. Construction will be allowed to proceed on the site when the archaeologist, in consultation with the Bureau of Reclamation, CSLC, appropriate Native American Tribe(s) and the County of San Bernardino Museum, determine the resources are recovered to their satisfaction. The State requires that the location of any such findings must be kept confidential and measures should be taken to ensure that the area is secured to minimize site disturbance and potential vandalism. Additional measures to meet these requirements include assessment of the nature and extent of the resource, including its possible eligibility for listing in the National Register of Historic Places, and subsequent recordation and notification of relevant parties based upon the results of the assessment. Title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. The final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the CSLC must be approved by the Commission.					
	MM CUL-2. Discovery of Unanticipated Human Remains. If human remains are encountered during implementation of the Project, all provisions provided in California Health and Safety Code section 7050.5 and California Public Resources Code section 5097.98 shall be followed. Work shall stop within 100 feet of the discovery and a qualified Cultural Resources Specialist must be contacted immediately, who shall consult with the County Coroner. In addition, CSLC staff shall be notified. If human remains are of Native American origin, the County Coroner shall notify the Native American Heritage	Project Site and Vicinity	Comply and coordinate with CSLC	During work	Applicant/ Contractors/ CSLC	Minimize impacts to cultural resource

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	Commission within 24 hours of this determination and a Most Likely Descendent shall be identified. No work is to proceed in the discovery area until consultation is complete and procedures to avoid and/or recover the remains have been implemented**.**					
Hazards/Hazardous Materials/Human Health and Safety						
Hazardous and Hazardous Materials	**MM HHM-1. Discovered Contaminants Protections.** Should contaminants be identified, activity on the site shall cease and a qualified Reclamation Hazardous Materials Specialist for the Project shall be retained to conduct the following: • Obtain samples of the suspected contaminants; • Require lab analysis and access findings to identify specific contaminants; and • Ensure appropriate remediation is conducted and completed in accordance with the regulations specific to the contaminants identified.	Project Site and Vicinity	Comply	During work	Applicant/ Contractors/ CSLC	Minimize impacts to hazards, health and safety
	MM HHM-2. Toxic Substances Protections. To ensure toxic substances are not released into the aquatic environment, the following measures shall be followed: • All engine-powered equipment shall be well-maintained and free of leaks of fuel, oil, hydraulic fluid or any other potential contaminant. • Staging areas for refueling of equipment shall be located away from the backwater and away from the Colorado River to prevent any accidental fuel leakage from contaminating surface water. • A spill prevention and response plan shall be prepared in advance of the commencement of work; a spill kit with appropriate clean-up supplies shall be kept on hand during operations. o The kit shall include a floating oil-absorbent sock that could be immediately deployed and maintained around the Project area in the event of a spill or any accidental leakage of fuel or	Project Site and Vicinity	Comply	During work	Applicant/ Contractors/ CSLC	Minimize impacts to hazards, health and safety

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	hydraulic fluids; ○ Refueling and maintenance of mobile equipment shall not be performed directly over the waters of the River. Only approved and certified fuel cans with "no-spill" spring-loaded nozzles shall be used; and ○ All spill cleanup materials or other liquid or solid wastes shall be securely containerized and labeled in the field. • The application and control of herbicides and pesticides shall be in accordance with the Toxic Substance Control Act (TSCA) and Environmental Protection Agency Labeling requirements including but not limited to: ○ Requiring a certified and trained applicator ○ Application of the material in accordance with its label					
Hydrology and Water Quality						
Water Quality	**MM HHM-2 Toxic Substances Protections** (see above)					
Transpiration/Traffic						
Navigable Waters	**MM TT-1 Placement of Dredge Pipe in Navigable Waters.** The dredge pipe used to move dredge material across the river shall be submerged at a depth where no obstruction to the navigable waters would occur, as follows: • At least 10 feet from the bottom of the Colorado River if there is no obstruction to the navigable waterway. • If there is still obstruction, the pipe shall be laid at the bottom of the Colorado River to ensure there is no obstruction.	Project Site and Vicinity	Comply	During work	Applicant/ Contractors/ CSLC	Minimize impacts to navigable waters
Temporary Road Closures	**MM TT-2. Traffic Plan During Construction.** A traffic plan shall be developed to ensure emergency and public access within the proposed Project Area is not affected. The Traffic plan shall include, but is not	Project Site and Vicinity	Comply	During work	Applicant/ Contractors/ CSLC	Minimize impacts to road access and traffic

Potential Impact	Mitigation Measure (MM)	Location	Monitoring/ Reporting Action	Timing	Responsible Party	Effectiveness Criteria
	limited to, the following: • Not involve any long-term increase in traffic that would conflict with adopted policies, plans, or programs supporting alternative transportation or obstruct current access within and around the Project area; • Provide an ingress and egress to the Project area; • Ensure traffic and safety signed are posted appropriately; • Provide trained personnel to ensure the implementation of the Traffic Plan; and • Ensure coordination and communication with local emergency response agencies.					

Exhibit D

Lower Colorado River
Multi-Species Conservation Program

Balancing Resource Use and Conservation

Mohave Valley Conservation Area Restoration Development & Monitoring Plan

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

September 2015

Lower Colorado River Multi-Species Conservation Program
Steering Committee Members

Federal Participant Group

Bureau of Reclamation
U.S. Fish and Wildlife Service
National Park Service
Bureau of Land Management
Bureau of Indian Affairs
Western Area Power Administration

Arizona Participant Group

Arizona Department of Water Resources
Arizona Electric Power Cooperative, Inc.
Arizona Game and Fish Department
Arizona Power Authority
Central Arizona Water Conservation District
Cibola Valley Irrigation and Drainage District
City of Bullhead City
City of Lake Havasu City
City of Mesa
City of Somerton
City of Yuma
Electrical District No. 3, Pinal County, Arizona
Golden Shores Water Conservation District
Mohave County Water Authority
Mohave Valley Irrigation and Drainage District
Mohave Water Conservation District
North Gila Valley Irrigation and Drainage District
Town of Fredonia
Town of Thatcher
Town of Wickenburg
Salt River Project Agricultural Improvement and Power District
Unit "B" Irrigation and Drainage District
Wellton-Mohawk Irrigation and Drainage District
Yuma County Water Users' Association
Yuma Irrigation District
Yuma Mesa Irrigation and Drainage District

Other Interested Parties Participant Group

QuadState County Government Coalition
Desert Wildlife Unlimited

California Participant Group

California Department of Fish and Game
City of Needles
Coachella Valley Water District
Colorado River Board of California
Bard Water District
Imperial Irrigation District
Los Angeles Department of Water and Power
Palo Verde Irrigation District
San Diego County Water Authority
Southern California Edison Company
Southern California Public Power Authority
The Metropolitan Water District of Southern California

Nevada Participant Group

Colorado River Commission of Nevada
Nevada Department of Wildlife
Southern Nevada Water Authority
Colorado River Commission Power Users
Basic Water Company

Native American Participant Group

Hualapai Tribe
Colorado River Indian Tribes
Chemehuevi Indian Tribe

Conservation Participant Group

Ducks Unlimited
Lower Colorado River RC&D Area, Inc.
The Nature Conservancy

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1.0 Introduction

The Lower Colorado River Multi-Species Conservation Program (LCR MSCP) is a multi-stakeholder federal and non-federal partnership responding to the need to balance the use of lower Colorado River (LCR) water resources and the conservation of native species and their habitats in compliance with the Endangered Species Act.

