Supplemental Environmental Impact Report

Owens Lake Revised Moat and Row Dust Control Measures

Lead Agency:

Department of Water and Power
City of Los Angeles
111 North Hope Street, Room 1044
Los Angeles, CA 90012

June 2009

EDAW | AECOM

Supplemental Environmental Impact Report

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Prepared for:

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NOTICE OF AVAILABILITY OF A SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT FOR THE OWENS LAKE REVISED MOAT AND ROW DUST CONTROL MEASURES PLAN (SCH# 2008121074)

Name of Project: Owens Lake Revised Moat and Row Dust Control Measures Plan

Location: The proposed project encompasses approximately 3.5 square miles of the 110 square-mile dry Owens Lake bed located in Owens Valley. Owens Lake is located approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the City of Bishop. In addition, Owens Lake is located approximately 11 miles east of the easternmost boundary of Sequoia National Park and located approximately 19 miles west of the westernmost boundary of Death Valley National Park. Owens Lake is bounded by Highway 136 to the north, Highway 190 to the south, and Highway 395 to the west. A portion of the project is adjacent to the California Department of Fish and Game's Cartago Springs Wildlife Area.

Description of Project: LADWP proposes to reduce dust emissions in the Owens Valley Planning Area in order to eliminate exceedances of the federal particulate matter (PM_{10}) standard, through the construction of landform features called moats and rows. The moat and row dust control measure, as initially configured, is a method of dust control that does not require the addition of supplemental water to reduce dust emissions from the lake bed. A moat and row element is up to an 89-foot wide disturbed linear corridor that consists of an earthen berm (row) approximately 5-feet-high with 1.5:1 (horizontal to vertical) sloping sides and a base of up to 19 feet wide, an access road on both sides of the row of up to 15 feet wide, flanked on the other side by ditches (moats) approximately 4 to 5.5- feet-deep and up to 20 feet wide at the widest point. Rows serve as wind breaks and the primary function of the moats is to capture sand. Moat and row elements would typically be arrayed in a grid pattern oriented to be perpendicular with the primary and secondary wind directions. Minimum spacing of the elements will be approximately 100 feet center to center. Generally, the rows would run the length of the dust control area (DCA) with breaks in the rows at distances determined to be suitable for the habitat requirements for biological species present in the area as determined in the SEIR analysis. Other features that would be constructed within the moat and row DCAs include sand fences. Sand fences are generally constructed of a mesh fabric up to 5-feet tall with 14-inch diameter round or square arsenic-free wood treated posts supporting the fabric. The sand fences would be placed on top of rows or in open playa areas as determined to be appropriate through on-site monitoring of prevailing wind direction and speed. Construction of the moat and row dust control measures (DCMs) may also include the application of a variety of enhancements within the moat and row areas to gain greater dust control efficiencies within the Owens Valley Planning Area. These enhancements would be implemented in response to air quality monitoring of PM_{10} emissions in the moat and row DCAs.

Lead Agency: City of Los Angeles Department of Water and Power

Lead Agency Contact Person: Thomas Dailor, Environmental Supervisor   Phone Number: (213) 367-0221
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SEIR Review Period: Begins: June 8, 2009   Ends: July 22, 2009 at 5:00 p.m.

Where Documents Are Available for Review: The Supplemental EIR may be reviewed at the City of Los Angeles Department of Water and Power, 111 North Hope Street, Room 1044, Los Angeles; the Inyo County Free Library, 168 N. Edwards Street, Independence; Big Pine Library, 110 North Main, Big Pine; Lone Pine Branch Library, South Washington Street, Lone Pine; Bishop Branch Library, 210 Academy Street, Bishop; and Ridgecrest Public Library, 131 E. Las Flores Avenue, Ridgecrest. ***The Supplemental EIR is also available on the City's website at http://www.ladwp.com/ladwp/cms/ladwp004156.jsp***

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Where to Send Comments: ***Comments related to environmental concerns and the Supplemental EIR should be provided in writing to Thomas Dailor, City of Los Angeles Department of Water and Power, 111 North Hope Street, Los Angeles, CA 90012 no later than July 22, 2009 by 5:00 pm.*** For each comment received on the Supplemental EIR during the 45-day comment period, a written response will be prepared for inclusion in the Final EIR. Although verbal comments received at the public meeting (discussed below) will be noted and addressed within the Final EIR, to ensure an accurate recording of each concern, written comments are strongly encouraged.

Public Meeting: ***A public meeting has been scheduled for Thursday, June 25, 2009 at 6:00 p.m. in the community of Independence at the County Administrative Center, 224 North Edwards, to receive oral comments on the Supplemental EIR.*** Again, submittal of written comments is strongly encouraged. Individuals and agencies are invited to attend the meeting to discuss environmental concerns and questions associated with the project's environmental review.

Anticipated Significant Impacts: Implementation of the Revised Moat and Row Dust Control Measures Plan is expected to result in significant adverse effects on the environment related to air quality. Specifically, construction of the proposed project would cause operation of DCMs to be delayed beyond the timeframe specified in the 2008 SIP thereby conflicting with the applicable air quality plan and potentially increasing the number of days for violations of air quality standards. Implementation of the Revised Moat and Row Dust Control Measures Plan also has the potential to result in potentially significant or significant effects on the environment affecting biological resources and aesthetics. For each significant or potentially significant impact, the Supplemental EIR contains mitigation measures that would reduce the impacts to less than significant, where feasible.

Signature: *Thomas A. Dailor* Date: *6/2/09*

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EXECUTIVE SUMMARY

ES-1 INTRODUCTION

The Revised Moat and Row Project (proposed project) is a dust control measure (DCM) proposed by the City of Los Angeles Department of Water and Power (LADWP) to be implemented on the dry Owens Lake bed. The environmental analysis in this draft supplemental environmental impact report (draft SEIR) is based on an evaluation of how environmental conditions would be expected to change as a result of implementing the proposed project. Public comments on the draft SEIR will provide important input for LADWP's decision on the project. This chapter summarizes the information contained in the draft SEIR, including the project description, environmental impacts, mitigation measures, and alternatives.

ES-2 THE EIR PROCESS

LADWP, as lead agency or public agency that has the primary authority to approve the project, must certify that the SEIR is adequate according to the California Environmental Quality Act (CEQA). LADWP must consider the SEIR's environmental information when taking action on the project. Other public agencies with approval authority over the project, or elements of it, are considered responsible agencies; these agencies would consider the environmental effects of the project based on this draft SEIR.

The draft SEIR has been released for public review to receive comments from interested parties on its completeness and adequacy in disclosing the environmental effects of the proposed project. Written responses to substantial environmental points raised in comments will be prepared and published. Together, the draft SEIR, comments received on the draft SEIR, and the responses to comments will constitute the final SEIR.

ES-3 SUMMARY OF THE PROJECT DESCRIPTION

PROJECT LOCATION

The proposed project encompasses approximately 3.5 square miles of the 110-square-mile dry Owens Lake bed (which is part of the larger Owens Lake Planning Area) located in Owens Valley. Owens Lake is located approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the city of Bishop. In addition, Owens Lake is located approximately 11 miles east of the easternmost boundary of Sequoia National Park and approximately 19 miles west of the westernmost boundary of Death Valley National Park. It is bounded by State Route 136 to the north, State Route 190 to the south, and U.S. Highway 395 to the west. Part of the project is adjacent to the California Department of Fish and Game's (DFG's) Cartago Springs wildlife area. Refer to Chapter 2, "Project Description," for project vicinity and location exhibits.

OBJECTIVES OF THE PROJECT

The primary goal of the project is to prevent emissions from the lake bed that cause or contribute to violations of the PM_{10} NAAQS by the implementation of moat and row DCMs on the bed of Owens Lake by 2010. The dry Owens Lake bed is primarily owned and operated in trust for the people of California by CSLC. Therefore, the project must also be consistent with the State of California's obligation of land and resource stewardship.The objectives of the project are to:

- implement moat and row DCMs by April 1, 2010, pursuant to the 2008 SIP to achieve the NAAQS;
- provide clean, reliable water in a safe, environmentally responsible and cost-effective manner with excellent customer service;

- allow for the sparing use of water that would otherwise be delivered for municipal and industrial use and substantially reduce or eliminate the use of water in implementing new dust control projects on the Owens Lake bed;
- minimize or compensate for long-term, significant adverse changes to sensitive resources in the natural and human environment by implementing mitigation strategies proposed in this SEIR;
- create a dust control program with a high likelihood of success and without substantial delay;
- substantially conform to adopted plans and policies and existing legal requirements. These requirements include the National Ambient Air Quality Standards, the 1998, 2003 and 2008 SIPs and their associated EIRs, lease agreements and environmental and administrative permits with other agencies including California State Lands Commission, Lahotan Regional Water Quality Control Board, California Department of Fish and Game, United States Environmental Protection Agency and Great Basin Unified Air Pollution Control District;
- minimize the long-term consumption of natural resources (e.g., water); and,
- be consistent with the State of California's obligation to preserve and enhance the public trust values associated with Owens Lake.

ELEMENTS OF THE PROJECT

Before its proposed revision, the project was evaluated and adopted as part of the *2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Final Subsequent Environmental Impact Report* (2008 FSEIR) (adopted by the Great Basin Unified Air Pollution Control District [GBUAPCD] in February 2008). The 2008 FSEIR evaluated the implementation of 15.1 square miles of DCMs in the Owens Lake Planning Area. DCMs evaluated and approved included shallow flooding, moat and row elements, and application of gravel as riprap (a loose assemblage of broken stones) on berms in shallow flooding ponds or as a cap on rows in moat and row elements. Approximately 3.5 square miles of moat and row DCMs were evaluated and approved in that project. Since the 2008 FSEIR was published, changes to the design and operation and maintenance plan for the moat and row DCMs have been proposed.

Implementing the proposed project would result in changes to the design of the moat and row elements, and a more robust operations and maintenance plan is proposed. These changes were not known when the 2008 FSEIR was prepared; therefore, an analysis of their environmental effects is required under CEQA. However, these changes affect only the moat and row dust control areas, not the larger dust control program evaluated in the 2008 FSEIR. In cases where only minor additions or changes to a previous EIR are required to make the previous EIR apply to the changed project, CEQA Section 15163 allows the preparation of a supplement to a previous certified EIR if any of the conditions that require the preparation of an SEIR are present. Further, CEQA states that the S EIR need contain only the information necessary to make the previous EIR adequate.

The proposed project involves a change to only one element of the larger dust control program evaluated in the 2008 FSEIR. Most of the issues related to land use (e.g., geology, hydrology, land use, hazards, public services and utilities, recreation, mineral resources, agricultural resources, noise, and land use itself) were sufficiently evaluated in the 2008 FSEIR, and implementing the proposed project would not result in any new significant impacts in these areas. For this reason, LADWP has determined that an SEIR that focuses on the issues of construction-related air quality, visual resources, and biological resources would comply with CEQA requirements. Consistent with Sections 15162 and 15163 of the State CEQA Guidelines, this SEIR evaluates the impacts that would result from implementing the changed project that were not identified in the 2008 FSEIR or that would be more severe significant impacts under the proposed project.

LADWP proposes to reduce dust emissions on the dry Owens Lake bed, particularly achieving adopted control efficiencies for PM_{10}, through the construction of landform features called moats and rows. Moat and row DCMs would be constructed on 3.5 square miles of the Owens Lake bed. See Chapter 2, "Project Description," for additional project details.

SUMMARY OF ALTERNATIVES TO THE PROJECT

Three alternatives were evaluated as part of the 2008 FSEIR .

- Shallow Flooding Alternative
- All Managed Vegetation Alternative
- Gravel Application Alternative

This draft SEIR also evaluated two alternatives to the proposed project:

- No-Project Alternative – continuation of 2008 SIP and
- Off-Site Alternative.

SHALLOW FLOODING ALTERNATIVE

The Shallow Flooding Alternative involves implementing the shallow flooding DCM over 15.1 square miles of the Owens Lake bed, including the 3.5 square miles of moat and row dust control areas (DCAs). No other DCMs would be implemented on Owens Lake. Shallow flooding generally consists of wetting emissive lake bed surfaces sufficiently to control dust emissions between October 1 and June 30 of each year. Approximately 75% of the DCAs would be wetted to achieve 99% dust control efficiency. Water would be released on the lake bed and would spread across the surface. Approximately 3–4 acre-feet of water would be used annually per acre of shallow flooding DCAs. In areas where moat and row DCMs are proposed (3.5 square miles of lake bed), this alternative would require installation of additional shallow flooding infrastructure (e.g., mainline, submain, lateral, and raiser pipes; perimeter berms; tailwater recycling facilities). Construction activities would result in disturbances to the lake bed throughout the 3.5-square-mile DCA; therefore, construction-related air quality impacts would be similar.

Although construction activities would result in comparable environmental impacts (e.g., air quality), implementing the Shallow Flooding Alternative would provide greater habitat for biological species of concern, thereby resulting in a net biological benefit. Implementing this alternative would change the visual landscape from a dried lake bed to a wet lake bed, which is representative of historical conditions. Therefore, although views would be changed, they would be changed to reflect historic natural conditions and would be considered to be less adverse than under the proposed project. The 2008 FSEIR concluded that the Shallow Flooding Alternative would meet most of the 2008 FSEIR project objectives; however, because this alternative would entail the use of shallow flooding, the objective to minimize the long-term use of natural resources (e.g., water) and the objective to implement a DCM that minimizes the use of water to the maximum extent practical would not be met. Overall, this alternative would result in reduced environmental impacts compared to the proposed project but would not meet important project objectives related to conservation of natural resources. Further, with regard to objectives established for this SEIR, this alternative would not meet the objectives to allow for the sparing use of water for non-municipal and industrial uses or to eliminate the use of water for new dust control measures on Owens Lake. ***[Lesser]***

ALL MANAGED VEGETATION ALTERNATIVE

The All Managed Vegetation Alternative involves implementing the managed vegetation DCM over 15.1 square miles of the Owens Lake bed, including the 3.5 square miles proposed for moat and row DCAs. No other DCMs would be implemented on Owens Lake. Under this alternative, vegetation would be planted in approximately 40-

acre blocks and would be irrigated by a system of turnouts and pipelines. Implementing this alternative would require installation of infrastructure (e.g., mainline, submain, lateral, and riser pipes; irrigation lines; fertilizer injection; water treatment systems) in the 3.5-square-mile moat and row DCA. Construction activities would result in disturbances to the lake bed throughout the 3.5-square-mile DCA; therefore, construction-related air quality impacts would be similar. However, implementing this alternative would result in the complete transformation of the moat and row DCA from a sandy lake bed surface to planted vegetation. These changes would affect the habitat of a biological species of concern (i.e., snowy plover) to a greater degree. Further, implementing the moat and row DCM would result in changes within a maximum 33% of the DCA, whereas the All Managed Vegetation Alternative would cover a greater percentage of the DCA; therefore, habitat impacts would be greater under this alternative. With regard to visual impacts, this alternative, like the proposed project, involves installation of human-made features (i.e., rows of vegetation) and would change views of the lake bed. The magnitude of the changes would be comparable to the changes that would occur under the proposed project but would present a different visual landscape (i.e., vegetation vs. moats and rows).

The 2008 FSEIR concluded that the All Managed Vegetation Alternative would meet most of the 2008 FSEIR project objectives; however, because of the time needed for vegetation to reach the level of growth required for dust control, the likelihood for success would be difficult to achieve by April 2010, as prescribed in the 2008 SIP. Further, implementing this alternative would result in greater biological habitat impacts compared with the proposed project. Finally, with regard to the objectives established for this SEIR, this alternative would not meet the objective to eliminate the use of water for new dust control measures on Owens Lake. Overall, impacts would be greater under this alternative. ***[Greater]***

GRAVEL APPLICATION ALTERNATIVE

The Gravel Application Alternative involves applying gravel to cover 15.1 square miles of the Owens Lake bed, including the 3.5 square miles proposed for the moat and row DCMs. After the gravel cover is applied, limited maintenance would be required to preserve the gravel blanket. The gravel would be visually monitored to ensure that the gravel blanket was not filled with sand or dust or has not been inundated or washed out by flooding. If any of these conditions were observed, additional gravel would be transported to the project site and applied to the surface. Operation of this alternative would require an average ongoing gravel application amounting to 7,000 cubic yards per square. Construction activities would result in disturbances to the lake bed throughout the 3.5-square-mile DCA; however, implementing this alternative would require the substantial importation of rock material from off-site areas, which would require a substantial number of truck trips to deliver this material. These truck trips would generate substantially greater diesel emissions compared to the construction activities associated with the proposed project; therefore, construction-related air quality impacts would be greater under this alternative. Additionally, implementing this alternative would result in the complete transformation of the moat and row DCA from a sandy lake bed surface to an imported gravel surface. These changes would affect the habitat of a biological species of concern (i.e., snowy plover) to a similar degree as the proposed moat and row DCA. Regarding visual impacts, this alternative, like the proposed project, involves installation of human-made features (i.e., a layer of gravel) and would change views of the lake bed. The magnitude of the changes would be comparable to the changes that would occur under the proposed project but would present a different visual landscape (i.e., rocky substrate vs. moats and rows).

The 2008 FSEIR concluded that the Gravel Application Alternative would not meet most of the project 2008 FSEIR objectives. Although this alternative would conform to adopted plans and policies, it could be incompatible with the State of California’s public trust values because it would cover the lake bed with nonnative (to the lake) materials. This alternative would not minimize the proposed project’s impacts on sensitive biological resources, it would result in comparable impacts with environmental tradeoffs. Overall, impacts would be similar under this alternative. ***[Similar]***

NO-PROJECT ALTERNATIVE – CONTINUATION OF EXISTING CONDITIONS

Under the No-Project Alternative, moat and row DCMs would be constructed, operated, and maintained on the historic Owens Lake in accordance with the 2008 SIP. Although moat and row DCMs were approved, as outlined in the 2008 FSEIR, the moat and row DCM likely would not be implemented because LADWP probably would not be able to secure and acquire necessary environmental permits from regulatory agencies (e.g., DFG and CSLC). DFG and CLSC raised concerns over specific features of the moat and row DCMs related to potential impacts on wildlife and other issues. . These concerns resulted in revisions to the design of the DCMs, as discussed and analyzed in this draft SEIR. Without the changes proposed for the moat and row DCMs, the regulatory agencies would not issue their permits for the moat and row DCMs; therefore, this element of the 2008 SIP would not be implemented. Without implementation of the moat and row DCM, LADWP would not be able to meet the important dust control objectives outlined in the 2008 SIP. Therefore, implementation of the No-Project Alternative would result in a conflict with implementation of an adopted air quality plan.

OFF-SITE ALTERNATIVE

Off-site alternatives generally are considered in EIRs when one of the means to avoid or eliminate the significant impacts of a proposed project is to develop the project in a different, available location. They also are considered to provide a greater range of possible alternatives to consider in the decision-making process. The key question is whether an off-site alternative is available that would feasibly attain most of the basic objectives of the proposed project and that would avoid or substantially lessen any of the environmental effects of the project (State CEQA Guidelines Section 15126.6[a]). The basic objective of the proposed project is to implement a revised design of moat and row DCMs on the historic Owens Lake bed. The moat and row DCM was originally approved as part of the 2008 FSEIR project (approved by GBUAPCD in February 2008).

The proposed project would need to be located in the historic Owens Lake bed because the main objective of the DCM is to reduce PM_{10} emissions created on the dry lake bed. Goals and objectives of the proposed project would not be applicable to any sites other than the historic Owens Lake bed. In addition, the specific locations of dust control areas to construct DCMs were determined and identified as part of the 1998 SIP, 2003 Revised SIP, and 2008 SIP. Given this consideration, there are no alternative sites that can feasibly meet the project objectives. For this reason, an off-site alternative is not evaluated further in this SEIR.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of the alternatives to the proposed project, CEQA Section 15126.6 requires that the “environmentally superior” alternative among the alternatives considered be selected and the reasons for such selection disclosed. In general, the environmentally superior alternative is the alternative that would generate the fewest or least severe adverse impacts. The No-Project Alternative was considered in this analysis, but it would not achieve any goals or objectives of the proposed project and would not achieve dust control efficiencies needed to protect public health in and around Owens Lake. Although other alternatives were evaluated as part of the 2008 FSEIR, two alternatives (i.e., All Shallow Flooding, All Managed Vegetation) were determined to not be feasible because and long-term use of natural resources (e.g., water). The third alternative (i.e., Gravel Application) was determined to result in comparable impacts as the project. No other alternatives are available that could feasibly and have been proven to reduce dust emissions at Owens Lake.

CEQA requires the lead agency to identify an alternative that is feasible and superior to the proposed project; however, in this case, the proposed project is the environmentally superior alternative. The All Shallow Flooding Alternative would have been identified as the environmentally superior alternative, but it had already been considered and rejected in the 2008 FSEIR. No other environmentally superior alternatives are available that would attain most of the proposed project’s basic objectives. The primary purpose of the proposed project was to improve on a previously approved project because of environmental concerns raised by DFG and CSLC and implement DCMs that require little or no water. As a result, the proposed project is the environmentally superior alternative.

ES-4 SUMMARY OF ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Table ES-1, presented at the end of this chapter, summarizes the project-specific environmental impacts of the project, the level of significance of the impact before mitigation, recommended mitigation measures, and the level of significance of the impact after implementation of the mitigation measures.

Implementing the proposed project would result in a project-level significant and unavoidable adverse impact and a considerable contribution to a significant cumulative impact in one area: air quality.

ES-5 AREAS OF CONTROVERSY

Section 15123 of the State CEQA Guidelines requires the summary section of an EIR to identify "areas of controversy known to the lead agency." The following issues, in no order of importance, are controversial issues known to LADWP:

- impacts on snowy plover and its habitat,
- impacts on wildlife movement,
- delay in implementation of the 2008 SIP, and
- visual impacts of the proposed project (e.g., density, character).

Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.1 Biological Resources			
3.1-1: Effects on Western Snowy Plover. Implementation of the proposed project would result in the loss of up to 1,503.8 acres of suitable habitat for western snowy plover within moat and row cells. Under mitigation measure Biology-14 (Long-term Habitat Management Plan) of the 2008 FSEIR, LADWP has committed to managing 1,000 acres of shorebird and snowy plover habitat, and maintaining an additional 523 or more acres of habitat specifically for snowy plover, in perpetuity. These long-term habitat benefits for snowy plover would compensate for habitat impacts within moat and row cells. The loss of suitable snowy plover habitat within moat and row cells would be less than significant. Additionally, implementation of previously-approved Phase 7 shallow flood DCAs would result in the creation of 3,177 acres of additional snowy plover habitat. Other potential direct and indirect impacts of the project include potential loss of snowy plover individuals as a result of construction and operations and maintenance activities; isolation and loss of plover broods within fence grids; entrapment within moats; and increased predation by corvid species as a result of fence construction and additional corvid perch opportunities near plover nesting habitat. These potential impacts to individuals and brood movements would result in potentially significant adverse effects on western snowy plover.	LTS, PS	***Mitigation Approach and Incorporation of Measures from the 2008 FSEIR*** The 2008 FSEIR includes 14 mitigation measures intended to reduce or compensate for project impacts to biological resources; 11 of these address potential impacts to western snowy plover. Measures from the FSEIR are provided in their entirety in Appendix C. Consistent with the requirements of CEQA, LADWP is required to implement these measures as a condition of approval of the 2008 SIP. The GBUAPCD has approved a Mitigation Monitoring and Reporting Program that will monitor and document the implementation of these mitigation measures. Because many of the previously adopted mitigation measures would apply to the project, they are hereby incorporated by reference into this Draft SEIR and are presented below in their entirety except where changes are necessary to address the specific elements of the project considered herein. The following nine measures from the 2008 FSEIR, which address potential effects on western snowy plover, have been incorporated by reference with no revisions. **Mitigation Measure 3.1-1 (Biology-1 in 2008 FSEIR): Lake Bed Worker Education Program** **Mitigation Measure 3.1-2 (Biology-2 in 2008 FSEIR): Preconstruction Surveys for Western Snowy Plover** **Mitigation Measure 3.1-3 (Biology-3 in 2008 FSEIR): Snowy Plover Nest Speed Limit** **Mitigation Measure 3.1-4 (Biology-4 in 2008 FSEIR): Lighting Best Management Practices** **Mitigation Measure 3.1-5 (Biology-7 in 2008 FSEIR): Toxicity Monitoring Program**	LTS

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		Mitigation Measure 3.1-6 (Biology-9 in 2008 FSEIR): Plover Identification Training **Mitigation Measure 3.1-7 (Biology-10 in 2008 FSEIR): Long-Term Monitoring Program for Western Snowy Plover** **Mitigation Measure 3.1-8 (Biology-12 in 2008 FSEIR): Habitat Management Program for Nesting Snowy Plovers** **Mitigation Measure 3.1-9 (Biology-14 in 2008 FSEIR): Long-Term Habitat Management Plan** ***Replacement Mitigation Measures*** In the 2008 FSEIR, the discussion of wildlife movements concluded that “sand fencing constructed on tops of moat and row elements would potentially obstruct the movement of wildlife through the area. Therefore, further analysis of potential impacts to terrestrial wildlife is warranted.” Measure Biology-13, which prescribes gaps in sand fencing or alternative passage features (e.g., culverts, etc.) within moat and row grids, was included to mitigate for this potential effect. Consistent with the 2008 FSEIR recommendation, further analysis of moat and row elements and effects on wildlife movements was conducted as part of this SEIR (see *Effects on Brood Movements and Habitat Connectivity* for snowy plover, above; and *Impact 3.1-2, Effects on Wildlife Movements, Corridors, and Access to Nursery Sites* for other species, below). Based on the results of this focused analysis, the type of mitigation specified in Measure Biology-13 from the FSEIR is not considered necessary to mitigate for significant effects on wildlife movement identified in this SEIR. However, fence gaps to facilitate movement are recommended to mitigate for potentially significant effects on snowy plover broods at site T1A-1 (sand fence only). Therefore, Measure Biology-13 is replaced here by Mitigation Measure 3.1-10 to mitigate specifically for potential effects on plover brood movements at site T1A-1.	

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		To minimize or avoid effects of proposed fencing on movements of snowy plover broods at Cell T1A-1, LADWP shall install and maintain additional fence gaps within the three fence blocks located in the northeast corner of the cell. Based on the movement behaviors of snowy plover, fence gaps designed to facilitate brood movements shall be regularly distributed over relatively short distances, and easily encountered by fast-moving plovers. Plover broods must be able to physically fit through fence gaps, and must be able to visually locate the gaps efficiently during movements. The following describes the design considerations and specifications for installing fence gaps to facilitate plover movements. The final design shall be developed and implemented in consultation with DFG, CSLC, and GBUAPCD, and will be subject to the approval of DFG. Fence gaps shall be installed using one of two basic design options: (1) vertical gaps beneath fences, or (2) horizontal gaps along fences (i.e., fence breaks). *Option 1* If vertical gaps are implemented, a minimum 2-inch gap shall be installed beneath the entire length of fencing. This gap size is considered sufficient for plover broods (including chicks and adults) to fit beneath fences (Page, pers. comm., 2008). Within 30 days prior to the core brooding season (March 15–August 15) each year, the sand fence shall be inspected, and maintained at that time if necessary, to ensure a minimum 2-inch gap beneath the fence. A 2-inch gap beneath a fence could be difficult for plovers to detect from a distance, due to its low visual profile relative to the surrounding landscape. For example, the average range of surface relief recorded at nest sites on Owens Lake was 1.5–8.2 inches (PRBO 2000, 2001, 2002); in some locations, this natural microtopography could obstruct a plover’s visual detection of a 2-inch movement gap. To minimize or offset this potential detection problem, vertical gaps designed to facilitate brood movements shall	

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		extend along the entire fence length. *Option 2* If horizontal gaps along fences are installed, they shall be spaced no greater than 100 feet apart (i.e., no more than 100 feet of fence between two gaps); and the combined width of all fence gaps shall total a minimum of 10% of the total fence perimeter length. Gaps shall be maintained throughout the snowy plover brooding season (March 15–August 15). Although the minimum size and spacing of fence gaps to facilitate movement by snowy plovers is not known, Page (pers. comm., 2008) estimated that approximately 1-foot-wide gaps placed every 10 feet along fence rows could potentially allow for unimpeded movements. For developing a range of feasible options to meet this mitigation measure, it is assumed that these guidelines for gap size and frequency can generally be extrapolated as follows: based on 1 foot of gap within a 10-foot segment (i.e., a gap occupies 10% of the fence perimeter), all fence gaps shall total a minimum of 10% of the total fence perimeter (e.g., over a 500-foot fence perimeter, a minimum total of 50 feet within a gap condition would be required). Therefore, based on 1 foot of gap within a 10-foot segment (i.e., a gap occupies 10% of the fence length), all fence gaps shall total a minimum of 10% of the total fence perimeter length (e.g., over a 500-foot fence perimeter, a total of 50 feet within a gap condition shall be required). The ability of broods to visually locate horizontal gaps is probably affected by the relationship between gap frequency and size; as the spacing between gaps increases (and distance from a plover at a given location to a gap increases), the size of individual gaps required for visual detection from a given location increases. Therefore, in addition to maintaining a minimum of 10% of total fence perimeter within a gap condition, gaps shall be spaced regularly and no more than 100 feet apart. It is assumed that this	

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		maximum spacing of gaps would allow for sufficient opportunity for broods to meet their daily movement requirements. ***Revised Mitigation Measures*** **Mitigation Measure 3.1-11 (Revises Measure Biology-11 in 2008 FSEIR): Corvid Management Plan** This measure is presented as originally written in the 2008 FSEIR (as Biology-11), except where revised specifically for this Draft SEIR to mitigate for potential impacts of the revised moat and row project. Measure Biology-11 was revised to add specificity regarding design of sand fencing and fence posts for deterring perching by corvids. Revisions to the original measure are shown below as track-changes. To reduce potential direct and cumulative impacts to western snowy plover and other migratory shorebirds within the project area due to increased predation on shorebird young and eggs from potential corvid population increases on Owens Lake resulting from construction of dust control measures, the City of Los Angeles Department of Water and Power shall continue to implement the corvid management plan resulting from the 2003 SIP with an extension of one year within the project area, or comparable corvid control measures, to the satisfaction of the California Department of Fish and Game, that are capable of achieving the same performance standard of no substantial net increase in corvid predation of native nesting shorebirds (including eggs). The corvid management plan was implemented in 2005 and may conclude in 2011 depending on success. Components of the corvid management plan include lake bed trash management procedures associated with dust control measures, utilization of Nixalite or the functional equivalent on all structures greater than 72 inches in height (increased from the original 60 inches in height) to minimize perching of corvids and raptor species on dust control equipment where they can easily observe shorebirds during the nesting season, burial of power and communication lines on all	

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		lake bed areas below the elevation of 3,600 feet, and use of harassment techniques for corvids in specific instances where corvids are proving to be particularly harmful to nesting shorebirds. Specifically in conjunction with the Moat & Row dust control measure, the corvid management techniques shall be expanded to specify that the sand fencing~~e fabric and~~ (including fence posts) shall be designed to prevent perching by corvids, within 0.25 mile of occupied nesting shorebird habitat. Occupied nesting shorebird habitat will be evaluated on an annual basis, in collaboration with DFG, to identify areas requiring perch deterrents. The annual habitat evaluation will attempt to identify potential shifts in occupied nesting habitat over time. The use of sand fencing on top of rows within the Moat & Row areas will be considered under this mitigation measure as exceeding the height of 72 inches.~~, thereby requiring the utilization of Nixalite or the functional equivalent on top of sand fencing.~~ Sand fence design to deter perching by corvids shall include the installation of: (1) Nixalite or the functional equivalent on the tops of fence posts; and (2) monofilament line or the functional equivalent along and above the sand fence fabric. To avoid a potential avian collision hazard, monofilament or other line shall be installed no greater than two inches above the top of sand fence fabric. Within 30 days prior to the brooding season (March 15–August 15) each year, the perch deterrent structures shall be inspected and maintained at that time, if necessary. The corvid management plan shall be implemented by a wildlife biologist familiar with the sensitive shorebird populations within the project area and familiar with corvid management techniques. The qualifications of the wildlife biologist shall be submitted to the California Department of Fish and Game for review. Lethal methods of corvid control such as shooting or poisoning shall not be implemented initially due to public and government agency concerns in the project region for such control methods and to prevent putting workers at risk from such control measures. If it is later determined that corvids are having a significant impact on	

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		shorebird populations within the project area and direct removal of corvids is a viable alternative, proposed control methods would be presented to the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game for approval prior to implementation of the additional control measures. The corvid management plan includes a yearly written report estimating the lake bed nesting and foraging corvid population size, documenting the results of the corvid management techniques, documenting the observed effectiveness of the techniques in minimizing corvid impacts on shorebirds within the lake bed, and suggesting improvements for corvid management within the lake bed. Effectiveness may be determined based on the corvid population size on the lake bed. Copies of the yearly reports shall be submitted to the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game no later than December 31 of each corvid management year. If after the sixth year of reporting in 2011, the Great Basin Unified Air Pollution Control District determines that the corvid management program is effective and that corvids are not impacting snowy plover populations, then the reporting schedule shall phase out in the same time frame as shown in Table 3.2.5-1 (of the 2008 FSEIR). However, the corvid management practices shall be continuously implemented. ***New Mitigation Measures*** 2008 FSEIR Mitigation Measure Biology-10, Long-Term Monitoring Program for Western Snowy Plover, was required to confirm that overall numbers of snowy plovers within DCAs do not decrease below baseline levels (defined in Measure Biology-10 as 2002 levels, or 272 plovers). In addition to this general population survey, the following measure focuses on monitoring specifically to detect entrapment of plovers within moats, and implementation of remedial measures if needed. The monitoring purpose, timing and duration, frequency, and survey methodologies would differ between Measure Biology-10 and monitoring required to detect	

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		moat entrapment. Therefore, the following is recommended as an additional measure. **Mitigation Measure 3.1-12: Monitoring and Adaptive Management for Moat Entrapment of Snowy Plover** To minimize or avoid potential moat entrapment of western snowy plovers, LADWP shall develop and implement a moat monitoring and adaptive management strategy. Although entrapment of snowy plovers within moats is assumed to be infrequent, in the absence of empirical data or other observations, there is reasonable uncertainty about this assumption. Therefore, this monitoring and adaptive monitoring approach is recommended to address this uncertainty, identify specific incidences of plover entrapment or mortality, and mitigate for significant effects. **Monitoring and Adaptive Management Purpose and Guidelines** The purpose of the monitoring and adaptive management strategy is to: (1) determine whether moat entrapment or loss of plovers occurs due to moat design or other elements (e.g., side slope angle, presence of water); (2) identify and implement site-specific corrective actions that would minimize or avoid any additional impact; and (3) if necessary, identify whether compensatory measures for significant losses or entrapment are required. This analysis assumes that repeated and regular observations of plover entrapment or mortality would indicate a potentially significant adverse effect. Specific adaptive management response thresholds are discussed below under “4. Response Triggers.” The moat monitoring and adaptive management strategy shall: ► be developed in consultation with DFG, CSLC, and GBUAPCD, and will be subject to the approval of DFG; ► be completed prior to initiating moat construction; and	

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Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		► where appropriate, maintain consistency with and tier from existing monitoring programs, such as the Toxicity Monitoring Program (2008 FSEIR Measure Biology-7), and the Long-Term Monitoring Program for Western Snowy Plover (2008 FSEIR Measure Biology-10). **Monitoring and Adaptive Management Components** The moat monitoring and adaptive management strategy shall include the following components: ► a monitoring schedule, including the timing and frequency of monitoring; ► a description of monitoring locations and procedures; ► selection of indicators for identifying the type and extent of impacts to snowy plover due to moat entrapment; ► specific quantitative response triggers to indicate thresholds requiring management action; ► a list of corrective management actions appropriate for each type and extent of impact; and ► documentation and reporting requirements. Guidelines for developing these six elements are summarized below. *1. Implementation Schedule, Timing, and Frequency* Moat monitoring shall be conducted during the snowy plover brooding season (March 15–August 15) for a minimum of two full brooding seasons after completion of project construction. Until the end of the first full brooding season after project construction, monitoring shall be conducted twice per week. If no entrapments (defined in “3. Entrapment Indicator,” below) are observed during this initial period, the frequency of monitoring may be reduced to once per week for the second complete brooding season.	

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Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		Monitoring shall commence immediately after construction of any perimeter moat is complete, if during the snowy plover brooding season. Otherwise, monitoring shall commence at the start of the following brooding season. If after two full brooding seasons of monitoring, it is determined that there is no evidence of significant moat entrapment or mortality, this monitoring requirement may be discontinued. However, if at any point within the monitoring period corrective management actions are required (i.e., response triggers or thresholds are met), monitoring shall be continued for an additional two full brooding seasons after corrective actions are implemented to ensure effectiveness of the action. This monitoring cycle shall be repeated until significant mortality or entrapment ceases to occur during a two-year cycle. *2. Monitoring Locations and Procedures* Monitoring surveys shall be conducted at all moats forming the perimeter of moat and row cells identified as high or moderate risk of interacting with snowy plover individuals or broods (T37-1, T37-2, and T1A-3). In the event that any entrapment of snowy plover is observed in moats, moats forming the perimeter of moat and row cells identified as low risk of interacting with snowy plover (T32-1, T12-1, and T1A-4) shall be added to this monitoring and adaptive management program. All monitoring shall be conducted by wildlife biologists familiar with snowy plover identification, movement patterns, and life history requirements. Monitoring protocols shall be developed to determine the presence and condition of plovers in moats, and to document existing moat conditions where entrapment is observed. Key information collected during monitoring shall include, but is not limited to: ► specific locations of all areas surveyed; ► locations of all snowy plovers detected inside or within 100 feet of moats (using global positioning system [GPS]);	

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		▸ age or life stage (juvenile, adult), behavior, and condition of individuals found within moats (including injury, death, and the identified cause of adverse condition, if possible); ▸ moat side-slope measurements where plovers are found, and within 200 feet of these locations; ▸ presence, depth, and quality (including salinity) of water in moats, where plovers are found (water quality data collection will follow that described for surface water monitoring of moat and row cells in the 2008 FSEIR Mitigation Measure Hydrology-2); and ▸ incidental observations of snowy plovers and other wildlife species made during monitoring surveys. Any live shorebird found within a moat shall be observed at a distance for a minimum of 15 minutes, or until it exits the moat. *3. Entrapment Indicator* Moat entrapment shall be indicated and quantified by the number of plover mortalities or other observed entrapments within a moat per breeding season. In addition to mortality, “entrapment” shall include an incidence of a live bird that: (1) visibly attempts but is unable to exit the moat for 15 minutes or more, (2) is caught within the moat’s substrate (e.g., mud), or (3) does not attempt to exit the moat and appears injured or in otherwise poor condition to do so. Any observed mortality or entrapment will be reported to DFG within 48 hours of documenting the incident. (This timeframe is consistent with reporting standards for observed avian mortalities established in Mitigation Measure Biology-9 of the 2008 FSEIR [GBUAPCD 2008]). *4. Response Triggers* The threshold for requiring corrective actions is three or more snowy plover moat entrapments per DCA per calendar year. (The maximum number of observed entrapments per year that could	

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		occur without requiring corrective actions under this measure would range from two birds at any one DCA to six birds across the three monitored DCAs [T37-1, T37-2, and T1A-3].) If three or more entrapments at any DCA are observed, corrective adaptive management actions shall be required within the moat(s) where entrapments were detected. It is assumed that a loss of plovers up to this threshold would not significantly increase juvenile or adult mortality rates above existing levels or substantially affect the overall snowy plover population size, due to the following factors: ► The threshold number is small relative to the overall snowy plover population size and productivity. In 2008, 478 adults and 39 broods were counted over a portion of Owens Lake; during the period of 2003–2008, the number of broods counted annually ranged from 18 to 52 (PRBO 2008). These counts include only the broods and adults observed during one-week lake-wide surveys conducted in late May to early June. Because adults often initiate multiple nesting attempts (sometimes up to three) and produce multiple broods during a breeding season, these numbers represent only a proportion of the broods produced at Owens Lake during a breeding season. Also, not all areas of suitable habitat were included in all years of the lake-wide surveys. ► The Owens Lake population appears viable, based on reproductive success metrics and an increasing population trend. Although juvenile or adult survival rates for the Owens Lake population have not been estimated, the number of nests and nest success rates have been relatively high. The most complete lake-wide nesting data are from 2002 and 2003. In 2002, when 272 adults were counted, 128 nests were located; and the average nest hatching rate was 82.5%. In 2003, when 401 adults were counted, 199 nests were located; and the average hatching rate was 80%.	