The LCR MSCP is a long-term (50 year) plan consisting of conservation measures that provide protection along the LCR from Lake Mead to the Southerly International Boundary with Mexico for 26 species currently threatened or endangered and five species on the verge of becoming threatened or endangered. The LCR MSCP anticipates development and/or protection of a minimum of 8,132 acres of habitat consisting of a mosaic of cottonwood-willow, honey mesquite, marsh, and backwater components. The program uses adaptive management principles to research and monitor species and habitats, and to adjust and enhance management actions and science applications over the life of the program.

Under the guidance of the LCR MSCP's Habitat Conservation Plan (HCP), the program is tasked with creating 85 acres of connected backwater habitat between Davis and Parker Dams. HCP Conservation Measure FLSU1 states, "Create 85 acres of flannelmouth sucker habitat. Of the 360 acres of LCR MSCP-created backwaters, at least 85 acres will be created in Reach 3 with water depth, vegetation, and substrate characteristics that provide the elements of flannelmouth sucker habitat."

Much of the bank line within this reach of the river is developed or runs through Topock Gorge, which is composed of steep, rocky terrain that is unsuitable for MSCP development based on site access restraints and landownership restrictions. However, within the Moabi Regional Park (Park Moabi) south of Needles, CA approximately 149 acre parcel of land residing within the historic floodplain of the lower Colorado River possesses the landscape characteristics to allow for the development of a connected backwater. (See Appendix G for historical imagery.)

Purpose

The purpose of the project is to create a connected backwater for native fishes and restore native riparian and upland habitat for the benefit of the LCR MSCP covered species. Target species include the flannelmouth sucker *(*Catostomus latipinnis) and the razorback sucker (Xyrauchen texanus). The project will create a mosaic of marsh and riparian habitat through management of the four land cover types: cottonwood-willow, honey mesquite, marsh and backwater.

Following the guidelines of the LCR MSCP HCP, the backwater must be connected to the river so that is it accessible to native fishes from the main stem. The proposed channel will connect to and induce additional flow through the existing channel to the south rather than exit directly to the river. Partners in the design of the Mohave Valley Conservation Area (MVCA) consists of representatives from the following organizations:

- California State Lands Commission
- California Department of Fish and Wildlife
- San Bernardino County
- U.S. Bureau of Reclamation
- Lower Colorado River Multi-Species Conservation Program

The project area will be 149 acres, which includes the main parcel bound by gravel roads as well as lands used to connect the backwater to the main stem of the river and the Park Moabi channel (Figure 1).

Location and Description

Park Moabi operates on 1,027 acres and has two land owners: the California State Lands Commission (CSLC) and the Bureau of Reclamation. The proposed MVCA land is located along the lower Colorado River, approximately 13 miles south of Needles, CA, between river miles 236 and 237 (Figure 1), and is owned by the CSLC. According to the lease between San Bernardino County and the CSLC, which came into effect on July 2, 1965, the property of interest commences at the center of Section 6, Township 7 N, and Range 24 E, S.B.M. The LCR MSCP is partnering with the Lands Commission and San Bernardino County, the lessee, to develop a backwater through the parcel northwest of the existing Park Moabi channel (Figure 1).