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Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		► Multiple nesting attempts, particularly those initiated by a pair after a nest or brood has failed, would compensate for some loss during the breeding season. *5. Corrective Adaptive Management Actions* If the response threshold is met, LADWP shall notify DFG as soon as possible and within three business days of the incident. In coordination with DFG, CSLC, and GBUAPCD, LADWP shall implement corrective management actions as appropriate depending on the cause of moat entrapment (e.g., slope, presence of water, or other). Appropriate corrective actions for entrapment due to moat side-slopes could include one or more of the following: ► add escape ramps every 100 feet within the identified problem moat; ► add rip-rap to side-slopes; and ► reduce side slopes within the identified problem moat, to the maximum extent feasible without substantially compromising overall dust control effectiveness. Appropriate corrective actions for entrapment due to the presence of water in moats could include one or more of the following: ► add rip-rap to bottoms of moats, so that the top of rip-rap exceeds the maximum water and mud level observed in moats during the breeding season; and ► reduce side slopes within the identified problem moat, to the maximum extent feasible without substantially compromising overall dust control effectiveness. If the monitoring and adaptive management process indicates that corrective actions are not effective, or if actions are determined to not be feasible, then LADWP shall work collaboratively with DFG, CSLC, and GBUAPCD to develop a revised action or provide on-	

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Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		or off-site habitat enhancement and protection as compensation. Revised corrective actions or habitat enhancement shall require approval by DFG. *6. Reporting Requirements* LADWP shall provide summaries of monitoring methods and results to DFG, CSLC, and GBUACD within 60 days of completing each monitoring season. Reports shall include summaries of all detections of snowy plover or other shorebirds in and around moats; their behavior, state or condition when detected; side-slopes and water depths measured in association with each detection; and whether any mortalities or other entrapments were observed. After completing the second year of monitoring, annual reports that summarize the cumulative results of monitoring efforts shall also be submitted to DFG, CSLC, and GBUACD. **Integration with Existing Snowy Plover Monitoring and Management** The specific monitoring and adaptive management program for moat entrapment could be incorporated directly into existing plover monitoring and management commitments as appropriate, including as an element of the Long-term Monitoring Program for Western Snowy Plover (Mitigation Measure 3.1-8; Measure Biology-10 in the 2008 FSEIR) or the Long-term Habitat Management Plan (Mitigation Measure 3.1-9; Measure Biology-14 in the 2008 FSEIR).	
3.1-2: Effects on Wildlife Movements, Corridors, and Access to Breeding Sites. The project site is dominated by barren alkali playa and does not provide suitable habitat for most wildlife species. None of the cells are located within, or required for travel between, important foraging or breeding habitats for any wildlife species; and they do not impose movements barriers between high-suitability habitats for any species. Any potential effects on wildlife movements would be less than significant.	LTS	No mitigation is required.	LTS

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Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.2 Air Quality			
3.2-1: Project-Generated Emissions of Criteria Air Pollutants and Precursors. Implementing the proposed project would not result in the generation of short-term construction emissions beyond the level analyzed in the 2008 FSEIR, because the proposed modifications would not require additional daily land disturbance, heavy-duty equipment use, or construction personnel beyond the levels previously evaluated. However, construction of the proposed project (moat and row elements) would cause the delay of implementation of moat and row DCMs, a relatively small part of the overall DCM program, beyond the time frame specified in the 2008 SIP. Thus, implementation of the proposed project, as proposed, would technically conflict with the applicable air quality plan, resulting in a slight potential for an increase in the number of days when violations of the NAAQS and exposure of sensitive receptors would occur. This impact would be considered significant.	S	**Mitigation Measure(s) for Impact 3.2-1** The technical conflict with the 2008 SIP (i.e., delay in implementation of 3.5 square miles of DCMs by 6 months) is caused by the need for project changes to address wildlife impact concerns. LADWP is committed to implement all the proposed DCMs, if approved, as quickly as feasible. No other measures are reasonably available to reduce the potential impacts resulting from this conflict. This impact would remain significant and unavoidable until the moat and row project is implemented	SU
3.3 Visual Resources			
3.3-1: Potential Degradation of a Scenic Vista. Although the Sierra Nevada and Inyo Mountains are considered a scenic vista in the area surrounding Owens Lake, are highly visible from all locations surrounding Owens Lake, and create panoramic background views from numerous locations along Owens Valley, views of these mountains would not change and would not be blocked or otherwise altered by the proposed project. This impact would be less than significant.	LTS	No mitigation is required.	LTS

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Table ES-1
Summary of Environmental Impacts and Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.3-2: Potential Degradation of the Visual Character of Owens Lake. Views of moat and row elements at the project site would be indistinguishable, barely perceptible, or would not change the dramatic backdrop or natural feel of the overall landscape of Owens Lake because of their distance from the viewer, the size of the features in relation to the elevation of the viewpoints and surrounding mountains, and the predominant natural features of the surrounding landscape would be retained. Therefore, construction of moat and row elements at the project site would not result in substantial degradation of the viewshed as viewed by motorists traveling along U.S. 395, SR 190, or SR 136 or by visitors to the lakebed. This impact would be less than significant.	LTS	No mitigation is required.	LTS
3.3-3: Potential Construction-related Visual Impacts. Construction activities at the project site would result in a change in the existing visual character of Owens Lake. However, changes to views of individual moat and row cells would be temporary and brief. This impact would be less than significant.	LTS	No mitigation is required.	LTS

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1 INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This document is the draft supplemental environmental impact report (SEIR) for the revised Moat and Row Project (project). Prior to its proposed revision, the project was evaluated and adopted as part of the *2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Final Subsequent Environmental Impact Report* (2008 FSEIR) (adopted by the Great Basin Unified Air Pollution Control District [GBUAPCD] in February 2008). This SEIR has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code (PRC) Section 21000 et seq., and the State CEQA Guidelines, Title 14 California Code of Regulations (CCR) Section 15000 et seq.

In December 2008, an initial study (IS) was prepared by the City of Los Angeles (City), Department of Water and Power (LADWP) (lead agency under CEQA) to determine whether the project, as revised and considered herein, would have a new or more severe significant effect on the environment when compared to the project considered in the 2008 FSEIR. New potentially significant effects were identified, and thus LADWP determined that an SEIR was needed to analyze those effects. A notice of preparation (NOP) of the SEIR, along with the IS, was prepared and distributed to potential responsible and trustee agencies, and other parties of interest. A copy of the NOP/IS and comments received on the analysis are included in Appendix A of this SEIR.

In accordance with State CEQA Guidelines Section 15064(a), an EIR must be prepared if there is substantial evidence that a project may have a significant effect on the environment. This consideration includes whether a project may contribute considerably to a cumulatively significant impact. Preparation of an IS helps to identify the environmental issues that should be addressed in the EIR (i.e., items identified in the IS as having a potentially significant impact) and those that need not be addressed (i.e., items identified in the IS as having a less-than-significant impact or no impact). As is the case here, where an EIR has already been prepared but the project has changed, the IS is used to identify whether there would be any new significant impacts that were not addressed in the prior EIR, or if any of the impacts addressed in the prior EIR would be more severe. If an impact was addressed in the prior EIR and evaluation of its severity remains unchanged, even if it was considered significant, it need not be addressed again.

1.2 RELATIONSHIP TO THE 2008 FSEIR

The GBUAPCD prepared and adopted the 2008 FSEIR on February 1, 2008. The 2008 FSEIR evaluated the implementation of 15.1 square miles of dust control measures (DCMs) within the Owens Lake Planning Area. DCMs evaluated and approved included shallow flooding, moat and row elements, and application of gravel as riprap (a loose assemblage of broken stones) on berms within shallow flooding ponds or as a cap on rows in moat and row elements. Approximately 3.5 square miles of moat and row DCMs were evaluated and approved. Since the time the 2008 FSEIR was published, changes to the design and operation and maintenance plan for the moat and row DCMs have been proposed.

This SEIR describes the impacts that were determined through the IS to result in potentially significant environmental impacts and that warrant further environmental review through the preparation of an EIR. Section 15162 of the State CEQA Guidelines specifies that when an EIR has been certified for a project, no subsequent EIR shall be prepared for a project unless the agency determines, based on substantial evidence, that:

- substantial changes are proposed or occur with respect to the circumstances under which the project is undertaken that will require major revisions to the previous EIR due to the involvement of significant effects or a substantial increase in the severity of previously identified significant effects;

- new information of substantial importance, which was not known and could not have been known at the time the previous EIR was certified, shows the following:
  - the project would have one or more significant effects not discussed in the previous EIR;
  - the significant effects previously examined would be substantially more severe than shown in the previous EIR;
  - mitigation measures or alternatives previously found to be infeasible would in fact be feasible and would substantially reduce one or more significant effects of the project; or
  - mitigation measures or alternatives that are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment.

Implementing the proposed project would result in changes to the design of the moat and row elements, and a more refined operations and maintenance plan is proposed. These changes were not known when the 2008 FSEIR was prepared; therefore, an analysis of their environmental effects is required under CEQA. However, these changes affect only the moat and row dust control areas (DCAs), not the larger dust control program evaluated in the 2008 FSEIR. In cases where only minor additions or changes to a previous EIR are required to make the previous EIR apply to the changed project, CEQA Section 15163 allows the preparation of a supplement to a previous certified EIR if any of the conditions that require the preparation of a SEIR are present. Further, CEQA states that the SEIR need contain only the information necessary to make the previous EIR adequate.

The proposed project involves a change to only one element of the larger dust control program evaluated in the 2008 FSEIR, and the additional potential environmental impacts would be limited to a few issues. Most of the issues related to land use (e.g., geology, hydrology, hazards, public services and utilities, recreation, mineral resources, agricultural resources, noise, and land use itself) were sufficiently evaluated in the 2008 FSEIR, and implementing the proposed project would not result in any new significant impacts in these areas. For this reason, LADWP has determined that an SEIR that focuses on the issues of construction-related air quality, visual resources, and biological resources would comply with CEQA requirements. Consistent with Sections 15162 and 15163 of the State CEQA Guidelines, this SEIR evaluates the impacts that would result from implementing the changed project that were not identified in the 2008 FSEIR or that would be more severe significant impacts under the proposed project.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

LADWP has prepared this draft SEIR to disclose the potential environmental effects of the proposed project. This draft SEIR was prepared in compliance with CEQA (as amended through PRC Section 21000 et seq.) and the State CEQA Guidelines (CCR Section 15000 et seq.). An EIR is a full disclosure, public information document in which the significant environmental impacts of a project are evaluated, feasible measures to reduce significant impacts are identified, and alternatives to the project that can reduce or avoid significant environmental effects are considered.

An EIR is an informational document used in the planning and decision-making process by the lead agency and responsible and trustee agencies. The lead agency is the public agency with primary responsibility over the project. In accordance with State CEQA Guidelines Section 15051(b)(1), “the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose.” In the case of the proposed project, the lead agency is LADWP, who will be responsible for overall approval and would construct the project.

The purpose of an EIR is not to recommend approval or denial of a project. CEQA requires decision-makers to balance the benefits of a project against its unavoidable environmental effects in deciding whether to carry out a project. The lead agency will consider this draft SEIR, comments received on this draft SEIR, and responses to those comments before making a decision. If environmental impacts are identified as significant and unavoidable, the lead agency may still approve the project if it determines that the social, economic, or other benefits outweigh the unavoidable impacts. The lead agency would then be required to issue a "Statement of Overriding Considerations" that discuss the specific reasons for approving the project, based on information in the EIR and other information in the record.

1.4 SCOPE OF THE SEIR

Pursuant to Section 15143 of the State CEQA Guidelines, a lead agency may limit the EIR's discussion of environmental effects to specific issues where significant effects on the environment may occur. In this case, where the consideration is on modifications to a previously approved project, LADWP used a variety of information to determine which issue areas would result in potentially new significant or significant effects on the environment that were not considered in the 2008 FSEIR. This information included review of the 2008 FSEIR, preparation of an IS (Appendix A) field surveys of the project site, review of project characteristics, comments from public and agency consultation, and comments received on the NOP. An NOP and the IS were circulated to public agencies and the public on December 16, 2008, for a 30-day review period. A public scoping meeting was held on January 7, 2009, at 6 p.m. in the Inyo County Administrative Center. Comments received on the NOP are included in Appendix A.

Based on the results presented in the IS and comments received, it was determined that a supplemental EIR to the *2008 FSEIR* would be required and would need to address three environmental resource areas: biological resources, construction-related air quality, and visual resources.

1.5 EFFECTS FOUND NOT TO BE SIGNIFICANT

Pursuant to the State CEQA Guidelines Section 15128, "[a]n EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR." As described above, an IS was prepared for the project that identifies those effects that were already addressed in the 2008 FSEIR, or otherwise were found not to be significant. The 2008 FSEIR determined that construction, maintenance, and operation of DCMs (including moat and row) would result in significant impacts to biological resources, cultural resources, hazards, hydrology and water quality, mineral resources, transportation and traffic, and utilities. Each of these significant impacts would be reduced to a less-than-significant level with implementation of mitigation measures recommended in the 2008 FSEIR. The 2008 FSEIR also determined that implementation of the 2008 State Implementation Plan (SIP) would result in significant unavoidable impacts to air quality from construction of DCMs. Specifically, construction activities would result in unavoidable short-term emissions of particulate matter (i.e., PM_{10} [particulate matter 10 microns in diameter or less], $PM_{2.5}$ [fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less]), ozone, and greenhouse gases. The project considered in this draft SEIR would contribute to the significant and significant and unavoidable impacts identified in the 2008 FSEIR. Other impacts were identified in the 2008 FSEIR and were found to be less than significant, including geology and soils, land use and planning, noise, population and housing, and public services. These impacts would not change with implementation of the project.

1.6 FEDERAL, RESPONSIBLE, AND TRUSTEE AGENCIES

LADWP is the lead agency with primary authority for approval of the project. Additional agencies (listed below) with potential permit or approval authority over the project, or elements thereof, will have the opportunity to review this document during the public review period, and will use this information in consideration and issuance of any permits required for the project.

Public agencies that will use this EIR with known or potential permits, other approvals, or jurisdiction by law over resources on the site include, but may not be limited to, the following federal, state, and locally responsible agencies.

1.6.1 FEDERAL AGENCIES

Although not subject to CEQA, federal agencies can use information in a CEQA document to consider impacts under the National Environmental Policy Act. The following federal agencies may need to provide actions for the project to move forward:

- *U.S. Army Corps of Engineers*—possible amendment to existing Section 404 of the Clean Water Act permit.
- *U.S. Bureau of Land Management*—possible amendment to existing temporary and permanent right-of-way grants on federal lands.

1.6.2 STATE AGENCIES

- *California State Lands Commission*—possible amendment to existing land-use lease and permits for use of state lands, including some state land currently leased by U.S. Borax.
- *California Department of Fish and Game*—new lake or streambed alteration agreement for all ground-disturbing activities associated with the moat and row elements within jurisdictional areas pursuant to Section 1600 of the California Fish and Game Code.
- *California Department of Transportation*—possible amendment to existing right-of-way encroachment permit for access/power off State Route 190 and U.S. Highway 395 and a permit authorizing the transport of overweight vehicles to the moat and row DCAs.
- *California Regional Water Quality Control Board*—possible amendment to existing Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirement and Monitoring Reporting Plan.

1.6.3 LOCAL RESPONSIBLE AGENCIES

- *Great Basin Unified Air Pollution Control District*—implementation of 2008 SIP.

1.7 PUBLIC REVIEW PROCESS

1.7.1 DOCUMENT CIRCULATION

Consistent with the requirements of CEQA, a good faith effort has been made during the preparation of this draft SEIR to contact affected agencies, organizations, and individuals who may have an interest in the project. As described above, this effort included the circulation of the NOP on December 16, 2008 and a public scoping meeting in the Inyo County Administration Center on January 7, 2009. In addition, early consultation with relevant agencies, organizations, and individuals assisted in the preparation of this draft SEIR. LADWP has filed a notice of completion with the Governor's Office of Planning and Research, State Clearinghouse, indicating that this draft SEIR has been completed and is available for review and comment by the public. This draft SEIR is being circulated for a 45-day public review period, during which time written comments will be received by LADWP at the following address:

Department of Water and Power
City of Los Angeles
111 North Hope Street, Room 1044
Los Angeles, CA 90012
Contact: Tom Dailor
Fax: (213) 367-4710
e-mail: Thomas.Dailor@ladwp.com

If there are any questions regarding this draft SEIR, please contact Mr. Tom Dailor at (213) 367-0221.

A copy of this draft SEIR may also be found at the following locations:

- Inyo County Free Library, 168 N. Edwards Street, Independence, CA, 93526, (760) 878-0260
- Big Pine Library, 110 North Main,, Big Pine, CA, 93513, (760) 938-2420
- Lone Pine Branch Library, South Washington Street, Lone Pine, CA, 93545, (760) 876-5031
- Bishop Branch Library, 210 Academy Street, Bishop, CA, 93514 (760) 873-5115
- Ridgecrest Public Library, 131 E. Las Flores Avenue, Ridgecrest, CA, 93555 (760) 384-5870

A copy of the draft SEIR will also be posted online at http://www.ladwp.com/ladwp/cms/ladwp011450.jsp. Please submit comments in writing to the address provided below. Comment letters must be received by 5:00 p.m. on July 22, 2009.

1.7.2 PUBLIC MEETING

A public meeting on this draft SEIR will also be held in the community of Independence at the Inyo County Administrative Center, 224 North Edwards, at 6:00 p.m. on June 25, 2009, during the review period, to receive oral comments on the document. A public notice of availability of this draft SEIR, which also includes the date, time, and specific location for the public meeting, has been published in the *Inyo Register* and *Daily Independent*.

1.8 TERMINOLOGY USED IN THE EIR

This draft SEIR includes the following terminology to denote the significance of environmental impacts of the project:

- **Less-than-significant Impact:** A less-than-significant impact is one that would not result in a substantial and adverse change in the environment. This impact level does not require mitigation.

- **Significant Impact:** CEQA Section 21068 defines a significant impact as one that causes "a substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by the project." Feasible mitigation measures or alternatives to the project must be considered to reduce the magnitude of significant impacts to less-than-significant levels.

- **Potentially Significant Impact:** A potentially significant impact is one that, if it were to occur, would be considered a significant impact as described above; however, the occurrence of the impact cannot be definitely determined. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact and would require mitigation.

- **Significant and Unavoidable Impact:** A significant and unavoidable impact is one that would result in a substantial adverse effect on the environment that cannot be feasibly mitigated to a less-than-significant level. A project with significant unavoidable impacts can still be approved, but the City would be required to prepare a statement of overriding considerations, pursuant to State CEQA Guidelines Section 15093, explaining the social, economic, or other benefits of the project that outweigh the significant environmental impacts.

- **Threshold of Significance:** This criterion defines at what level an impact would be considered significant. A criterion is defined based on examples found in CEQA or the State CEQA Guidelines, scientific and factual data relative to the lead agency's jurisdiction, views of the public in affected areas, the policy/regulatory environment of affected jurisdictions, as well as other factors.

1.9 EIR ORGANIZATION

This draft SEIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Section 3.1, "Biological Resources").

"Executive Summary." This section summarizes the project description, alternatives to the project, significant environmental impacts that would result from the project, and mitigation measures proposed to reduce or eliminate those impacts.

Chapter 1, "Introduction." Chapter 1 describes the purpose and organization of the draft SEIR, context, lead, federal, trustee, and responsible agency actions, and terminology used in this draft SEIR.

Chapter 2, "Project Description." Chapter 2 describes project location; background; proposed actions by the applicant; project characteristics; project objectives; and project construction requirements. This chapter also contains a discussion of cumulative setting and projects that would contribute to cumulative impacts in the project area.

Chapter 3, "Environmental Setting, Thresholds of Significance, Project and Cumulative Impacts, and Mitigation Measures." For each environmental issue area, this chapter describes the existing environmental setting, discusses the environmental impacts associated with the proposed project, and identifies mitigation for the impacts. This chapter also includes a discussion of cumulative impacts that would result from the proposed project in combination with reasonably foreseeable projects in the project area.

Chapter 4, "Other CEQA-Mandated Sections." The potential for the project to foster economic or population growth or remove obstacles to growth are evaluated in Chapter 4. Project and cumulative impacts that cannot be mitigated to a less-than-significant level are also documented in this chapter.

Chapter 5, "Alternatives to the Project." This chapter describes alternatives to the project at a level consistent with State CEQA Guidelines Section 15126.6(d). This chapter presents brief descriptions of alternatives that could mitigate the project's environmental impacts while meeting most of the project's objectives. This chapter also describes alternatives previously considered and rejected.

Chapter 6, "References." This chapter sets forth a comprehensive listing of all sources of information used in the preparation of this draft SEIR, including agencies or individuals consulted during preparation of this draft SEIR.

Chapter 7, "Report Preparers." This chapter identifies the draft SEIR authors and consultants who provided analysis in support of this draft SEIR's conclusions.

Appendices. Appendices contain various technical reports, letters, and official publications summarized or otherwise used in the preparation of this draft SEIR.

1.10 LIST OF ACRONYMS AND OTHER ABBREVIATIONS

The following acronyms and other abbreviations are used in this draft SEIR.

2008 FSEIR	*2008 Owens Valley PM_{10} Planning Area State Implementation Plan Final Subsequent Environmental Impact Report*
AB	Assembly Bill
af/ac/yr	acre-foot per acre per year
ARB	California Air Resources Board
ARB Draft Staff Proposal	Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act
ATV	all-terrain vehicle
BLM	U.S. Bureau of Land Management
CAAA	Clean Air Act Amendments of 1990
Cal/EPA	California Environmental Protection Agency
Caltrans	State of California Department of Transportation
CC&R	Conditions, Covenants, & Restrictions
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CH_4	methane
City	City of Los Angeles
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
County	Inyo County
CSD	Community Service District
CSLC	California State Lands Commission
DCA	dust control area
DCM	dust control measure
DFG	California Department of Fish and Game
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act

FHWA	Federal Highway Administration
FSEIR	final supplemental environmental impact report
GBUAPCD	Great Basin Unified Air Pollution Control District
GBVAB	Great Basin Valley Air Basin
GHG	greenhouse gases
GPS	global positioning system
IS	initial study
LADWP	City of Los Angeles Department of Water and Power
LORP	Lower Owens River Project
LOS	Level of Service
MBTA	Migratory Bird Treaty Act
MDCE	minimum dust control efficiencies
MMT CO2e	million metric tons of CO2 equivalent
mph	miles per hour
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_2	nitrogen dioxide
NOC	notice of completion
NOP	notice of preparation
NO_X	oxides of nitrogen
O&M	operations and maintenance
OPR	Governor's Office of Planning and Research
PM_{10}	particulate matter 10 microns or less in diameter
$PM_{2.5}$	fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less
ppm	part per million
PRBO	Point Reyes Bird Observatory
PRC	Public Resources Code
project	Moat and Row Project
PUD	Planned Unit Development
ROG	reactive organic gases
RR	Rural Residential

SCH	State Clearinghouse
Scoping Plan	AB 32 Scoping Plan
SEIR	supplemental environmental impact report
SFBBO	San Francisco Bay Bird Observatory
SIP	state implementation plan
SO_2	sulfur dioxide
SR	State Route
TAC	toxic air contaminant
U.S.	U.S. Highway
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
$\mu g/m^3$	micrograms per cubic meter

2 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed project encompasses approximately 3.5 square miles of the 110-square-mile dry Owens Lake bed (which is part of the larger Owens Lake Planning Area) located in Owens Valley. Owens Lake is located approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the city of Bishop. In addition, Owens Lake is located approximately 11 miles east of the easternmost boundary of Sequoia National Park and approximately 19 miles west of the westernmost boundary of Death Valley National Park. Owens Lake is bounded by State Route (SR) 136 to the north, SR 190 to the south, and U.S. Highway (U.S.) 395 to the west. Part of the project is adjacent to the California Department of Fish and Game's (DFG's) Cartago Springs wildlife area (Exhibits 2-1 and 2-2).

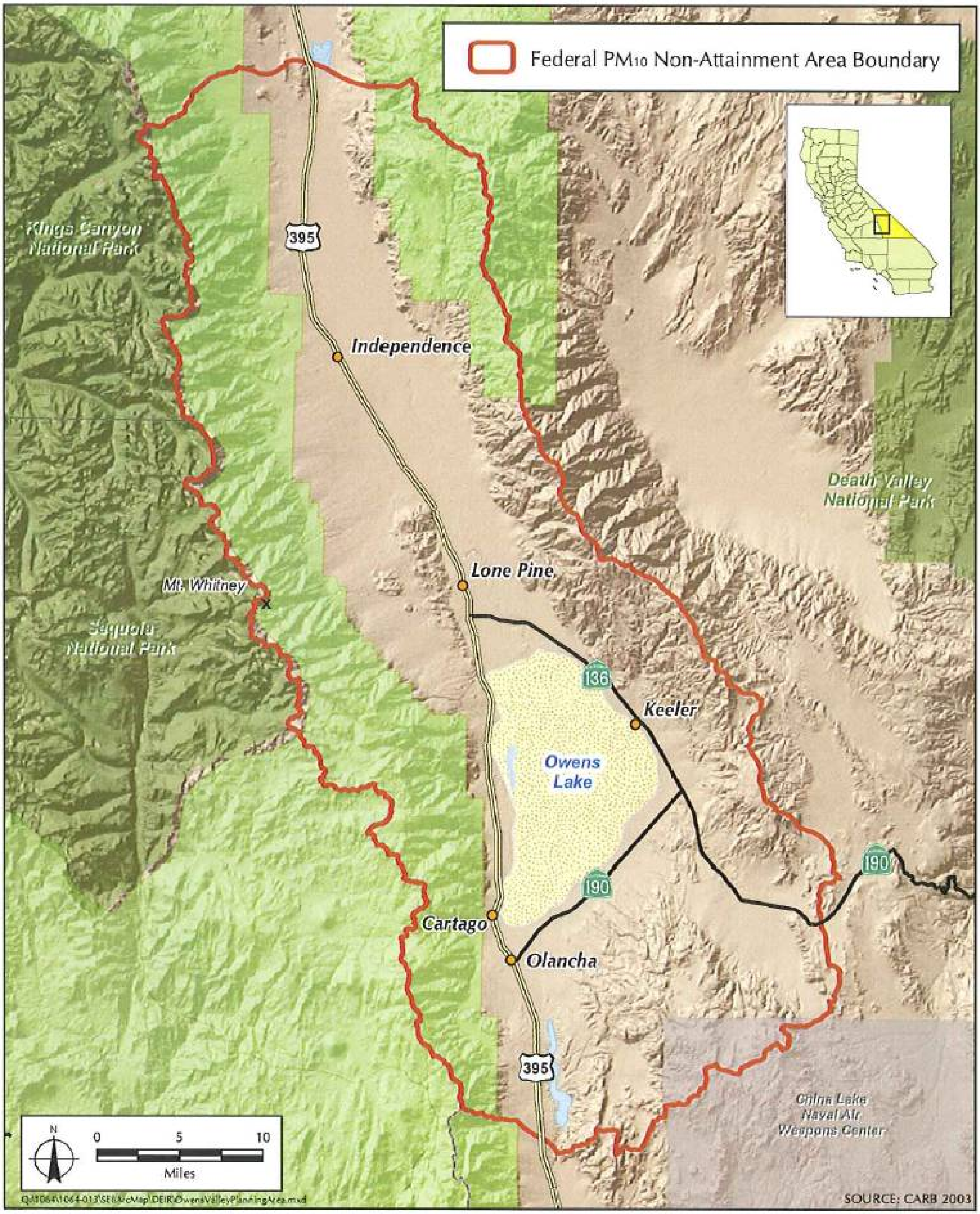
Four communities exist in the vicinity of the project area, within the unincorporated area of Inyo County: Lone Pine to the north, Keeler to the east, and Olancha and Cartago to the southwest. The Lone Pine Indian Reservation is also located north of the project area.

2.2 PROJECT BACKGROUND

Owens Lake is part of an ancient chain of lakes that was active during the Pleistocene era, about 1.8 million years ago. Until approximately 3,000 years ago, Owens Lake drained from the basin to the south. Seismic uplift along the Coso Range, combined with the post-glacial drying trend, eliminated outflows from the basin, creating a closed system with water losses resulting from surface evaporation and transpiration. Because of the arid environment and high evaporation rates, a highly saline water body developed. In the late 1800s, Owens Lake was approximately 110 square miles in size and was one of the largest and most saline water bodies in the United States (Exhibit 2-3) (Desert USA 2009).

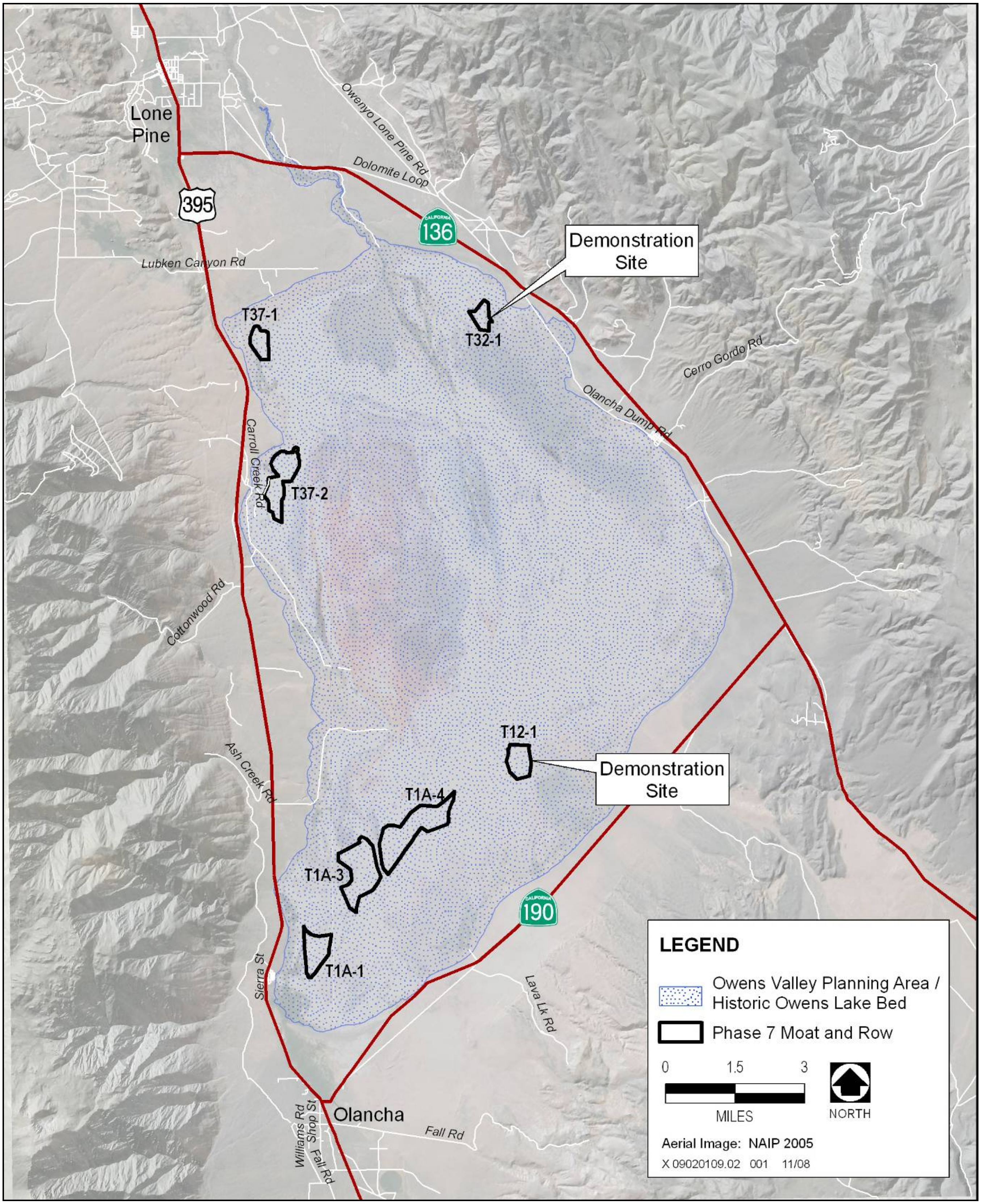
Surface water diversions from the lake, from approximately the 1860s to the early 1900s, substantially reduced surface water inflow to the lake. Although historical lake levels were as high as 3,597 feet above mean sea level (msl) in 1878, by 1906, after extensive irrigation projects had been implemented and drought conditions had occurred, the lake level had dropped to as low as 3,565 feet above msl (a 32-foot drop in elevation). With the end of the drought in 1912, lake levels rose slightly to 3,579 feet above msl, but then continued their decline once the City of Los Angeles (City) completed its freshwater aqueduct system and began diverting waters from the Owens River south to serve residents in the city. With increasing demand for exported water to serve the growing Los Angeles metropolitan area and increased diversions for irrigation in the Owens Valley (primarily on land owned by the City), the historic Owens Lake levels continued to decline, creating a small hyper-saline remnant brine pool approximately 26 square miles in size. By 1930 the lake was virtually dry, with a lake elevation of 3,554 feet above msl (43-foot drop). The historical shoreline of Owens Lake is 3,600 feet above msl (Exhibit 2-3). A permanent brine pool exists in the lowest portion of the basin and is surrounded by dry playa soils and crusts. The U.S. Army Corps of Engineers (USACE) has identified the ordinary high water mark of the brine pool as being at an elevation of 3,553.55 feet above msl, with evaporative deposits and brine covering much of the brine pool area. LADWP diversions in addition to other agricultural diversions, evaporation, and periodic drought conditions have contributed to and resulted in the drying of the lake bed.

The exposed open playa area (lake bed) between the historical shore line (3,600 feet above msl) and the brine pool (3,553.55 feet above msl) consists of unstable soils that can be highly emissive during wind events. The Great Basin Unified Air Pollution Control District (GBUAPCD) regulates fugitive dust (particulate matter 10 microns in diameter or less, or PM_{10}) emissions in the Owens Lake Planning Area consistent with the requirements of the National Ambient Air Quality Standards (NAAQS). Prior to construction of dust controls in 2000, the dried Owens Lake bed, located in the Owens Lake Planning Area, was the largest single source of PM_{10} emissions in the United States, with annual PM_{10} emissions of more than 80,000 tons and 24-hour concentrations as high as



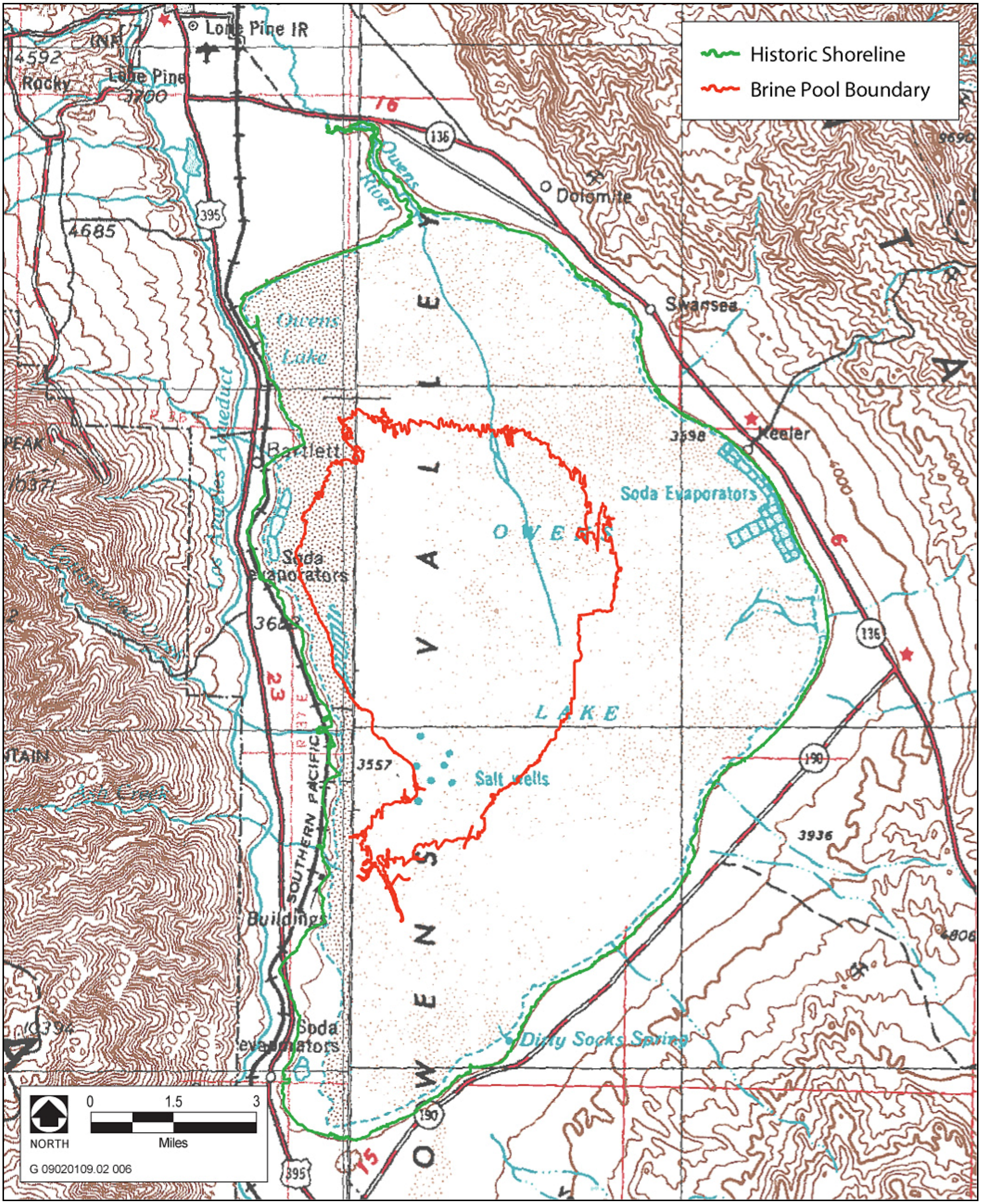
Source: Adapted by EDAW in 2008

Regional Location **Exhibit 2-1**



Source: Adapted by EDAW in 2008

Project Location **Exhibit 2-2**



Source: GBUAPCD 2008

Owens Lake Historic Shoreline **Exhibit 2-3**

130 times the federal air quality standard. Since the implementation of dust controls in 2000, PM_{10} emissions have substantially decreased, and as of 2007 emissions from the lake bed were 33,769 tons and total emissions were 46,729 tons from the Owens Lake Planning Area. The fugitive dust emissions at Owens Lake are the result of wind passing over the exposed lake bed.

In 1987, the U.S. Environmental Protection Agency (EPA) designated the Owens Lake Planning Area as non-attainment for the NAAQS for PM_{10}. The GBUAPCD is the agency designated by the EPA and the State of California to develop, implement, and enforce a plan that addresses the problem. As a result, GBUAPCD was required to prepare a SIP that demonstrates how the NAAQS for PM_{10} would be attained. GBUAPCD adopted SIPs for the Owens Lake Planning Area in 1997 and 1998. EPA approved the 1998 SIP. The 1998 SIP and its associated environmental document evaluated and approved the implementation of a variety of dust control measures (DCMs) on 19.4 square miles of the lake bed. The SIP also specified that GBUAPCD would continue to study the lake bed and would revise the SIP to address changing conditions within the lake bed, as well as implement newer or more efficient DCMs developed over time. After monitoring the lake bed and assessing the effectiveness of dust control strategies already in place, GPUAPCD revised the SIP in 2003 to expand the area where DCMs would be implemented by 10.4 square miles and required that LADWP implement all new DCMs by December 31, 2006. With approval of the 2003 Revised SIP, which was also approved by the California Air Resources Board, a total of 29.8 square miles of DCMs were implemented on Owens Lake by the end of 2006. Both the 1998 SIP and 2003 Revised SIP underwent comprehensive environmental review in compliance with CEQA. Table 2-1 describes the environmental documents prepared to address the DCMs proposed for the 1998 and 2003 SIPs.

The 2003 Revised SIP contains provisions requiring the GBUAPCD to continue monitoring dust emissions from the lake bed and to identify any additional areas beyond the 29.8 square miles of dust control areas (DCAs) that may require DCMs in order to meet NAAQS for PM_{10}. As a result of the continued monitoring, the GBUAPCD identified up to 15.1 additional square miles of DCAs, of which 9.2 square miles would be constructed with shallow flooding DCMs, 3.5 square miles would be constructed with moat and row DCMs, 1.9 square miles would be reserved for future study areas, and 0.5 square mile would be channel areas (Table 2-2). The study areas and the channel areas may or may not require dust mitigation (i.e., implementation of approved DCMs). These additional DCAs were outlined in the 2008 SIP. The environmental impacts were evaluated as part of the 2008 FSEIR (Table 2-1). After publication and certification of the 2008 FSEIR, DFG and the California State Land Commission (CSLC) raised concerns over specific features of the moat and row DCM and its impact on wildlife, as well as other issues. In addition, specific details regarding the operation and maintenance of the moats and rows were not available at the time the 2008 FSEIR was certified, and thus could not be evaluated at a project level of detail. A more refined operations and maintenance plan is proposed as part of this revised moat and row DCM project. These changes were not known when the 2008 FSEIR was prepared; therefore, an analysis of their environmental effects is required under CEQA. However, these changes affect only the moat and row dust control areas (DCAs), not the larger dust control program evaluated in the 2008 FSEIR.