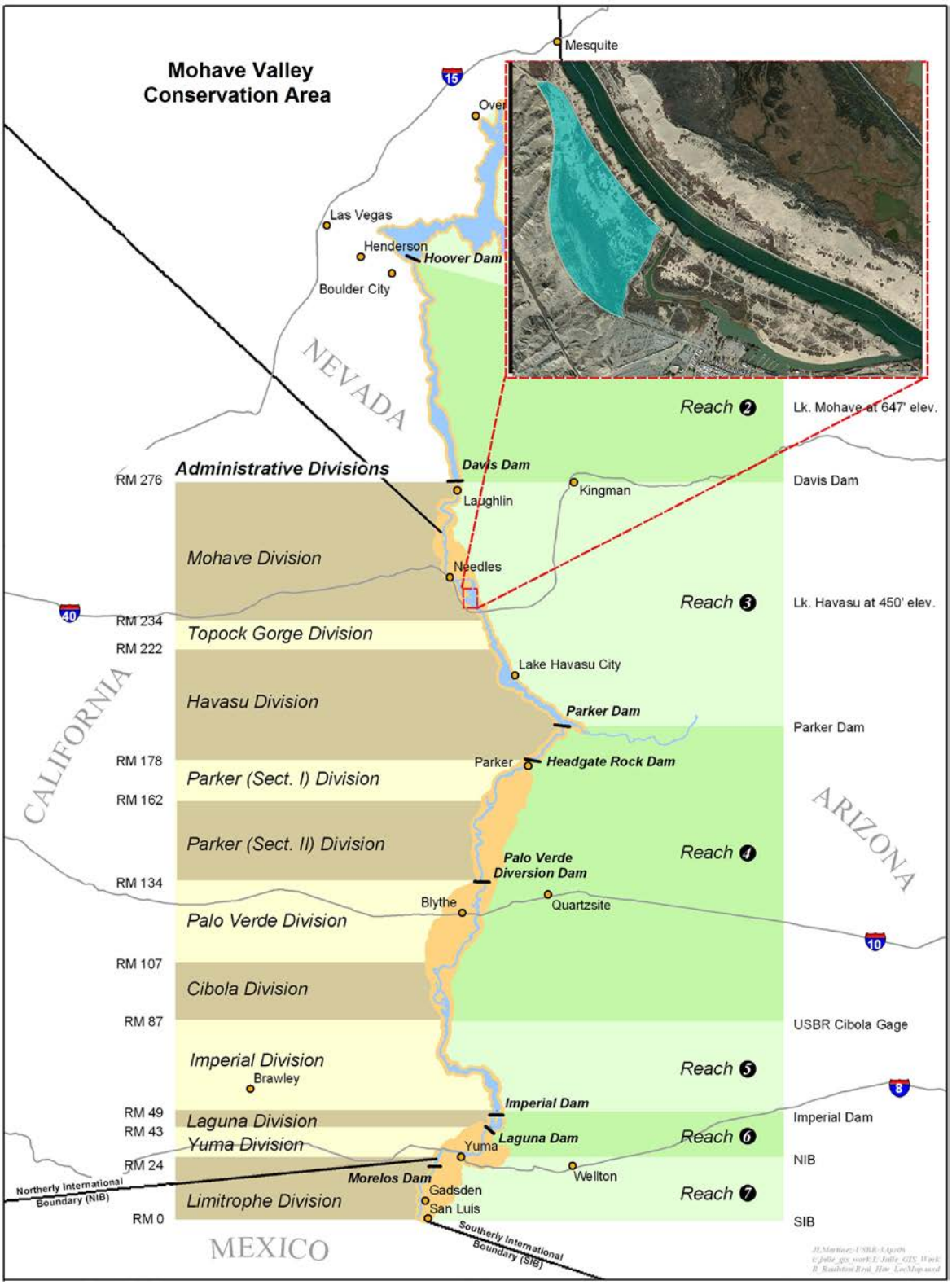

Figure 1 Mohave Valley Conservation Area Location

Figure 2 Mohave Valley Conservation Area.

Following the channelization of the river, the existing Park Moabi channel was dredged starting in 1961 to create a deep water area for boat launching and to improve the sport fishery. Currently the park provides a 7-lane launch ramp and while sport fishing does occur. The LCR MSCP monitors razorback suckers within the Park Moabi channel.

In recent years the concessionaire under contract with San Bernardino County has significantly developed the services available within the Moabi Regional Park. Services developed by the concessionaire/sub-lessee include an upgraded 7-lane launch ramp, a marina, RV and tent camping, waterfront cabins, a convenient store, and the Pirate's Cove Restaurant & Bar. The Conservation Area is upstream of the Park Moabi channel and services, but does parallel the riverside campsites on the east side of the levee road.

The site is a mixture of sand dunes formed from disposed dredge spoil during the construction of Park Moabi with salt cedar and arrow weed interspersed. A dense thicket of salt cedar runs through the proposed channel footprint. Exploratory excavation indicated more compact soil and coarser substrate are found on the far western side of the parcel that is bound by a gravel road.

Two culverts that drain storm water off the steep slopes further to the west run under the gravel road directly into the site (Figure 2). Additionally, an estimated 6000 cubic yards of rock ranging in size from 6 inches to 3 feet is stock piled within the proposed channel footprint. The rock stockpile will be utilized during the construction process for erosion control and placement in the backwater substrate. Just outside the western boundary of the project area there is a buried gas pipeline. Project activities will not disturb the pipeline, as it is out of the project boundary; nevertheless, equipment operators will be made aware of the pipeline's location prior to construction.

Less than 1.5 miles upstream of the proposed inlet, also on the California side of the river, is another backwater known as Beal Slough (Figure 2). Dredged in 1979 Beal Slough supports a population of razorback suckers. Table 1 summarizes the history and physical attributes of the two neighboring backwaters.

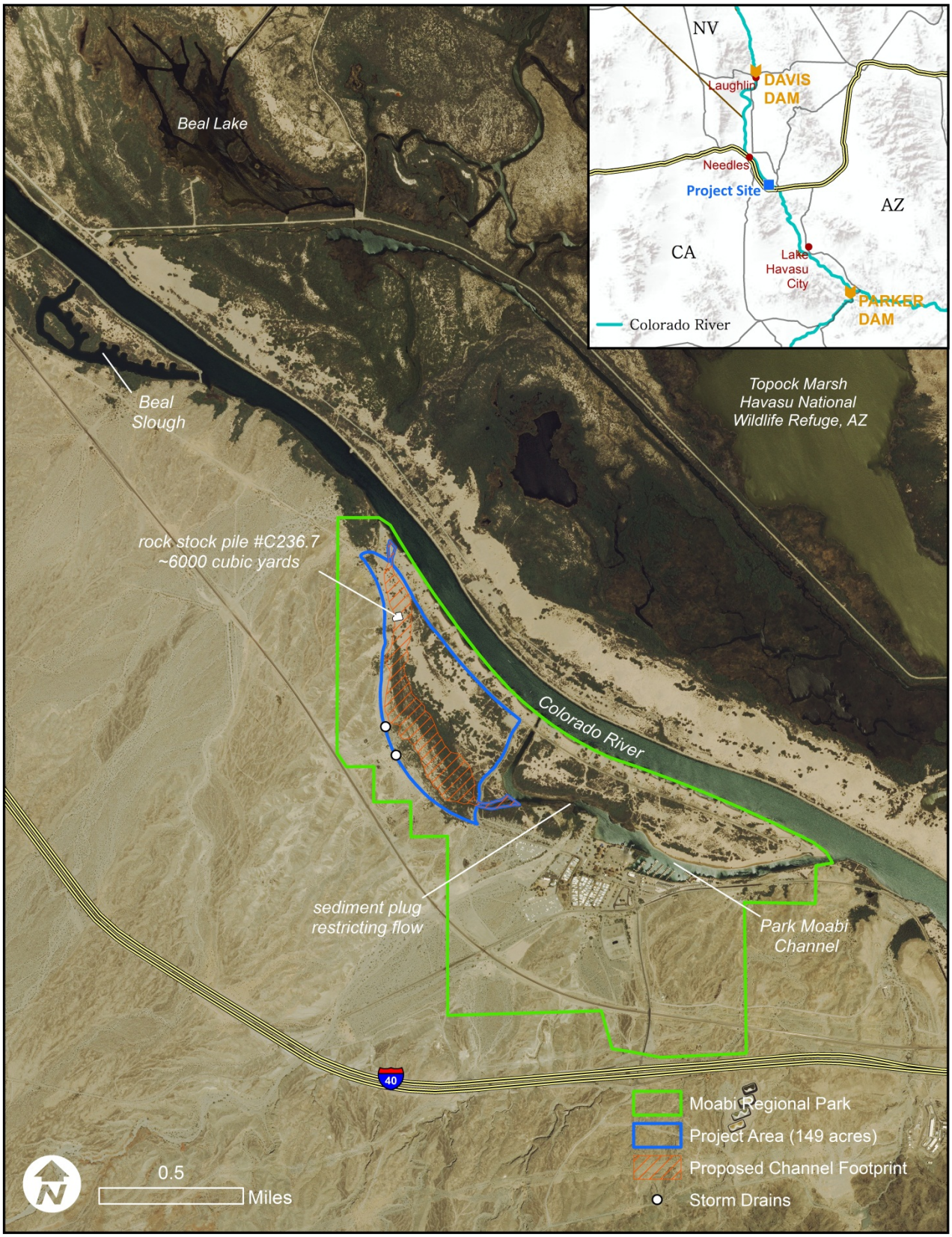

Figure 3 Extended map of the project area shows neighboring backwaters and other site features.

	Years Constructed	Purpose of Construction	Channel Width	Channel Length	Maximum Depth	Open Water Acreage	Connection to River	Additional Information
Park Moabi Channel	Started in 1961*	Deep water area created for fisheries, improve boat launching. ‡	50 – 500 ft	1.5 miles (7920 ft)	16 ft Δ	40 acres	A culvert inlet structure moves water into the upper channel; however, the sediment plug that has formed which limits the flow within the upper 7 acres. The lower 33 acres receives water through the open channel outlet.	Marina boat entrance was dredged between Dec. 1971 and Jan. 1972. 100,546 cy of material were dredged using the 12 inch "Little Colorado." ‡
Beal Slough	1979-1980‡	Entry 1: For Fish and Wildlife Agencies.‡ Entry 2: Provide game fish spawning areas.‡	150 – 550 ft	0.8 miles (4224 ft)	17 ft Δ	25 acres	A porous dike and metal pipe culvert (18-24 inches?) at inlet. Porous dike at outlet.	Beal Slough was dredged and dike was created in 1979. 460,146 cy of material were moved and used for roadways, dikes, and islands.‡

Table 1 Summary of Park Moabi and Beal Slough Backwaters

* Historical Imagery

‡ RPA Provision No. 14: Synthesis of Ecological Restoration Concepts for the Lower Colorado River (January 1999)

Δ Bathymetry surveys of Beal Slough and Park Moabi were conducted in April 2013. The results from those surveys are provided in Appendix B.

Land Ownership

The Conservation Area is located on portions of the property owned by the State of California, which is currently leased to San Bernardino County. California Department of Fish and Wildlife (CDFW) will lease the area where the backwater channel is to be constructed from CSLC. Reclamation, as implementing agency of the LCR MSCP, will enter into an agreement for restoration activities consistent with the Lower Colorado River Mult-Species Conservation Program with CDFW. Under the California Endangered Species Act (CESA) permit, habitat established in the state of California shall be protected in perpetuity.

Water

As documented in the 2012 Conceptual Design Report, the water for the project is supplied through the LCR MSCP Water Accounting Agreement passed by Congress as part of the Omnibus Public Land Management Act of 2009 (Public Law No. 111-11, Title IX, Subtitle E, 123 Statute 991, 1327-29). The Act permits Reclamation to create and manage Conservation Areas, which do not contain any water entitlement from the Secretary of the Interior, by using Colorado River water to meet the performance requirements of the LCR MSCP. Under the Water Accounting Agreement, Reclamation shall not consider any resulting increase in evaporation or percolation of Lower Colorado River water, for any backwater or marsh at an LCR MSCP Conservation Area where no entitlement exists, to be a diversion or consumptive use.

The MVCA will create approximately 50 acres of connected backwater habitat by diverting water off the main stem of the lower Colorado River, just south of river mile 237, and will return the water mainstem two miles downstream. Under the auspices of the Water Accounting Agreement, Reclamation shall not consider any resulting increase in evaporation or percolation of lower Colorado River water to be a diversion or consumptive use.

Land Use Agreement

The LCR MSCP, in coordination with CDFW, will draft a land use agreement to be reviewed and signed by CDFW. The land use agreement between will describe the paternship between LCR MSCP and CDFW for developing and maintaining the Conservation Area, and managing public access throughout. The land use agreement will be developed upon confirmation of the Lease Agreement from CSLC.

Lease Agreement

The lease agreement between the LCR MSCP's partner CDFW and the CSLC will provide the terms of use for the MVCA property within the Park Moabi Regional Park boundary. LCR MSCP will submit the application to the California State Lands Commission, on behalf of CDFW, to to modify an existing lease currently held by San Bernadino County. The lease modification will grant CDFW and LCR MSCP the authority to develop the Mohave Valley Conservation Area within the designated project area.

2.0 Restoration and Development Plan

As partial fulfillment of the LCR MSCP's backwater acreage goals within Reach 3, approximately of 50 acres of connected backwater habitat for native fishes of the lower Colorado River: the flannelmouth sucker

(Castotomus latipinnis), the razorback sucker (Xyrauchen texanus) and the bonytail chub (Gila elegans). The backwater habitat will consist of open water and marsh land cover types. The goal of the project is to maximize backwater acreage and incorporate marsh, cottonwood-willow, and mesquite land covers where appropriate.

The design lays out the excavation and grading for a backwater channel that extends from the Colorado River to the existing Park Moabi Channel and two water-crossing structures over the excavated backwater channel. Land based clearing will be done to remove existing vegetation and allow for contouring, infrastructure construction, and planting of native species. Currently, the majority of MVCA is dominated by salt cedar (Tamarix ramosissima),arrowweed (Pluchea sericea), and wetland scrub/shrub. No open water or marsh currently exists. Approximately 50 acres of MVCA will be cleared of existing vergations through land-based mechanical and hydraulic equipment. Removed material will be used to build access roads, a boat ramp and excess material will be placed adjacent to the backwater within the 149 acre boundary. Once clearing is completed excavation and contouring will be done, followed by infrastructure construction.

The structures include adjustable sills and are designed to provide hydraulic control for flows in and out of the backwater channel during moderate to high flows in the Colorado River. These water control structures will also limit the amount of Colorado River bed sediment entering the backwater channel.

The design will provide spatially variable topography with an appropriate distribution of depths and velocities for a variety of aquatic habitats. The design has been developed to reduce long-term maintenance requirements.

Conceptual Design

The project comprises a new backwater channel that extends from an inlet at the Colorado River to an exit at the existing Park Moabi Channel. The channel is contoured and graded to include deeper pools and shallower areas to provide fish habitat and to promote the establishment of healthy vegetation. Inlet and outlet structures provide hydraulic control and roadway crossings at the upstream and downstream ends of the new channel.