In response to comments received, LADWP refined the design of the moat and row DCM , proceeded with addressing DFG’s concerns regarding wildlife impacts, and developed additional details regarding the operation and maintenance plan. These refinements are the subject of this draft SEIR.

Table 2-1
Environmental Documents Addressing Dust Control Measures in the Owens Lake Planning Area

Adopted SIP	Environmental Document	Subject
1997 and 1998 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIPs	*Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Final Environmental Impact Report (1997)*, SCH Number 1996122077; GBUAPCD was CEQA Lead Agency.	This environmental document evaluated implementation of DCMs for approximately 19.4 square-miles in the Owens Lake Planning Area. DCMs evaluated and approved in this document included shallow flooding, managed vegetation, and application of gravel.
	Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP Addendum No. 1 to the Final Environmental Impact Report (1998), SCH Number 1996122077; GBAPCD was CEQA Lead Agency.	This environmental document addressed changes to the 1997 SIP project description approved in a memorandum of agreement (July 28, 1998) between GBUAPCD and the City of Los Angeles. No new or expanded dust control areas (DCAs) were approved.
2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP	*2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP Integrated Environmental Impact Report (February 2004)*, SCH Number 2002111020; GBUAPCD was CEQA Lead Agency.	The 2003 SIP was prepared in response to monitoring data on the effectiveness of DCMs implemented as part of the 1997 SIP. This environmental document evaluated implementation of an additional 10.4 square miles of DCMs (i.e., shallow flooding, managed vegetation), mainline and drainline water pipeline connections, subsurface drainage system improvements, power supply and control facilities, fertilizer and water treatment injection systems, utility corridors, power cables and access roads, and construction corridors. A total of 10.4 square miles of DCMs were approved, with this project bringing the total area of DCMs approved to 29.8 square miles (19.4 square miles were approved with 1997 SIP).
	Environmental Impact Report Addendum No. 1 to the 2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP (2004); SCH Number 2002111020; LADWP was CEQA Lead Agency.	This environmental document evaluated the exchange of 1.3 square miles of DCAs originally designated for managed vegetation to shallow flooding and the addition of 223 acres of shallow flooding outside the area analyzed in the 2003 SIP EIR.
2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan	*2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Integrated Subsequent Environmental Impact Report (2008)*, SCH Number 2007021127; GBUAPCD CEQA Lead Agency	This environmental document evaluated implementation of an additional 15.1 square miles of DCMs within the Owens Lake Planning Area. DCMs evaluated and approved included shallow flooding, moat and row, and application of gravel. Approximately 3.5 square miles of moat and row DCMs were evaluated and approved in this project.

Notes:
CEQA = California Environmental Quality Act
DCA = dust control area
DCM = dust control measure
GBUAPCD = Great Basin Unified Air Pollution Control District
LADWP = Los Angeles Department of Water and Power
SCH = State Clearinghouse
SIP = state implementation plan
Source: GBUAPCD 2008

Table 2-2 Dust Control Areas Identified in 2008 SIP Supplemental EIR			
2008 SIP Subsequent EIR DCA	Square Miles	Acres	Percentage of Total DCA
Shallow Flood	9.2	5,888	61
Moat and Row	3.5	2,240	23
Study Area	1.9	1,216	13
Channel Area	0.5	320	3
Total	**15.1**	**9,664**	**100**
Source: GBUAPCD 2008			

CURRENT STATE OF LADWP WATER SUPPLIES

LADWP is a retail water agency that provides water to over four million residents within a 465 square-mile service area. LADWP water supply sources include the Los Angeles Aqueduct (LAA) (approximately 35% of total supplies), water purchased from Metropolitan Water District (MWD) of Southern California (approximately 53% of total supplies), groundwater (approximately 11% of total supplies), and recycled water (approximately 1% of total supplies) (LADWP 2009).

The first LAA was completed in 1913 with an original capacity of approximately 311,000 acre-feet per year (afy) (Appendix D). Since then, the LAA has undergone two major expansions which increased its water delivery capacity to 530,000 afy. The City of Los Angeles' LAA supplies have been significantly reduced over the last two decades in order to provide water for environmental mitigation in the Eastern Sierra Nevada including the Owen Lake Dust Mitigation Program (see discussion above). Environmental restoration combined with water required for Owens Lake dust mitigation (required by the 1998 and 2003 SIPs) has effectively reduced current LAA deliveries to Los Angeles by approximately 50 percent (Appendix D). Reductions in LAA supplies result in increased water purchases from the City's wholesale water provider, MWD. In April 2010 approximately 87,000 acre-feet of the estimated 400,000 acre-feet of water supply purchased from MWD will be used to replace water allocated for the Owens Lake Dust Mitigation Project and this amount is expected to increase to 95,000 afy with full implementation of the Phase 7 dust control improvements for Owens Lake anticipated by the Spring 2010 (Appendix D).

MWD's service area covers approximately 5,200 square miles in Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura counties and MWD imports water into Southern California from two sources, the Colorado River and the California State Water Project (SWP). The SWP is a water storage and delivery system of reservoirs, aqueducts, power plants, and pumping plants. Its main purpose is to store water and distribute it to 29 urban and agricultural water suppliers in Northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California (SWP 2009a). SWP supplies are delivered to MWD through the Sacramento-San Joaquin Delta.

The Sacramento-San Joaquin Delta is the confluence of where two of California's largest rivers meet. Freshwater from the Sacramento and San Joaquin rivers mix with saltwater from the Pacific Ocean, creating the largest estuary on the West Coast. The Delta is composed of 57 levees, island tracts and 700 miles of sloughs and winding channels (SWP 2009b). Two of every three Californians depend on the Delta as a key water source (Appendix D), Significant changes over the past few years have occurred in the Delta – including sea level rise, climate change effects, levee deterioration, seismic risk, urbanization, ecosystem degradation, and court decisions reducing exports of Delta water to central and southern California– all of which have adversely affected the sustainability and reliability of Delta water supplies. Efforts are under way to address the many problems of the

Delta. In 2006, Governor Arnold Schwarzenegger signed an executive order to establish a “Delta Vision” Blue Ribbon Task Force that would provide comprehensive recommendations for management of the Delta.

One of the most significant decisions affecting Delta water supplies was the Delta Smelt Biological Opinion issued in May 2007. A federal court invalidated the Biological Opinion issued by the U.S. Fish & Wildlife Service (USFWS) for the operation of the SWP and Central Valley Project with regard to Delta Smelt, a federally and state listed threatened fish species that inhabits the estuaries of the Bay-Delta region. In response, the USFWS issued a new Delta Smelt Biological Opinion on December 15, 2008. The new Delta Smelt Biological Opinion reduces SWP water exports from the Delta to 1.5 million acre-feet per year (mafy) (a reduction of 46 percent or 0.7 mafy). MWD receives its supplies from the SWP and under these Delta operating conditions, on average under normal water years, MWD would receive 750,000 acre-feet far less than the 1.5 million acre-feet it historically received from the SWP (a roughly 50 percent reduction). During wet (above-average rainfall years) MWD’s supplies would be reduced by 800,000 acre-feet to maintain adequate supplies in the Delta (Appendix D) These decreased supplies have the effect of increased, sustained demands on MWD’s dry-year storage programs. MWD’s groundwater banking, conjunctive-use, and surface storage programs during normal and wet water years would be severely reduced and the opportunities to refill/recharge those storage programs would be minimized because of increased reductions during wet years.

On February 27, 2009, Governor Arnold Schwarzenegger proclaimed a state of emergency and ordered immediate action to manage California’s water crisis. As part of his statement, the Governor expressed that one of the causes for the water crisis was that “a biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, imposed a 30 percent restriction on water deliveries from the SWP and the Central Valley Project to protect Delta Smelt”. The Governor directed that all urban water users immediately increase their water conservation activities in an effort to reduce their individual water use by 20 percent (Appendix D).

All of LADWP’s demands for supplemental water (i.e., water that is not pumped from underlying groundwater or delivered by the LAA) are met through water supply purchases from MWD and MWD supplies make up the largest proportion of LADWP’s water resources. MWD’s current water demands are approximately 2.23 million mafy. MWD’s Colorado River supplies provide approximately 1.05 mafy; therefore, MWD’s SWP supplies combined with existing system storage make up the remaining 1.18 maf each year.

With regards to MWD’s Colorado River supplies, water availability from the Colorado River is governed by a system of priorities and water rights that has been established over many years. The 1931 Seven Party Agreement established California’s priorities for Colorado River Water. MWD is assigned a fourth priority of 550,000 afy, which is junior to that of the first three priorities, totaling 3.85 mafy to California agricultural agencies. As a result of growth in demand in other states and drought conditions since 2003, MWD’s deliveries have been limited to their base apportionment plus water from a conservation program. This conservation program currently yields about 106,000 afy, giving MWD a total supply of approximately 656,000 afy (SDCWA 2005). However, in some years MWD must provide 50,000 af of the conservation program water to the Coachella Valley Water District (CVWD). Thus, MWD’s firm supply is now about 606,000 afy from the Colorado River. This amount was verified through personal communication with SDCWA (SDCWA 2008). This is supplemented by unused apportionment from other states and surplus water, both which have been diminished in recent years.

The Colorado River has experienced drought conditions for eight of the last nine years. This is the longest dry period on the river in recorded history (MWD 2008a). Since 2003, MWD’s Colorado River supplies have been diminished by as much as half after California reduced its use of river water because of drought. MWD is currently engaged in several efforts to increase Colorado supply reliability, including through its Integrated Resources Plan update process, the funding of a new reservoir adjacent to the All American Canal in Imperial County, and the authorization of agreements leading toward the adoption of a Federal Colorado River Shortage-Sharing Plan (MWD 2008b). However, it is unknown to what extent drought conditions and MWD’s efforts to adapt to those conditions will affect MWD’s firm Colorado River water supply.

Regarding MWD's SWP supplies, with issuance of the new Biological Opinion for Delta Smelt, demands for MWD's SWP water (i.e., 1.05 mafy) would exceed available supplies (i.e., 750,000 afy under normal years) by approximately 430,000 afy. MWD staff has reported that it will be forced to remove water from existing storage reserves to meet demands in 8 out of 10 years. Over the past three years MWD has withdrawn water from storage every year and at the beginning of 2009 MWD had only 1.0 million acre feet (maf) of stored water supplies remaining in its storage accounts with plans to draw 0.35 maf in 2009. Storage in the MWD system is now at critically low levels (i.e., 1 maf of supply is available in MWD's 5 maf capacity system and MWD intends to withdraw approximately 350,000 afy). Based on storage levels and reduced deliveries from the SWP because of the Delta Smelt Biological Opinion, the MWD Board took action on April 14, 2009 to ration water to its member agencies, including LADWP, for the first time since 1991. MWD's allocation calls for a 10% cut in deliveries to all member agencies including LADWP (Appendix D).

This shortfall has prompted the LADWP to recommend water rationing by imposing shortage year water rates and implementing water conservation measures outlined in Phase III of the City's water conservation ordinance. The City approved the adoption of 15% shortage year rates on April 17, 2009. These rates impose a higher Tier 2 water rate on homeowners who exceed 85% of their water allocation (a 15% cutback) for their specific lot (based on lot size, occupancy, and temperature zone). Phase III water conservation restrictions are inclusive of all Phase I and Phase II conservation restrictions (e.g., drinking water, landscape irrigation, washing, leaks, aesthetic uses) with the addition of prohibiting landscape irrigation on days other than Monday or Thursday.

Rationing and water conservation practices alone will not resolve LADWP's existing and projected future shortfall in supplies. LADWP anticipates, based on the body of evidence, that water supplies from MWD and the SWP will be permanently reduced, forcing LADWP to secure alternative water supply sources to meet increased demands in the future. The City of Los Angeles has developed adopted a plan by Mayor Antonio Villaraigosa entitled, "*Securing L.A.'s Water Supply*," (May 2008) which is a blueprint for creating sustainable sources of water for the future of Los Angeles. This plan is an aggressive multi-pronged approach to water conservation that includes: investments in state-of-the-art water conservation technology; issuance of a combination of rebates and incentives; installation of smart irrigation controllers (e.g., controllers sense when adequate moisture is present), efficient commercial and residential washers and urinals; and development of long-term measures including expansion of water recycling and investment in cleaning up the local groundwater supply (Appendix D).

With regard to dust control activities on Owens Lake, all water supplies uses for dust control or other environmental restoration benefits must be supplemented through additional purchases from MWD. As described above, additional water is simply not available from MWD. Based on future projections of growth within LADWP's service area, plans for increased recycling, conservation, and groundwater cleanup activities, adequate water supplies will not be available to meet existing and projected future demand plus expanded water intensive dust control measures at Owens Lake. In light of the current state of water supplies and based upon what is known about future demands, staff of LADWP has determined that future use of water intensive dust control measures are not a feasible strategy and other non-water using controls should be implemented (Appendix D).

2.3 PROJECT GOALS AND OBJECTIVES

The primary goal of the project is to prevent emissions from the lake bed that cause or contribute to violations of the PM_{10} NAAQS by the implementation of moat and row DCMs on the bed of Owens Lake by 2010. The dry Owens Lake bed is primarily owned and operated in trust for the people of California by CSLC. Therefore, the project must also be consistent with the State of California's obligation of land and resource stewardship. The objectives of the project are to:

- implement moat and row DCMs by April 1, 2010, pursuant to the 2008 SIP to achieve the NAAQS;
- provide clean, reliable water in a safe, environmentally responsible and cost-effective manner with excellent customer service;

- allow for the sparing use of water that would otherwise be delivered for municipal and industrial use and substantially reduce or eliminate the use of water in implementing new dust control projects on the Owens Lake bed;
- minimize or compensate for long-term, significant adverse changes to sensitive resources in the natural and human environment by implementing mitigation strategies proposed in this SEIR;
- create a dust control program with a high likelihood of success and without substantial delay;
- substantially conform to adopted plans and policies and existing legal requirements. These requirements include the National Ambient Air Quality Standards, the 1998, 2003 and 2008 SIPs and their associated EIRs, lease agreements and environmental and administrative permits with other agencies including California State Lands Commission, Lahotan Regional Water Quality Control Board, California Department of Fish and Game, United States Environmental Protection Agency and Great Basin Unified Air Pollution Control District;
- minimize the long-term consumption of natural resources (e.g., water); and,
- be consistent with the State of California’s obligation to preserve and enhance the public trust values associated with Owens Lake.

2.4 PROJECT CHARACTERISTICS

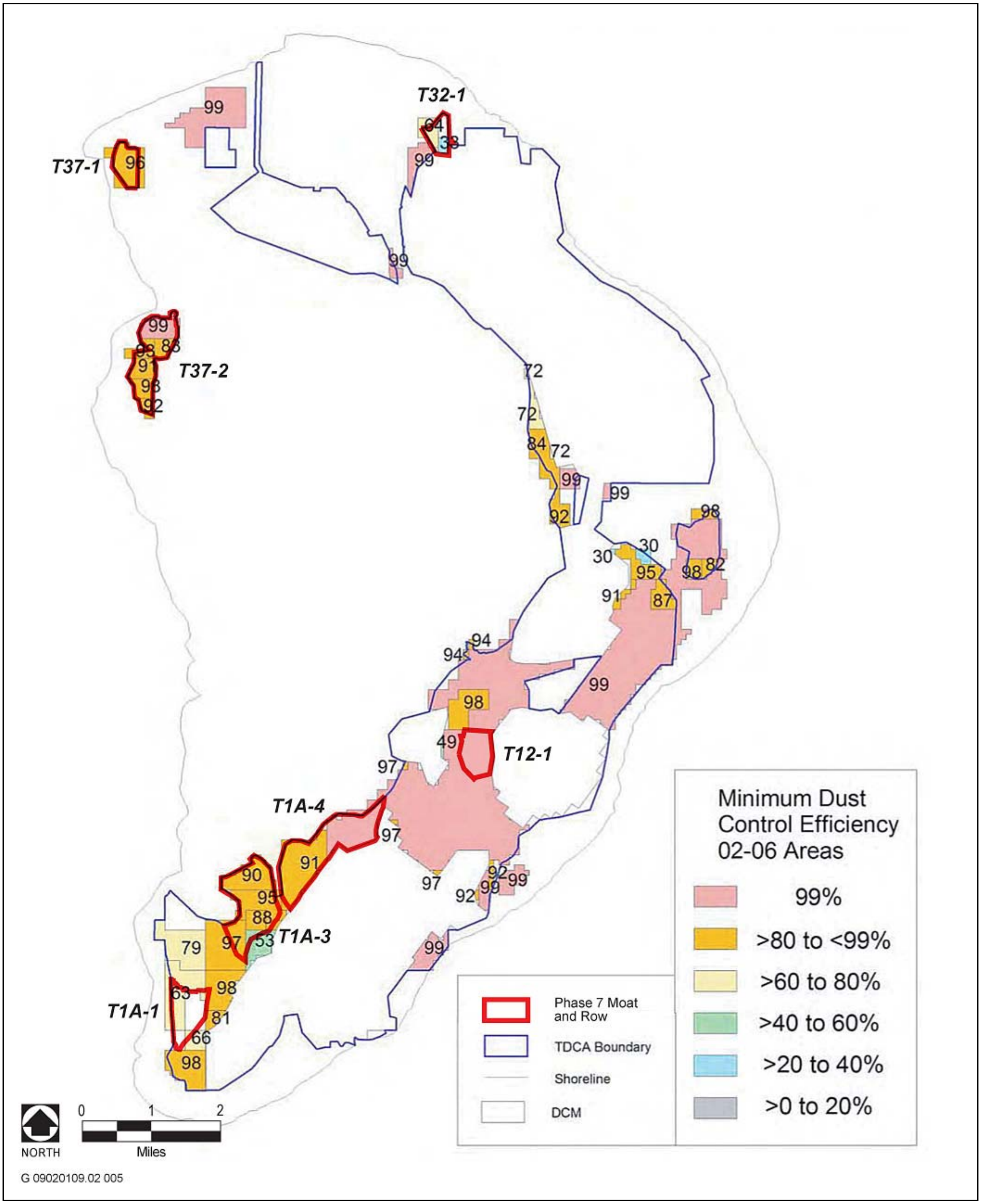
LADWP proposes to reduce dust emissions on the dry Owens Lake bed, particularly achieving adopted control efficiencies for fugitive dust (PM_{10}), through the construction of landform features called moats and rows. Moat and row DCMs would be constructed on 3.5 square miles of the Owens Lake bed (Exhibit 2-2).

2.4.1 DUST CONTROL AREAS

In 2006, during settlement negotiations regarding dust control strategies between the GBUAPCD and LADWP, LADWP proposed a new Owens Lake PM_{10} control measure known as moat and row. It was LADWP’s intent to develop a control measure that costs less to implement and uses significantly less water than previously approved DCMs (e.g., shallow flooding, managed vegetation). The Settlement Agreement that resulted from the 2006 negotiations contains provisions for the implementation of up to 3.5 square miles of moat and row DCMs.

2.4.2 PERFORMANCE STANDARDS FOR DUST CONTROL

GBUAPCD has monitored ambient PM_{10} concentrations within the Owens Valley, including in the communities of Keeler, Olancha, and Lone Pine, for more than 20 years. Monitoring data has been used to determine whether compliance with the federal PM_{10} standard has been achieved. Based on this monitoring data and air quality modeling conducted by GBUAPCD, minimum dust control efficiencies (MDCE) have been established for areas of the Owens Lake bed as shown in Exhibit 2-4. The MDCE standard establishes the minimum level at which the concentration of PM_{10} emissions must be reduced (through monitoring of the site) to achieve federal PM_{10} standards. MDCEs vary from 30%to 99%. The control efficiencies reflect the fact that different areas of the lake bed have different emissions rates and that areas closer to the historic shoreline require higher control efficiencies than areas well away from the shoreline. The MDCE for the moat and row DCAs varies from 33% to 99%.

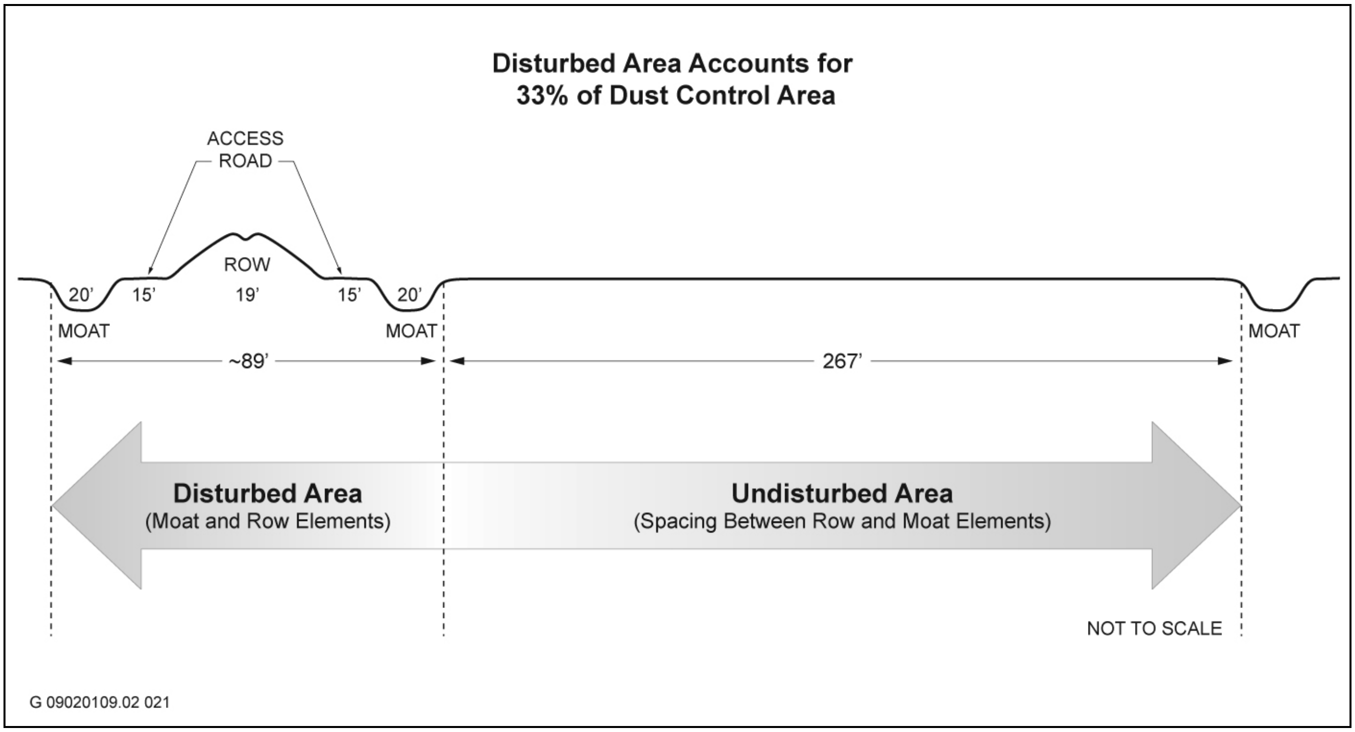


Source: GBUAPCD 2008

Minimum Dust Control Efficiency Map **Exhibit 2-4**

2.4.3 MOAT AND ROW CHARACTERISTICS

A moat and row element consists of an earthen berm (row) approximately 5 feet high, with 1.5:1 (horizontal to vertical) sloping sides and a base of up to 19 feet wide, an access road on both sides of the row of up to 15 feet wide, flanked on the other side by ditches (moats) approximately 4–5.5 feet deep and up to 20 feet wide at the widest point. Rows serve as wind breaks and the primary function of the moats is to capture sand. Moat and row elements would typically be arrayed in a grid pattern, in a perpendicular orientation to the primary and secondary wind directions (Exhibit 2-5). The predominant winds are from the north-northwest and the south, with the north-northwestly being the stronger but less frequent wind. Moat and row elements may also be placed at the perimeter of the moat and row DCAs.

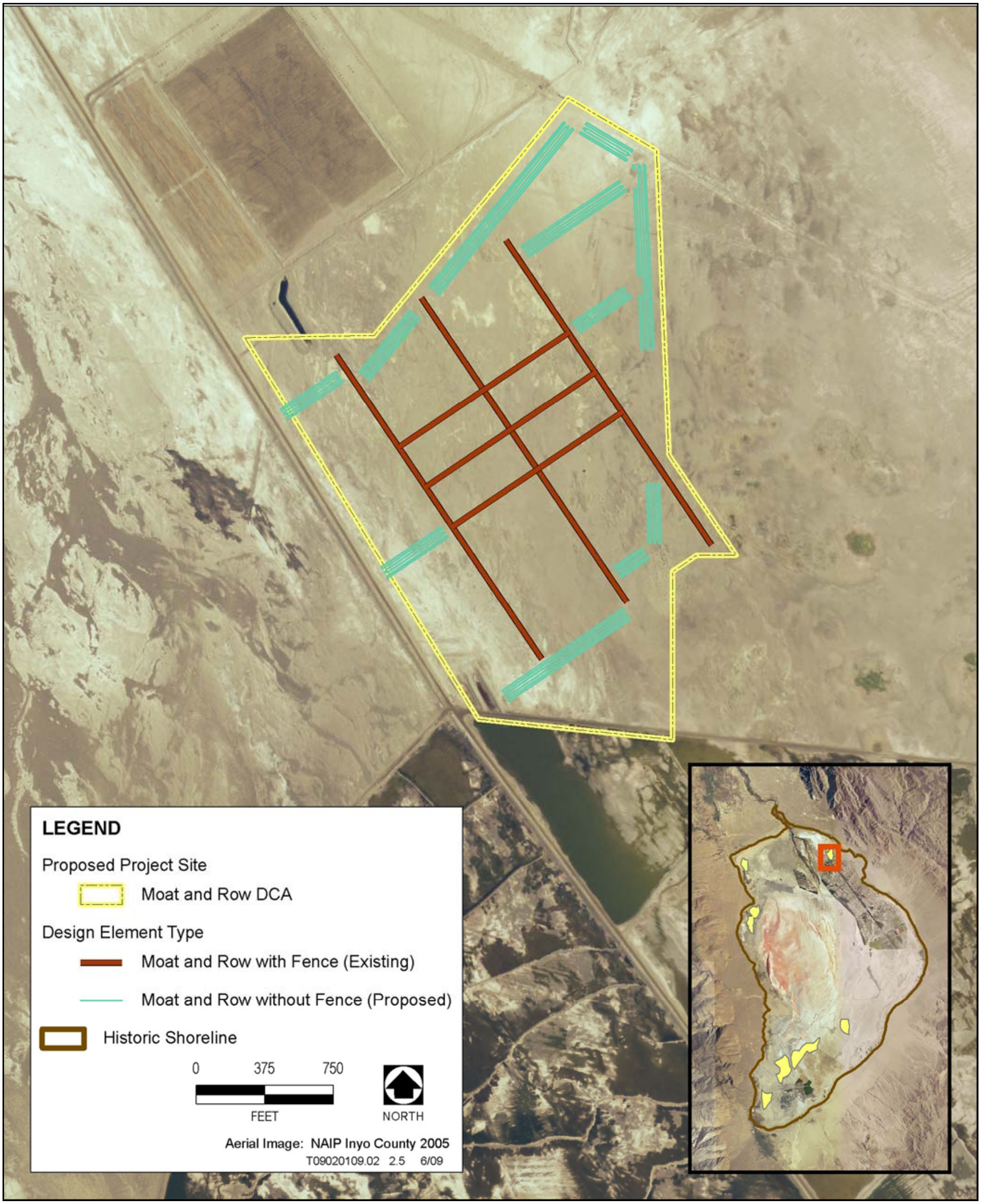


Source: Data adapted by EDAW 2009

Visual Example of 33% Disturbed Area **Exhibit 2-5**

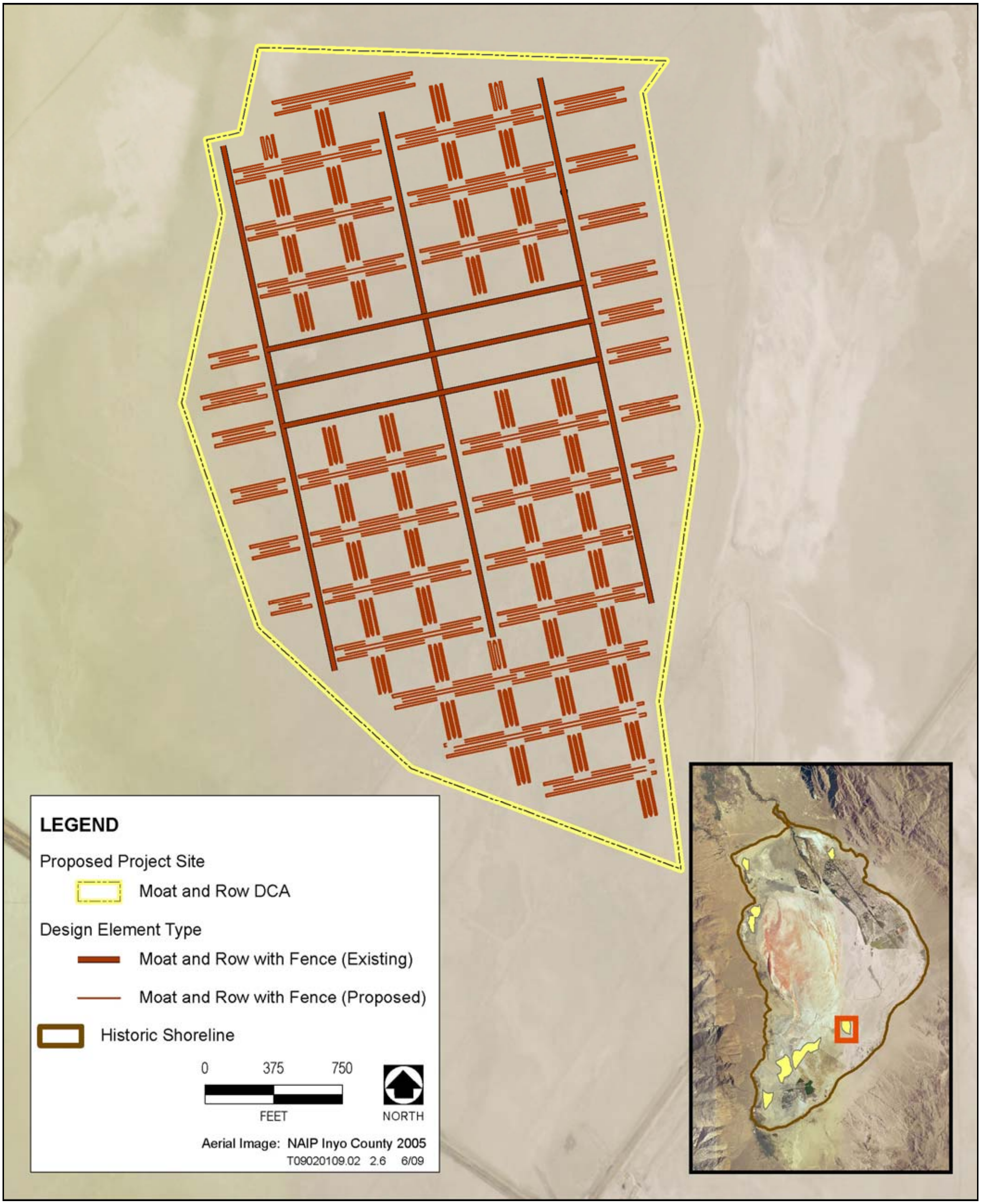
Minimum spacing of the moat and row elements would be approximately 100 feet from center of the row to center of the next row (Exhibit 2-6). Generally, the rows would run the length of the DCA, with breaks in the rows occurring at distances determined through environmental analysis to be suitable for the habitat requirements of biological species present in the area. The top of the rows would be armored with gravel to prevent wind erosion.

Other features that would be constructed in the moat and row DCAs include sand fences, which also would physically shelter the lake bed from blowing winds. Sand fences are generally constructed of a mesh fabric up to 5 feet tall with up to 14-inch diameter round or square stainless steel or arsenic-free, treated wood posts supporting the fabric (Exhibit 2-7). The sand fences would be placed on top of rows or in open playa areas as determined appropriate through modeling or on-site monitoring of prevailing wind direction and speed.
The following summarizes the characteristics of the sand fences:



Source: Data provided by LADWP

Moat and Row Elements Grid Pattern—T32-1 **Exhibit 2-6**



Source: Data provided by LADWP

Typical Moat and Row Sections—T12-1 **Exhibit 2-7**

- Fence end posts and intermediate structural posts for fencing on top of rows would be stainless steel or arsenic-free, treated wood posts set in a concrete footing that would be buried by the row. Concrete footings for stainless steel end posts and intermediate structural posts in sand fence-only areas would be below grade.

- Mid-fence posts would be placed at approximately 20 feet on center and would be driven into the ground.

- The sand fence fabric would be secured to the sand fence posts via tension cables. In general, a 2-inch gap between the top of the rows and the bottom of the sand fence fabric would be provided.

- The sand fence fabric color would match the color of the surrounding soils.

- The sand fence fabric would have aerodynamic porosity of 49–51%, with minimum openings of 0.0787-inch to allow sand particles to pass through. The clips attaching the bottom of the sand fence fabric to the bottom cable would be designed to break off to prevent the destruction of the fence during wind events in excess of 71 miles per hour (mph), as measured 12 inches from the ground surface. While no sustained wind events occurred in excess of 58 mph on the lake bed from June 2000 to June 2008, it is likely that gusts in excess of 70 mph have occurred, though their frequency is unknown.

- Monofilament line and/or other methods would be used on top of the sand fence to prevent perching by corvids near occupied nesting shorebird habitat, as determined appropriate through environmental analysis.

- If guy wires are used to stabilize sand fences, sand fence fabric would be installed to fill in the gap between the guy wire and the sand fence posts.

The spacing and density of moat and row elements and sand fence-only elements would generally vary from approximately 100 feet to 1,000 feet on center. These spacing dimensions are in both the principal and secondary directions of the grid.

The ground disturbance for the moat and row elements, including enhancements (see description below), would vary. Nonetheless, moat and row features within the 3.5 square miles of the moat and row DCAs would not exceed a maximum of 33% of the total ground surface area (refer to Exhibit 2-5). For example, if a DCA is 100 acres in size, then ground disturbance would not exceed 33.3 acres. For the 3.5 square miles of dust control, no more than 1.16 square miles of the project area would be constructed with permanent moat and row features including small grading berms, access roads, moats, rows, rock armoring on rows, application of brine on roads and rows, and sand fences. These features would generally be above the surface of the lake bed.

Areas beyond the moat and row feature footprints but within the moat and row DCA could undergo ground-disturbing activities. These ground disturbing activities may be in addition to the 1.16 square miles of disturbance (33% of the 3.5 square mile project area) of moat and row features. The environmental impacts associated with all ground-disturbing activities and features have been considered in the analysis included in this SEIR and the 2008 FSEIR. In addition, a 50-foot temporary construction footprint has been established around the limits of the moat and row DCAs. The following ground-disturbing activities and facilities would occur in the DCAs:

- installation of underground facilities including, but not limited to, grading for drainage facilities, pipeline, drip irrigation, and irrigation emitter installation;

- grading or digging holes associated with managed vegetation or shallow flooding enhancements;

- spreading of water within the moat and row DCAs;

- vegetation planted between moat and row elements or on faces of the rows; and

- maintenance activities (e.g., surveying moats, checking sand fences, excavating moats).

Moat and row DCMs would be constructed so as to result in an "earth balance." Earth balance would be achieved by using excavated soil from moats for the construction of rows. This design and construction technique would substantially reduce the need to haul soil out or into DCAs. Soil used for construction of rows would be compacted to 85% (a higher density than existing soils that are excavated from the moats). While the moats would appear larger than the rows, because of the compaction required, all soils excavated would be balanced on-site to construct the rows.

Seven DCAs are proposed to be improved with moat and row elements, moat and row and sand fence elements combined, or sand fence-only elements. Exhibits 2-6 through 2-12 present the proposed site-specific characteristics for each of the seven DCAs. Table 2-3 below summarizes the specific characteristics for each moat and row cell.

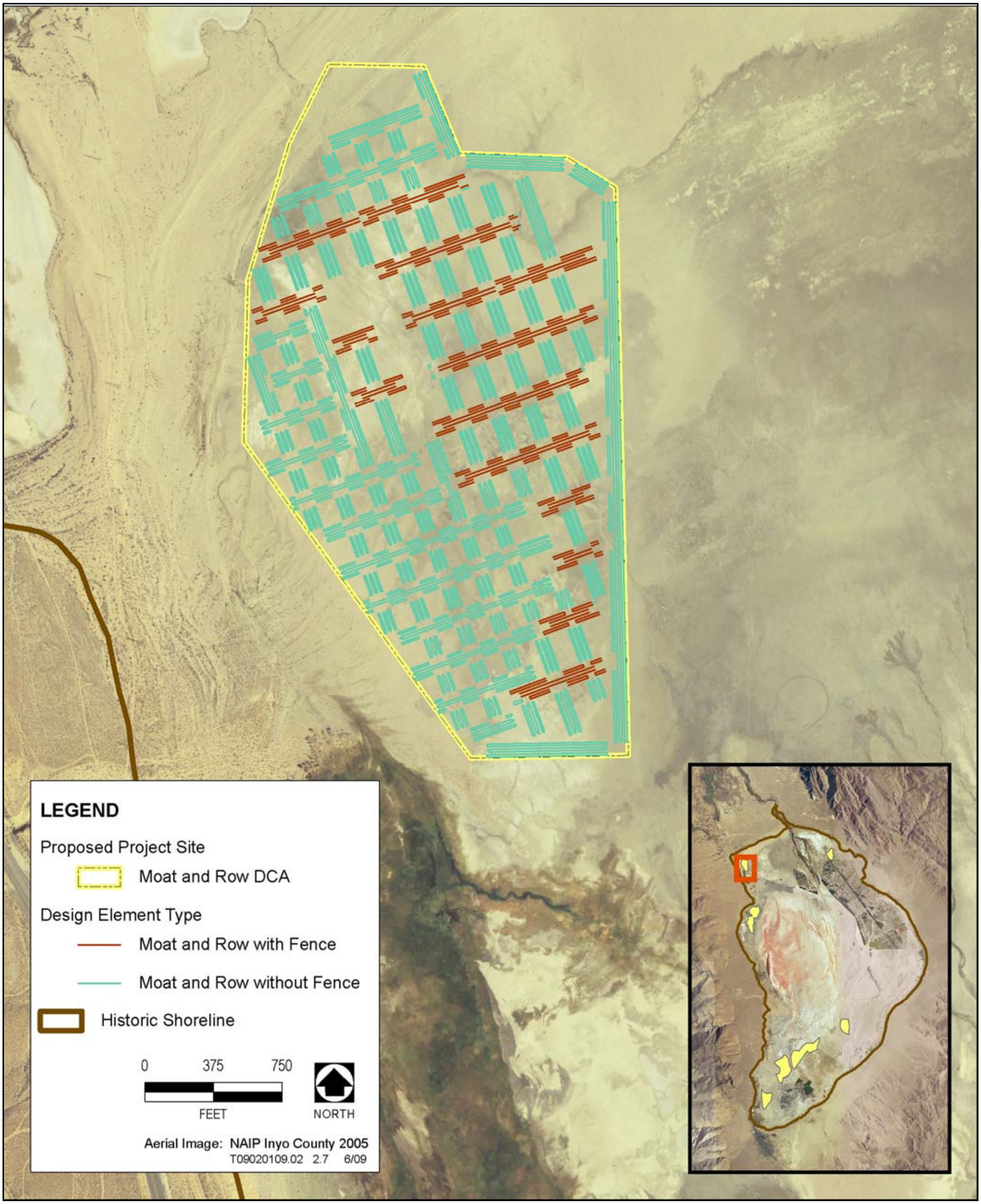
Table 2-3
Summary of Moat and Row Cell Design Elements

Design Element	Moat and Row Cell						
	T32-1[A]	T12-1	T37-1	T37-2	T1A-1	T1A-3	T1A-4
Moat and Row without Sand Fence (Miles)	1.1	0.0	5.0	5.6	0.0	10.1	20.4
Moat and Row with Sand Fence (Miles)	0.0	5.3	1.7	5.1	0.0	2.9	1.8
Sand Fence Only (Miles)	0.0	0.0	0.0	0.0	3.8	0.0	0.0
Total Moat and Row (Miles)	1.1	5.3	6.6	10.7	0.0	13.0	22.2
Minimum Element Spacing (Feet)	500	320	210	254	623	266	207
Maximum Element Spacing (Feet)	1,030	320	381	730	2,149	663	630
Total Construction Footprint (Acres)	9.8	47.3	58.4	96.1	6.9	114.3	192.1
Total Cell Area (Acres)	104	220	137	378	245	503	616

[A] See Exhibit 2-2 for a location of the moat and row cells
Source: LADWP 2008c

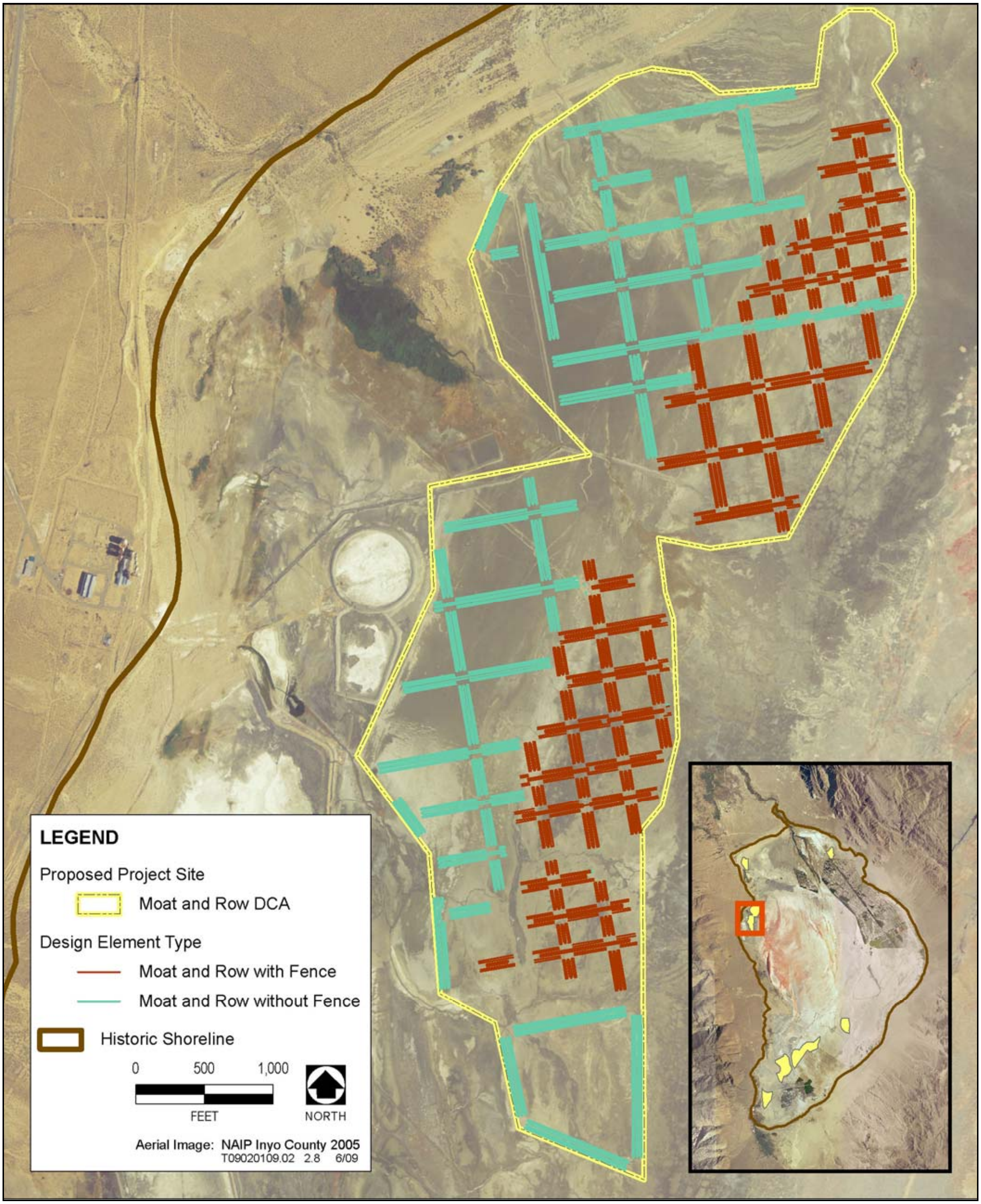
2.4.4 ENHANCEMENT OPTIONS

Construction of the moat and row DCMs may also include the application of a variety of enhancements to gain greater dust control efficiencies in the Owens Lake bed. These enhancements would be implemented in response to air quality monitoring of PM_{10} emissions in the moat and row DCAs. In general, LADWP monitors air emissions from the lake bed via visual observations, field measurements, and detailed modeling that can help identify where the emissions originate. From the data collected, LADWP determines whether the dust emission objectives from the 2008 SIP are being met. If exceedances occur, LADWP may take corrective actions to reduce dust emissions including notifying GBUAPCD. Prior to any enhancement options being implemented on the lake bed, LADWP would coordinate with GBUAPCD to receive direction on what the most effective enhancement that should be implemented. Five enhancement options would be considered and are evaluated as part of this draft SEIR, as described below. These enhancements would ensure that if significant dust sources (i.e., hot spots) develop in the moat and row DCAs, they would be promptly addressed. Any single method or combination of the enhancements could be implemented for both primary and secondary wind direction elements, where demonstrated to be in substantial conformance with the performance standards for the moat and row DCM. Many factors would influence the determination of which enhancement method would be selected, with a



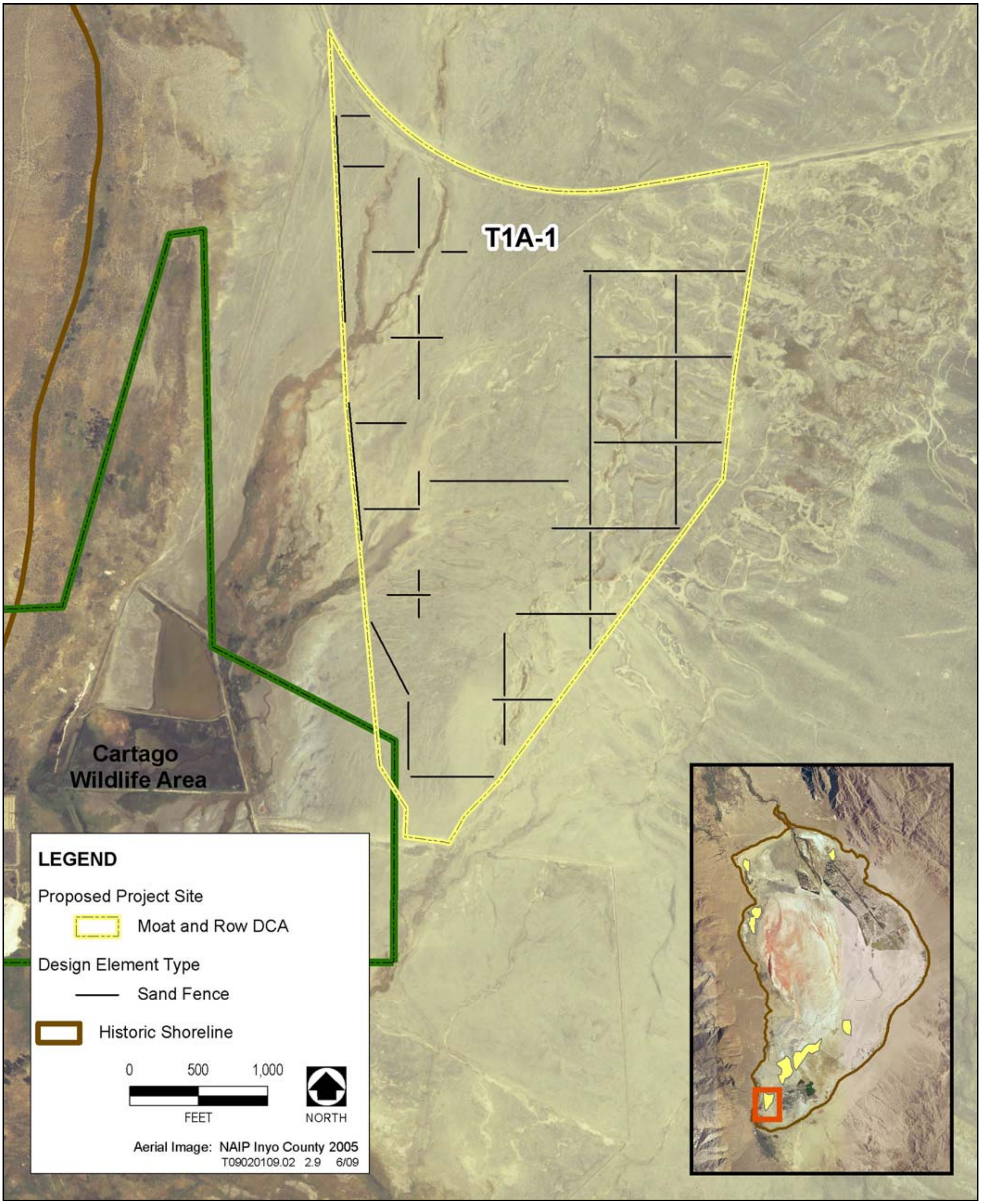
Source: Data provided by LADWP

Sand Fence on Moat and Row—T37-1 **Exhibit 2-8**



Source: Data provided by LADWP

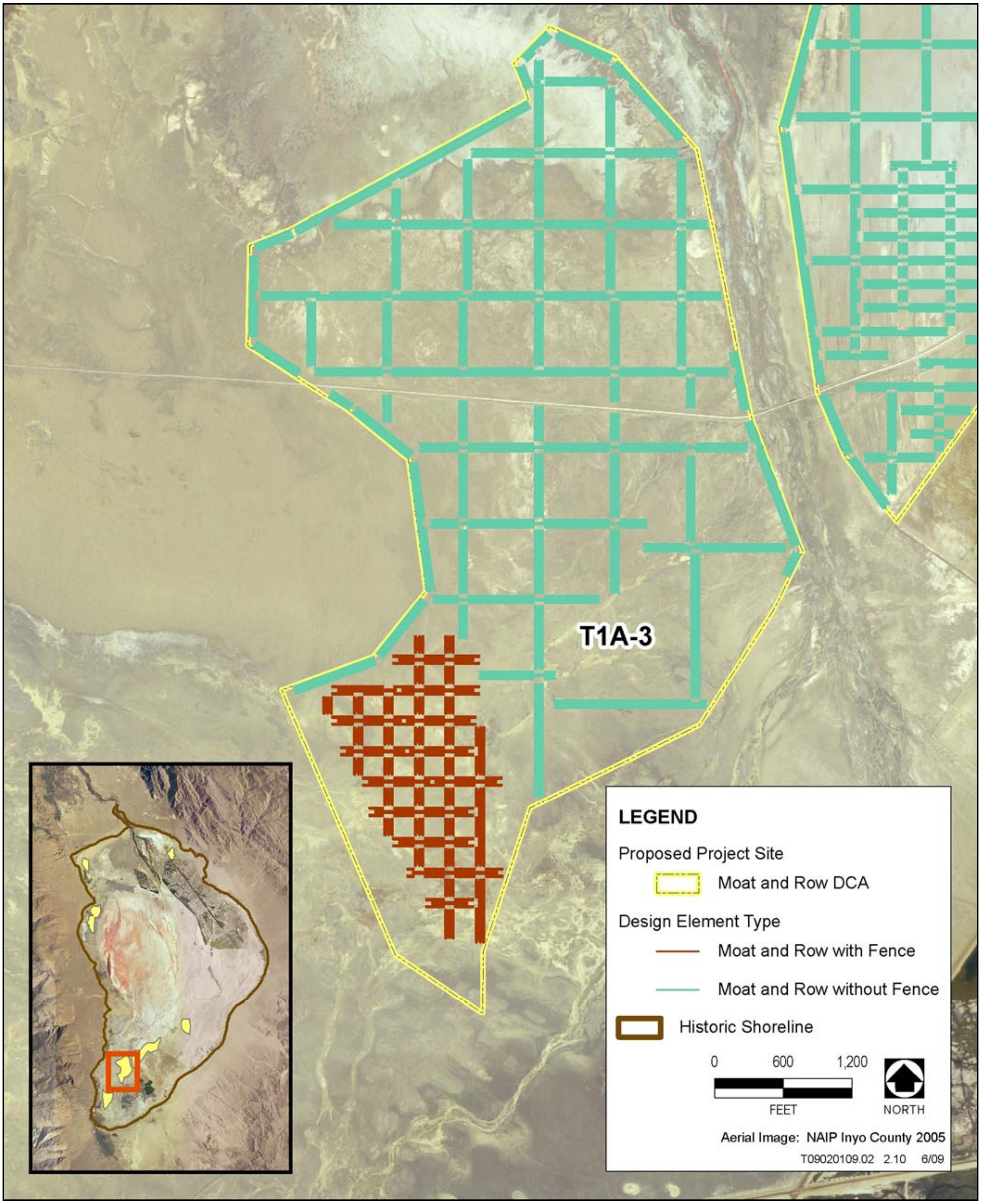
Sand Fence on Moat and Row—T37-2 **Exhibit 2-9**



Source: Data provided by LADWP

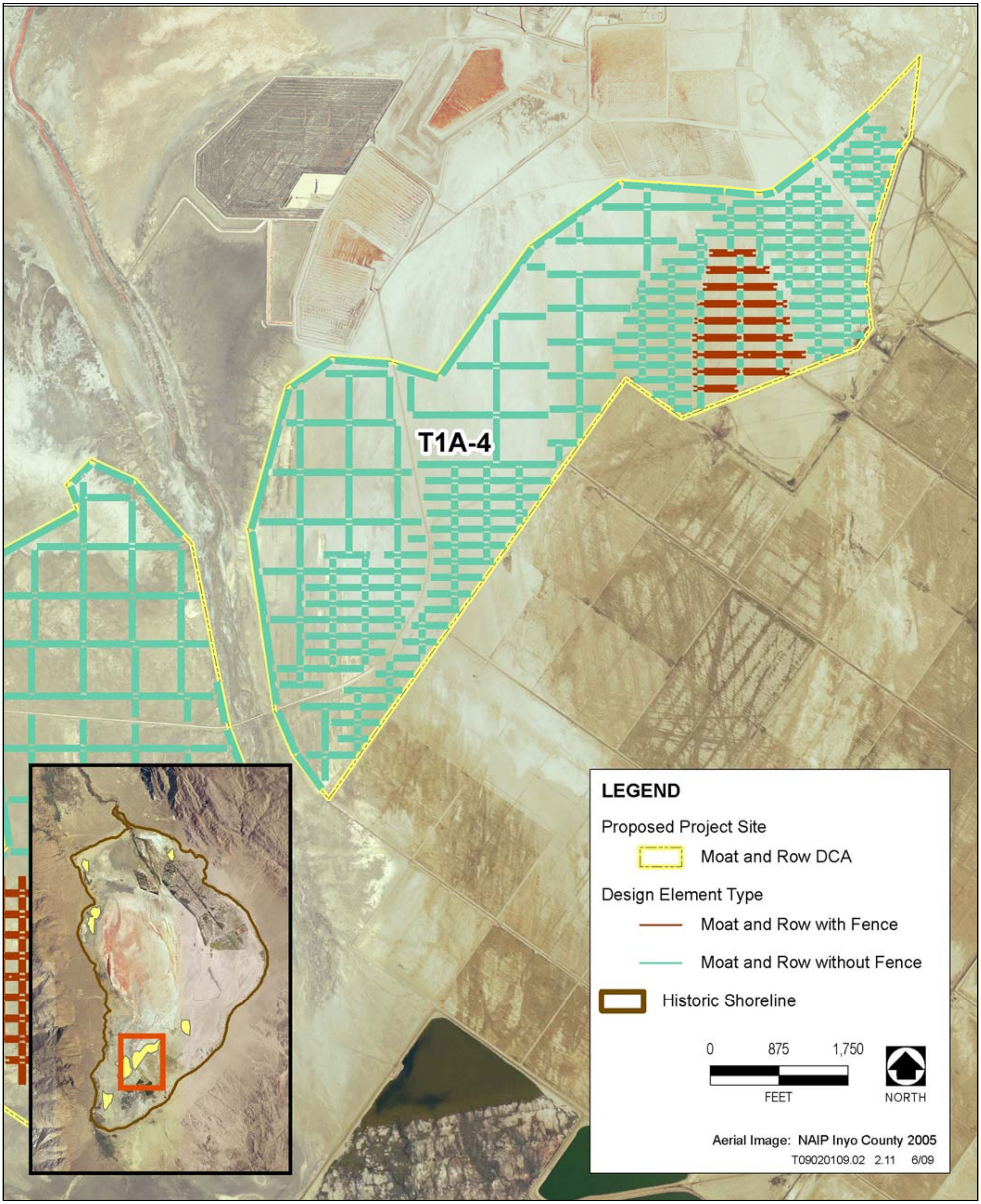
Sand Fence on Moat and Row—T1A-1

Exhibit 2-10



Source: Data provided by LADWP

Sand Fence on Moat and Row—T1A-3 **Exhibit 2-11**



Source: Data provided by LADWP

Sand Fence on Moat and Row—T1A-4 **Exhibit 2-12**

preference for non-water or low-water consumption methods. These factors include, but are not limited to, soil type, crust condition, nearest water source, material availability, existing vegetation, if any, and time frame for implementing the enhancement.

2.4.5 SHALLOW FLOOD ENHANCEMENTS

This enhancement involves applying water to the lake bed surface during the dust emission season (i.e., October 1 through June 30) to stabilize air emission areas. The water would flood the playa between the moat and row elements and would sufficiently wet surface soils to prevent dust emissions (Exhibit 2-13). The water for this enhancement would be supplied from existing shallow flooding DCAs or the Los Angeles Aqueduct Lower Owens River pump station. This measure would include the extension of a water lateral pipeline (12-inch diameter maximum) from a nearby shallow flooding DCA (previously approved and implemented by LADWP), the existing zonal mainline near the moat and row DCA, or from the shallow flooding DCA (previously approved) controlled outlet that is adjacent to the moat and row DCAs.

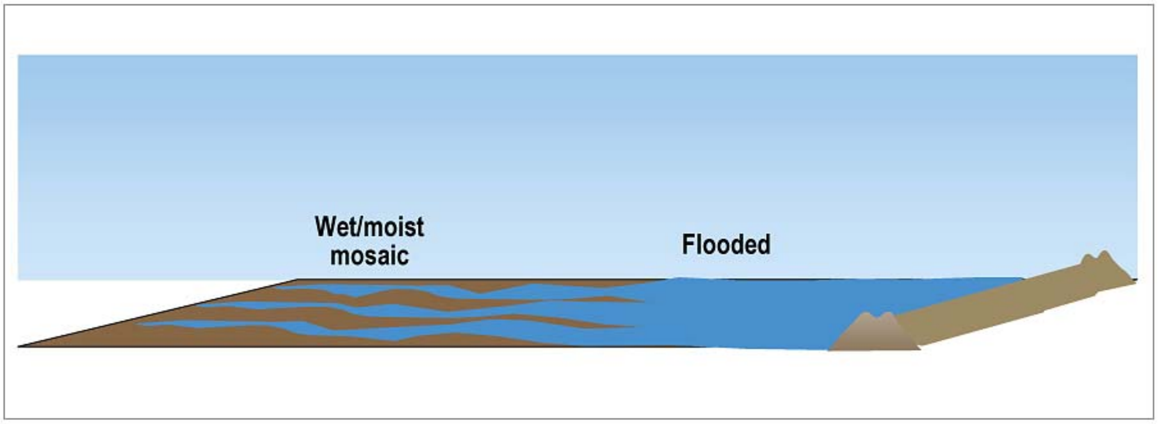
The use of this enhancement is best suited for areas that currently have patches of vegetation, as this enhancement would serve the dual purpose of encouraging vegetation growth to control dust. Seeding these areas with native populations of species already found in the moat and row DCAs would also be implemented to encourage vegetative growth. Water demands associated with the shallow flooding enhancement would vary between 1.0 acre-foot per acre per year (af/ac/yr) to 4.0 af/ac/yr. The proximity of water conveyance infrastructure to moat and row DCMs and water conveyance capacity would influence how and when this enhancement would be implemented.

This enhancement could not be used in combination with the application of brine enhancement as discussed below.

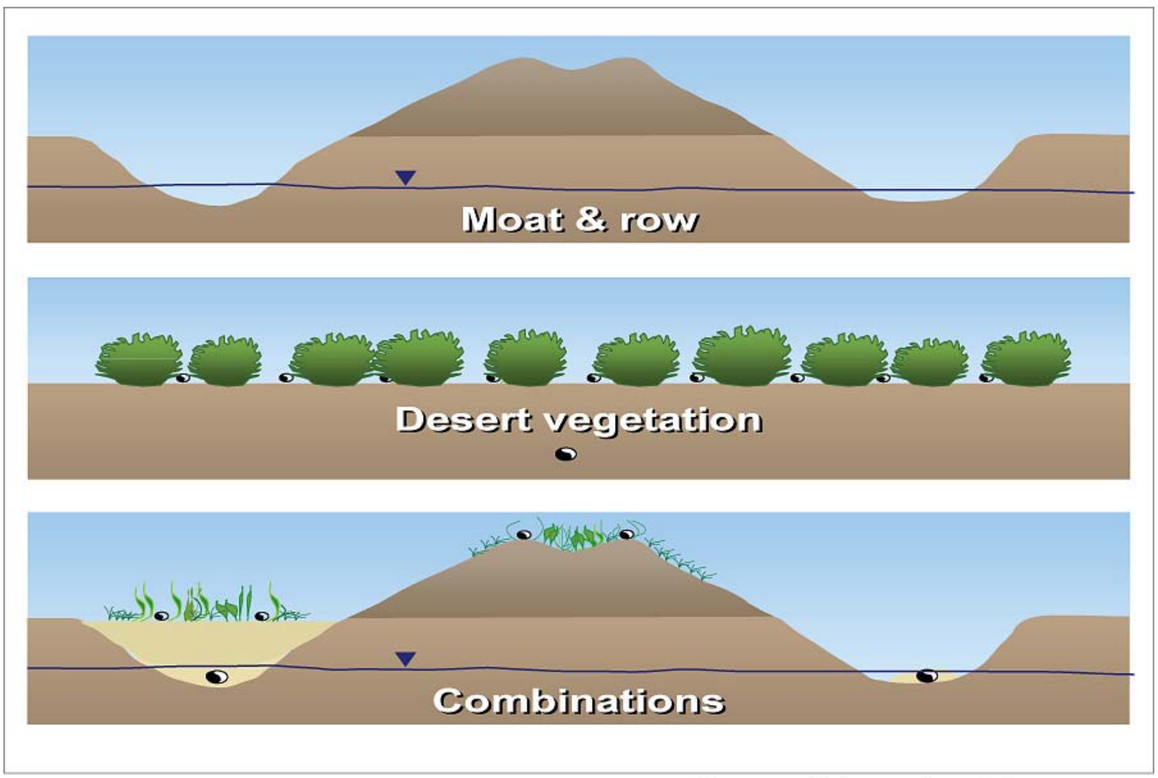
2.4.6 MANAGED VEGETATION ENHANCEMENTS

Vegetation has been shown to be effective at controlling dust. The enhancement would involve planting local, native drought- and/or salt-tolerant plant species in the moat and row area and/or between the elements to stabilize emissive or eroding areas. Vegetation reduces sand motion by acting as a natural wind break and reduces erosion problems through the holding power of root systems. The enhancement works well for sandy and loose soils, allowing for easy root establishment and nutrient delivery. The vegetation would be planted between the moat and row elements or on the side slopes of the rows to assist with the reduction of dust. For areas between moat and row elements, a broad bed vegetation concept is proposed (Exhibits 2-13 and 2-14). If determined to be appropriate based on the conditions and needs of the specific site, the vegetation would be placed on the undisturbed playa between or around the moat and row elements. Vegetation beds would be spaced wider and be slightly above grade when compared to the traditional managed vegetation DCAs constructed on the lake bed. Irrigation, fertilization, and subsurface drainage would be provided as required. Regarding the storage of fertilizers and other chemicals, storage would not occur on SLC lands . If the managed vegetation enhancement is implemented, then fertilizers would be trucked to the moat and row DCA and applied on the managed vegetation area via hoses and the water distribution pipelines.

The exact size and shape of the areas would be adjusted to fit site-specific conditions, including avoidance of sensitive resources. Each area would be planted with locally adapted native plant species or other species, as approved by GBUAPCD and CSLC. Previously saltgrass (*Distichlis spicata*) has been used successfully in managed vegetation areas; however, other species such as salt-tolerant Owens Valley native shrubs may also be used in combination with saltgrass, with approval by GPUABCD and the CSLC. Each area would include a typical irrigation pipe layout, drip tube laterals, furrows, and flush fields (Exhibit 2-15). The vegetation areas may include a 16-foot-wide perimeter service road. The service road (included as part of the 1.16 square miles of moat and row features) would typically be compacted native material, but would likely be surfaced with gravel or brine if necessary to reduce dust emissions or to improve accessibility.



Shallow Flooding/Wetting Enhancement



Managed Vegetation Enhancement

G 09020109.02 004

Source: GBUAPCD 2008

Schematic of Moat and Row Elements and Shallow Flooding Enhancement **Exhibit 2-13**

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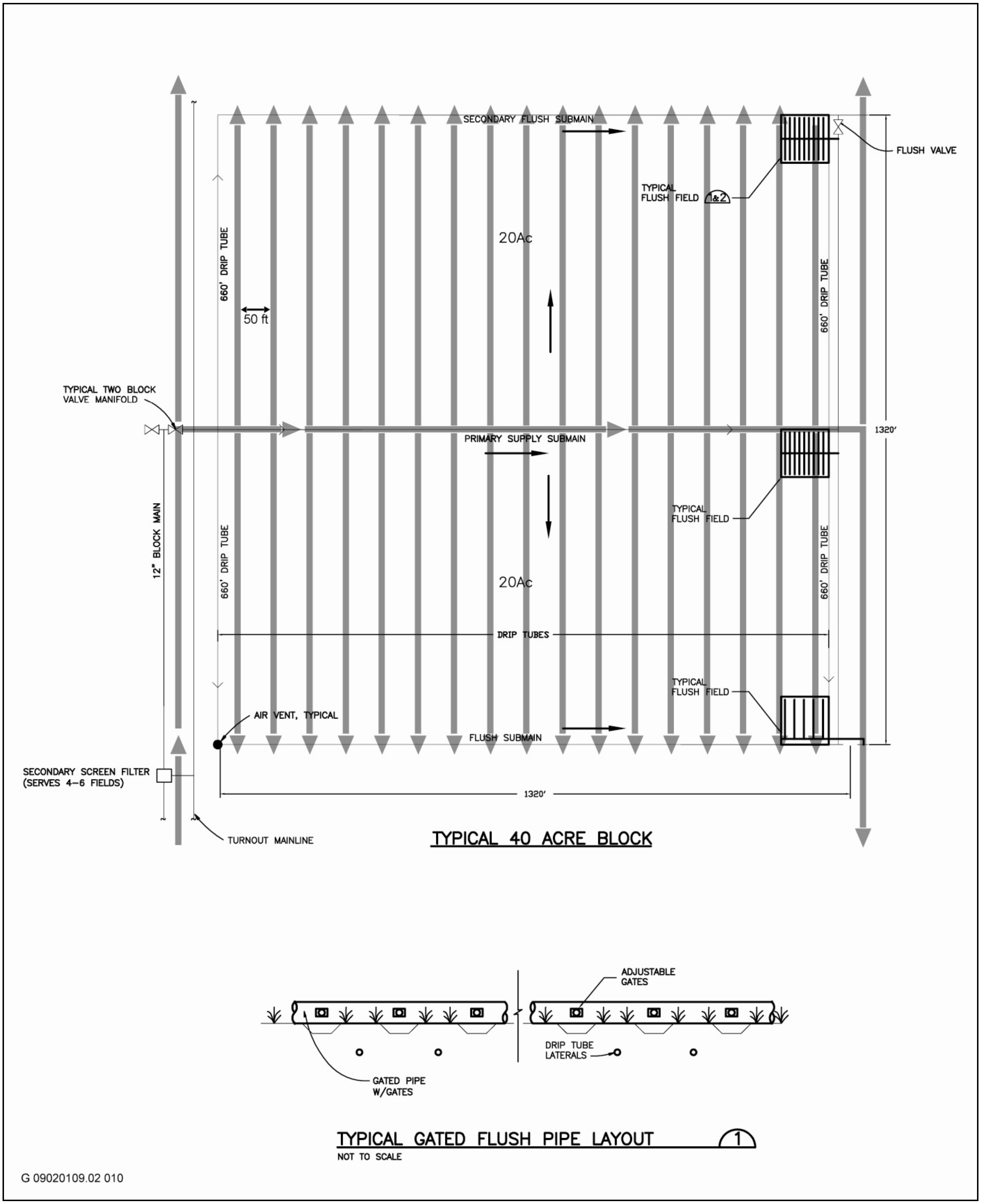
Source: Picture provided by LADWP

Representative Photograph of Managed Vegetation Enhancement **Exhibit 2-14**



Source: Exhibit provided by LADWP

Typical Irrigation Layout for a 40-Acre Block of Vegetation **Exhibit 2-15**

Mainline turnouts could convey water from the turnout connection to distribution manifolds and then to the vegetation areas (Exhibit 2-16). Mainline turnouts would be constructed of plastic pipe, sized up to approximately 18 inches in diameter. Water would flow from the manifold to the field submains and then into a network of subsurface drip tubes, sprinklers, or gated pipe, based on the specific irrigation plan selected. Where drip irrigation is implemented, flexible risers would convey water from the buried submains and secondary submains to the drip tubes. A typical drip-system arrangement would likely consist of one emitter per 10 square feet, with a 2-foot-long emitter tubing laid at 5-foot lateral spacing intervals, although drip tube alignments and emitter spacing would be expected to vary with site conditions and local needs.

Sprinkler irrigation would potentially be used in the vegetation fields as an alternative to drip systems. Sprinklers are able to wet the entire ground surface, providing greater flexibility in leaching and reclaiming difficult soils. Where sprinkler irrigation is used, water would be distributed from the mainline turnouts through 2- to 8-inch plastic piping. Field piping would be spaced 10 to 50 feet apart, typically with risers and spray nozzles at 20- to 50-foot intervals (Exhibit 2-15). Within the managed vegetation areas, a subsurface drainage system may be constructed to collect tailwater and recycle the water for irrigation of the vegetation (Exhibits 2-17 and 2-18). To minimize ground disturbance to sensitive areas or to plant vegetation in areas where belowground construction is difficult, aboveground temporary piping would be used to deliver water to the sprinklers. Temporary aboveground piping could also be used, in addition to permanent drip irrigation, to reclaim difficult soils or to provide additional water for short-term plant establishment.

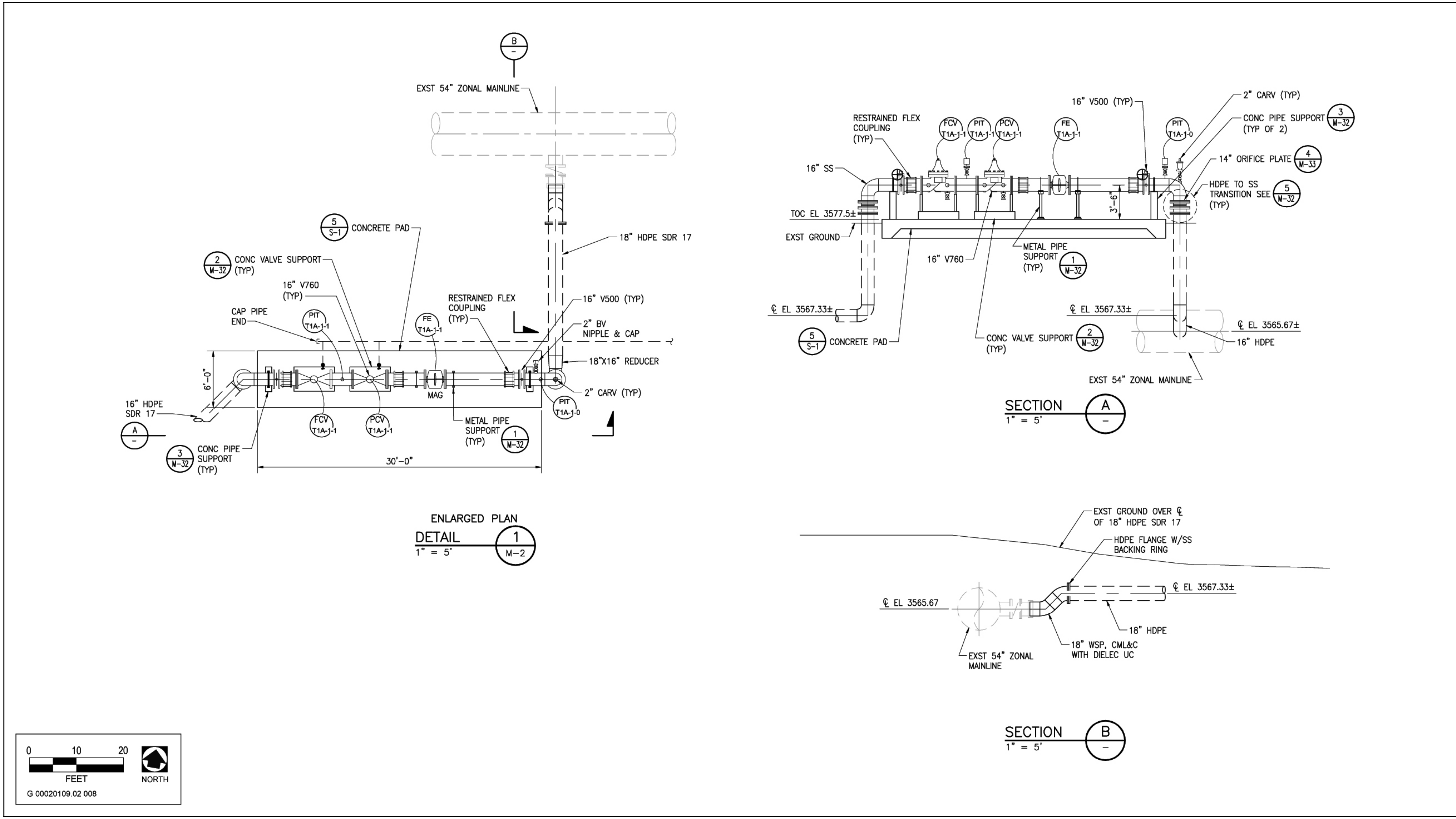
Surface irrigation could also be implemented as another alternative to drip irrigation system (Exhibit 2-15). Water would be distributed to the vegetation areas through 2- to 12-inch plastic piping. Surface irrigation of the vegetation area would be accomplished through gated plastic pipe, a series of risers, or through direct spillage from a pipe outlet. Spacing between vegetation may range from 10 to 40 feet depending on the plant species used. Where surface irrigation is used, the areas would typically be surrounded by low berms to contain ponded water to prevent it from flowing off-site until it seeps into the soil. These berms would be constructed of local material and may be up to 2 feet in height with 1.5:1 side slopes. The temporarily ponded water in these surface irrigated areas would generally be less than 4 inches deep, but may be deeper in some limited areas because of variation in local topography. Existing managed vegetation DCMs at Owens Lake consumes approximately 1 af/ac/yr, and it is expected that the managed vegetation enhancement at the moat and row DCAs would consume a similar amount of water. The proximity of water conveyance infrastructure to moat and row DCAs and water conveyance capacity would influence how and when this enhancement is utilized.

2.4.7 MOAT AND ROW AUGMENTATIONS

This enhancement involves the construction of additional moat and row elements between previously constructed moat and row elements to shorten unobstructed space (i.e., open playa areas) in the lake bed and to provide a greater number of features to capture mobile sand, thus reducing the rate of dust emissions. The additional moat and row elements would generally be constructed between originally constructed moat and rows, either in a parallel or perpendicular orientation. This enhancement would be implemented if existing moat and row elements prove insufficient in controlling PM_{10} emissions.

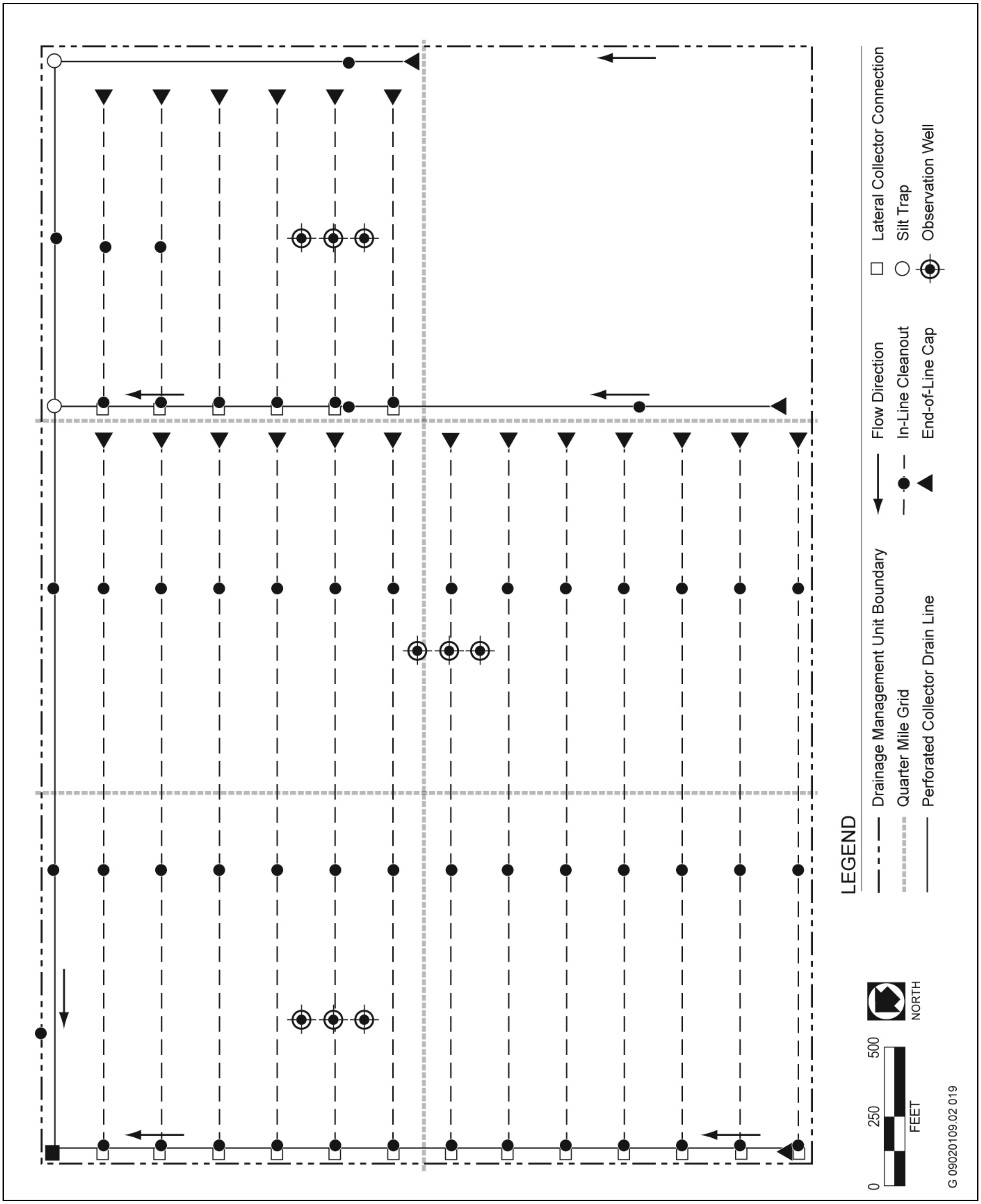
2.4.8 ROW ARMORING ENHANCEMENTS

This enhancement would apply crushed rock or gravel to the side slopes of the rows and the access roads adjacent to the rows to reduce dust emissions in these areas (Exhibit 2-19). The gravel would provide a protective cover over surface soils to prevent dust emissions. Application of the rock armoring would involve the use of dump trucks, a scraper, and an excavator. Crushed rock would be transported to the moat and row cell or element needing enhancement. On maintenance roads, the crushed rock would be applied via a scraper that would spread the rock across the road. On rows, the crushed rock would be transported to the row via a dump truck and applied to the face of the row by an excavator.