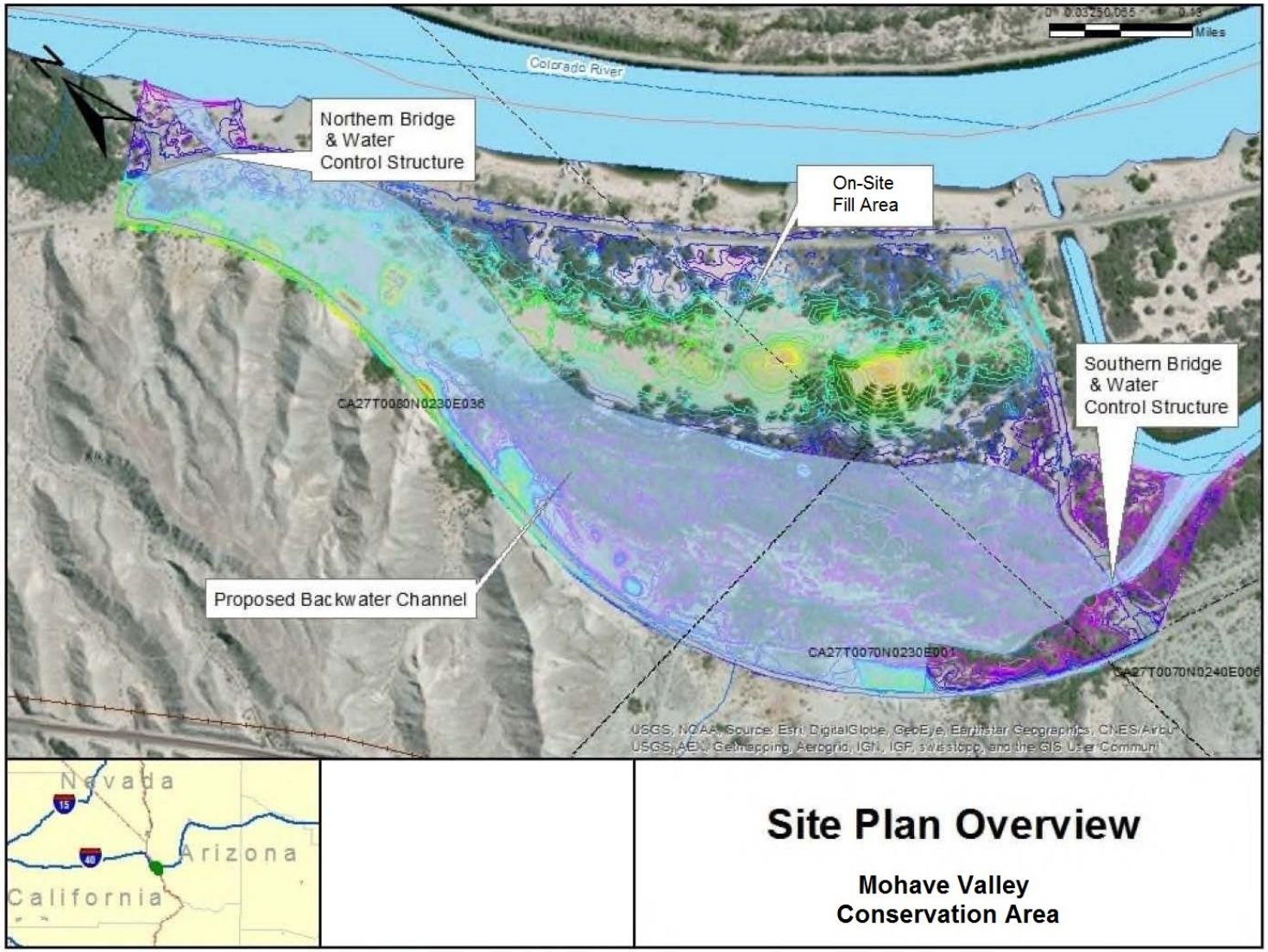

Figure 4 MVCA Site Plan Overview

Channel Design

The 60% backwater channel design is based on the grading that was included in the 30% Draft Design with modifications to reduce the number of disconnected islands. HEC-RAS modeling developed for the 60% design was documented in the Hydrologic and Hydraulic Technical Memorandum (Otis Bay and Tetra Tech 2015) included in Appendix A. The results show that mean velocities through the main section of the channel will remain below 0.5 ft/s under high flow conditions, with velocities through the concrete-arch culvert openings peaking at approximately 4 ft/s. The modeling shows that the backwater channel will decrease the water surface elevation in the Colorado River by less than 0.1 feet and will slightly increase the velocities near the outlet of the project site on the Park Moabi channel. Both changes are considered to be insignificant. Overall, the 60% design meets the design criteria for the backwater channel.

Roadway Crossings

The design includes structural roadway crossings over where the backwater channel intersects existing roadways. The selected structure for each crossing is a concrete-arch culvert equivalent to CONTECH prefabricated O-series arch structure with a concrete base slab foundation. The upstream structure, at the Colorado River inlet is 36 feet wide by 11feet and 7.75 inches high. The downstream structure, at the exit to the Park Moabi Channel is 38 feet wide by 10 feet and 8.25 inches high. The selected dimensions were based on an iterative analyses of the flow capacity using the HEC-RAS model for the 60% channel design.

The concrete-arch culverts are designed with a cast-in-place concrete floor due to the limited bearing capacities of the existing soils (see Section 7.3). CONTECH prefabricated structures are designed to meet AASHTO Standard Specifications for Highway Bridges - Section 16.8 and LRFD Bridge Design Specifications - Section 12.14, and are manufactured in accordance with ASTM C1504. With suitable foundation design and adequate bearing capacities the CONTECH O-series arch can be designed to safely carry HS20 or highway loads.

Water Control Structures

Water control structures are required at the concrete-arch culverts to regulate the fluctuation of water passing through the backwater channel during moderate to high flows in the Colorado River. The 60% HEC-RAS analysis confirmed that the optimal sill elevation of 453.5 feet that was recommended by the2012 Conceptual Design Report.

The 60% design includes a stop-log system that will provide an adjustable crest elevation to regulate the water surface in the backwater channel. The stop-log system was selected on the basis of an alternatives analysis that was included in the 30% Draft Design. A copy of this evaluation in letter format is included in Appendix D. Stop logs can either be custom fabricated or specified as one of the available prefabricated options available through a manufacturer. Further structural design of the water control structure will be developed for the 90% submittal.

The intent of the design is to provide a sill elevation with flexibility so that the inflow and outflow from the new backwater channel can be adjusted for adaptive management. Therefore the adjustable sill elevation is design to vary between 452.5 and 454.5 feet. This elevation brackets the elevation (453.5) in the 2012 Conceptual Design by ± 1 foot.

Backwater Access

The 60% draft design includes a boat ramp facility that is intended for use by the LCR MSCP for maintenance and monitoring. The new boat ramp will be accessed from the existing road along the west side of the project and will be obscured by fill areas to be inconspicuous to the public. The new boat ramp is 30 feet wide with a slope of 15 percent and intended for lightweight and non-motorized boat launching. The ramp includes 2-foot diameter boulder breakwaters and gravel fill placed within a Presto Geoweb system. The low-impact design will blend well with the surrounding features.

Planting Design

The planting design incorporates native LCR marsh, riparian, and upland species into a mosaic of created habitat. Species will be stratified according to water demand and depth outlined in Table 2. Tall emergent marsh species will be planted along the bank lines in deeper water, while shorter emergent marsh species will be planted further up slope to prevent inundation. In areas where shallow water transitions to saturated soils and upland areas, species adapted to varying water depths, seasonal drought and higher salinities will be planted. The following tables present the acreages of landcover types and the species proposed for planting in each zone.