Source: Exhibit provided by LADWP

Turnout Facility **Exhibit 2-16**



Source: CH2MHILL 2004, Adapted by EDAW 2009

Proposed Example of Subsurface Drainage Systems **Exhibit 2-17**

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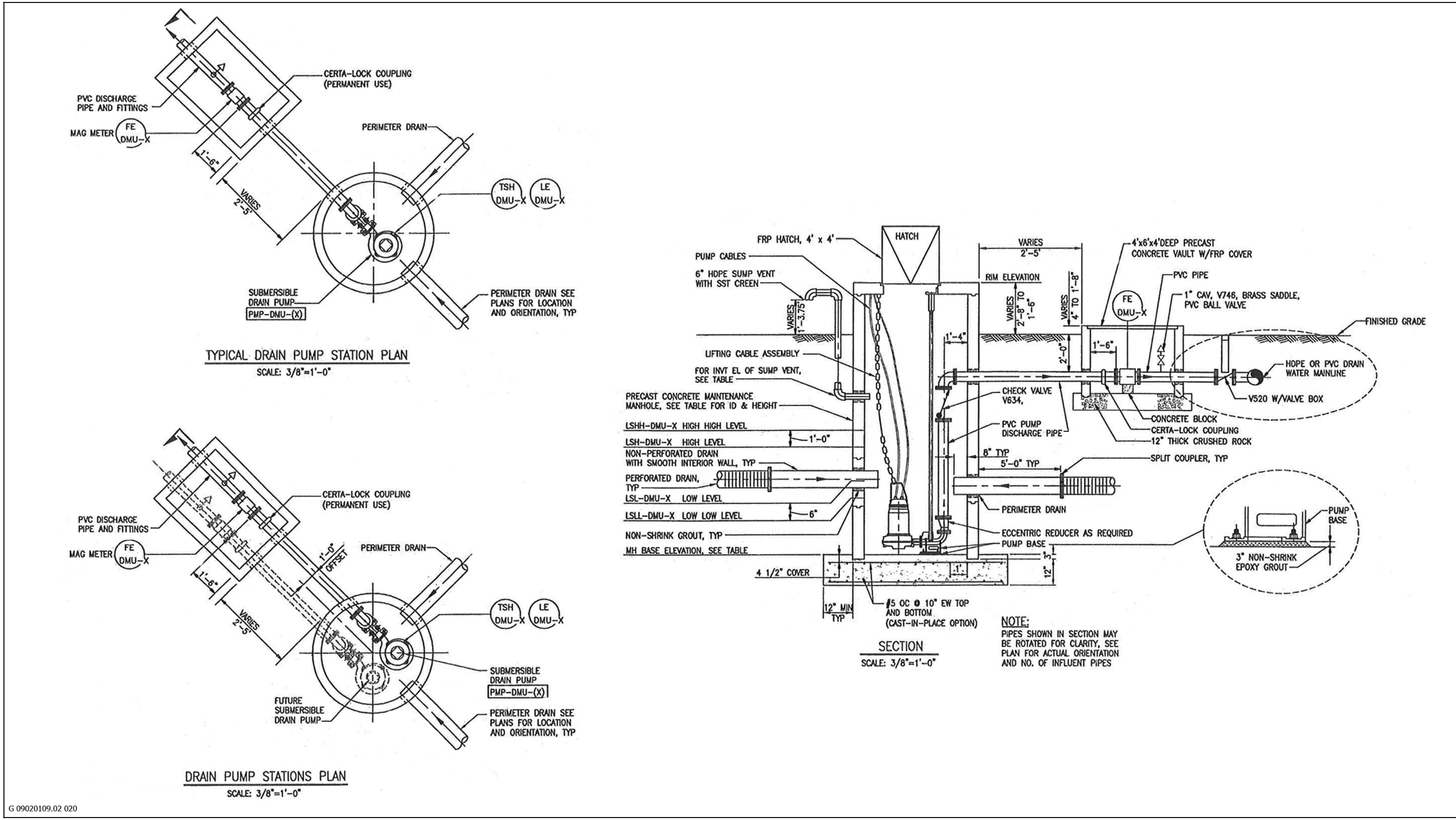


Source:

Drain Pump Stations Plan **Exhibit 2-18**

G 09020109.02 002

Source: GBUAPCD 2008

Example of Gravel Cover on Owens Lake **Exhibit 2-19**

2.4.9 APPLICATION OF BRINE ENHANCEMENTS

This enhancement would apply brine to the moat and row side slopes and to access roads in the moat and row DCAs. Brine is water with a heavy concentration of salt. Brine is produced in shallow flooding DCAs on Owens Lake. Within the shallow flooding areas, brine would be collected via a vacuum/pump truck and delivered to moat and row DCAs. The brine would stabilize surface soils by creating a hardened salt crust (through the evaporation of water) on top of the emissive soils, which would substantially reduce dust emissions.

Minimal maintenance of the brine collection facilities would be required. The pumps and brine lines would be regularly inspected for proper operations and to prevent leaks. If maintenance is required, it generally would involve the replacement of parts or repairing of leaks in the pipeline. No major excavation or other maintenance activities would be required.

2.5 OTHER IMPROVEMENTS

2.5.1 ACCESS ROADS

The 2008 FSEIR evaluated the impacts associated with the construction of unpaved and gravel-paved, permanent all-year access roads that would be used for the construction, operation, and maintenance of the moat and row DCAs. Access is currently provided from U.S. 395 via the existing north and south zonal mainline pipeline access roads (Brady Highway), from SR 136 via Sulfate Road, and from SR 190 via the existing Dirty Socks access road. Two new access roads were evaluated and approved and would be constructed directly off U.S. 395 for the northwestern areas (including sites T37-1 and T37-2 of the moat and row DCAs). Because these access roads were previously evaluated and approved as part of the 2008 FSEIR and no changes to these access roads are proposed as part of this project, no further analysis of the access roads will be provided in this draft SEIR.

2.5.2 STAGING AREAS

Two existing staging areas are established to provide contractors with a place to store heavy equipment and construction materials. One staging area is located south of Sulfate Road and west of SR 136, and the other is located above the southeast shoreline of the lake bed near Dirty Socks Spring. A third staging area was proposed and approved in the 2008 FSEIR and would be located near the northwest corner of the lake bed. No new staging areas are proposed as part of this project. Because these staging areas were previously evaluated and approved as part of the 2008 FSEIR, and because no changes to the staging areas are proposed as part of this project, no further analysis of the staging areas will be provided in this draft SEIR.

2.5.3 DUST EMISSIONS MONITORING PROGRAM

The 2008 FSEIR evaluated the continued use of a dust emissions monitoring program, known as the Dust ID Program. The program consists of air monitoring devices and a grid of sand-motion monitoring devices deployed on the lake bed, remote cameras, visual observations, and global positioning system mapping to measure and map dust emissions from the lake bed. The program would monitor dust emissions within the lake bed to determine the effectiveness of DCMs and whether additional DCMs or DCAs would need to be implemented. This program was approved with the 2008 SIP project and would not change with implementation of the proposed project. Because the dust emissions monitoring program was previously evaluated and approved as part of the 2008 SIP Subsequent EIR, and because no changes to this program are proposed as part of the proposed project, no further analysis of this program will be provided in this draft SEIR.

2.5.4 VECTOR CONTROL PROGRAM

As required in mitigation approved in the 2008 FSEIR, LADWP is required to implement a detailed vector control program (GBUAPCD 2008, Measure Land Use Planning—1, Resident Insect Control Program: page 3.6-9). The Resident Insect Control Program covers all activities approved as part of the 2008 SIP, which includes the moat and row DCAs. This program requires LADWP to institute a program on behalf of the residents of Swansea, Keeler, Cartago, and Olancha, whereby windows of existing residences within 3 miles of a water-based dust control area would be screened or other insect control devices would be provided to reduce nuisance insect populations. In addition, LADWP is required to prepare a study that evaluates the cause of insect populations in the adjacent communities and to require continued support of treatment methods, or to employ alternate effective means of insect control, if the dust control measures are found to cause insect pest problems.

2.6 CONSTRUCTION SCHEDULE

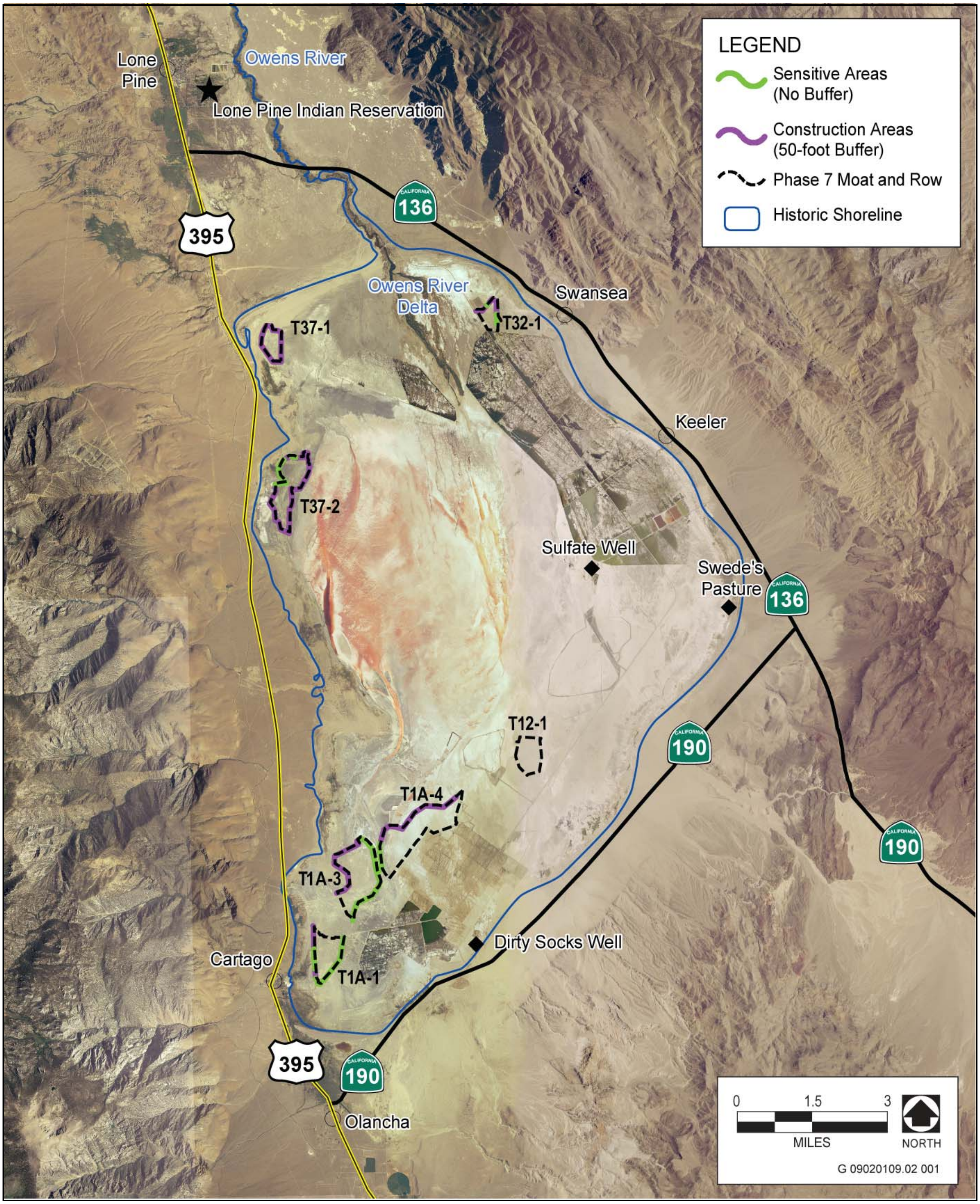
Construction of the seven moat and row DCAs would require approximately 7 to 12 months to complete and would begin in the spring of 2009. All DCMs are anticipated to be implemented by the spring of 2010.

Construction of the moat and row DCMs would generally involve site preparation (surface grading and earthmoving) and berm construction and access road grading. Moat and row DCM enhancements, if needed, would generally involve dewatering where necessary; mainline water delivery pipeline extension (trenching, pipeline installation, trench backfilling); water distribution system installation (e.g., drip or surface irrigation facilities for shallow flood enhancements); and power line and DCM controls installation.

Supporting activities include material and equipment delivery, fence installation, and transportation of construction crews to and from moat and row DCAs. All moat and row DCAs would have a 50-foot construction area buffer around the outer boundary of the DCA. In total, 0.1 square mile would be temporarily affected by construction activities, in addition to the 3.5 square miles of DCAs. Exhibit 2-20 shows where the 50-foot construction buffer areas would be established. In some locations, a construction buffer would not be established on one or more sides of the moat and row DCA because the moat and row DCA would be located adjacent to an existing DCA where construction is on-going or complete and access roads have been established. The temporary construction buffer would be necessary to allow the transport of heavy, wide-tracked equipment to the construction site. Wide-tracked equipment would be necessary because of the varying soil conditions and high water tables present on the lake bed.

Construction activities would occur 6 days a week, 12 hours a day. However, where consistent with local construction ordinances, construction activities may be expanded to 7 days a week, 24 hours a day to meet dust emission deadlines established by GBUAPCD. Prior to shift change, the incoming shift would arrive and stage at the construction site. Once the shift begins, the incoming shift would begin work and the outgoing shift would leave the construction site.

Table 2-4 describes the specific construction activities and associated construction equipment that could occur within each of the DCAs.



Source: GBUAPCD 2008

Temporary Construction Impact Areas **Exhibit 2-20**

Table 2-4 Anticipated Construction Activities, Equipment, and Crews for Construction of the Moat and Row DCAs			
Construction Activity	Activity Length (Estimate)	Equipment	Total Crew Members
Site Preparation: clearing site of vegetation and debris, leveling of site	30 days	1 bulldozer 1 front-end loader 1 grader 2 dump trucks 1 scraper	One crew consisting of 11 crew members
Earthmoving: excavation, grading for drainage, and ripping	60 days	2 bulldozers with disc plow 1 scraper	Two crews consisting of 4 crew members (8 total personnel)
Stormwater control berms: construction of earthen berms along perimeter of site; includes excavation, backfill, grading, and compaction	30 days	Up to 2–3 excavators 1 front-end loader 1 compactor 1 water truck 1 job pick-up truck 1 scraper 2 haul trucks	One crew consisting of 12 members
Dewatering: dewatering and discharge of on-site groundwater within construction areas	150 days	2 job pick-up trucks Pumps	One crew consisting of 2 members
Turnout mainline pipelines: excavation, pipeline delivery, pipeline excavation, installation, backfilling	60 days	Up to 2–3 tracked excavators/ trencher w/ conveyor 1 tracked chain machine trencher 1 bulldozer 1 front-end loader 1 crane/pipe layer 1 compactor 3 pipe delivery trucks 3 job pick-up trucks	One crew consisting of 12 members
Road Construction: construction of elevated roads on berms by using native materials, placement of soils, compaction, grading, and gravel placement	75 days	Up to 2–3 excavators 2 compactors 2 graders 3 haul trucks 1 job pick-up truck 1 scraper	One crew consisting of 13 members
Management activities: construction management and field inspection	312 days	10 job vehicles	One crew consisting of 15 members
Environmental mitigation crews: conduct surveys and mitigation monitoring activities	Ongoing	All-terrain vehicles 4-wheel drive vehicles	Seven crews consisting of 2–6 members each (total of 14 to 42 members)
Source: GPUAPCD 2008a			

2.7 OPERATION AND MAINTENANCE PLAN

2.7.1 MOATS

The function of the moat section of moat and row elements is to capture sand as the wind velocity is reduced by the row and/or sand fence sections. To keep the performance of this DCM at its highest level, removal of sand from the moats would need to occur on a periodic basis. Based on the data collected from moat and row demonstration areas (sites T12-1 and T32-1, see Exhibit 2-2), the perimeter moats facing the predominant wind direction and adjacent to open lake playa would require the most frequent maintenance procedures. Perimeter moats adjacent to shallow flood DCAs or managed vegetation areas and moats on the interior of moat and row DCAs would require less frequent maintenance because these areas have significantly lower levels of sand movement than elements adjacent to open lake playa. The frequency of maintenance of perimeter moats adjacent to open lake playa and facing primary wind directions is estimated to be once per year. Frequency of maintenance of interior DCA moats and perimeter moats surrounded by other DCMs is estimated to be once every 5 years.

Maintenance for removal of sand collected in the moats would be performed using a crawler type excavator, 10-wheel dump trucks, pick-up trucks, a water truck, and a bulldozer. The excavator would traverse the length of the maintenance road located between the moat and the row to remove sand from the moats and place it in the dump trucks, which would then transport the material and place it in a shallow flood pond. Shallow flood ponds generally vary in depth and in some areas can have several feet of standing water. When sand is dumped into the shallow flood pond, if the sand does not extend above the water surface, then no additional actions would be required. If, however, the depth of the pond is too shallow to allow the dumping of sand, then the sand would be spread throughout the pond to the extent necessary to maintain a water layer over the sand. Water trucks would be used to control fugitive emissions along the maintenance road and to pre-wet the sand prior to excavation. The bulldozer would be on-site as a precaution to extricate equipment stuck in mud. Crushed rock or gravel may be placed on the maintenance road surface to stabilize the road during the maintenance activity. The specific shallow flood pond selected would depend on many factors, including the pond's proximity to the moat and row DCA and the depth of water in the pond. Deeper ponds would likely be selected for disposal, as they have additional "capacity" to accept sand while maintaining water cover. Sand would be distributed in the pond sufficient to provide water cover. Uniform distribution would not be required. If distribution is required to maintain water cover, these sand-spreading activities would occur in the summer when the cells are dry. Under no circumstances would excavated sand be removed from the lake bed and trucked to off-site locations.

If water is present in the moat, dewatering of the moat may be required. Water present in the moat would be pumped into a nearby pond, shallow flood area, or the open playa area.

Upon completion of the material removal, water trucks would apply brine to the maintenance roads to rebuild the protective soil crust. Other equipment that may be used on-site to support maintenance equipment would include a fuel truck, back hoes and back hoe carriers, flatbed trucks, and six-wheeled dump trucks.

2.7.2 ROWS

Erosive forces of wind and rain may cause degradation of the side slopes of the rows, which could transport soil materials into the moats. The top of the rows would be armored with crushed rock or gravel, and the rows would be constructed in lifts compacted to 85% to reduce the effects of wind and rain erosion. Maintenance to the rows would likely follow a 10-year cycle consistent with the frequency of sand fence replacement. Row maintenance would consist of rebuilding eroded side slopes of the rows by using existing soil and rock materials.

It is possible, although unlikely, that there could be a berm failure of the rows as a result of water erosion or flash flooding. If this were to occur, immediate measures would be taken to repair the row. However, it is likely that the number of rows affected within a particular cell would be minimized, such that the berm failure would not affect the overall effectiveness of the DCM.

2.7.3 SAND FENCES

The sand fences would have a design life of 10 years and would generally be replaced after this period has elapsed or as required based on maintenance needs. Fence posts would be inspected for deterioration at the time of fence replacement and would be replaced as necessary. The sand fence would have break-away clips installed along the bottom, which would allow the fence to swing from the top cable in winds over 71 mph. Should the fence break away from the bottom cable, a crew of three to four would enter the affected area once it is determined to be safe based on ambient wind speeds and would reattach the fence to the bottom cable. Pick-up trucks would be used to transport personnel and materials for fence repair.

In areas where only a sand fence would be present (i.e., no moat and rows), maintenance would be performed on an as-needed basis as determined during the monthly inspections. It is anticipated that materials removal would need to occur once sand has reached 50% of the height of the sand fence (or approximately 2.5 feet). Sand built up against the fence would be removed using an excavator, dump trucks, and pick-up trucks supported by a bulldozer to extricate equipment stuck in the mud and a water truck to control fugitive dust emissions. Fencing disturbed by maintenance activities would be repaired as needed. Water trucks would apply brine to the access roads after material removal to rebuild the protective soil crust.

2.7.4 OTHER MAINTENANCE ACTIVITIES

Inspections of the moat and row DCAs would occur on a monthly basis or as needed after high wind events (winds greater than 25 mph) to verify that moats are free of debris and that sand fences are in proper working order. One person on an all-terrain vehicle (ATV) or in a pick-up truck would be able to perform the monthly inspection. Should a severe wind event (greater than 70 mph) occur, an immediate inspection of the moat and row DCAs would be initiated. Inspections would be conducted using a four-wheel ATV or a pick-up truck via access roads.

Operational activities in the moat and row DCAs would include water quality testing of groundwater present in the moats to ensure construction or operational activities have not resulted in water contamination. This activity would occur quarterly (in accordance with Measure Hydrology-2 of the 2008 FSEIR). This activity would also supplement the monthly inspections of the moat and row DCAs. ATVs or pick-up trucks would use the access roads to the moat and row DCAs for maintenance activities.

3 ENVIRONMENTAL SETTING, THRESHOLDS OF SIGNIFICANCE, PROJECT AND CUMULATIVE IMPACTS, AND MITIGATION MEASURES

3.0 APPROACH TO THE ENVIRONMENTAL ANALYSIS

This chapter discusses the existing conditions, thresholds above which an impact is considered significant, environmental impacts, mitigation measures, and level of significance of environmental impacts after mitigation. Issues evaluated in these sections consist of the potential environmental topics originally identified for review in the notice of preparation (NOP) prepared for the proposed project. Appendix A contains the NOP and comments received on the NOP. Sections 3.1 through 3.3 of this draft SEIR are each organized into the following major components:

- **Introduction:** This subsection briefly introduces the section and provides information regarding the scope and purpose of the environmental issue section.
- **Environmental Setting:** This subsection presents the existing regional and local environmental conditions relevant to the consideration of project impacts, as described in this section.
- **Regulatory Setting:** This subsection reviews the applicable regulatory framework, plans, and policies under which the proposed project would be implemented.
- **Impacts and Mitigation Measures:** This subsection presents thresholds of significance used in the draft SEIR and discusses potential significant effects of the project on the existing environment, in accordance with State CEQA Guidelines Section 15143. The thresholds of significance are presented at the beginning of each section. Project impacts are numbered sequentially throughout this section. Therefore, impacts in Section 3.3 are numbered 3.3-1, 3.3-2, 3.3-3, etc. An impact statement precedes the discussion of each impact and provides a summary of each impact and its level of significance. The discussion that follows the impact statement includes the substantial evidence upon which a conclusion is made as to whether the impact would be significant or less than significant. Each section includes both project and cumulative impacts. Further discussion of the cumulative impact analysis is provided below (see Section 3.0.1).
- **Mitigation Measures:** This subsection provides mitigation measures to reduce significant effects of the proposed project to the extent feasible, in accordance with State CEQA Guidelines Section 15002(a)(3), Section 15021(a)(2), and Section 15091(a)(1). The mitigation measures are registered numerically to the corresponding impact being reduced. For example, Mitigation Measure 3.3-1 would mitigate Impact 3.3-1.
- **Level of Significance after Mitigation:** This subsection describes whether mitigation measures would or would not reduce impacts to a less-than-significant level. This section is presented in accordance with State CEQA Guidelines Section 15126.2(b), which requires identification of significant unavoidable impacts.

3.0.1 CEQA REQUIREMENTS FOR ANALYSIS OF CUMULATIVE IMPACTS

This draft SEIR analyzes the overall cumulative impacts of the project considered together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. The cumulative impact analysis is presented at the end of each resource section. The goals of the analysis are to first determine whether the overall long-term impacts of all cumulative projects would be cumulatively significant and second to determine whether the project itself would cause a "cumulatively considerable" (and thus significant) incremental contribution to any such cumulatively significant impacts. (See State CEQA Guidelines Sections 15130[a]-[b], Section 15355[b], Section 15064[h], Section 15065[c];

Communities for a Better Environment v. California Resources Agency [2002] 103 Cal.App.4th 98, 120.) This analysis creates a broad context in which to assess the project's incremental contribution to anticipated cumulative impacts, as viewed on a geographic scale beyond the project site itself, and to determine whether the project's incremental contribution to any significant cumulative impacts is itself significant (i.e., "cumulatively considerable" as defined by CEQA).

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130(a), the discussion of cumulative impacts in this draft SEIR focuses on significant and potentially significant cumulative impacts. State CEQA Guidelines Section 15130(b), in part, provides the following:

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

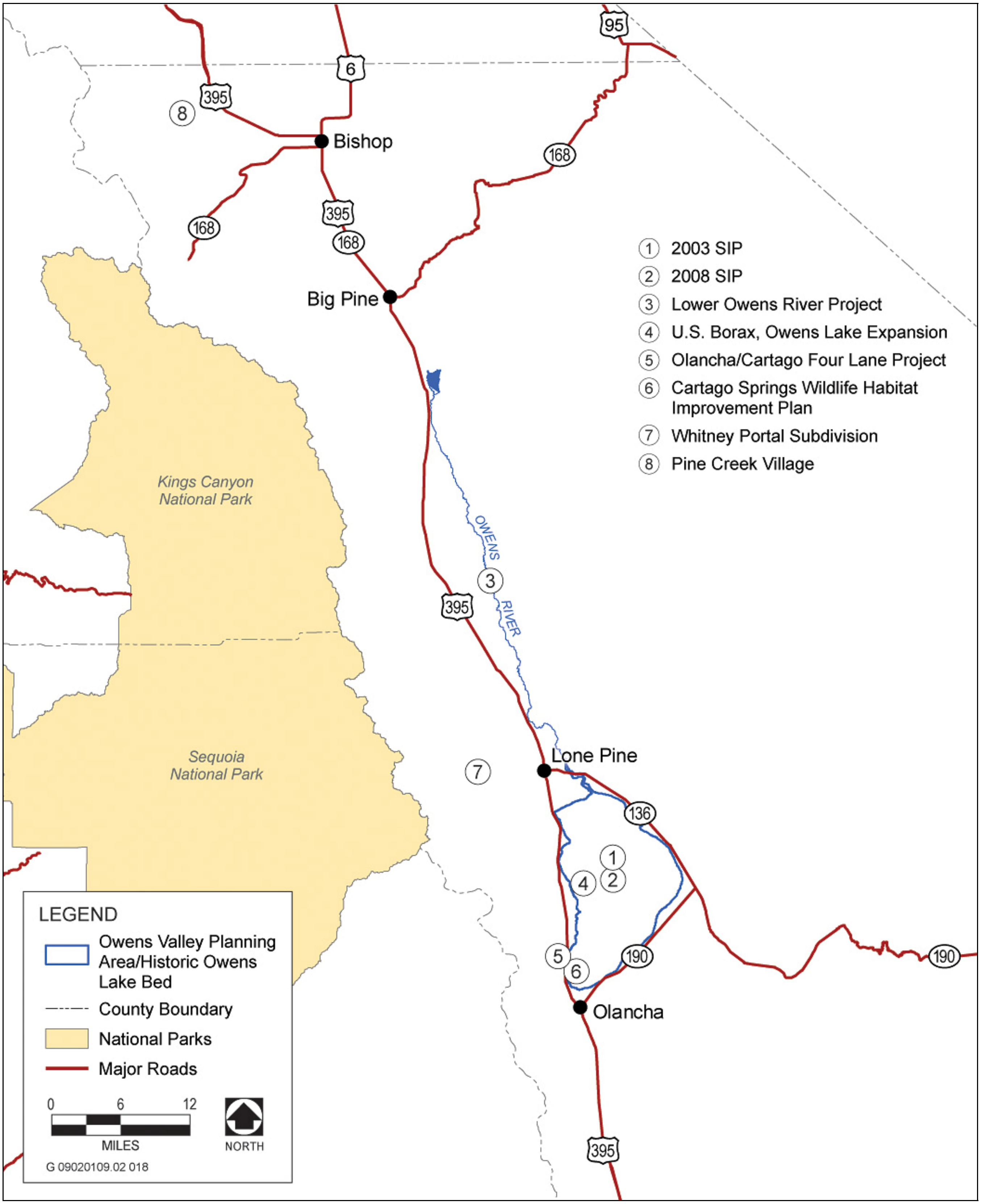
The cumulative impact analysis in this draft SEIR is based on an understanding of projected growth and development in the vicinity of the project and "(a) list of past, present, and probable future projects producing related or cumulative impacts" (State CEQA Guidelines Section 15130[b][1][A]). The related projects that are considered for the purposes of cumulative analysis in this draft SEIR are hereinafter referred to as the "cumulative projects." Projected growth and cumulative projects are described below.

3.0.2 CUMULATIVE PROJECTS

LADWP has worked closely with interested parties in the Owens Valley to identify closely related past, present, and reasonably foreseeable probable future projects that should be considered in the evaluation of cumulative impacts. In addition to authorized control measures at Owens Lake for respirable particulate matter less than or equal to 10 microns in diameter (PM_{10}), LADWP solicited information regarding potential related projects from the Bureau of Land Management, California State Land Commission, California Department of Fish and Game (DFG), California Department of Transportation (Caltrans), and Inyo County Planning Department. Several projects, which are described in greater detail below and shown in Exhibit 3-1, have been identified and are considered related cumulative projects. These cumulative projects have been evaluated in the cumulative impact analyses following each environmental resources section.

2003 STATE IMPLEMENTATION PLAN

The 2003 SIP approved the implementation of 29.8 square miles (19,072 acres) of dust control measures (DCMs) within the Owens Lake bed. DCMs include shallow flooding, managed vegetation, and other enhancements needed to achieve target dust control efficiencies. These DCMs were installed and completed between 1999 and 2006.



Source: Adapted by EDAW in 2009

Cumulative Projects **Exhibit 3-1**

2008 State Implementation Plan

The 2008 SIP was approved by the Great Basin Unified Air Pollution Control District in February 2008. This project would implement an additional 15.1 square miles (9,664 acres) of DCMs on the Owens Lake bed. DCMs would include shallow flooding, managed vegetation, moat and row, and other enhancements to achieve target dust control efficiencies. These DCMs are currently being implemented. The moat and row DCMs, as since revised, are the subject of this draft SEIR.

Lower Owens River Project

The Lower Owens River Project (LORP) is a joint effort between the City of Los Angeles and Inyo County, which would implement a large-scale habitat restoration project in the Owens Valley north of Owens Lake and outside the proposed project area.

The main objective of the LORP is to mitigate impacts related to groundwater pumping by the City of Los Angeles from 1970 to 1990. The LORP project elements include (1) releasing water to the Lower Owens River to enhance native and game fisheries and riparian habitats along 62 miles of the river, (2) providing water to the Owens River Delta to maintain and enhance various wetland and aquatic habitats, (3) enhancing a 1,500-acre off-river area with seasonal flooding and land management to benefit wetlands and waterfowl, and (4) maintaining several off-river lakes and ponds. In addition, the LORP also includes construction of a pump station to capture and recover some of the water released to Owens River as well as a range of improvements to and modified grazing practices on leases in the LORP project area. The environmental impact report/environmental impact statement prepared for LORP identified six significant and unavoidable impacts on the environment, including:

- water quality degradation and fish kills during initial releases to the river,
- possible reduction in existing flows to the delta that could adversely affect existing wetland habitats,
- degradation of brine pool transition and associated shorebird habitat due to reduced flow to the delta,
- conversion of 2,873 acres of native upland habitats to wetlands,
- potential increase in mosquito populations along the river, and
- potential increase in salt cedar (a nonnative weed).

The project was approved in November 2005 and has been implemented.

U.S. Borax, Owens Lake Expansion Project/Conditional Use Permit #02-13/Reclamation Plan #02-1

The U.S. Borax, Owens Lake Expansion Project/Conditional Use Permit #02-13/Reclamation Plan #02-1 project would result in the installation of a trona ore processing facility at Owens Lake. The facility would consist of portable and mobile washing equipment located on the lake bed and a calcining and drying unit on the western shore. The main objective is to allow U.S. Borax's Boron, California, operations to increase mining and supplies of soda ash. This permit was approved in October 2004.

Olancha/Cartago Four-Lane Project

Caltrans and the Federal Highway Administration are proposing a new four-lane highway in Inyo County on State Route 395 near the towns of Olancha and Cartago. The project extends from the existing four-lane highway segment just south of the Los Angeles Aqueduct Bridge No. 48-10 at kilometer point (KP) 49.5 (project mile [PM] 30.8) north to the four-lane segment at the Ash Creek Bridge No. 48-11 at KP 67.4 (PM 41.9). The project is approximately 11.1 miles long. The proposed project would upgrade the existing two-lane conventional highway to a four-lane expressway or partial conventional four-lane highway to improve the level of service, ease congestion, and improve the overall safety of the highway in the area. Caltrans is currently preparing the environmental studies for this project and anticipates beginning to construct the project in 2015.

CARTAGO SPRINGS WILDLIFE HABITAT IMPROVEMENT PLAN MITIGATION PLAN

Caltrans plans to enhance habitat at small part of the 218-acre Cartago Springs property owned by DFG to mitigate impacts under the Clean Water Act that were incurred from two highway projects. The Cartago mitigation site would provide the required 0.786 acre of riparian habitat, 1.9 acres of waters of the United States, and 0.2 acre of wetlands as required under U.S. Army Corps of Engineers permit conditions. Caltrans' proposed mitigation plan was recently reviewed by DFG and is proceeding through subsequent approval processes.

INYO COUNTY PLANNING DEPARTMENT PROJECTS

The Inyo County Planning Department maintains an active list of projects proceeding through the entitlement process (see http://www.inyoplanning.org/projects.htm). The following are a list of those projects that would combine cumulatively with the project to create a cumulative impact.

- *Whitney Portal Subdivision Project:* The project is an application for a 27-lot subdivision on a 74-acre site located approximately 4 miles west of Lone Pine on the south side of Whitney Portal Road. The project would consist of 2.5-acre lots serviced by individual water wells and septic systems.

- *Pine Creek Village Project*: The proposed project would be located at Rovana (located approximately 10 miles northwest of Bishop, and 3 miles west of the intersection of State Route 395 and Pine Creek Road) and would include the establishment of the following:

  - <u>Phase 1:</u> Create 92 lots from an existing village by (1) selling 70 lots with existing homes (i.e., the existing Rovana homes), zoned Planned Unit Development (PUD), at below-market prices; and (2) removing or renovating 15 existing houses, removing an existing gymnasium, and creating seven new lots for a total of 22 lots with all utilities (some with houses, some without) to be sold at current market price.

  - <u>Phase 2:</u> Create nine 10-acre lots, zoned Rural Residential (RR), located south of Pine Creek Road and to the east of Rovana.

  - <u>Phase 3:</u> Create 47 lots ranging from 5,800–9,500 square feet, located on the site of the former mobile home park, and zoned PUD.

  - <u>Phase 4:</u> Create for-sale lots for duplex townhome construction (as a PUD, to total 14 units) on 6.4 acres, located between the existing homes of Rovana and the old mobile home park, and zoned PUD.

  - <u>Phase 5:</u> Create three 40-acre lots, located west and north of Rovana, and zoned Open Space, 40-acre minimum (OS-40).

  - <u>A Community Service District</u> would be established for the project area to provide fire protection services, sewer services, water services, maintenance of private roads, park/open space maintenance, and enforcement of Conditions, Covenants, & Restrictions developed for the project.

This project is currently proceeding through the environmental review process.

- *Tentative Parcel Map #384/Hinds*: This project is an application to subdivide a 70.7-acre site into four parcels of 20.6, 20.5, 17.1, and 12.5 acres. The site is located adjacent to Glacier Lodge Road, located approximately 8 miles west of Big Pine. An initial study/mitigated negative declaration was prepared and the project was approved in January 2009.

3.1 BIOLOGICAL RESOURCES

3.1.1 INTRODUCTION

This analysis supplements the biological resources analysis conducted for the 2008 FSEIR (GBUAPCD 2008), available for review at the office of LADWP. It focuses on moat and row design modifications that could result in impacts on biological resources. Accordingly, this section incorporates by reference the biological analysis previously presented in the 2008 FSEIR and, where necessary, updates the environmental setting and impact analysis. Potential impacts of the proposed moat and row project are analyzed. Mitigation measures are identified for those impacts determined to be significant.

The environmental setting and impact analysis focus on two biological resources with potential to be affected by the moat and row project and determined by the California Department of Fish and Game (DFG) and California State Lands Commission (CSLC) to require further analysis in this SEIR: (1) western snowy plover (*Charadrius alexandrius*), designated by DFG as a species of special concern, and (2) resident and migratory wildlife movement.

In response to the project application for a DFG streambed alteration agreement and land lease requests, concerns were expressed by DFG and CSLC regarding changes to moat and row element design and configuration (Racine, pers. comm., 2007; Henderson, pers. comm., 2008; Nahai, pers. comm., 2008). Concerns related to the potential for moat entrapment of juvenile shorebirds (particularly snowy plover) because of proposed moat side slopes and potential for water in moats and the potential for the project to create barriers to wildlife movement as a result of the proposed moat, row, and fence pattern and design. This supplemental analysis specifically addresses these concerns.

3.1.2 ENVIRONMENTAL SETTING

This section describes the setting information relevant for the impact analysis.

METHODS FOR DEVELOPING EXISTING CONDITIONS

The existing conditions for this analysis are characterized primarily at three spatial scales relevant to the biological resources analysis: the study area, the project site, and individual moat and row cells. The study area is the entire Owens Lake bed as delineated by the historic 3,600-foot-elevation shoreline. The project site is the area composed of all seven moat and row dust control areas (DCAs) and constitutes all areas considered for the proposed project (Exhibit 2-2). Individual moat and row cells represent each of the seven DCAs for which moat and row elements are proposed as the primary dust control method.

The following information sources were reviewed by EDAW and Garcia and Associates biologists to describe existing conditions specific to western snowy plover and migratory wildlife movement:

- 2008 FSEIR (GBUAPCD 2008) and supporting technical reports;
- *Draft Owens Lake Dust Mitigation Program Phase 7 Geotechnical Investigation* (LADWP 2008a);
- annual lakewide snowy plover survey summaries for Owens Lake (PRBO 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008);
- *Recovery Plan for the Pacific Coast Population of the Western Snowy Plover* (Charadrius alexandrines nivosus) (USFWS 2007);

- Owens Lake April 2008 Big Day lakewide bird survey summary and associated data from the Audubon Society (Prather, pers. comm., 2008);

- GIS and other data on snowy plover nest site distribution, water management practices, and land cover types on Owens Lake bed,and project design specifications from LADWP;

- more than 40 published and unpublished technical papers related to snowy plover ecology or wildlife movement focusing on life history and ecology, habitat requirements, and biotic interactions, with emphasis on parameters most likely to be sensitive or relevant to project construction and design features (e.g., movements and dispersal patterns, habitat use, distance-to-water relationships);

- environmental analyses and reports for adjacent projects, including the natural environment study for the Olancha/Cartago Four-Lane Project (Inyo County 2003) and the draft EIR for the U.S. Borax, Owens Lake Expansion Project (Inyo County 2004);

- *Cartago Springs Draft Wildlife Habitat Improvement Plan Mitigation Plan* (draft in progress by DFG); and

- California Natural Diversity Database (CNDDB) (CNDDB 2008).

Additionally, EDAW and Garcia and Associates biologists conducted the following investigations:

- reconnaissance-level field surveys of the project site on November 13, 14, and 20, 2008;

- coordination and interviews with local biologists, agency staff members, and leading experts on snowy plover and other wildlife in the Owens Valley from the following organizations:

    - Eastern Sierra Audubon Society, Point Reyes Bird Observatory (PRBO), and San Francisco Bay Bird Observatory (SFBBO) and

    - DFG, the U.S. Fish and Wildlife Service (USFWS), the California Department of Transportation (Caltrans), and LADWP; and

- collection and interpretation of Caltrans road kill data for highways adjacent to the project study area (U.S. Highway 395, State Route [SR] 136, and SR 190) (Zemitis, pers. comm., 2008).

Existing conditions for biological resources in the study area were documented in the 2008 FSEIR for the 2007 growing season. As part of the 2008 FSEIR, Sapphos Environmental delineated wetlands, other state and federal waters, and areas subject to DFG jurisdiction and evaluated the presence of any sensitive plant communities. Sapphos Environmental also conducted field-based habitat assessments to document the presence or absence of potentially suitable habitat and special-status species with the potential to occur on the project site (GBUAPCD 2008). Additional focused surveys were conducted for Owens Valley vole (*Microtus californicus vallicola*) and western snowy plover to determine species occurrence on the Phase 7 project site (GBUAPCD 2008). (The Phase 7 project site is the full area considered in the 2008 FSEIR and includes the seven moat and row cells evaluated herein, shallow flooding, and managed vegetation.) During those focused surveys and assessments, general surveys for reptiles, amphibians, birds, and mammals also were conducted.

Western Snowy Plover Conditions

Several attributes were evaluated and, where necessary, updated to reflect the current status of snowy plover both in and adjacent to each moat and row cell and over the study area. These attributes include recent and historic occupancy status and distribution, and habitat suitability for foraging and nesting.

Recent occupancy status and distribution were based on preproject surveys conducted by Sapphos Environmental in 2007 (GBUAPCD 2008), incidental observations during 2008, and results of annual lakewide surveys during 2007 and 2008 (PRBO 2007, 2008). Historic occupancy status and distribution were based on knowledge of local experts (Page, pers. comm., 2008; Prather, pers. comm., 2008) and previous annual lake-wide survey results (PRBO 2000, 2001, 2002, 2003, 2004, 2005, 2006). Habitat suitability was based on a habitat suitability map developed for this SEIR, which is described in detail below.