Landcover Type	Elevations (ft)	Acreage
Backwater	451-458	26.4
Marsh	452-456.5	23.8
Combined total area of backwater and marsh		*50.2*
Cottonwood/Willow	456.5-464	15.1
Upland (honey mesquite & arrowhead)	464-472	28

Table 2 Landcover Acreage for MVCA

Plants	*Acres*	*Plants per Acre*	*Total Number of Plants*	*Plant Order*	*Propagation Collection Cost*
Marsh	**24**				
Schnoeplectus californicus	12	4356	52,272	53,000	1.823
Schmoeplectus americus	12	4356	52,272	53,000	1.823
Riparian	**15**				
Distichlis spicata	*7*	*13,560*	*94,920*	*100,000*	*0.135*
Salix exigua	*3*	*2178*	*6,534*	*7,000*	*1.823*
Salix goodingii	*3*	*2178*	*6,534*	*7,000*	*1.823*
Poplulus fremontii	*2*	*2178*	*4,356*	*4,500*	*1.823*
Upland	**28**				
Proposis glanduluousa	*28*	*195*	*5,460*	*5,500*	*3.579*

Table 3 Native Plant Species to be planted within the Mohave Valley Conservation Area

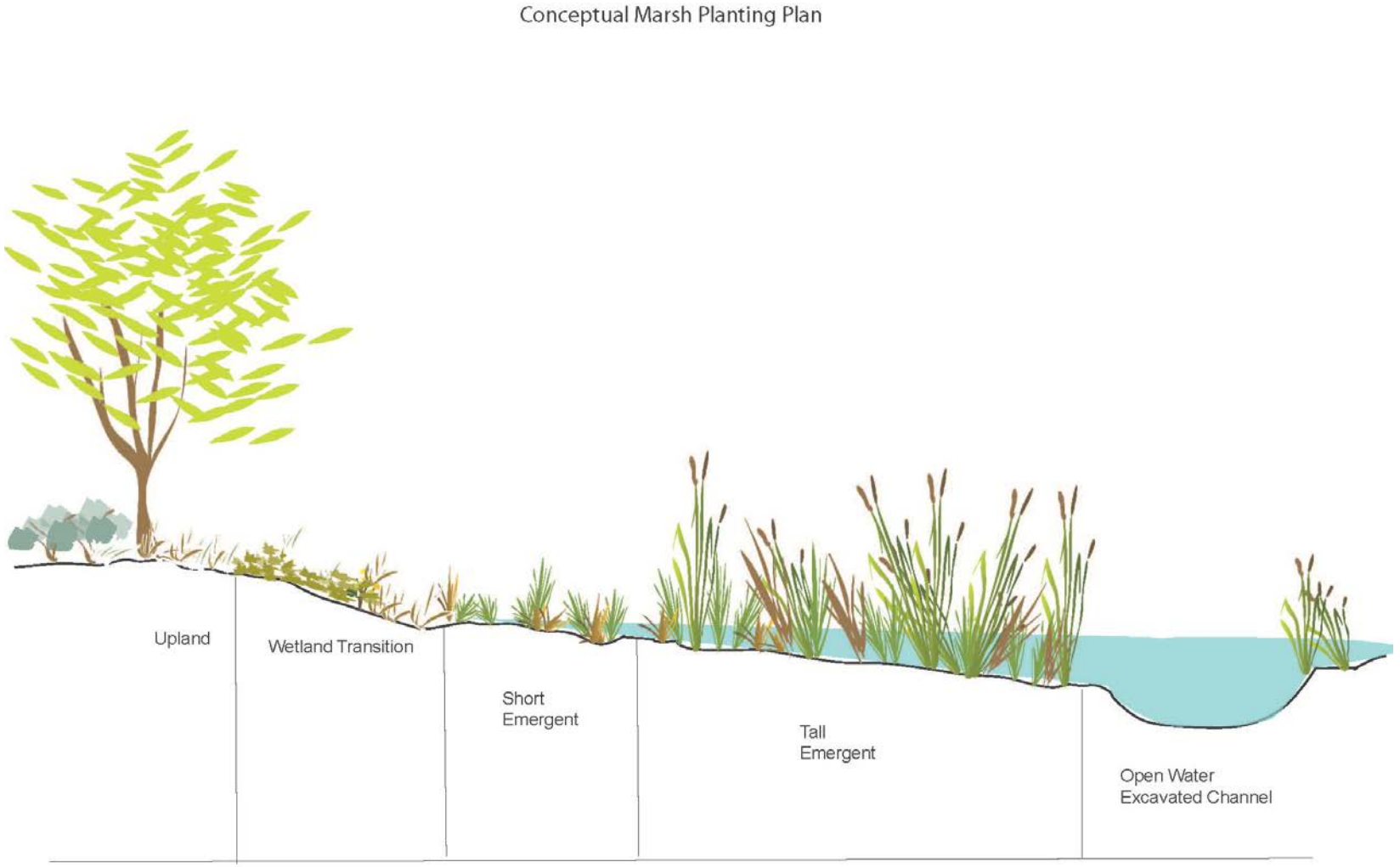

Figure 5 Planting scheme for backwater.