EDAW developed a map of estimated habitat suitability for western snowy plover to identify specific locations on the project site that contain potentially suitable and occupied habitat, quantify impacts on snowy plover habitat, analyze potential effects of project implementation on habitat connectivity, and support an assessment of the potential for the project to affect snowy plover individuals.

Development of the snowy plover habitat map was initially based on the following three data sources: National Wetlands Inventory, LADWP GIS data on Cartago Creek outflow onto Owens Lake, and LADWP GIS data on existing shallow-flood managed areas on Owens Lake. Each of these sources and their application to developing the habitat suitability map are summarized below:

- National Wetlands Inventory data layer (freshwater emergent wetland type).
  - These data represented freshwater seeps and springs around Owens Lake, including the Lower Owens River Delta area (i.e., creek outflow), where occurrences of snowy plover foraging and breeding activity have been documented in the past 8 years (PRBO 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008).
- LADWP data layers representing the Cartago Creek outflow onto Owens Lake (areas delineated as the “Channel Areas”).
  - These data represented an important source of water onto the southern Owens Lake bed that was not represented in the National Wetlands Inventory data layer.
- LADWP data layers representing the existing extent of shallow flood cells containing sheet flow, and roads within existing ponded shallow flood cells.
  - These data represented areas where suitable foraging and nesting habitat have been created as a result of recent water management practices on Owens Lake.

EDAW used the most recent survey data of snowy plover nest locations relative to surface water (PRBO 2000, 2001, 2002) to identify potentially suitable habitat for snowy plover on Owens Lake. Additionally, “predicted high-suitability habitat” was characterized as a subset of potentially suitable habitat for snowy plover; it is defined as areas of suitable habitat where 75% of snowy plover nesting activity is predicted to occur, based on empirical nest distribution data. The delineation of predicted high-suitability habitat was intended to identify areas on the lake bed with the potential for relatively high nest densities.

Wildlife Movements and Corridors

For analysis purposes, wildlife species known to occur in or near the study area were grouped into four general size or mobility categories:

- large mammals;
- small terrestrial mammals, reptiles, and amphibians;
- medium-sized mammals; and
- birds and bats.

The following occurrence and movement information for these groups was summarized as follows:

- Presence of known migration routes or established movement corridors.

- Locations of wildlife nursery (i.e., breeding) sites.

- Life history attributes of species (e.g., foraging and breeding requirements) and distribution of suitable habitat relative to study area and site conditions.

- The proximity of moat and row cells to the Cartago Wildlife Area, and the potential for wildlife movement between the study area and Wildlife Area. The Cartago Wildlife Area is a 232.5-acre parcel recently acquired by DFG that is located adjacent to the project site in the southwestern corner of the Owens Lake (Exhibit 3.1-1).

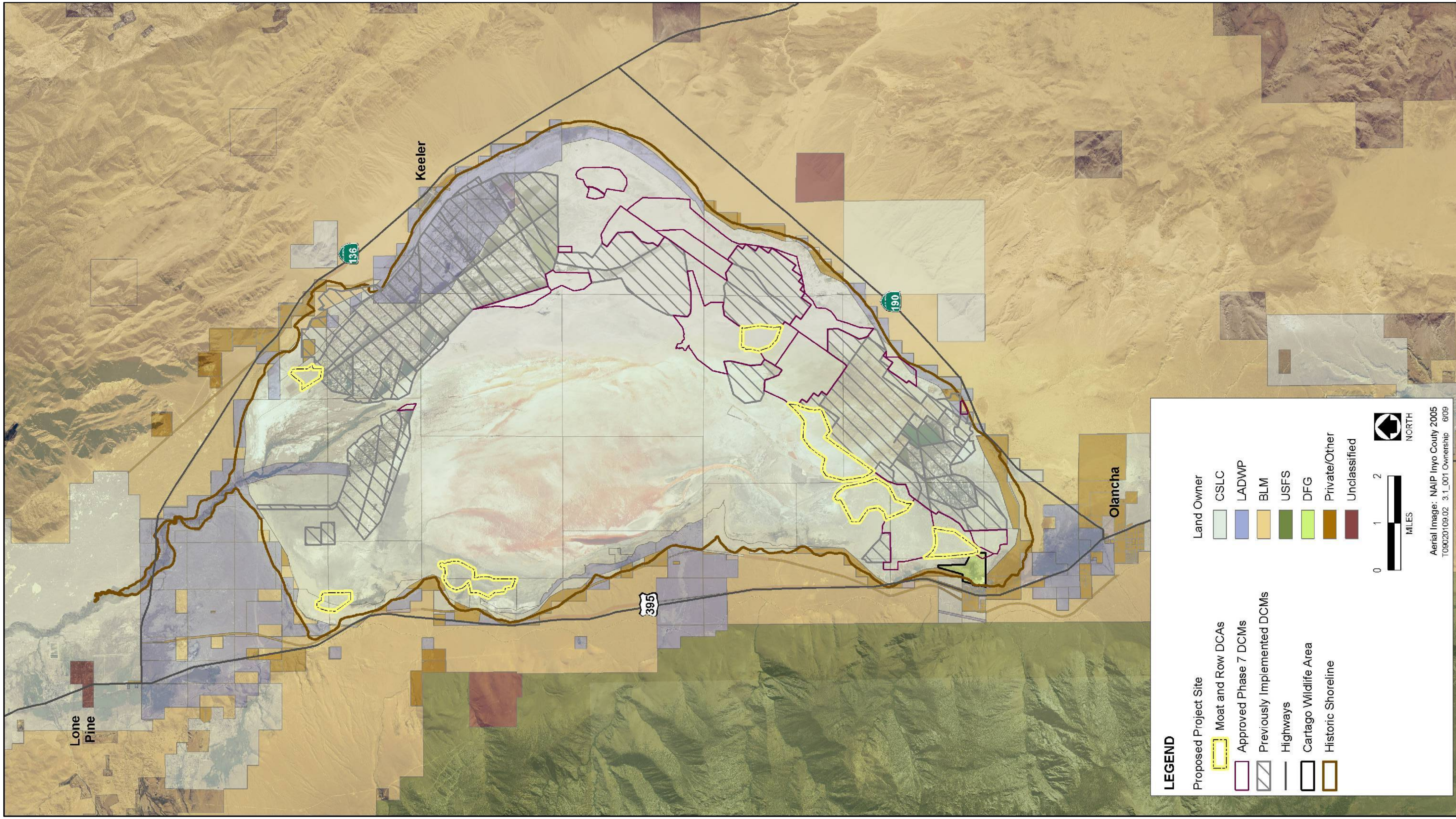
LAND COVER TYPES

Land cover on the project site is dominated by barren alkali playa, which contains no vegetative cover. The ground surface consists of exposed, often cracked, soils of the historic Owens Lake bed. A soil-salt crust occurs on the surface of the lake bed throughout much of the proposed project site, due to shallow groundwater conditions (See "Groundwater and Soil Conditions"). The lake bed crust creates a variable surface topography on the project site.

Vegetation cover in the project site is low and restricted to a few occurrences of scattered shadscale (*Atriplex* spp.) shrub habitat and dry alkali meadow (a subtype of trans-alkali meadow) within two of the seven moat and row cells (Table 3.1-1, Exhibits 3.1-2, 3.1-4 through 3.1-10). In the project site, shadscale vegetation generally consists of small, sparsely distributed shrubs; dry alkali meadow consists primarily of sparse communities of saltgrass on the otherwise open lake bed. Based on plant community mapping conducted for the 2008 FSEIR (GBUAPCD 2008), 86% of the project site was mapped as barren alkali playa, 9% as shadscale, and 5% as dry alkali meadow (Exhibit 3.1-2). Shadscale and dry alkali meadow communities were described previously in GBUAPCD (2008).

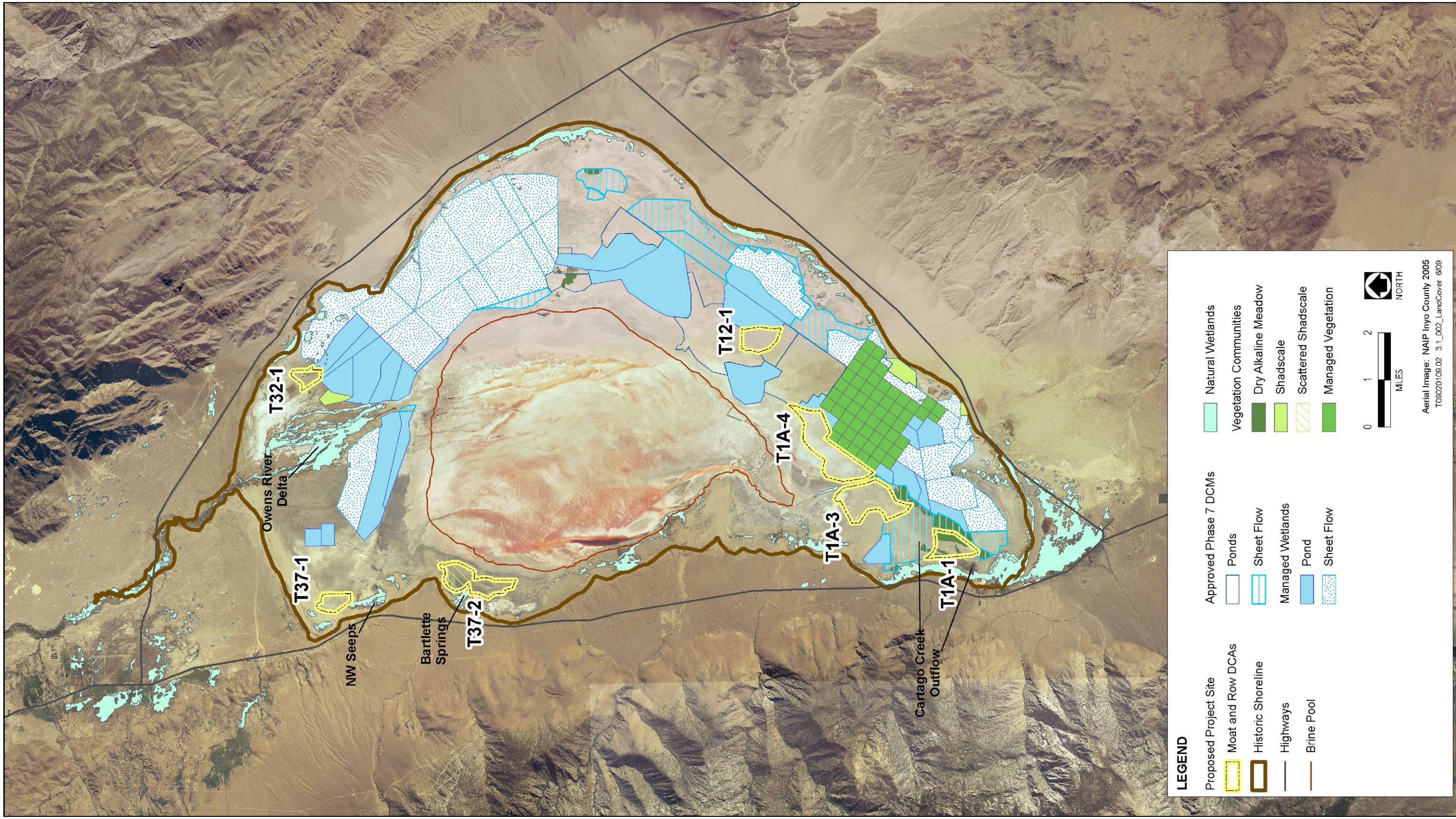
Shallow surface water conditions occur on barren alkali playa in portions of the study area and project site; these conditions appear as mudflats or saturated soils with occasional pools of shallow water, or in some cases shallow ponds. Surface water occurs in: areas managed with artificial flooding by LADWP; locations where natural seeps, springs, or channels convey water onto barren areas of the lake bed; or where groundwater levels reach the lake bed surface (e.g., brine pool, and in the bottom of some moats) (Exhibit 3.1-2). The extent of surface water varies both annually and seasonally, and in only a few locations has been documented year-round (e.g., brine pool, some artificial flood ponds, and some moats in cell T32-1). Shallow-water alkali wetlands occur where surface water flows onto the lake bed and creates either a wet/moist mosaic of finger-like channels (i.e., sheet flow) interspersed with dry to saturated soils, or forms shallow ponds (Exhibit 3.1-3); they occur seasonally within four of the seven proposed moat and row cells (Table 3.1-1).

Generally, areas bordering Owens Lake consist primarily of shadscale shrub communities (e.g., alkali desert scrub and desert scrub), and also several spring-fed vegetated wetland habitats. Land cover types adjacent to the project site include those previously described: barren alkali playa, scattered shadscale, dry alkali meadow and shallow-water alkali wetlands. Additionally, vegetated freshwater seeps and springs, and creek outflows (e.g., Bartlette Springs, Northwest Seeps, Cartago Creek, and Owens River Delta) occur in the vicinity of four of the seven moat and row cells (Table 3.1-1). Because of the hydrologic conditions, increased vegetation cover, and greater diversity of food sources in these surrounding areas, the habitats along the lake perimeter support substantially higher wildlife diversity than those within the project site.



Sources: CASIL 2005, LADWP 2008

Land Ownership **Exhibit 3.1-1**



Source: LADWP 2008, adapted by EDAW in 2008

Existing Land Cover Types **Exhibit 3.1-2**

Ponded Shallow Flood — Looking southeast from southern edge of moat and row cell T32-1 towards adjacent ponds (cells T30-2, T29-1). *(Photograph taken by EDAW on November 13, 2008)*

Sheet-flow Shallow Flood — Looking north from mainline road southeast of moat and row cell T1A-3. Photograph shows sheet-flow flooding typical of high-quality snowy plover habitat on Owens Lake. *(Photograph taken by EDAW on November 13, 2008)*

Representative Photographs of Shallow-Water Conditions **Exhibit 3.1-3**

Looking west-northwest from the mainline road east of cell T32-1, showing low-density shadscale vegetation to the east of moat and row cell T32-1. *(Photograph taken by EDAW on November 13, 2008)*

Looking north into moat and row cell T32-1 showing the predominantly barren landscape within cell and existing structural elements. *(Photograph taken by EDAW on November 13, 2008)*

Photographs of Existing Conditions at Cell T32-1 **Exhibit 3.1-4a**

Looking north along moat on western border of cell T32-1 showing indicators of groundwater within moat. *(Photograph taken by EDAW on November 14, 2008)*

Photographs of Existing Conditions at Cell T32-1 **Exhibit 3.1-4b**

Looking west into the southern portion of cell T12-1 showing predominantly barren landscape within cell. *(Photograph taken by EDAW on November 13, 2008)*

Looking north along moat on eastern border of cell T12-1 showing groundwater within the moat. *(Photograph taken by EDAW on November 13, 2008)*

Photographs of Existing Conditions at Cell T12-1 **Exhibit 3.1-5a**

Looking east-southeast from cell T12-1 showing adjacent pond habitat. *(Photograph taken by EDAW on November 13, 2008)*

Photograph of Existing Conditions at Cell T12-1 **Exhibit 3.1-5b**

Looking east across the Owens Lake playa towards cell T37-1, located beyond the scrub vegetation. *(Photograph taken by EDAW on November 14, 2008)*

Photograph of Existing Conditions at Cell T37-1 **Exhibit 3.1-6**

Looking west across the central portion of cell T37-2 showing low-growing saltgrass vegetation (i.e., dry alkali meadow) within the cell. *(Photograph taken by EDAW on November 13, 2008)*

Looking southeast toward Bartlette Springs (center) and the north half of cell T37-2 (barren area beyond the vegetated springs). *(Photograph taken by EDAW on November 14, 2008)*

Photographs of Existing Conditions at Cell T37-2 **Exhibit 3.1-7**

Looking south across cell T1A-1 showing mostly dry, barren landscape with scattered patches of saltgrass vegetation within the cell. *(Photograph taken by EDAW on November 13, 2008)*

Looking southwest across cell T1A-1 toward Cartago Wildlife Area (background), showing barren landscape with wet soil and sheet-flow. *(Photograph taken by EDAW on November 20, 2008)*

Photographs of Existing Conditions at Cell T1A-1 **Exhibit 3.1-8**

Looking north along the eastern border of cell T1A-3 and Channel Areas, showing barren landscape and evidence of seasonal water flow adjacent to the cell. *(Photograph taken by EDAW on November 14, 2008)*

Photograph of Existing Conditions at Cell T1A-3 **Exhibit 3.1-9**

Looking north-northeast across cell T1A-4 showing the barren landscape throughout this cell. *(Photograph taken by EDAW on November 14, 2008)*

Photograph of Existing Conditions at Cell T1A-4 **Exhibit 3.1-10**

Table 3.1-1
Land Cover Types in and Adjacent to the Proposed Project Site

Moat and Row Cell	Existing Land Cover Type	Acres[1]	Adjacent Land Cover Summary	Photo Reference
T32-1	Barren alkali playa	114	► Shadscale habitat in low density along a portion of the eastern border of this cell (Exhibit 3.1-4). ► Owens River Delta over 0.5 mile to the west. ► Artificial shallow flood ponds to the south; and limited sheet-flow shallow flood cells seasonally to the southeast. ► Barren alkali playa elsewhere.	Exhibit 3.1-4a, b
T12-1	Barren alkali playa	220	► Artificial shallow flood ponds to the north, east and west. ► Future sheet-flow shallow flood cells to the southwest.	Exhibit 3.1-5a, b
T37-1	Barren alkali playa[2]	137	► Northwest Seeps to the south. ► Shadscale habitat in the uplands to the north and west. ► Barren alkali playa to the east.	Exhibit 3.1-6
T37-2	Barren alkali playa[2] Shadscale (occurs in very low density at the northern end of this cell.) Dry alkali meadow (occurs in a narrow band across the middle of the cell (Exhibit 3.1-2)	184 185 9	► Bartlette Springs to the west. ► Shadscale in the uplands to the northwest, and southwest. ► Natural sheet-flow flooding seasonally in a limited area to the east. ► Barren alkali playa elsewhere.	Exhibit 3.1-7
T1A-1	Barren alkali playa[2] Dry alkali meadow (extends into this cell as narrow projections along hydrologic features at the northwest corner and along the west central portion, and scattered within the eastern half of this cell [Exhibit 3.1-2])	143 106	► Cartago creek outflow to the southwest. ► Artificial and natural sheet-flow shallow flooding seasonally to the east-southeast. ► Scattered dry alkali meadow to the west and east. ► Future sheet-flow shallow flood cells to the north.	Exhibit 3.1-8
T1A-3	Barren alkali playa[2]	517	► Natural sheet-flow shallow flooding seasonally in the Channel Areas to the east. ► Artificial shallow flood ponds to the southeast. ► Future sheet-flow shallow flood cells to the southwest. ► Barren alkali playa to the west and north.	Exhibit 3.1-9
T1A-4	Barren alkali playa	622	► Re-vegetated saltgrass community (i.e., managed vegetation DCA cell) to the east and southeast. ► Natural sheet-flow shallow flooding seasonally in the channel areas to the southwest. ► Barren alkali playa to the north and west.	Exhibit 3.1-10

[1] Values are based on habitat assessment and vegetation mapping conducted by Sapphos Environmental (GBUAPCD 2008).
[2] Indicates cells in which shallow-water conditions occur seasonally on barren alkali playa. At cells T37-1, T37-2, and T1A-3, extent of wet conditions is limited; at T1A-1, mosaic of wet-dry conditions appears distributed throughout cell.
Source: GBUAPCD 2008, adapted by EDAW in 2008.

GROUNDWATER AND SOIL CONDITIONS

Groundwater was generally encountered within two to five feet of the lake bed surface during geotechnical investigations in 2007; however, fluctuations in depth-to-groundwater are expected due to season, variation in annual rainfall, temperature, and other factors (LADWP 2008a). Portions of the lake bed are saturated at the surface or covered with shallow surface-water during some parts of the year. In general, groundwater is expected to be encountered within the excavation depths of moats (i.e., 4 to 5.5 feet below ground level) throughout the project site (LADWP 2008a). During field surveys conducted for this analysis, moats in the demonstration areas (cells T12-1 and T32-1) were observed to contain surface water, as well as moist ground surfaces due to high groundwater elevations (Exhibits 3.1-4 and 3.1-5).

Soil substrate within 5 feet of the lake bed surface is dominated by sandy soil throughout much of the project site, with the exception of primarily silt/clay soils present within 5 feet of the lake bed surface at T37-2, and between 2 and 5 feet at the demonstration site T12-1 (LADWP 2008a). Where water occurs on the lake bed, the salt crust that forms on the surface contributes to saline surface-water conditions. LADWP (2008a) reported groundwater salinity levels of 5,400 mg/L on Owens Lake, based on USGS data collected in 1991.

SENSITIVE HABITATS

Sensitive habitat types include those that are of special concern to DFG, or that are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, and/or Section 404 of the Clean Water Act. The description and distribution of sensitive habitats relative to the proposed project site are summarized in the 2008 FSEIR (GBUAPCD 2008). The only sensitive upland habitat documented in the 2008 FSEIR was dry alkali meadow, which occurs in cells T37-2 and T1A-1.

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES

Special-status species include plants and animals in the following categories:

- species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA);
- species considered as candidates for list as threatened or endangered under ESA or CESA;
- species identified by DFG as California Species of Special Concern;
- animals fully protected in California under the California Fish and Game Code;
- plants on California Native Plant Society (CNPS) List 1B (plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere) or List 2 (plants considered rare, threatened, or endangered in California but more common elsewhere).

The 2008 FSEIR describes special-status plant and wildlife species with the potential to occur in the study area. No special-status plants were detected during directed surveys in the overall Phase 7 project site (GBUAPCD 2008). A total of four special-status wildlife species were detected during directed surveys: American peregrine falcon (*Falco peregrinus anatum*), northern harrier (*Circus cyaneus*), prairie falcon (*Falco mexicanus*), and western snowy plover (GBUAPCD 2008). However, specific locations of those detections were not reported in the FSEIR. The Phase 7 moat and row cells do not provide breeding habitat for peregrine falcon, northern harrier, or prairie falcon. Western snowy plover is discussed in the following section.

Western Snowy Plover

The interior population of western snowy plover is designated as a species of special concern by DFG (Shuford, Abbott, and Ruhlen 2008). This section describes the population status and distribution of snowy plover, and the distribution of suitable habitat, in the study area and within moat and row cells. Key ecological and life history characteristics relevant to analyzing effects of project implementation on snowy plover are also summarized.

Occurrence in the Study Area (Owens Lake)

Snowy plovers have been well-documented at Owens Lake (PRBO 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008). The earliest documented nesting records are from 1893 (Fisher 1893, cited in Ruhlen, Page, and Stenzel 2006). Snowy plover has been observed on Owens Lake during each month of the year (Prather, pers. comm., 2008); however, its regular presence at Owens Lake is seasonal (Shuford, Abbott, and Ruhlen 2008). Inland populations of snowy plover in the western Great Basin (including Owens Lake) typically breed there between March and September, and migrate to the California coast or the west coast of Baja, California, in winter (Page et al. 1995). The number of snowy plovers at Owens Lake was first counted in 1978 as part of a statewide survey, which was repeated in 1988 (Shuford, Abbott, and Ruhlen 2008). Adult lake-wide population counts have been repeated annually since 1994, primarily in association with the Point Reyes Bird Observatory (Ruhlen, Page, and Stenzel 2006).

Owens Lake has been identified as one of six key breeding sites for the interior population of snowy plover in California (Ruhlen, Page, and Stenzel 2006), supporting greater than 10% of the total interior population count in 1978 and 1988 (Shuford, Abbott, and Ruhlen 2008). Owens Lake has been designated as an important shorebird breeding area, in particular for snowy plover, in the U.S. Shorebird Conservation Plan (Brown et al. 2001).

Numbers of adult plovers counted on Owens Lake have increased steadily since LADWP's implementation of shallow flooding in 2002 to control dust emissions from the lake (Table 3.1-2). While counts appeared to decline in the 1980's and 90's, the 2004 population count of 658 adults was the highest ever recorded for any other interior (or coastal) site in California. In 2008, a total of 478 adults were documented during lake-wide surveys (PRBO 2008), which is nearly double the population count when dust control using shallow flooding began in 2002. Table 3.1-2 summarizes the adult snowy plover counts between 1978 and 2008.

Table 3.1-2
Detections of Adult Snowy Plover during Annual Lake-wide Population Counts on Owens Lake

Year	Population Count[1]
1978	499
1988	195
1990	141
1994	125
1995	119
1996	160
1997	203
1998	101
1999	118
2000	112
2001	167

Table 3.1-2 Detections of Adult Snowy Plover during Annual Lake-wide Population Counts on Owens Lake	
Year	Population Count[1]
2002	272
2003	401
2004	658
2005	505
2006	602
2007	421
2008	478
[1] Counts were based on lake-wide surveys conducted once during the peak breeding season.	

Historically, snowy plovers at Owens Lake were primarily associated with natural seeps and springs, mostly along the edges of the lake bed (Page and Prather, pers. comms., 2008). More recently, distributions have shifted to become more highly concentrated around artificial shallow flood areas than natural seeps and springs (Ruhlen, Page, and Stenzel 2006).

Habitat Suitability and Distribution in the Study Area (Owens Lake)

Inland populations of snowy plover nest in relatively flat areas on barren to sparsely vegetated ground at alkaline or saline lakes, reservoirs, and ponds (Page et al. 1995). Suitable nesting habitat for snowy plover on Owens Lake consists of dry, open playa near shallow water that functions as foraging habitat (GBUAPCD 2008). The species has been known to nest in areas with sandy and gravelly substrate, including berms, roadways, and occasionally on small islands within ponded areas (Prather, pers. comm., 2008). Snowy plovers will occasionally nest in barren areas within managed vegetation, or natural dry alkali meadow habitat containing limited vegetative cover of saltgrass (*Distichilis* spp.) (Nordin, pers. comm., 2008). Nests of interior populations of snowy plover have been detected as little as 1 meter to as much as 3 kilometers from water (Shuford, Abbott, and Ruhlen 2008). On Owens Lake, the furthest documented nest was located one mile from water (PRBO 2001). After initiation of artificial shallow flooding on Owens Lake in 2002, nest distributions appeared to favor artificial shallow flooding. The area of most extensive artificial flooding on Owens Lake (Zone 2) accounted for 71% and 61% of nest sites in 2002 and 2003, respectively, compared to only 27% in that same area prior to artificial flooding (Ruhlen, Page, and Stenzel 2006). Additionally, in 2002, nests were placed on average 8 meters from water in areas with artificial flooding, compared to an average of 425 meters from water in natural areas (Ruhlen, Page, and Stenzel 2006).

Areas of the highest quality foraging habitat on Owens Lake occur where freshwater from natural wetlands flows onto the lake bed, primarily along the perimeter of the lake, and where artificial flooding occurs for dust control (Exhibit 3.1-2). Suitable foraging habitat for snowy plover on Owens Lake consists of shallow water (1–2 cm deep), and wet mud or sand with limited to no vegetative cover. Ponds in which water depths are greater than a few centimeters are not suitable for foraging. Water must also be of suitable salinity to support brine fly populations, the primary food source for snowy plover on Owens Lake (House, pers. comm., 2008; Nordin, pers. comm., 2008). Some wet areas on the playa are too saline to support brine fly populations and are therefore not suitable for plover foraging. For example, the brine pool, which covers a large area in the central western portion of the lake bed, is too salty to support suitable habitat for plovers. While brine flies were observed in water present in a moat at cell T12-1 (Roth and S. Henderson, personal observation, 2008), this could be an isolated occurrence, possibly as a result of a recent rainfall event, as groundwater at Owens Lake is generally too saline to support brine flies (Nordin, pers. comm., 2008). Therefore, it is not expected that moats in the project area would typically support brine fly populations.

Habitat Suitability and Distribution in the Project Site

Exhibit 3.1-11 shows the estimated extent of suitable habitat for snowy plover within the study area, and specifically within each proposed moat and row cell. A total of 34,621 acres of potentially suitable habitat for snowy plover are estimated on Owens Lake (Exhibit 3.1-11), including 19,353 acres of predicted high-suitability habitat. A total of 1,752 acres of potentially suitable habitat occur within the 2,238 acre project site, which equals 5.1% of the suitable habitat for snowy plover in the study area. A total of 1,119 acres of predicted high-suitability habitat occur in the project site, which is equal to 5.7% of the total predicted high-suitability habitat in the study area.

A total of 10 adult snowy plovers, one brood, and seven nests were detected within three of the seven proposed moat and row cells during 2007–2008: T37-2, T1A-1, and T1A-3 (Table 3.1-3; Exhibit 3.1-11). Additional detections of snowy plover occurred adjacent to six of the seven proposed moat and row cells (all except T1A-4) in 2007 and 2008 (Table 3.1-3).

Twenty-one nests in total (including nests reported in 2007-2008), each containing typically 3 eggs, have been documented within moat and row cells since 2000, when coordinates for nest sites on Owens Lake first began to be recorded.

Table 3.1-3 summarizes the current and historic (pre-2007) distribution of snowy plover nests, broods, and adults; and presence of suitable habitat within and adjacent to each moat and row cell. Exhibit 3.1-11 shows the distribution of recent plover nests and broods in relation to project cells.

Implementation of approved Phase 7 Dust Control Measures is anticipated to affect existing habitat value for snowy plover within and adjacent to some moat and row cells. Habitat value could improve at moat and row cells T1A-1 and T1A-3 as a result of Phase 7 sheet-flow shallow flooding planned nearby; habitat quality would remain low within and adjacent to T12-1 as a result of the low-value ponded shallow flooding planned in areas surrounding this cell; and no changes to habitat value would be expected at remaining moat and row cells due to their distance from approved Phase 7 Dust Control Measures.

Key Ecological Factors

Appendix B summarizes additional ecological information about snowy plover used to support the impact analysis for this species. This information focuses on biological parameters most likely to be sensitive or relevant to moat and row project construction and design features (e.g., movements and dispersal patterns). Much of this information is derived from observations or studies of coastal populations of snowy plover. For impact analysis purposes and where appropriate (e.g., where data on interior populations are lacking and coastal population data can be used as a surrogate), some of this information is assumed to apply to the inland (and Owens Lake) snowy plover population.

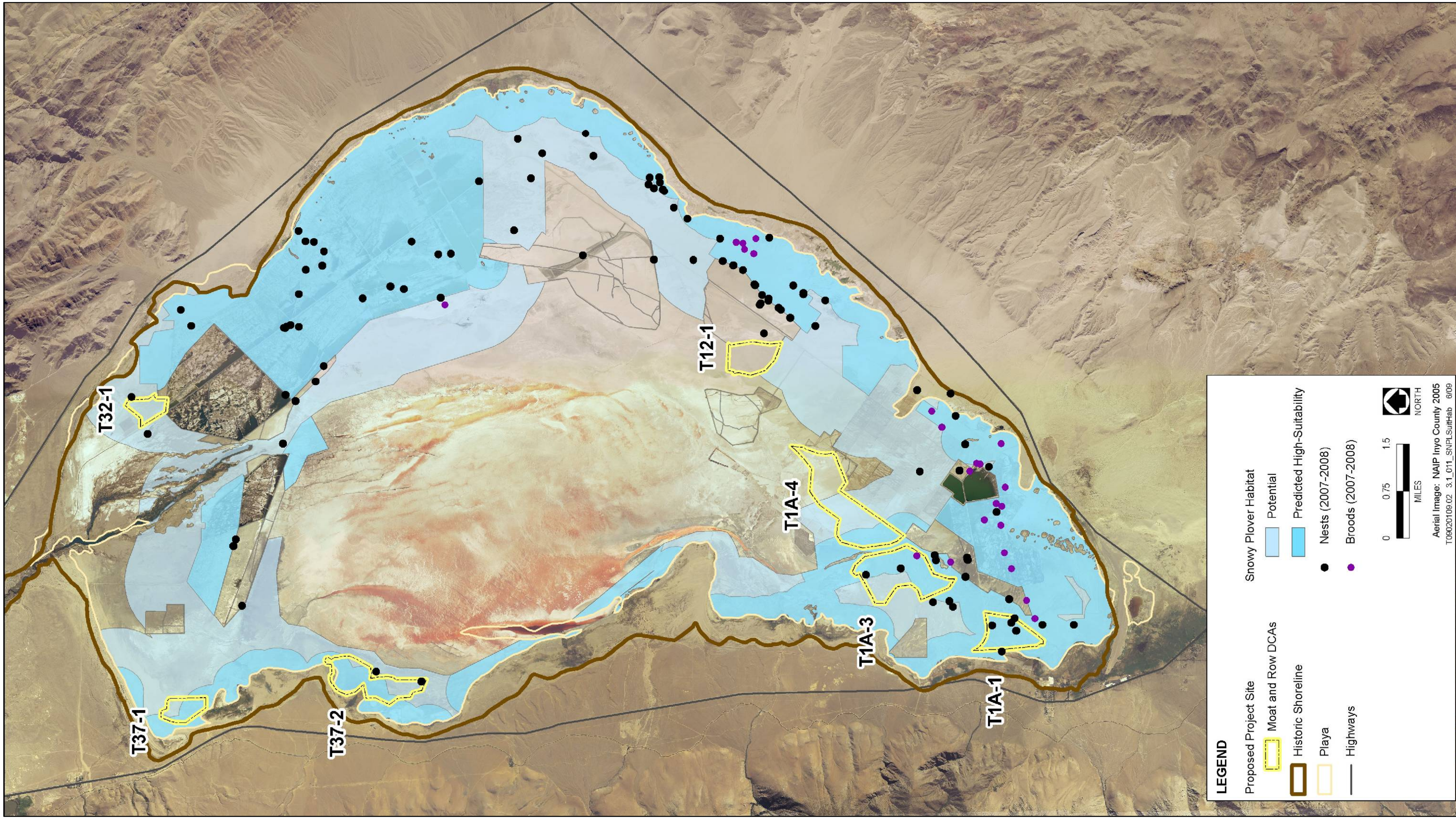
Wildlife Movement

No known or established migration corridors for native resident or migratory wildlife occur within the project site or study area. Breeding (i.e., nursery) sites for snowy plover are known to occur within and adjacent to portions of the project site (see “Western Snowy Plover,” above), but no other breeding sites are known to occur in the project site. Breeding sites for tule elk (*Cervus elaphus nannodes*), American badger (*Taxidea taxus*), and several species of waterbirds have been documented near the project site. The following sections summarize the known occurrences, distribution of suitable habitat, and habitat use patterns for terrestrial wildlife species addressed in the wildlife movement analysis.

Table 3.1-3
Summary of Snowy Plover Occurrence and Habitat Distribution within and Adjacent to Each Moat and Row Cell

Snowy Plover Occupancy and Habitat Distribution	Project Site						
	T32-1	T37-1	T37-2	T12-1	T1A-4	T1A-3	T1A-1
Recent Occupancy (2007–2008) within Cell	No nests, broods or adults detected.	No nests, broods or adults detected.	1 nest, no broods, no adults detected.	No nests, broods or adults detected.	No nests, broods or adults detected.	2 nests, 1 brood, and 4 adults detected.	4 nests, no broods, and 6 adults detected.
Recent Occupancy (2007–2008) Adjacent to Cell	2 nests detected (1 west and 1 east of cell). No broods or adults detected.	No nests, 5 broods, and 18 adults detected at the Northwest Seeps outflow south of this cell.	1 nest detected east of cell. No broods but 3 adults detected at Bartlette Springs outflow in vicinity of cell.	1 nest and no broods or adults detected.	No nests, broods, or adults detected.	8 nests, 2 broods, and 9 adults detected south and southwest of cell. 2 broods and 43 adults detected in the Cartago Creek outflow southwest of cell.	4 nests and 2 broods detected west, east, and southeast of cell. 2 broods and 43 adults detected in the Cartago Creek outflow mostly north of cell.
Historic Occupancy within and Adjacent to Cell (pre-2007)	No historic detections within or adjacent to cell.	Consistent historic use by broods and adults within and south of this cell (Northwest Seeps outflow).	Consistent historic use by broods and adults within and adjacent to this cell (Bartlette Springs outflow).	No historic detections within or adjacent to cell.	No historic detections within cell. Limited historic detections to east (managed vegetation area) and southwest (northern channel area).	Consistent high levels of historic use by broods and adults within and southwest of this cell (Cartago Creek outflow). Additional 10 nests documented within this cell prior to 2007.	Consistent high levels of historic use by broods and adults within and to the north and west of this cell (Cartago Creek outflow). Additional 4 nests documented within this cell prior to 2007.
Presence of Suitable Habitat within Cell	Potentially suitable habitat present.	Potentially suitable habitat present.	Suitable habitat present.	No potentially suitable habitat present.	Limited potentially suitable habitat present.	Suitable habitat present.	Suitable habitat present.
Presence of Suitable Habitat Adjacent to Cell	Limited suitable habitat present.	Suitable habitat present.	Suitable habitat present.	Limited potentially suitable habitat present.	Limited potentially suitable habitat present.	Suitable habitat present.	Suitable habitat present.
Overall Habitat Value of Cell[1]	Low	Moderate	Moderate	Low	Low	High	High

[1] Based collectively on occupancy and habitat suitability within and adjacent to each cell.



Source: LADWP 2008, adapted by EDAW in 2008.

Current Estimated Snowy Plover Habitat and 2007–2008 Nest and Brood Distribution **Exhibit 3.1-11**

Large Mammals

There are no known established migration corridors for native resident or migratory large mammals within the study area. However, large mammals are known to occur in the vicinity of Owens Lake and the greater Owens Valley area. Tule elk (*Cervus elaphus nannodes*) and mule deer (*Odocoileus hemionus*) have been detected within the study area, but outside the proposed project site (GBUAPCD 2008; House, pers. comm., 2008; Ramirez, pers. comm., 2008; Ellsworth, pers. comm., 2008).

Tule Elk

Tule elk is an uncommon to common year-long resident with a scattered distribution throughout California (Zeiner et al. 1990). In Owens Valley, tule elk occur in vegetated semi-arid landscapes, including riparian habitats, grasslands, and other woody, shrubby, or herbaceous areas where suitable forage and cover is present (McCullough 1969, GBUAPCD 2008). A total of five tule elk herds occur in the Owens Valley, ranging from the town of Bishop, approximately 70 miles north of the study area, to the town of Lone Pine, CA (e.g., Lone Pine herd) in the south; the southern limit of the Lone Pine herd extends into the northern portion of the study area (McCullough 1969, Ellsworth, pers. comm., 2008). The Lone Pine herd remains close to the valley bottom year-round (McCullough 1969). In the study area, tule elk have been documented along the north and northwest margins of Owens Lake, specifically in the Owens River Delta, and during wet years in the Bartlette Springs and Northwest Seeps areas (Ellsworth, pers. comm., 2008, Ramirez, pers. comm., 2008, Prather, pers. comm., 2008) (Exhibit 3.1-2).

A tule elk calving area occurs within vegetated portions of the Owens River Delta (Ellsworth, pers. comm., 2008; Ramirez, pers. comm., 2008; GBUAPCD 2008). The calving period for tule elk in this area occurs from April to May (GBUAPCD 2008, Ellsworth, pers. comm., 2008). During calving, tule elk cows and calves are not expected to stray far from available cover and forage in the Owens River Delta area and north along the Lower Owens River corridor (Ellsworth, pers. comm., 2008).

It is possible for elk to occur on the playa; however, any occurrences would be sporadic, are likely to be restricted to areas near vegetated margins of the lake bed, and would not be considered part of the typical movement patterns of elk in the study area (Ellsworth, pers. comm., 2008). Based on the lack of established movement corridors for tule elk on Owens Lake bed, the lack of tule elk detections within the project site, and the need for vegetation to meet their life history requirements (e.g., forage, cover, breeding sites), tule elk are not expected to move across the project site.

Mule Deer

Mule deer is a common to abundant year-long resident throughout much of California, and occurs in early and intermediate successional stages of forest, woodland, and shrubby habitats (Zeiner et al. 1990). Deer prefer a mosaic of vegetation types and structure with occasional meadow or shrubby openings that together provide cover and suitable foraging and breeding sites (Zeiner et al. 1990). Fawning occurs in densely vegetated shrublands, meadows or tree thickets. Due to their strong association with vegetated areas to meet their needs for cover, forage and breeding habitat, mule deer are not likely to cross the barren playa of Owens Lake or to use the project site.

Sierra Nevada Bighorn Sheep

Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*) is listed as endangered under the ESA. This species does not occur in the study area; however, bighorn sheep are known to occur several miles northwest of Owens Lake, at higher elevations on the west side of Highway 395 in areas of steep, rocky terrain (40 *Federal Register* 45534, August 5, 2008). Bighorn sheep from this area have never been documented moving out of the mountain range, and they are rarely observed near the valley floor (Wehausen, pers. comm., 2008). Based on habitat conditions, known distribution and movements, and habitat use patterns, bighorn sheep are not expected to use or move across the study area.