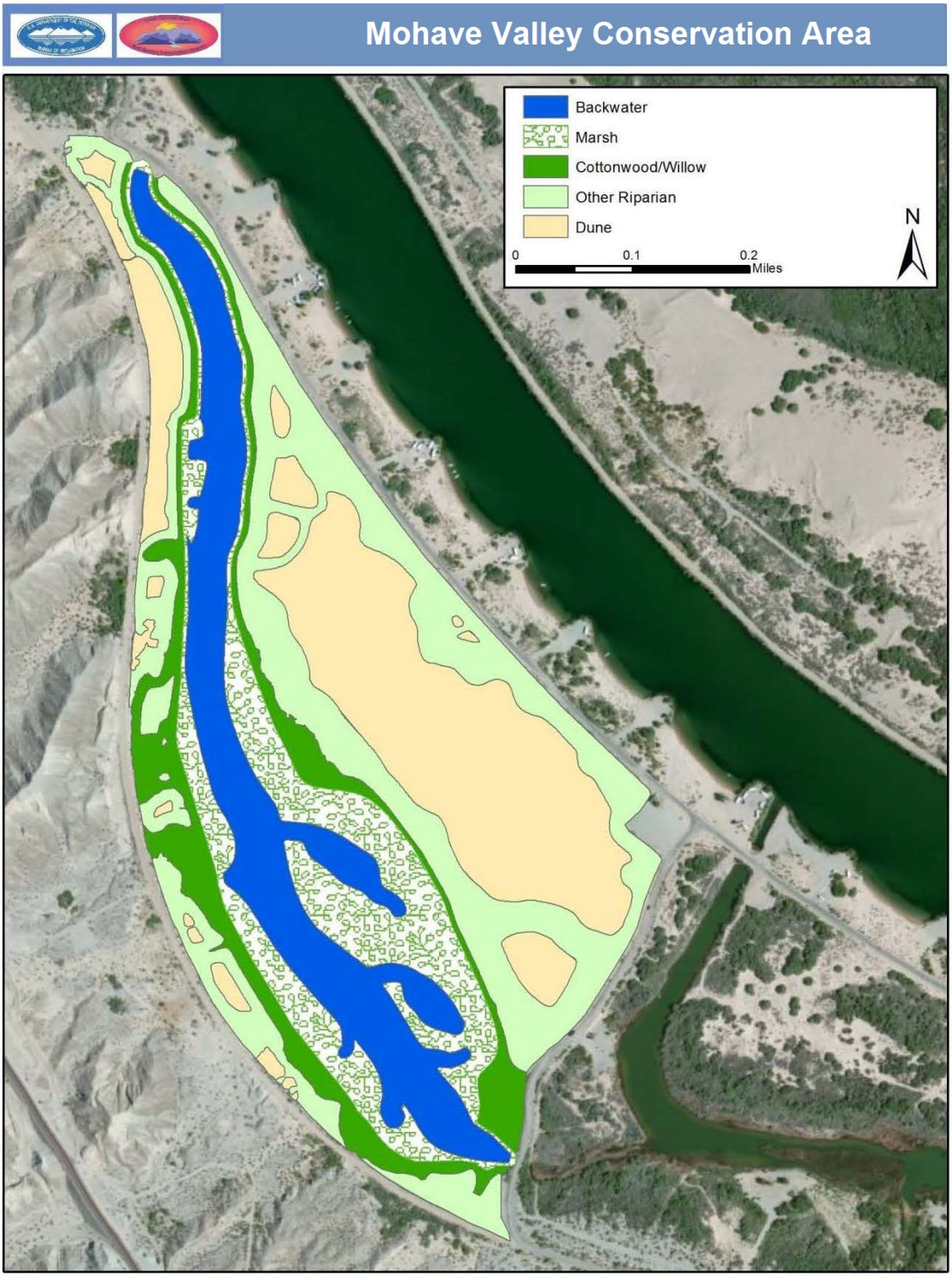

Figure 6 Landcover typed resulting from the 60% Mohave Valley Backwater design.

Planting Material / Planting Techniques

Plant material for the project would be delivered via a contractor. Planting techniques that would be used on site include:

- Automated mass transplanting
- Planting poles, potted plants, or slips with a conventional tree planter or by hand
- Perimeter planting of poles, potted plants, or slips

Marsh Plants

Schnoeplectus californicus, (California bulrush) will be planted 3 feet inline spacing with rows 40" apart for a total of 4356 per acre, planted first in the deeper water areas. Schnoeplectus americus (chairmakers bulrush, formerly scirpus) will be planted 3 feet inline spacing with rows 40" apart for a total of 4356 per acre.

Riparian plants

Distichlis spicata (saltgrass) will be planted 1 foot inline spacing with 24" rows apart for a total of 13,560 per acre. *Salix exigua, Salia goodingii and Populus fremontii (Coyote willow, goodings willow, and cottonwood)* will be planted 6feet inline spacing with rows 40" apart for a total of 2178 per acre. 1 gallon mesquite trees will be hand planted 15 feet on center for a total of 195 per acre at the highest elevation.

3.0 Management Overview

Land Manager

Reclamation will be responsible for ensuring long-term operation and maintenance of MVCA throughout the term of the LCR MSCP. The details of operation and maintenance of MVCA will be agreed upon between Reclamation and CDFW to include species monitoring, law enforcement, public use, wildfire management, research, and monitoring. After development, long-term management of each Conservation Area is documented in a site specific management plan.

Law Enforcement

CDFW is responsible for law enforcement at MVCA. Reclamation will work with BLM to provide additional assistance and to ensure these activities do not conflict with the LCR MSCP HCP.

Public Use

CDFW has the authority to regulate fish, wildlife, and recreation uses pursuant to CDFW statutes, regulations and policies. In cooperation with Reclamation, CDFW will coordinate its public use and related activities so they are consistent with and do not adversely affect restoration activities at MVCA.

Wildfire Management

As guided by commitments in the LCR MSCP HCP, wildfire management practices on MVCA would:

Reduce the risk of loss of related habitat to wildfire by providing resources to suppress wildfires, e.g., contributing to and integrating with local, State, and Federal agency fire management plans, and Implement land management and habitat creation measures to support the reestablishment of native vegetation that is lost to wildfire.

Specific fire management plan will be drafted as in described in the LCR MSCP Law and Fire Strategy

Site Maintenance

Reclamation will be responsible for maintaining the levee road adjacent to the MVCA backwater and the access roads that are used to define the footprint of MVCA. Future backwater maintenance activities may involve dredging the backwater in order to maintain a channel depth of at least 10 feet of open water habitat. The dredging and placement of the dredge material would occur within the previously disturbed project footprint. Equipment (E.g. backhoe, excavator, dump truck, etc.) may be used for land based maintenance activities such as cattail removal and vegetation clearing.

Herbicide/Fertilizer/Pesticide Application

To ensure the total eradication of non-native plant species (E.g. Tamarix ramosissima) before planting and to maintain healthy stands of native vegetation species, the application of herbicides, fertilizer, or pesticides may be required. All herbicide, fertilizer or pesticide application would be applied or supervised by a current Certified Pesticide Applicator for the chemical being applied and in compliance with the rules, regulation, and laws set by the State of California, San Bernardino County.

All records and associated chemical application documents will be stored by the land manager and will include:

- Training records of all employees handling pesticides and herbicides
- Material Safety Data Sheets for all pesticides, herbicides and fertilizers
- Location map of herbicide and pesticide storage site
- Use of California approved herbicide, pesticide, and fertilizers
- Record of herbicide, pesticide or fertilizer use

4.0 Monitoring

Fisheries Monitoring

Monitoring at MVCA is designed to documentgeneral use of the backwater by the MSCP covered fish species. Methods used will be diverse enough to detect multiple life stages over several seasons, with an emphasis during seasons of highest abundance. In addition to fish surveys, general habitat assessment will include zooplankton and phytoplankton monitoring, and water quality monitoring and analysis.

Fish Monitoring

Monitoring will include 6 trips per year to conduct presence/absence surveys for multiple year classes of native fish. Five spring surveys (January – May) will be conducted to coincide with spawning activities and larval emergence of the razorback and flannelmouth sucker (Mueller 2003), as well as the presumed spawning period for bonytail (Wagner 1955). A single fall survey (November) will be conducted to assess species use outside the spawning season. All trips will consist of two nights of surveys. The spring trips will include trammel netting, remote sensing, and larval collections; the fall survey will include trammel netting and remote sensing. Catch per unit effort (CPUE) will be determined for each survey method and will be compared for annual and seasonal variation.