Small Terrestrial Mammals

No known or documented migration corridors for small terrestrial mammals are present in the Owens Lake study area. Small terrestrial mammals are year-long residents and do not typically make large-scale migrations. Breeding sites for these species groups have not been documented in the project site, and only a few detections of small mammals have occurred in the proposed project site (see discussion below). No special-status terrestrial small mammals (e.g., Mohave ground squirrel [*Spermophilus mojavensis*], Owens Valley vole) have been detected within the project site; and suitable habitat for these species is not present there (GBUAPCD 2008).

The proposed project site is of low value to small terrestrial mammals. Small mammals are highly associated with vegetation cover, which is required for concealment and predator avoidance, thermoregulation, and habitat for breeding and foraging. In the study area, locations with the greatest diversity and abundance of small mammals are likely to occur in areas where vegetation density and diversity are highest; these include areas surrounding freshwater seeps and springs, and shrubby habitats along the margins of the lake bed (GBUAPCD 2008). These higher quality habitats do not occur in the project site. The proposed project site is predominantly barren and without vegetative cover.

Two plant communities of relatively low value to small mammals occur in limited areas within and adjacent to the proposed project site (see “Land Cover Types”); shadscale occurs in cell T37-2 and adjacent to T32-1, and saltgrass (i.e., dry alkali meadow) occurs at cell T37-2 and T1A-1 (see Table 3.1-1). Saltgrass vegetation does not provide high-quality habitat for wildlife, due to the low and sparse vegetative cover (estimated at approximately 30% overall in saltgrass within managed vegetation DCAs [Nordin pers. comm., 2008]), low species diversity, and poor-quality forage. Black-tailed jackrabbit (*Lepus californicus*) was the only small mammal documented in saltgrass within the project site; detections occurred within cells T37-2 and T1A-1 (Roth and S. Henderson, personal observation, 2008). Additionally, shadscale communities in the project site provide relatively low habitat value, due to their patchiness and relatively sparse cover (Exhibit 3.1-4a). No detections of wildlife occurred within shadscale communities within the project site (GBUAPCD 2008). In 2008, a few small mammals (black-tailed jackrabbit and kangaroo rat [*Dipodomys* spp.]) were documented in shadscale habitat east of cell T32-1 in 2008 (Ramirez, pers. comm., 2008). Because of the overall low value of these vegetation communities and limited use by small mammals, combined with the lack of vegetative cover in most of the project site, the project site is not expected to sustain populations of mammal species or function as important movement habitat.

Medium-Sized Mammals

No known established migration corridors for medium-sized mammals exist on Owens Lake (GBUAPCD 2008). The only known documented breeding site for medium-sized mammals in the study area is an American badger (*Taxidea taxus*) den, located within greasewood (*Sarcobatus* spp.) habitat at the northern border of Owens Lake. American badger is designated by DFG as a species of special concern. This species is non-migratory and occurs in a variety of open habitats, including meadows, grasslands, and shrublands (DFG 1986). Breeding sites (i.e., natal burrows) generally occur in areas with friable soils and sparse overstory cover (Zeiner et al. 1990). Badgers are primarily carnivorous and prey on fossorial (i.e., burrowing) mammals such as ground squirrels and pocket gophers (Whitaker 1989). Badgers will also prey on reptiles, insects, worms, eggs, birds, and carrion; they will shift their diet in response to prey availability (Zeiner et al. 1990). In the study area, the distributions and availability of prey populations, which are generally limited to vegetated areas bordering the playa, are important to overall habitat suitability for badgers. Badger movements are likely to be concentrated in areas where suitable habitat and abundant prey (e.g., fossorial mammals) are located. Movements may also occur between areas of suitable foraging and breeding habitats along the northern border of Owens Lake where badger has been detected.

Other medium-sized mammals documented in the study area are also predators and scavengers. Species documented in the study area include regular detections of coyote (*Canis latrans*), occasional detections of fox (kit fox [*Vulpes macrotis*] and possibly gray fox [*Urocyon cinereoargenteus*]), and one bobcat (*Lynx rufus*) detection (PRBO 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008). None of the moat and row cells are expected to sustain important prey populations or provide high-quality habitat for these species. The nearest core habitats for these species are probably located along the playa's perimeter, where prey populations are more available. On the lake bed, high densities of shorebirds and waterfowl during the breeding seasons may attract mammalian predators to some locations. Use of the Owens Lake bed by these species is probably limited to these seasonal foraging opportunities. Movements of medium-sized mammals are likely to be concentrated within areas of suitable habitat bordering Owens Lake, or between those perimeter areas and interior locations that support high concentrations of breeding waterbirds (e.g., shallow flood cells and Cartago Wildlife Area). Therefore, movements of coyote and other opportunistic predators are likely to be greatest in the vicinity of cells T1A-1, T1A-3, T12-1 and T32-1.

Reptiles and Amphibians

No known or documented migration corridors for reptiles or amphibians are present in the Owens Lake study area. Similar to small terrestrial mammals, reptiles and amphibians are year-long residents and do not typically make large-scale migrations. Breeding sites for these species groups have not been documented, and only a few detections have occurred in the Phase 7 project site.

Amphibians require freshwater for breeding. While many amphibians move from non-breeding upland habitats to nearby freshwater breeding sites, and reverse these movements after the breeding season, no such movements are known to overlap with the project site. Additionally, freshwater habitats only occur in association with natural seeps and springs and creeks, primarily located along the perimeter of Owens Lake, and outside the project site. Because amphibians are highly dependent upon freshwater habitats to meet all of their life history requirements, no amphibian movements are expected to occur on the barren alkali playa or within any portion of the project site.

Reptiles in the study area are generally associated with open desert shrub habitats. In 2007, during pre-project surveys conducted for the entire Phase 7 project, only three reptile individuals were detected. One individual of each of the following species was observed: desert iguana (*Dipsosaurus dorsalis*), zebra-tailed lizard (*Callisaurus draconoides*), and common side-blotched lizard (*Uta stansburiana*) (GBUAPCD 2008). These species are considered common to widely distributed throughout the Mojave, Sonoran, and Colorado deserts, including portions of the Great Basin (Zeiner et al. 1990). All three species require desert scrub vegetation to meet portions of their daily life history requirements (e.g., thermoregulation, cover from predators, breeding or foraging sites) (Zeiner et al. 1990). Therefore, reptiles near the project site are not expected to make frequent or long-distance movements away from vegetated areas onto the barren Owens Lake bed. Movements are probably largely restricted to the shadscale communities on the margins of the lake bed and, to a limited extent, within scattered shadscale in and near cells T37-2 and T32-1.

Avian Species

Owens Lake is an important site along the Pacific Flyway for migratory waterbirds and has been identified as an important shorebird breeding area in the U.S. Shorebird Conservation Plan (Brown et al. 2001). Large numbers of resident and migratory birds use shallow flooded areas on the barren playa, as well as freshwater seeps, and springs bordering Owens Lake for breeding and foraging each year. The Eastern Sierra Audubon Society reported approximately 112 bird species occurring on the lake during spring migration in April, 2008, and 71 species during fall migration in August, 2008 (Ramirez, pers. comm., 2008). Waterbirds occurring in the study area include: western snowy plover, American avocet (*Recurvirostra americana*), black-necked stilt (*Himantopus mexicanus*), western sandpiper (*Calidris mauri*), least sandpiper (*Calidris minutilla*), Wilson's phalarope (*Phalaropus tricolor*), dunlin (*Calidris alpina*), killdeer (*Charadrius vociferus*), California gull (*Larus californicus*), eared grebe (*Podiceps nigricollis*), mallard (*Anas platyrhynchos*), gadwall (*Anas strepera*), greenwinged teal (*Anas crecca*), cinnamon teal (*Anas cyanoptera*), ruddy duck (*Oxyura jamaicensis*), redhead (*Aythya americana*), American widgeon (*Anas americana*), northern shoveler (*Anas clypeata*), and northern pintail (*Anas acuta*) (PRBO 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008; GBUAPCD 2008; Prather, pers. comm., 2008).

No waterbird species other than snowy plover have been documented nesting or brooding in the project site. Most waterbirds on Owens Lake are highly associated with surface water for meeting their life history requirements, and generally do not use the dry playa outside these wetland areas (Page, pers. comm., 2008; Prather, pers. comm., 2008). Several shorebirds, other than snowy plover, that have been regularly documented on Owens Lake, additionally require some vegetation in association with wetlands for nesting or brooding. Black-necked stilts typically nest in freshwater emergent wetlands (Robinson et al. 1999); and, both American avocets and black-necked stilts brood their young in nursery areas with nearby vegetation for cover (Robinson et al. 1997, Robinson et al. 1999). California gulls, which recently were observed attempting to establish a nesting colony on Owens Lake (Page, pers. comm., 2008), nest almost exclusively on islands in lakes, rivers, or reservoirs (Winkler 1996). Because the project site does not generally support these conditions, breeding and brooding by waterbird species other than snowy plover are not likely to occur in the project site. Additionally, the distributions of waterbirds on Owens Lake appear to have shifted to become more highly concentrated around artificial shallow flood areas than natural seeps and springs (PRBO 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008), similar to that described for snowy plover above.

Typical flight movement patterns of waterbirds on Owens Lake vary by species and species group. Shorebirds tend to fly relatively low to the ground when moving between locations within suitable foraging habitat, while waterfowl and other water-associated birds tend to fly into and away from wetland areas at steeper angles. On the playa, ground movements of adult and juvenile waterbirds include walking or running to forage, brood, and avoid predators. Particularly during the brooding period for some shorebird species, ground movements of juveniles and adults can be frequent.

Bat Species

Several bat species have been documented using the study area (GBUAPCD 2008), primarily for foraging in association with freshwater wetlands along the eastern perimeter of Owens Lake (Szewczak et al. 1998). Vegetation, caves, mines and other structures (e.g., bridges) are typically used as breeding and roosting habitat for bats; bat breeding sites are generally not present on the playa and are absent within the project site. Three bat species were determined to have the potential to occur within the entire Phase 7 project area (GBUAPCD 2008): pallid bat (*Antrozous pallidus*), spotted bat (*Euderma maculatem*), and Townsends big-eared bat (*Corynorhinus townsendii*). Suitable habitat for spotted bat and Townsend’s big-eared bat does not occur in the project site (GBUAPCD 2008); and foraging habitat for pallid bat may occur but is likely limited within the project site (Johnson, pers. comm., 2008). None of these species have been documented in the project site.

3.1.3 REGULATORY SETTING

The 2008 FSEIR describes the regulatory framework applicable to biological resources. The following list includes federal, state and local statutes, ordinances and policies summarized in the 2008 FSEIR that are relevant to the biological resources analyzed in this supplemental analysis. Please refer to the 2008 FSEIR (pages 3.2-3–3.2-8) for a full discussion of these regulations and policies.

- Federal
  - National Environmental Policy Act (NEPA)
  - Federal Endangered Species Act (ESA)
  - Migratory Bird Treaty Act (MBTA)
  - Owens Basin Wetland and Aquatic Species Recovery Plan: Inyo and Mono Counties, California

- State
  - CEQA
  - California Endangered Species Act (CESA)
  - Section 2080 and 2081 of the State Fish and Game Code
  - Section 3503 and 3503.5 of the California Fish and Game Code

- Local
  - Inyo County General Plan

The proposed project was also evaluated for consistency with the Cartago Springs Draft Wildlife Habitat Improvement Mitigation Plan. This plan was drafted by DFG for the purpose of guiding mitigation for Clean Water Act impacts incurred from two highway improvement projects (Blackrock and Independence/Manzanar 4-Lane projects). The primary goal is to restore riparian and wetland habitat within the wildlife area.

3.1.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

This impact analysis is based on information collected during field surveys, previous environmental review, and additional project site-specific investigations, as previously discussed in "Environmental Setting." Additionally, DFG and CSLC were consulted during development of the impact analysis approach. A preliminary draft of the impact analysis was reviewed by DFG and CSLC, and comments were provided by the agencies and discussed on February 24 and March 3, 2009.

Analysis of potential impacts of project implementation on western snowy plover and wildlife movement at multiple scales was performed using a hierarchical approach. This approach generally consisted of the following steps: (1) evaluate the site-specific risk of snowy plover or wildlife movements to encounter or interact with each cell; and where there is a reasonable risk, (2) identify specific impact mechanisms and evaluate the likely magnitude of effect, based on specific project design elements or operations proposed. This two-step analysis is described below for snowy plover and wildlife movement.

Western Snowy Plover

A map-based assessment was performed to identify which moat and row cells pose the greatest potential to interface with snowy plovers. The primary factors considered included current and historic occupancy status, and habitat suitability within and adjacent to each cell (Table 3.1-3). Expected future conditions within and adjacent to each cell as a result of the implementation of approved components of the Phase 7 project (Exhibit 3.1-2) were also considered. Based on this information, moat and row cells were categorized into four levels to indicate the relative risk of interface with snowy plovers. Exhibit 3.1-12 shows the results of this assessment; Table 3.1-4 summarizes how risk categories were assigned to cells.

THRESHOLDS OF SIGNIFICANCE

Significance thresholds have been prepared based on review of the applicable parts of Appendix G and Section 15065 of the State CEQA Guidelines. Based on the Initial Study prepared for the revised Moat and Row project (LADWP 2008b), this supplemental analysis evaluates potential effects on biological resources with respect to two significance thresholds. The proposed project would have a significant impact to biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by DFG or USFWS. This supplemental analysis focuses specifically on western snowy plover.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

The Initial Study, which is provided in Appendix A, determined that impacts related to other significance thresholds for biological resources would be less than significant.

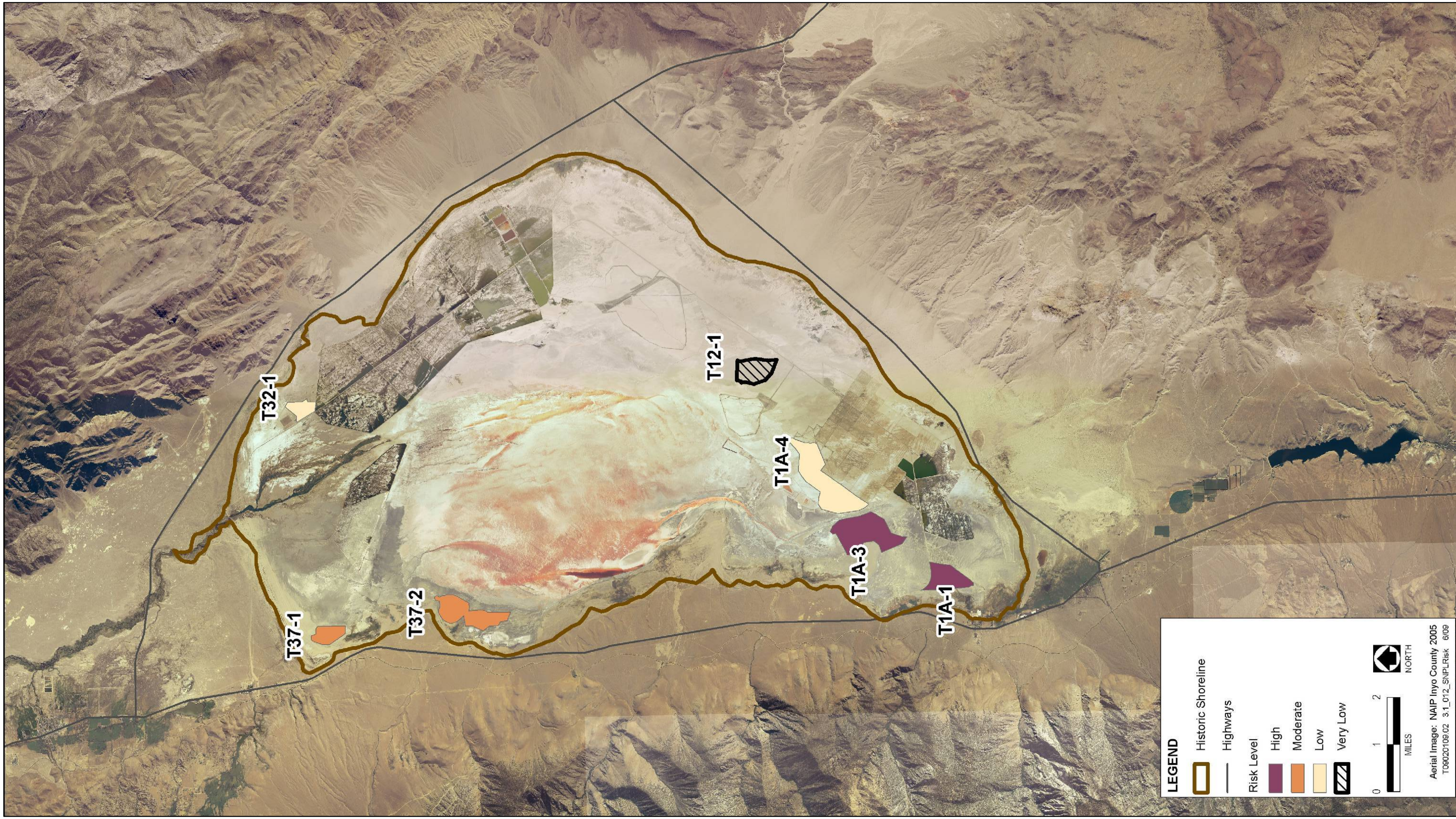
Table 3.1-4
Definitions of Potential Risk of Snowy Plovers to Encounter a Moat and Row Cell Based on Site-specific Conditions

Cell Risk Level	Site-Specific Conditions	
	Habitat Suitability	Current and Historic Occupancy
Very Low	► No suitable habitat present,or anticipated to result from Phase 7 implementationwithin cell ► Limited suitable habitat present or anticipated to result from Phase 7 implementation adjacent to cell	► No documented occurrences within cell; limited occurrences documented adjacent to cell
Low	► Suitable habitat present or anticipated to result from Phase 7 implementation within and adjacent to cell; predicted high-suitability habitat is limited or absent	► No current occurrences documented within cell; limited current occurrences documented adjacent to cell ► No documented historic occurrences within cell; limited historic occurrences documented adjacent to cell
Moderate	► Suitable habitat present or anticipated to result from Phase 7 implementation within and adjacent to cell, including a high proportion of predicted high-suitability habitat	► Some current occurrences documented within and adjacent to cell ► Documented historic occupancy within and adjacent to cell
High	► Suitable habitat present or anticipated to result from Phase 7 implementation within and adjacent to cell, including large, connected areas of predicted high-suitability habitat	► High level of current and historic use within and adjacent to cell

Although all moat and row cells were evaluated for potential effects on snowy plover and wildlife movement, additional site-specific and detailed analysis was performed for cells with a moderate or high risk to interact with these resources. These potential interface areas identify where project effects or influences on snowy plover individuals would potentially occur. Proposed project design elements (e.g., moat, row, and fence grid pattern; side slopes of moats, etc.) and operations and maintenance were analyzed for potential effects on snowy plover habitats, individuals and movements, and populations. The extent, frequency, and duration of the impact, and the likely proportion of a species population affected by the impact, were used to estimate the magnitude of effect. For potential impacts determined to be significant, mitigation measures were developed to reduce those effects to less-than-significant levels.

Wildlife Movement

For purposes of analyzing wildlife movements, species known to occur in or near the study area were grouped into four general size or mobility categories: (1) large mammals; (2) small terrestrial mammals, reptiles, and amphibians; (3) medium-sized mammals; and (4) bird and bat species. A regional and site-specific analysis was performed to identify the potential for these groups to interact with and be influenced by the project site.



Source: LADWP 2008, adapted by EDAW in 2008.

Potential for Snowy Plovers to Encounter Moat and Row Cells **Exhibit 3.1-12**

The potential for wildlife species known to occur in the study area to encounter moat and row cells was evaluated based on the presence of known migration corridors, or breeding (i.e., nursery) sites. Additionally, the following considerations were used to evaluate whether more general wildlife movements could intersect with moat and row cells: habitat requirements for wildlife species known to occur in the study area; distributions of suitable habitat relative to cell locations; species rarity and sensitivity to disturbance; and expected movement patterns relative to conditions within and around each cell. The proximity to the Cartago Wildlife Area, and other areas supporting relatively high wildlife diversity (e.g., Bartlette Springs, Northwest Seeps), were also important considerations.

Based on this evaluation, individual moat and row cells were categorized into levels of risk or potential for wildlife to interface with moat and row cells. Cells considered to have a moderate or high risk would:

- intersect with a known or expected migration or movement corridor;
- contain known breeding sites, or occur along a likely route that provides access to breeding or foraging sites;
- potentially disrupt movements important for meeting the life history requirements of a species; or
- potentially affect the conditions or wildlife movements at adjacent areas with relatively high resource value (e.g., Cartago Wildlife Area, Bartlette Springs).

Similar to the snowy plover analysis, proposed project design elements and operations and maintenance were analyzed for potential effects on movements by other wildlife species; and the magnitude of effect was evaluated based on the extent, frequency, and duration of the potential impact, and the likely proportion of a species population or range affected by the impact.

PROJECT IMPACTS

IMPACT 3.1-1 Effects on Western Snowy Plover. *Implementation of the proposed project would result in the loss of up to 1,503.8 acres of suitable habitat for western snowy plover within moat and row cells. Other potential direct and indirect impacts of the project include potential loss of snowy plover individuals as a result of construction and operations and maintenance activities; isolation and loss of plover broods within fence grids; entrapment within moats; and increased predation by corvid species as a result of fence construction and additional corvid perch opportunities near plover nesting habitat. These potential impacts to habitat, individuals, and brood movements would result in* ***potentially significant*** *adverse effects on western snowy plover.*

Habitat Loss Within Moat and Row Cells

All project cells except T12-1 contain suitable and predicted high-suitability habitat for western snowy plover. Three of these cells (T37-2, T1A-3, T1A-1) supported nesting plovers in 2007–2008 (Exhibit 3.1-11). Construction of cells T37-1, T32-1, T37-2, T1A-4, and T1A-3 would cause the loss of 1,503.8 acres of suitable nesting habitat (4.3% of all suitable habitat on Owens Lake), including 871.1 acres of predicted high-suitability habitat (Table 3.1-5). (Although all of cell T1A-1 contains suitable and predicted high-suitability habitat, this analysis assumes that habitat suitability within cell T1A-1 would remain intact following project implementation. See discussion of cell T1A-1 under the impact discussion of “Brood Movements,” below.) Construction of rows would substantially increase the lakebed surface topography and disrupt hydrologic conditions; when combined with fences along the tops of rows these features would cause a high degree of visual obstruction for snowy plovers. Additionally, the grid patterns of moats, rows, and fences would subdivide and isolate habitats into relatively small and enclosed units within the majority of moat and row cells (Exhibits 2-6–2-9, and 2-11–2-12); an exception is cell T1A-1 (Exhibit 2-10), where most of the cell would remain as large contiguous patches of habitat after project implementation. Plovers prefer to nest in large, flat areas where they can see their surroundings well (Robinson, pers. comm., 2008); therefore, these conditions (particularly the addition of rows) are expected to be unsuitable for snowy plover nesting and foraging, and are expected to deter breeding adults from selecting moat and row cells for nesting attempts (Robinson, pers. comm., 2008). This loss of suitability would reduce the amount of suitable habitat available for snowy plover, including habitats that have supported foraging and nesting plovers recently (i.e., occupied habitat).

Table 3.1-5
Snowy Plover Habitat Affected Within Moat and Row Cells

Moat and Row Cell	Suitable Habitat (Acres)		Predicted High-Suitability Habitat (Acres)[1]		Known Recent Nesting (2007–2008)
	Present	Affected	Present	Affected	
T37-1	137.3	137.3	92.1	92.1	None
T32-1	114.2	114.2	0	0	None
T37-2	353.7	353.7	240.9	240.9	1 nest
T12-1	0	0	0	0	None
T1A-4	381.8	381.8	165	165	None
T1A-3	516.8	516.8	373.1	373.1	2 nests, 1 brood
T1A-1	247.7	0	247.7	0	4 nests
Total	*1,751.5*	*1,503.8*	*1,118.8*	*871.1*	

[1] High-suitability habitat is a subset of and included within suitable habitat.

The loss of 1,503.8 acres of suitable snowy plover habitat within moat and row cells would be a potentially significant impact.

Effects on Brood Movements and Habitat Connectivity

Brood Movements Within Cells

During the brooding period, juvenile snowy plovers are very mobile but do not fly (fledge) for approximately one month after hatching. Chicks are precocial, and leave the nest site permanently, within hours after hatching to search for food. Chicks walk or run on the ground, sometimes over long distances, to forage, find cover, and escape predators; they require periodic brooding from parents for many days after hatching. Adults provide predator warnings and thermoregulatory assistance, and guide chicks to foraging areas. Where broods occur, the presence of moats, rows, and fences could impose barriers and impede movements and access to resources necessary for survival of juvenile plovers.

There is low potential for plover nesting and isolation of broods at moat and row cells T37-1 T32-1, T37-2, T1A-4, and T1A-3, because of reduced habitat quality within the cells (see previous discussion of *Habitat Loss Within Moat and Row Cells*) and the availability of more highly-suitable habitat nearby (e.g., large shallow flooding areas). The shifting of nesting plovers to more suitable habitats, for example in response to shallow flood, is well-documented at Owens Lake (Ruhlen, Page, and Stenzel 2006). Additionally, nesting is not expected within cell T12-1 because the site presently lacks suitable habitat; and habitat quality is not expected to improve there as a result of future implementation of approved Phase 7 DCMs adjacent to this cell (ponded shallow flooding). Construction of the moat and row DCAs may include the application of dust control enhancements to gain greater dust control efficiencies. These augmentations would be implemented only if necessary and in response to air quality monitoring of PM_{10}. Shallow flood augmentations within moat and row cells would involve applying water to the lake bed surface during the dust emission season (October 1 through June 30) to stabilize any emission “hot spots.” The water would flood the playa between the moat and row elements. This enhancement could create suitable foraging habitat for snowy plover and attract adult plovers into some moat and row cells. Despite these potential foraging opportunities, snowy plovers are not expected to regularly nest within moat and row cells augmented with water, for reasons previously discussed (i.e., topographic and visibility changes, availability of higher-quality habitat nearby). None of the other potential enhancements (managed vegetation, row armoring, brine application, additional moat and row) would create conditions that would attract snowy plovers to moat and row cells. Because snowy plover is not likely to nest within these moat and row cells following initial project construction, or after implementation of dust control enhancements, substantial effects on brood movements are not expected.

There is a moderate potential for isolation and loss of snowy plover broods to occur at cell T1A-1 as a result of fence construction. Cell T1A-1 is proposed for 3.8 miles of sand fence for dust control; no moat and row elements are planned there. Plovers could be attracted to and continue nesting within the cell after fence construction, because: (1) nesting by plovers within the area has been consistent; (2) the existing hydrologic and topographic conditions of the cell would remain intact following construction; (3) large contiguous blocks of suitable nesting habitat would remain following construction due to the low density of project elements proposed within this cell relative to other project cells (see Exhibits 2-6 – 2-12); (4) there are large areas of nesting habitat adjacent to the cell; and (5) this cell is not expected to be augmented by moat and row elements (and snowy plover habitat would not be affected by moat and row development there) in the future, due to the relatively low dust emission rate and lower minimum dust control efficiency (MDCE) standard for the cell.

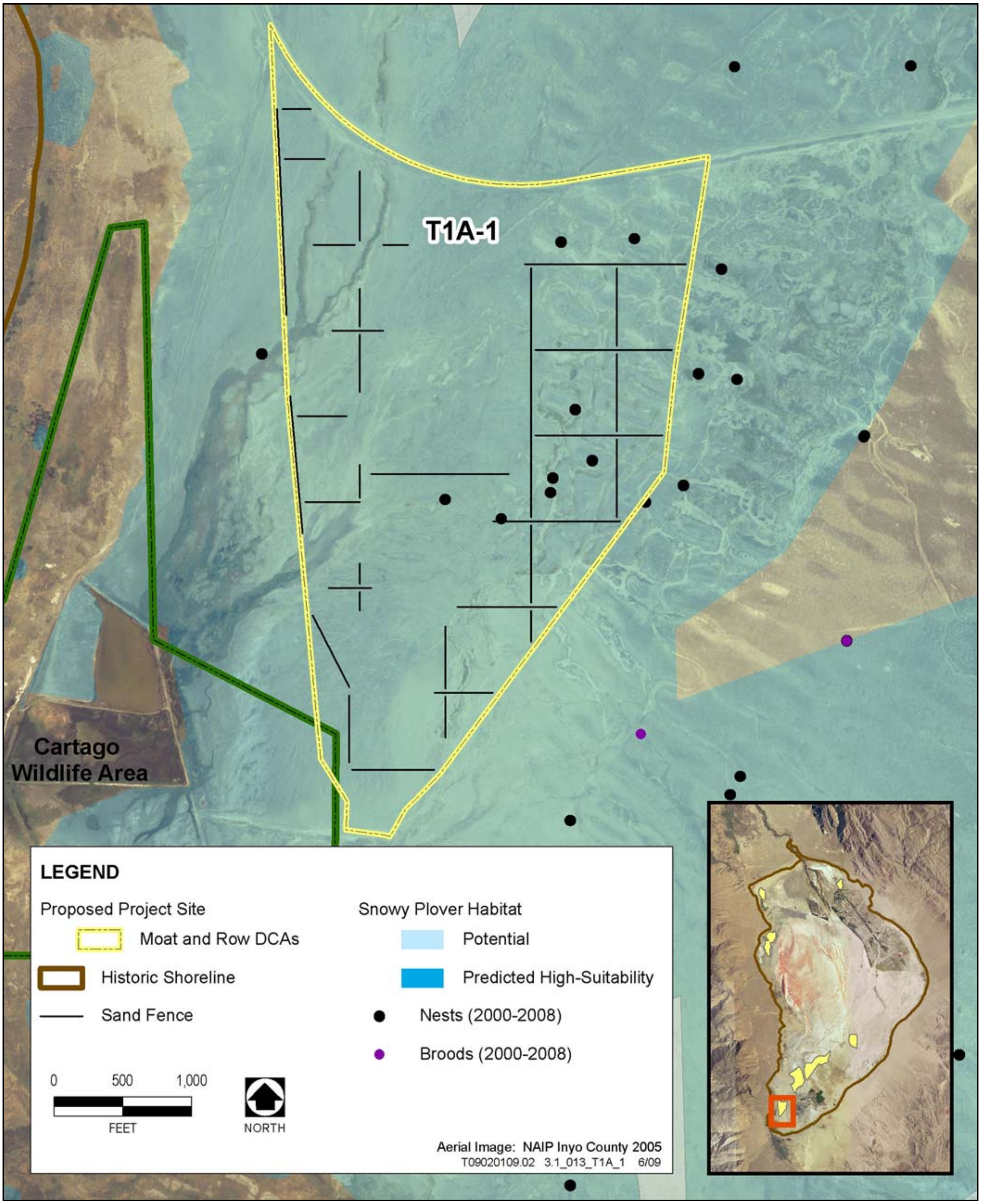
Exhibit 3.1-13 shows the proposed fence pattern, recent occupancy by nesting snowy plover, and distribution of predicted high-suitability habitat in and adjacent to cell T1A-1. If plovers continue to nest within cell T1A-1, the potential for brood isolation and loss would be within the three enclosed fence blocks in the northeast corner of the cell. Although gaps are proposed at the fence corners, they would be small (approximately 10 feet wide) and far (approximately 600 feet) apart, and would not provide reliable movement options for plover broods. Brood movements are often frequent, rapid, and appear directionally erratic or inconsistent; and plovers are not expected to “funnel” into or seek out small or isolated movement corridors (e.g., fence gaps, culverts, etc.) over long distances (Page and Robinson, pers. comms., 2008). Because of these movement behaviors, fence gaps designed to facilitate brood movements would need to be regularly distributed over relatively short distances. If snowy plover adults attempt to nest within this area, the sand fence alignment as proposed could prevent or substantially reduce the ability of broods to access necessary resources outside the fence grid, which could reduce brood survival.

Barrier effects on plover broods are not expected in other portions of cell T1A-1. The proposed design at T1A-1 includes two large fence gaps along the west perimeter of the cell, between the cell and the Cartago Wildlife Area (Exhibit 3.1-13), to maintain the existing hydrology there. On the west perimeter, proposed gaps within the sand fence are 568 and 584 feet long each, and together comprise 24% of the total length of perimeter between the Wildlife Area and the cell interior. In the central portion of the cell, the distribution of fences would not isolate potential habitat. The fence gaps and lack of grid enclosure in the west and central portions of the cell are expected to prevent barrier effects on plover broods in these areas.

Potential impacts on brood movement and habitat connectivity that would result from the proposed fence construction in the northeast corner of cell T1A-1 are potentially significant.

Regional Habitat Connectivity and Brood Movements

At the study area scale, the proposed project is not expected to substantially reduce habitat connectivity. Moat and row cells would occupy approximately 3% of Owens Lake and result in the loss of 4.3% of all suitable snowy plover habitat on the lake. The distribution, density, or sizes of cells would not prevent access to large blocks of high-quality habitats from other areas, or isolate any known or potential nesting areas. The connectivity of high-suitability habitats would remain considerable after project construction, and continue to facilitate movements between important foraging and breeding areas. Exhibit 3.1-11 shows the distribution of suitable habitat in relation to moat and row cells; the distribution of high-suitability habitat outside of cells indicates the degree of connectivity that would remain after project implementation. Any effects on regional habitat connectivity or changes to brood movements outside the project cells would be less than significant.



Source: LADWP 2008, adapted by EDAW in 2008.

Cell T1A-1: Proposed Fence Pattern, Snowy Plover Habitat, and Nest and Brood Distribution **Exhibit 3.1-13**

Displacement and Loss of Individuals

Effects during Construction and Operations and Maintenance

Construction would generally involve site preparation (surface grading and earthmoving); berm construction and access road grading; dewatering where necessary; mainline water delivery pipeline extension (trenching, pipeline installation, trench backfilling); and power line and DCM controls installation. Construction of the seven project cells would require approximately 12 months to complete and would begin in 2009. These activities would generally occur six days a week for 12 hours a day, but could be expanded to seven days a week, 24 hours a day if required to meet dust emission deadlines established by GBUAPCD. Anticipated operations and maintenance (O&M) activities would primarily include: (1) removal of sand within moats using an excavator (estimated to occur once every 1 to 5 years, depending on the proximity of a moat to other DCAs and its orientation relative to primary wind direction); (2) rebuilding eroded side slopes of rows using existing soil and rock materials (estimated at once every 10 years); and (3) fence repair (as needed), fence replacement (approximately every 10 years), and removal of sand build-up against fences using an excavator, dump trucks, and pick-up trucks.

Snowy plovers attempting to nest within or adjacent to the proposed project cells could be displaced as a result of project construction and O&M activities. Loss of nests, disturbance to breeding and foraging activities, and mortality of individuals due to ground disturbing activities could occur. During project construction and O&M, plovers could be killed or injured by vehicle strikes on roads; active nests could be crushed beneath heavy construction equipment. These potential impacts would increase plover mortality and reduce reproductive success, and would be potentially significant.

Moat Entrapment

Approximately 59.1 linear miles of moats would be constructed within the six project cells with moat and row elements. Moats would be 4–5.5 feet deep and up to 20 feet wide, and have side slopes of 1.5:1 (33.7 degrees). During the brooding period when juvenile plovers do not fly (28–33 days after hatching), individuals could encounter moat edges and possibly walk or fall into moats. A moderate to high potential for broods to encounter the perimeter of moat and row cells would occur at T1A-3, T37-1, and T37-2 (Exhibit 3.1-12), due to the proximity of these cells to occupied or high-quality nesting habitat. Any occurrences of plovers within moats are expected to be infrequent and limited to cell perimeters (i.e., the outer-most moats, where plovers from adjacent areas could interface with moat and row cells). (As previously discussed, snowy plovers are not expected to regularly nest in the interiors of moat and row cells, including those potentially augmented with water or other dust control enhancements.) If plovers enter moats, two factors could affect their ability to exit the moat and survive: the steepness of side slopes relative to soil roughness (friction) and the presence of water in the moats.

In general, snowy plover chicks (of all ages) are expected to be able to navigate slopes of 30 degrees (1.7:1) or less (Page, pers. comm., 2008). The exact slope angle that would prevent movement and cause entrapment of snowy plovers is not known, but is expected to vary with the slope roughness and age of birds. At Owens Lake, snowy plover broods were observed successfully moving up one side of a salt-crusted road berm (Deane, pers. comm., 2008); the slope angle of this berm was subsequently measured at approximately 20 degrees (2.7:1). Also, snowy plover chicks were observed hopping up and over a steep rip-rapped berm (Nordin, pers. comm., 2008); these berms are designed to retain water, and border many of the shallow flood areas on Owens Lake (See Exhibit 3.1-3 for an example of rip-rap used along the borders of some ponded shallow flood DCAs on Owens Lake.) Older plover chicks can navigate steeper slopes (possibly as steep as 60 degrees, or 0.65:1), while younger chicks generally require shallower slopes (Page, pers. comm., 2008).

The slope angles that snowy plover chicks can navigate increases with the degree of substrate consolidation or roughness (Page, pers. comm., 2008). Based on findings of the draft Phase 7 Geotechnical Investigation (LADWP 2008a), salt crust is expected to form wherever groundwater is within 10 feet of the soil surface. The formation of salt crusts on Owens Lake consolidates the substrate into rough particles or clumps of variable sizes, and solidifies the substrate surface. Because the depth to groundwater at proposed moat and row cells is generally 2–5 feet below the lake bed surface (LADWP 2008a), soil consolidation and increased roughness are expected to occur. Also, field observations of moat and row demonstration project cells and other areas confirm that sides of moats are rough and composed of solid particles (i.e., clumps), rather than smooth or loose.

Based on observations of moat and row demonstration projects and empirical groundwater data (LADWP 2008a), all moats could contain surface water during some periods. In November 2008, at moat and row demonstration cells T32-1 and T12-1, standing water or evidence thereof was observed in the bottoms of moats (see Exhibits 3.1-4b and 3.1-5a). Brine fly populations were associated with water in moats at T12-1, indicating that groundwater in moats may be suitable to support a food source for snowy plover in some areas. However, as previously discussed, groundwater at Owens Lake is generally too saline to support brine flies; and moats in the project area are not expected to regularly support brine fly populations. Because snowy plover chicks can swim (Page et al. 1995), the presence of water alone may not pose a substantial hazard. However, water could create muddy conditions that could entrap plovers. At Owens Lake, two snowy plover chick mortalities were reported from a 3–4 foot deep vertical dewatering trench that contained mud at T13-1 (a DCA implemented prior to the approval of the 2008 SIP) (Ramirez, pers. comm., 2008). However, the degree to which moat side-slope, presence of mud, or other soil conditions contributed to this incident is unknown. Because plovers spend considerable time foraging in mudflats, occasional entrapment of juvenile plovers in mud may also occur under natural conditions. For example, in the south San Francisco Bay area, Robinson (pers. comm., 2008) reported infrequent instances of snowy plover and other shorebird chicks being caught in mud.

If snowy plovers become entrapped within moats, mortality as a result of predation, dehydration, or starvation could occur; although the frequency and magnitude of this potential effect is expected to be low. If it occurs, moat entrapment would likely be infrequent due to the following factors:

- Only moats along the outer perimeters of cells T1A-3, T37-1, and T37-2 have moderate to high potential to interface with snowy plover individuals.

- The likelihood of a plover walking or falling into a moat on the project site is considered low, due to unsuitable habitat conditions within moat and row elements combined with the availability of higher-quality foraging opportunities adjacent to all cells. Although brine flies within wet moats would provide a potential food source for snowy plovers, these conditions are not expected to attract plovers to moats from considerable distances. Water in moats would generally not be visible to plovers moving on the ground, and pools of water and associated brine fly populations within moats would be isolated and relatively small. The extent, duration, and visibility of water on the landscape are important for attracting plovers to foraging areas (Page, pers. comm., 2008).

- If a snowy plover walks or falls into a moat, (1) the combination of slope angle (1.5:1, 33.7 degrees) and surface roughness would likely be sufficient to allow plovers to walk out (in the absence of monitoring data or other observations, conclusions beyond this would be too speculative); and (2) because snowy plovers are specifically adapted to moving in muddy conditions, although possible, mud entrapment would be infrequent.

Although moat entrapment is expected to be rare, there are no data to accurately predict its likelihood or frequency. Therefore, this analysis takes a conservative approach and considers the impact to be potentially significant.

Predation

As described in the 2008 FSEIR, sand fencing constructed on tops of rows could provide additional perching opportunities for and attract avian predators (see FSEIR, page 3.2-29), particularly common ravens. Common raven is a known predator of snowy plover eggs and chicks (PRBO 2008). A raven was observed perching on a sand fence at moat and row demonstration cell T12-1 (S. Henderson and Roth, personal observation, 2008). PRBO has been monitoring the abundance and distribution of ravens on Owens Lake since 2004. Although population counts of ravens at Owens Lake decreased in recent years (2008 counts were lower than in 2006 and 2007) (PRBO 2008), the local foraging ranges of individuals could shift with the distribution of available perch sites and foraging opportunities. Therefore, where sand fencing is constructed near snowy plover nesting habitat, the local frequency of ravens and predation on snowy plover nests and individuals could increase. An increase in predation on the snowy plover population as a result of project implementation would be a potentially significant impact.