Six trammel nets of two different sizes (3 at 75' x 0.5" and 3 at 150' x 1.5 ") will be deployed during each night of the survey event. The nets are typically set perpendicular to shore with one end attached to shore or anchored near shore and then stretched toward the center of the pond and marked with a small buoy. The nets will be allowed to fish throughout the night and then retrieved the following morning. All fish will be collected from the net and held in fresh water. All fish will be identified, measured for total length, weighed, and released at the capture location. In addition, native fish will be scanned for passive integrated transponders (PIT) and wire tags, and subsequently injected with a PIT tag if none is found.

Larval collections will be conducted in 15 minute intervals at a minimum of 3 locations per night. Two 12-volt "crappie" lights are connected to a battery, placed over each side of the boat, and submerged in 4-10 inches of water. Two "netters" equipped with long-handled aquarium nets are stationed to observe the area around the lights. Larval fish that swim into the lighted area are dip-netted out of the water and placed into a holding bucket. Larvae are identified and enumerated as they are placed into the holding bucket and released at the point of capture once sampling is completed (Albrecht et al. 2010). A subset of larval samples may be retained for genetic analysis or species identification.During construction, a series of antennae will be installed into the slab of the inlet and outlet structures. These antennae will run the entire length of the foundation, and be used to track the movement of tagged fish into and out of the backwater. Data collected from the antennae will be downloaded during each scheduled fish monitoring trip and supplement the manual monitoring data.

Zooplankton/Phytoplankton Monitoring

Zooplankton and phytoplankton will be monitored quarterly from two fixed locations, the deepest area near the inflow and outflow. Zooplankton are collected using a vertical tow with a 64 µm plankton net. The depth of the tow is recorded and used to calculate sample volume; multiple tows are taken to achieve the desired filtered volume (250 L). All plankton are rinsed into an amber sample bottle and preserved with 0.3mL of Lugol's iodine solution per 100mL of sample. Samples are analyzed for biomass and relative abundance, and compared to other regional backwaters.

Water Quality

Water quality will be monitored by conducting vertical profiles at least six times per year. All surveys will be separated by a minimum of one month and will encompass at least three seasons (spring,

summer, and fall). Surveys will occur during the six fish monitoring events (five spring trips and one in the fall). A profile will be taken before 9:00 a.m. from the two fixed stations near the inflow and outflow. Profiles will be recorded in 0.5 meter increments using a YSI professional plus multi-parameter probe or similar instrument. Nominal parameters measured include temperature, conductivity, dissolved oxygen (DO) and pH; Secchi depth will also be recorded when pond bottom is not visible.

Water Chemistry

Water chemistry samples will be collected once annually between July and September and will be analyzed for general chemistry. This analysis will include:

- Physical properties, conductivity, pH, TDS, TSS
- Major and minor ions
- Metals
- Nutrients, nitrate, nitrite, total nitrogen, Ortho-phosphate, and total phosphate
- Total nutrients

Three 1-liter samples will be collected from each of the water quality stations. Collection for all parameters will occur just below the water surface (approximately 0.2m depth). All sample bottles will be rinsed with the water at the sampling station prior to collecting the sample. Each sample will be immediately placed on ice after acquisition. The three samples from each station will be mixed as a single composite sample prior to being decanted into the appropriate sample bottles. The samples shall then be preserved using the appropriate methods for each water quality parameter (described below) and place on ice for shipping or delivery to the LCR – Regional Lab.

The recommended size and type of sample bottle is described below for each parameter. All sample containers shall be labeled correctly, including site name, date, sample parameter, preservation, and collector.

Sample	Preservation	Filtered	Volume	Storage
General Chemistry	None	No	500 ml	Refrigerate
Metals	Nitric Acid (HNO_3) 2 drops	Yes 0.45µm	50 ml	Refrigerate
Nitrate/Nitrite	10% Sulfuric Acid (H_2SO_4) 0.4ml	No	100 ml	Refrigerate
Ortho-Phosphate	None	Yes 0.45µm	100 ml	Frozen by 48 hrs
Total Nutrients	None	No	100 ml	Frozen by 48 hrs

Table 4 Sampling parameters.

Wildlife Monitoring

As stated above, MVCA will be managed for covered fish. Additional covered species may utilize the marsh, cottonwood-willow and mesquite land cover that will be planted. The site will be added to conservation area monitoring for marsh birds, neo-tropial birds and small mammals once habitat develops. Monitoring will be conducted to document presence and may not be required annually.

- Marsh Birds - Monitoring will be conducted using the multi-species survey from the Standardized North American Marsh Bird Monitoring Protocol (Conway 2005) after all construction is complete and marsh vegetation develops (usually one year after planting). This protocol incorporates playing calls of marsh bird species at designated survey points to elicit responses in order to determine presence of the target species.

- Neo-tropical Birds - Double-sampling, rapid-intensive, area-search surveys will be conducted in April-June 2015 prior to construction to identify species currently using the site as detailed in GBBO (2012). The site will be surveyed again at least 2 growing seasons after planting when riparian woodland vegetation reaches sufficient height and density to provide nesting habitat.

- Small Mammals - potential cotton rat and desert pocket mouse habitat develops, then presence surveys will be conducted at least once during fall and/or spring. Trapping will be conducted overnight using Sherman live traps. Traps will be placed in linear transects within the transition zone.

If habitat for additional covered species develops, monitoring may be scheduled to document presence.

5.0 Reports

Annual Report

An annual report will be prepared by Reclamation and made available each calendar year summarizing the following:

- General description of the Project status and the effects on covered species
- A table from the Mitigation Monitoring and Reporting Program (MMRP) indicating current implementation status of each mitigation measure
- A description of all restoration activities and monitoring actions conducted over the past year
- A summary of monitoring and research activities over the past year
- Results and analyses of monitoring and research data
- An assessment of the effectiveness of each mitigation measure in minimizing and compensating for Project impacts
- The total number of acres planted
- The total number of acreage that meets or exceeds the performance standards
- Any other applicable information.

Final Report

A final report will be prepared by Reclamation and submitted no later than 180 days after the completion of all mitigation measures. The final report is anticipated in 2055 and will include the following information:

- A copy of the table in the MMRP with notes showing when each mitigation measure was implemented
- All available information regarding Project-related incidental take of covered species
- Information regarding other Project impacts on the covered species in the Permit
- An assessment of effectiveness of the Permit's conditions of approval for minimizing and compensating for project impacts
- Recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the species
- Any other pertinent information.

Literature Cited

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