Summary of Snowy Plover Impacts

The following impacts to western snowy plover that could result from project implementation would be potentially significant: (1) loss of up to 1,503.8 acres of suitable habitat, (2) potential loss of individuals as a result of construction and O&M activities, (3) isolation and loss of plover broods within fence grids at cell T1A-1, (4) entrapment of individuals within moats, and (5) increased predation by corvids.

Mitigation Measures

Mitigation Approach and Incorporation of Measures from the 2008 FSEIR

The 2008 FSEIR includes 14 mitigation measures intended to reduce or compensate for project impacts to biological resources; 11 of these address potential impacts to western snowy plover. Measures from the FSEIR are provided in their entirety in Appendix C. Consistent with the requirements of CEQA, LADWP is required to implement these measures as a condition of approval of the 2008 SIP. The GBUAPCD has approved a Mitigation Monitoring and Reporting Program that will monitor and document the implementation of these mitigation measures. Because many of the previously adopted mitigation measures would apply to the project, they are hereby incorporated by reference into this Draft SEIR and are presented below in their entirety except where changes are necessary to address the specific elements of the project considered herein.

The following nine measures from the 2008 FSEIR, which address potential effects on western snowy plover, have been incorporated by reference with no revisions.

Mitigation Measure 3.1-1 (Biology-1 in 2008 FSEIR): Lake Bed Worker Education Program

Mitigation Measure 3.1-2 (Biology-2 in 2008 FSEIR): Preconstruction Surveys for Western Snowy Plover

Mitigation Measure 3.1-3 (Biology-3 in 2008 FSEIR): Snowy Plover Nest Speed Limit

Mitigation Measure 3.1-4 (Biology-4 in 2008 FSEIR): Lighting Best Management Practices

Mitigation Measure 3.1-5 (Biology-7 in 2008 FSEIR): Toxicity Monitoring Program

Mitigation Measure 3.1-6 (Biology-9 in 2008 FSEIR): Plover Identification Training

Mitigation Measure 3.1-7 (Biology-10 in 2008 FSEIR): Long-Term Monitoring Program for Western Snowy Plover

Mitigation Measure 3.1-8 (Biology-12 in 2008 FSEIR): Habitat Management Program for Nesting Snowy Plovers

Mitigation Measure 3.1-9 (Biology-14 in 2008 FSEIR): Long-Term Habitat Management Plan

Replacement Mitigation Measures

In the 2008 FSEIR, the discussion of wildlife movements concluded that “sand fencing constructed on tops of moat and row elements would potentially obstruct the movement of wildlife through the area. Therefore, further analysis of potential impacts to terrestrial wildlife is warranted.” Measure Biology-13, which prescribes gaps in sand fencing or alternative passage features (e.g., culverts, etc.) within moat and row grids, was included to mitigate for this potential effect. Consistent with the 2008 FSEIR recommendation, further analysis of moat and row elements and effects on wildlife movements was conducted as part of this SEIR (see *Effects on Brood*

Movements and Habitat Connectivity for snowy plover, above; and *Impact 3.1-2, Effects on Wildlife Movements, Corridors, and Access to Nursery Sites* for other species, below). Based on the results of this focused analysis, the type of mitigation specified in Measure Biology-13 from the FSEIR is not considered necessary to mitigate for significant effects on wildlife movement identified in this SEIR. However, fence gaps to facilitate movement are recommended to mitigate for potentially significant effects on snowy plover broods at site T1A-1 (sand fence only). Therefore, Measure Biology-13 is replaced here by Mitigation Measure 3.1-10 to mitigate specifically for potential effects on plover brood movements at site T1A-1.

To minimize or avoid effects of proposed fencing on movements of snowy plover broods at Cell T1A-1, LADWP shall install and maintain additional fence gaps within the three fence blocks located in the northeast corner of the cell. Based on the movement behaviors of snowy plover, fence gaps designed to facilitate brood movements shall be regularly distributed over relatively short distances, and easily encountered by fast-moving plovers. Plover broods must be able to physically fit through fence gaps, and must be able to visually locate the gaps efficiently during movements. The following describes the design considerations and specifications for installing fence gaps to facilitate plover movements. The final design shall be developed and implemented in consultation with DFG, CSLC, and GBUAPCD, and will be subject to the approval of DFG.

Fence gaps shall be installed using one of two basic design options: (1) vertical gaps beneath fences, or (2) horizontal gaps along fences (i.e., fence breaks).

Option 1

If vertical gaps are implemented, a minimum 2-inch gap shall be installed beneath the entire length of fencing. This gap size is considered sufficient for plover broods (including chicks and adults) to fit beneath fences (Page, pers. comm., 2008). Within 30 days prior to the core brooding season (March 15–August 15) each year, the sand fence shall be inspected, and maintained at that time if necessary, to ensure a minimum 2-inch gap beneath the fence.

A 2-inch gap beneath a fence could be difficult for plovers to detect from a distance, due to its low visual profile relative to the surrounding landscape. For example, the average range of surface relief recorded at nest sites on Owens Lake was 1.5–8.2 inches (PRBO 2000, 2001, 2002); in some locations, this natural microtopography could obstruct a plover’s visual detection of a 2-inch movement gap. To minimize or offset this potential detection problem, vertical gaps designed to facilitate brood movements shall extend along the entire fence length.

Option 2

If horizontal gaps along fences are installed, they shall be spaced no greater than 100 feet apart (i.e., no more than 100 feet of fence between two gaps); and the combined width of all fence gaps shall total a minimum of 10% of the total fence perimeter length. Gaps shall be maintained throughout the snowy plover brooding season (March 15–August 15).

Although the minimum size and spacing of fence gaps to facilitate movement by snowy plovers is not known, Page (pers. comm., 2008) estimated that approximately 1-foot-wide gaps placed every 10 feet along fence rows could potentially allow for unimpeded movements. For developing a range of feasible options to meet this mitigation measure, it is assumed that these guidelines for gap size and frequency can generally be extrapolated as follows: based on 1 foot of gap within a 10-foot segment (i.e., a gap occupies 10% of the fence perimeter), all fence gaps shall total a minimum of 10% of the total fence perimeter (e.g., over a 500-foot fence perimeter, a minimum total of 50 feet within a gap condition would be required). Therefore, based on 1 foot of gap within a 10-foot segment (i.e., a gap occupies 10% of the fence length), all fence gaps shall total a minimum of 10% of the total fence perimeter length (e.g., over a 500-foot fence perimeter, a total of 50 feet within a gap condition shall be required).

The ability of broods to visually locate horizontal gaps is probably affected by the relationship between gap frequency and size; as the spacing between gaps increases (and distance from a plover at a given location to a gap increases), the size of individual gaps required for visual detection from a given location increases. Therefore, in addition to maintaining a minimum of 10% of total fence perimeter within a gap condition, gaps shall be spaced regularly and no more than 100 feet apart. It is assumed that this maximum spacing of gaps would allow for sufficient opportunity for broods to meet their daily movement requirements.

Revised Mitigation Measures

Mitigation Measure 3.1-11 (Revises Measure Biology-11 in 2008 FSEIR): Corvid Management Plan

This measure is presented as originally written in the 2008 FSEIR (as Biology-11), except where revised specifically for this Draft SEIR to mitigate for potential impacts of the revised moat and row project. Measure Biology-11 was revised to add specificity regarding design of sand fencing and fence posts for deterring perching by corvids. Revisions to the original measure are shown below as track-changes.

To reduce potential direct and cumulative impacts to western snowy plover and other migratory shorebirds within the project area due to increased predation on shorebird young and eggs from potential corvid population increases on Owens Lake resulting from construction of dust control measures, the City of Los Angeles Department of Water and Power shall continue to implement the corvid management plan resulting from the 2003 SIP with an extension of one year within the project area, or comparable corvid control measures, to the satisfaction of the California Department of Fish and Game, that are capable of achieving the same performance standard of no substantial net increase in corvid predation of native nesting shorebirds (including eggs). The corvid management plan was implemented in 2005 and may conclude in 2011 depending on success. Components of the corvid management plan include lake bed trash management procedures associated with dust control measures, utilization of Nixalite or the functional equivalent on all structures greater than 72 inches in height (increased from the original 60 inches in height) to minimize perching of corvids and raptor species on dust control equipment where they can easily observe shorebirds during the nesting season, burial of power and communication lines on all lake bed areas below the elevation of 3,600 feet, and use of harassment techniques for corvids in specific instances where corvids are proving to be particularly harmful to nesting shorebirds.

Specifically in conjunction with the Moat & Row dust control measure, the corvid management techniques shall be expanded to specify that the sand fencing~~e fabric and~~ (including fence posts) shall be designed to prevent perching by corvids, within 0.25 mile of occupied nesting shorebird habitat. Occupied nesting shorebird habitat will be evaluated on an annual basis, in collaboration with DFG, to identify areas requiring perch deterrents. The annual habitat evaluation will attempt to identify potential shifts in occupied nesting habitat over time. The use of sand fencing on top of rows within the Moat & Row areas will be considered under this mitigation measure as exceeding the height of 72 inches.~~, thereby requiring the utilization of Nixalite or the functional equivalent on top of sand fencing.~~ Sand fence design to deter perching by corvids shall include the installation of: (1) Nixalite or the functional equivalent on the tops of fence posts; and (2) monofilament line or the functional equivalent along and above the sand fence fabric. To avoid a potential avian collision hazard, monofilament or other line shall be installed no greater than two inches above the top of sand fence fabric. Within 30 days prior to the brooding season (March 15–August 15) each year, the perch deterrent structures shall be inspected and maintained at that time, if necessary.

The corvid management plan shall be implemented by a wildlife biologist familiar with the sensitive shorebird populations within the project area and familiar with corvid management techniques. The qualifications of the wildlife biologist shall be submitted to the California Department of Fish and Game for review. Lethal methods of corvid control such as shooting or poisoning shall not be implemented initially due to public and government agency concerns in the project region for such control methods and to prevent putting workers at risk from such control measures. If it is later determined that corvids are having a significant impact on shorebird populations within the project area and direct removal of corvids is a viable alternative, proposed control methods would be presented to the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game for approval prior to implementation of the additional control measures. The corvid management plan includes a yearly written report estimating the lake bed nesting and foraging corvid population size, documenting the results of the corvid management techniques, documenting the observed effectiveness of the techniques in minimizing corvid impacts on shorebirds within the lake bed, and suggesting improvements for corvid management within the lake bed. Effectiveness may be determined based on the corvid population size on the lake bed. Copies of the yearly reports shall be submitted to the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game no later than December 31 of each corvid management year. If after the sixth year of reporting in 2011, the Great Basin Unified Air Pollution Control District determines that the corvid management program is effective and that corvids are not impacting snowy plover populations, then the reporting schedule shall phase out in the same time frame as shown in Table 3.2.5-1 (of the 2008 FSEIR). However, the corvid management practices shall be continuously implemented.

New Mitigation Measures

2008 FSEIR Mitigation Measure Biology-10, Long-Term Monitoring Program for Western Snowy Plover, was required to confirm that overall numbers of snowy plovers within DCAs do not decrease below baseline levels (defined in Measure Biology-10 as 2002 levels, or 272 plovers). In addition to this general population survey, the following measure focuses on monitoring specifically to detect entrapment of plovers within moats, and implementation of remedial measures if needed. The monitoring purpose, timing and duration, frequency, and survey methodologies would differ between Measure Biology-10 and monitoring required to detect moat entrapment. Therefore, the following is recommended as an additional measure.

Mitigation Measure 3.1-12: Monitoring and Adaptive Management for Moat Entrapment of Snowy Plover

To minimize or avoid potential moat entrapment of western snowy plovers, LADWP shall develop and implement a moat monitoring and adaptive management strategy. Although entrapment of snowy plovers within moats is assumed to be infrequent, in the absence of empirical data or other observations, there is reasonable uncertainty about this assumption. Therefore, this monitoring and adaptive monitoring approach is recommended to address this uncertainty, identify specific incidences of plover entrapment or mortality, and mitigate for significant effects.

Monitoring and Adaptive Management Purpose and Guidelines

The purpose of the monitoring and adaptive management strategy is to: (1) determine whether moat entrapment or loss of plovers occurs due to moat design or other elements (e.g., side slope angle, presence of water); (2) identify and implement site-specific corrective actions that would minimize or avoid any additional impact; and (3) if necessary, identify whether compensatory measures for significant losses or entrapment are required. This analysis assumes that repeated and regular observations of plover entrapment or mortality would indicate a potentially significant adverse effect. Specific adaptive management response thresholds are discussed below under “4. Response Triggers.”

The moat monitoring and adaptive management strategy shall:

- be developed in consultation with DFG, CSLC, and GBUAPCD, and will be subject to the approval of DFG;
- be completed prior to initiating moat construction; and
- where appropriate, maintain consistency with and tier from existing monitoring programs, such as the Toxicity Monitoring Program (2008 FSEIR Measure Biology-7), and the Long-Term Monitoring Program for Western Snowy Plover (2008 FSEIR Measure Biology-10).

Monitoring and Adaptive Management Components

The moat monitoring and adaptive management strategy shall include the following components:

- a monitoring schedule, including the timing and frequency of monitoring;
- a description of monitoring locations and procedures;
- selection of indicators for identifying the type and extent of impacts to snowy plover due to moat entrapment;
- specific quantitative response triggers to indicate thresholds requiring management action;
- a list of corrective management actions appropriate for each type and extent of impact; and
- documentation and reporting requirements.

Guidelines for developing these six elements are summarized below.

1. Implementation Schedule, Timing, and Frequency

Moat monitoring shall be conducted during the snowy plover brooding season (March 15–August 15) for a minimum of two full brooding seasons after completion of project construction. Until the end of the first full brooding season after project construction, monitoring shall be conducted twice per week. If no entrapments (defined in "3. Entrapment Indicator," below) are observed during this initial period, the frequency of monitoring may be reduced to once per week for the second complete brooding season.

Monitoring shall commence immediately after construction of any perimeter moat is complete, if during the snowy plover brooding season. Otherwise, monitoring shall commence at the start of the following brooding season. If after two full brooding seasons of monitoring, it is determined that there is no evidence of significant moat entrapment or mortality, this monitoring requirement may be discontinued. However, if at any point within the monitoring period corrective management actions are required (i.e., response triggers or thresholds are met), monitoring shall be continued for an additional two full brooding seasons after corrective actions are implemented to ensure effectiveness of the action. This monitoring cycle shall be repeated until significant mortality or entrapment ceases to occur during a two-year cycle.

2. Monitoring Locations and Procedures

Monitoring surveys shall be conducted at all moats forming the perimeter of moat and row cells identified as high or moderate risk of interacting with snowy plover individuals or broods (T37-1, T37-2, and T1A-3). In the event that any entrapment of snowy plover is observed in moats, moats forming the perimeter of moat and row cells identified as low risk of interacting with snowy plover (T32-1, T12-1, and T1A-4) shall be added to this monitoring and adaptive management program. All monitoring shall be conducted by wildlife biologists familiar with snowy plover identification, movement patterns, and life history requirements. Monitoring protocols shall be developed to determine the presence and condition of plovers in moats, and to document existing moat conditions where entrapment is observed. Key information collected during monitoring shall include, but is not limited to:

- specific locations of all areas surveyed;

- locations of all snowy plovers detected inside or within 100 feet of moats (using global positioning system [GPS]);

- age or life stage (juvenile, adult), behavior, and condition of individuals found within moats (including injury, death, and the identified cause of adverse condition, if possible);

- moat side-slope measurements where plovers are found, and within 200 feet of these locations;

- presence, depth, and quality (including salinity) of water in moats, where plovers are found (water quality data collection will follow that described for surface water monitoring of moat and row cells in the 2008 FSEIR Mitigation Measure Hydrology-2); and

- incidental observations of snowy plovers and other wildlife species made during monitoring surveys.

Any live shorebird found within a moat shall be observed at a distance for a minimum of 15 minutes, or until it exits the moat.

3. Entrapment Indicator

Moat entrapment shall be indicated and quantified by the number of plover mortalities or other observed entrapments within a moat per breeding season. In addition to mortality, "entrapment" shall include an incidence of a live bird that: (1) visibly attempts but is unable to exit the moat for 15 minutes or more, (2) is caught within the moat's substrate (e.g., mud), or (3) does not attempt to exit the moat and appears injured or in otherwise poor condition to do so. Any observed mortality or entrapment will be reported to DFG within 48 hours of documenting the incident. (This timeframe is consistent with reporting standards for observed avian mortalities established in Mitigation Measure Biology-9 of the 2008 FSEIR [GBUAPCD 2008]).

4. Response Triggers

The threshold for requiring corrective actions is three or more snowy plover moat entrapments per DCA per calendar year. (The maximum number of observed entrapments per year that could occur without requiring corrective actions under this measure would range from two birds at any one DCA to six birds across the three monitored DCAs [T37-1, T37-2, and T1A-3].) If three or more entrapments at any DCA are observed, corrective adaptive management actions shall be required within the moat(s) where entrapments were detected.

It is assumed that a loss of plovers up to this threshold would not significantly increase juvenile or adult mortality rates above existing levels or substantially affect the overall snowy plover population size, due to the following factors:

- The threshold number is small relative to the overall snowy plover population size and productivity. In 2008, 478 adults and 39 broods were counted over a portion of Owens Lake; during the period of 2003–2008, the number of broods counted annually ranged from 18 to 52 (PRBO 2008). These counts include only the broods and adults observed during one-week lake-wide surveys conducted in late May to early June. Because adults often initiate multiple nesting attempts (sometimes up to three) and produce multiple broods during a breeding season, these numbers represent only a proportion of the broods produced at Owens Lake during a breeding season. Also, not all areas of suitable habitat were included in all years of the lake-wide surveys.

- The Owens Lake population appears viable, based on reproductive success metrics and an increasing population trend. Although juvenile or adult survival rates for the Owens Lake population have not been estimated, the number of nests and nest success rates have been relatively high. The most complete lake-wide nesting data are from 2002 and 2003. In 2002, when 272 adults were counted, 128 nests were located; and the average nest hatching rate was 82.5%. In 2003, when 401 adults were counted, 199 nests were located; and the average hatching rate was 80%.

- Multiple nesting attempts, particularly those initiated by a pair after a nest or brood has failed, would compensate for some loss during the breeding season.

5. Corrective Adaptive Management Actions

If the response threshold is met, LADWP shall notify DFG as soon as possible and within three business days of the incident. In coordination with DFG, CSLC, and GBUAPCD, LADWP shall implement corrective management actions as appropriate depending on the cause of moat entrapment (e.g., slope, presence of water, or other).

Appropriate corrective actions for entrapment due to moat side-slopes could include one or more of the following:

- add escape ramps every 100 feet within the identified problem moat;
- add rip-rap to side-slopes; and
- reduce side slopes within the identified problem moat, to the maximum extent feasible without substantially compromising overall dust control effectiveness.

Appropriate corrective actions for entrapment due to the presence of water in moats could include one or more of the following:

- add rip-rap to bottoms of moats, so that the top of rip-rap exceeds the maximum water and mud level observed in moats during the breeding season; and
- reduce side slopes within the identified problem moat, to the maximum extent feasible without substantially compromising overall dust control effectiveness.

If the monitoring and adaptive management process indicates that corrective actions are not effective, or if actions are determined to not be feasible, then LADWP shall work collaboratively with DFG, CSLC, and GBUAPCD to develop a revised action or provide on- or off-site habitat enhancement and protection as compensation. Revised corrective actions or habitat enhancement shall require approval by DFG.

6. Reporting Requirements

LADWP shall provide summaries of monitoring methods and results to DFG, CSLC, and GBUACD within 60 days of completing each monitoring season. Reports shall include summaries of all detections of snowy plover or other shorebirds in and around moats; their behavior, state or condition when detected; side-slopes and water depths measured in association with each detection; and whether any mortalities or other entrapments were observed. After completing the second year of monitoring, annual reports that summarize the cumulative results of monitoring efforts shall also be submitted to DFG, CSLC, and GBUACD.

Integration with Existing Snowy Plover Monitoring and Management

The specific monitoring and adaptive management program for moat entrapment could be incorporated directly into existing plover monitoring and management commitments as appropriate, including as an element of the Long-term Monitoring Program for Western Snowy Plover (Mitigation Measure 3.1-8; Measure Biology-10 in the 2008 FSEIR) or the Long-term Habitat Management Plan (Mitigation Measure 3.1-9; Measure Biology-14 in the 2008 FSEIR).

Level of Significance After Mitigation

Implementation of Mitigation Measures 3.1-10, 3.1-11, and 3.1-12, and the applicable measures from the 2008 FSEIR (Mitigation Measures 3.1-1, 3.1-2, 3.1-3, 3.1-6, and 3.1-9), would reduce potential effects of project implementation on western snowy plover to a less-than-significant level. Collectively, these measures would avoid substantial mortality and population reductions as a result of project implementation; also, habitat for snowy plover would be protected in perpetuity.

Mitigation measure 3.1-9 (Long-term Habitat Management Plan) requires LADWP to manage 1,000 acres of shorebird and snowy plover habitat located in Zone 2 (in the northeast portion of study area), and maintain an additional 523 or more acres of habitat specifically for snowy plover, in perpetuity. It is expected that these protected habitats would consistently provide higher-quality conditions overall for snowy plover than the existing suitable habitat within proposed moat and row cells. This long-term commitment and habitat benefit would compensate for the anticipated loss of 1,503.8 acres of snowy plover habitat due to moat and row implementation.

Additional habitat benefits would also be recognized from the implementation of the Phase 7 shallow flooding DCM of the 2008 project (which includes the moat and row DCMs considered in this SEIR). Implementation of the Phase 7 shallow flooding DCM would result in the creation or enhancement of 3,177 acres of snowy plover habitat. This acreage includes only the portion of Phase 7 shallow flood that would: (1) form sheet flow hydrologic characteristics rather than deeper-water ponds, and (2) be implemented on areas of the lake bed that are presently barren (i.e., areas that do not typically support natural shallow-water flow). Artificial sheet-flow shallow flooding on Owens Lake provides high-quality habitat for snowy plover and other shorebirds. This type of flooding creates relatively flat mosaics of shallow water, mudflats, and variable wet-dry interface zones for foraging, in association with nearby drier areas for nest placement. Historically, snowy plovers at Owens Lake were primarily associated with natural seeps and springs, mostly along the edges of the lakebed (Page, pers. comm., 2008; Prather, pers. comm., 2008). More recently, the snowy plover distribution has shifted to become more highly concentrated within artificial shallow flood areas rather than around natural seeps and springs (Ruhlen, Page, and Stenzel 2006); and the overall population has increased substantially since 2002, in correlation with the amount of artificial shallow flood applied to the lake bed (shallow flooding was first implemented on the lake bed in 2002). Potential loss of individuals as a result of construction and O&M activities would be avoided or minimized by requiring worker training, preconstruction surveys, and protection of active nest sites (Mitigation Measures 3.1-1, 3.1-2, 3.1-3, and 3.1-6). Because snowy plover individuals and nest sites can be difficult to detect (due to their cryptic coloration), and snowy plovers often initiate multiple nesting attempts throughout the breeding season, the ability to locate individuals and nest sites is critical for avoiding construction- and O&M-related loss of nests and individuals. The combination of preconstruction surveys by DFG-approved biologists and a worker training program on snowy plover identification and biology would ensure that active nest sites are located before and during implementation of the proposed project. Where active nest sites are located, protective buffers would be established to restrict construction and O&M activities within 200 feet of the nest. Restricting project activities within these buffers would minimize or avoid the loss of active plover nests, and avoid substantial effects of construction and O&M activities on snowy plover reproductive success.

The potential for isolation and loss of plover broods within fence grids at cell T1A-1 would be reduced through installation of appropriate movement gaps (Mitigation Measure 3.1-10). If snowy plover adults attempt to nest within this area, the gaps would allow broods to access resources necessary for survival outside the fence grid. The mitigation specifications are intended to ensure that gaps are regularly distributed and easily encountered by plovers making rapid movements.

Potential moat entrapment would be mitigated to a less-than-significant level through implementation of Mitigation Measure 3.1-12, which requires LADWP to implement a monitoring program and adaptive management strategy. If significant entrapment is documented during the monitoring period, LADWP would be required to implement site-specific corrective actions related to moat design that would minimize or avoid any additional impact. The monitoring program and adaptive management strategy shall be developed in consultation with DFG, CSLC, and GBUACD, and will be subject to the approval of DFG.

The potential for increased predation of snowy plover by corvids would be reduced through installation of perch deterrent structures on moat and row fences (Mitigation Measure 3.1-11). Sand fencing constructed on tops of rows could provide additional perching opportunities for and attract avian predators. However, the installation of perch deterrents near snowy plover nest sites would avoid a potential increase in avian predator frequency, nest predation, and plover mortality due to fence construction at those locations.

Implementation of Mitigation Measure 3.1-9 requires LADWP to manage 1,000 acres of shorebird and snowy plover habitat in Zone 2, and maintain an additional 523, or more, acres of habitat specifically for snowy plover, in perpetuity. It is expected that these protected habitats would provide higher quality conditions overall for snowy plover, and potentially support higher nesting densities, than the existing suitable habitat within proposed moat and row cells. Mitigation Measure 3.1-9 would compensate for the anticipated loss of 1,503.8 acres of snowy plover habitat due to moat and row implementation. Additional benefits would also be recognized from the implementation of Phase 7 shallow flooding as part of the 2008 SIP, which would result in creation and enhancement of 3,177 acres of snowy plover habitat.

IMPACT 3.1-2	Effects on Wildlife Movements, Corridors, and Access to Breeding Sites. *The project site is dominated by barren alkali playa and does not provide suitable habitat for most wildlife species. None of the cells are located within, or required for travel between, important foraging or breeding habitats for any wildlife species; and they do not impose movements barriers between high-suitability habitats for any species. Any potential effects on wildlife movements would be* **less than significant***.*

Effects on Wildlife Movements and Access to Breeding Sites

Large Mammals

Large mammal species known to occur in the vicinity of Owens Lake and the greater Owens Valley area include tule elk, mule deer, and Sierra Nevada bighorn sheep. Tule elk and mule deer have been detected within the study area, but outside the proposed project site (GBUAPCD 2008; House, pers. comm., 2008; Ramirez, pers. comm., 2008; Ellsworth, pers. comm., 2008). Sierra Nevada bighorn sheep do not occur in the study area.

As described in detail in the "Environmental Setting," tule elk are not expected to make regular movements across the Owens Lake bed or in the project site, due to (1) the lack of cover and forage, and (2) the lack of proximity of moat and row cells to known use areas and suitable habitat. Similarly, due to their strong association with vegetated areas to meet their needs for cover, forage and breeding habitat, mule deer are not likely to cross the barren playa of Owens Lake or to use the project site; they are expected to remain within adjacent uplands surrounding Owens Lake. Therefore, the potential for any of the project cells to affect the movements of these or other large mammal species is low.

Small Terrestrial Mammals, Reptiles, and Amphibians

In general, small mammals are highly associated with vegetation cover, which is required for concealment and predator avoidance, thermoregulation, and habitat for breeding and foraging. In the study area, locations with the greatest diversity and abundance of small mammals occur in areas where vegetation density and diversity are highest; these include areas surrounding freshwater seeps and springs, and shrubby habitats along the margins of the playa. As discussed in "Environmental Setting," none of the project cells contain these higher quality habitats. Because of these conditions, the project site is not expected to sustain considerable populations of mammal species or function as important movement habitats.

All reptile species known or with potential to occur in the study area require desert scrub vegetation to meet portions of their daily life history requirements (e.g., thermoregulation, cover from predators, breeding or foraging sites). Therefore, reptiles near the project site are not expected to make frequent or long-distance movements away from vegetated areas onto the barren lakebed. Movements are probably largely restricted to the shadscale communities on the margins of the lake bed and, to a limited extent, within scattered shadscale at the edge of cells T37-2 and T32-1. Because amphibians are highly dependent upon freshwater habitats to meet all of their life history requirements, no amphibian movements are expected to occur on the barren alkali playa or within any portion of the project site.

Medium-Sized Mammals

As discussed in “Environmental Setting,” none of the project cells are expected to sustain important prey populations or provide high-quality habitat for medium-sized mammals. The nearest core habitats for these species are probably located along the playa’s perimeter, where prey populations are more available. On the lake bed, high densities of shorebirds and waterfowl during the breeding seasons may attract mammalian predators to some locations. Use of the Owens Lake bed by these species is probably limited to these seasonal foraging opportunities. Movements of medium-sized mammals are likely to be concentrated within areas of suitable habitat bordering Owens Lake, or between those perimeter areas and interior locations that support high concentrations of breeding waterbirds (e.g., shallow flood cells and Cartago Wildlife Area). Therefore, movements of coyote and other medium-sized mammals are likely to be greatest in the vicinity of cells T1A-1, T1A-3, T12-1 and T32-1. Coyotes are common, very mobile, and adaptable to disturbed conditions, and move opportunistically with the distribution of their prey. For the other species, moat and row cells do not provide high-quality habitat or barriers between core habitats. Therefore, the project is not expected to substantially affect the movements of any medium-sized mammal species.

Avian Species

Potential effects of project implementation on snowy plover movements were discussed in Impact 3.1-1. This discussion focuses on potential effects of project implementation on movements of other bird species.

Within moat and row cells, habitat suitability for avian species other than western snowy plover is presently limited or absent. Barren playa dominates all of the cells; these conditions do not provide vegetation cover or structure to sustain populations of landbird species. Some shallow-water wetlands exist within cells T37-1, T37-2, T1A-1, and T1A-3 during portions of the year; these wetlands could provide some foraging habitat for shorebirds. These wet conditions are generally not expected to persist following construction of moat and row elements at cells T37-1, T37-2, and T1A-3, due to disrupted hydrologic connectivity to natural seeps, springs, or channels that supply surface water to the barren playa. Therefore, shorebirds are not expected to use moat and row cells for foraging. Waterbirds on Owens Lake are closely associated with surface water for meeting their life history requirements; and, with the exception of snowy plover, they generally do not use the dry playa outside these wetland areas (Prather, pers. comm., 2008, Page, pers. comm., 2008). At cell T1A-1, where no moat and row elements are planned and shallow-water wetlands would persist, adult shorebirds could be attracted to and continue foraging in this cell after project implementation. However, no shorebird species other than snowy plover have been documented nesting or brooding in T1A-; and, as discussed in “Environmental Setting,” breeding or brooding by shorebird species other than snowy plover are not expected to occur in any cells after project implementation.

All cells are located near or adjacent to present or future wetlands (e.g., present or future shallow flood cells) that could attract or support shorebirds or waterfowl. Based on the proximity of the project site to suitable waterbird habitat and known high-use areas, waterbirds could interact with moat and row cells. The following discusses two potential effects on movements that were evaluated for waterbirds: (1) flight collisions with sand fences, and (2) moat barriers and entrapment.

- *Flight collision with sand fences*. Typical flight movement patterns of waterbirds on Owens Lake vary by species. Generally, shorebirds tend to fly relatively low to the ground when moving between locations within suitable foraging habitat, while waterfowl tend to fly into and away from wetland areas at steeper angles. Although these species fly within the range of fence height while approaching, leaving, or moving among ponds or mudflats, this would normally occur outside of moat and row cells, where suitable wetland foraging habitat is located. Shorebird foraging is expected to continue within cell T1A-1, which is proposed for 3.8

miles of sand fence for dust control; no moat and row elements are planned there. The existing hydrologic and topographic conditions of the cell would remain intact, and large blocks of suitable foraging habitat for shorebirds would remain following construction. The sand fence material proposed for cell T1A-1 (and at the six other cells) is relatively solid and would be visible to birds; therefore, collisions with these fences in the project site are not expected for any bird species. Avian fence collisions typically involve wire fences, where birds in flight have a virtually unobstructed view and focus on the “target” landscape behind the fence, rather than the fence itself.

- *Moat barriers and entrapment*. On the Owens Lake playa, ground movements of adult and juvenile waterbirds include walking or running to forage, brood, and avoid predators. Particularly during the brooding period for some shorebird species, ground movements of juveniles and adults can be frequent. Some of these movements could occur near moats at the perimeters of cells T32-1, T37-1, T37-2, T12-1, T1A-4, and T1A-3, where suitable wetland habitat would occur. (See Exhibit 3.1-2 for proximity of natural and managed wetlands to project cells.) Moats at these cells are not expected to impose a substantial entrapment hazard or a barrier to ground movements (e.g., walking) of juvenile or adult shorebirds (e.g., American avocet, which breeds on Owens Lake). The movements of these species are closely associated with the presence of surface water or saturated soils; these conditions would not typically occur immediately adjacent to moats. Also, as discussed for snowy plover, the distribution, density, or sizes of cells would not prevent access to large blocks of high quality habitats from other areas, or isolate any known or potential nesting areas. The connectivity of suitable habitats would remain considerable after project construction, and continue to facilitate movements between important foraging and breeding areas.

Summary of Effects on Wildlife Movements and Access to Breeding Sites

In sum, project implementation would not substantially affect wildlife movements or access to breeding sites for mammals, reptiles, amphibians or birds, because: (1) the site is dominated by barren alkali playa and does not provide suitable foraging, breeding, or cover habitat for nearly all of these species; and daily or seasonal movements for meeting their life history requirements are not expected to include regular movements onto the barren Owens Lake playa (and project site); (2) none of the cells are located within, or required for travel between, important foraging or breeding habitats for any species; and (3) higher-quality and potential core habitats are located outside the project site; and moat and row cells do not impose movements barriers between these core habitats.

Effects on Established Wildlife Corridors

At a regional scale, as previously discussed, Owens Lake is an important site along the Pacific Flyway for migratory waterbirds. Project implementation would not cause an adverse change to migratory habitat or Pacific Flyway use, because suitable habitat for migratory waterbirds would not be reduced or degraded.

There are no known established migration corridors for any other wildlife species in the study area.

Summary of Wildlife Movement Impacts

Because project implementation would not substantially affect the movements of wildlife species, impede the use of breeding sites, or adversely affect use of the Pacific Flyway or other established movement corridors, potential effects of project implementation on wildlife movement would be less than significant.

Mitigation Measures

Because potential effects of project implementation on wildlife movements, access to breeding sites, or established wildlife corridors would not be significant, mitigation measures are not required.

CUMULATIVE IMPACTS TO WESTERN SNOWY PLOVER AND WILDLIFE MOVEMENTS

This section analyzes potential cumulative effects of the Revised Moat and Row Project on western snowy plover and wildlife movement, when considered together with other past, present, and probable future projects producing related impacts (i.e., related projects). A total of nine related projects were identified in the vicinity of the proposed project (see Section 3.0, "Environmental Setting") and were evaluated in combination with the proposed project to determine whether any potential impacts of the proposed project contributed considerably to a cumulatively significant impact.

The proposed project would result in potentially significant direct and indirect impacts on snowy plover and less-than-significant impacts to wildlife movements, as discussed in Section 3.1.4, "Impacts and Mitigation Measures." Project implementation could result in the following potentially significant impacts to snowy plover: (1) potential loss of individuals as a result of construction and O&M activities; (2) isolation and loss of plover broods within fence grids at cell T1A-1; (3) entrapment of individuals within moats; and (4) increased predation by corvids. Mitigation measures have been proposed that would reduce these impacts to a less-than-significant level. For species other than snowy plover, project implementation would not substantially affect wildlife movements, impede the use of breeding sites, or adversely affect use of the Pacific Flyway, the only known migration corridor in the vicinity of the project site, primarily due to the quality and use of wildlife habitat throughout most of the project site.

The following discusses the contribution of project effects to cumulative impacts on snowy plover populations and wildlife movement.

Snowy Plover

Impacts associated with four related projects could contribute incrementally to cumulative effects on western snowy plover: the 2003 SIP, 2008 SIP, U.S. Borax Owens Lake Expansion Project, and the Draft Cartago Springs Wildlife Habitat Improvement Plan Mitigation Plan (Cartago Springs Project). These four projects are located within the Owens Lake bed near the proposed project site. The 2003 and 2008 SIP projects are similar to the proposed project and would result in the implementation of DCMs on the Owens Lake bed. Potential adverse impacts of these projects are similar to those identified for the Revised Moat and Row Project; these include the potential loss of individuals (including nests) due to construction and O&M activities, and the potential for increased predation by corvid species as a result of infrastructure construction and additional corvid perch opportunities near plover nesting habitat. The 2003 and 2008 SIP projects would contribute beneficial effects on snowy plover, including a substantial increase in suitable habitat as a result of shallow flood implementation. The Cartago Springs Project, while in the initial stages of development, is a habitat enhancement project with the potential for improving habitat conditions for snowy plover in portions of the southwest corner of Owens Lake. This project is expected to contribute a cumulatively beneficial effect on snowy plover habitat and populations. The U.S. Borax Owens Lake Expansion Project is located in the central-western portion of the Owens Lake bed where high soil salinities make the area within and adjacent to this project unsuitable for snowy plover (Inyo County 2004); therefore, this project is not expected to contribute to a cumulative effect on snowy plover.

The remaining five related projects (Lower Owens River Project, Cartago-Olancha Four Lane Project, Whitney Portal Subdivision Project, Pine Creek Village Project, and the *Tentative Parcel Map #384/Hinds*) are located 1–50 miles from the proposed project site in either upland desert scrub or riparian habitats. With the exception of a small portion of the Lower Owens River Project, all of these projects are located outside the project study area. These project sites and their adjacent areas do not contain suitable habitat for snowy plover; therefore, these five projects would not contribute to a cumulative impact to snowy plover.

When considered together with the four related projects that could affect western snowy plover, the proposed project could contribute to a cumulative loss of individuals and nests, and increased predation. However, implementation of mitigation measures recommended for the proposed project, and those implemented as part of the 2003 and 2008 SIP projects, would reduce the potential contribution to a cumulative impact to a less-than-significant level. The proposed project with mitigation incorporated is not expected to contribute to a cumulative reduction in snowy plover population size, productivity, or long-term viability. Mitigation measures for the proposed project would avoid or minimize: (1) potential loss of snowy plover individuals as a result of construction and O&M activities (Mitigation Measures 3.1-1–3.1-4; 3.1-6–3.1-8); (2) isolation and loss of plover broods within fence grids (Mitigation Measure 3.1-10); (3) entrapment within moats (Mitigation Measure 3.1-12); and (4) increased predation by corvid species as a result of fence construction and additional corvid perch opportunities near plover nesting habitat (Mitigation Measure 3.1-11). Measures implemented for the 2003 and 2008 SIP projects would also avoid or minimize the loss of individuals and nests as a result of construction and O&M activities, and increased predation.

Wildlife Movements

All nine related projects have the potential to contribute incremental effects on wildlife movements, access to breeding sites, or the use of established movement corridors for native resident or migratory species; however, cumulative impacts are not expected to be substantial.

The 2003 and 2008 SIP Projects, as discussed previously, involve implementation of DCMs (primarily artificial flooding) on Owens Lake bed. These two projects would create additional waterbird breeding habitat and could provide additional foraging opportunities for medium-sized mammals (e.g., coyote) that use waterbird habitat seasonally for foraging. Because they would not impede wildlife movements, these projects would not contribute adversely to a cumulative effect.

The Olancha-Cartago Four Lane Project, Whitney Portal Subdivision Project, Pine Creek Village Project, and the *Tentative Parcel Map #384/Hinds* Project could incrementally affect movements of common mammals and reptiles in desert scrub habitats. These projects would displace individuals from areas of development and possibly affect movements by expanding roadways. However, these impacts are likely to be restricted to common mammal and reptile species, and would be small in magnitude due to the relatively small area affected relative to the habitat available for these common wildlife species.

The Lower Owens River Project is a stream and riparian restoration project; its goals are to enhance riparian and wetland habitats for a variety of songbird, waterfowl, and shorebird species. Implementation of this project would likely provide breeding and foraging habitat for species that utilize riparian habitats (e.g., songbirds, tule elk, mule deer, etc.); facilitate wildlife movements along the Lower Owens River corridor, by increasing the density of cover; and potentially expand use of the Lower Owens River Valley by migrating waterbirds as a result of enhancing off-channel wetlands. Similarly, the Cartago Springs Project is expected to expand available habitat for common and special-status species associated with wetland habitats in the southwestern portion of the Owens Lake bed. These two habitat enhancement projects would not contribute adversely to any cumulative impacts to wildlife movement.

The US Borax Owens Lake Expansion project is located in a portion of the Owens Lake bed that provides very low-quality habitat for any wildlife due to overall lack of vegetative cover and high soil salinities. No wildlife species are expected to use or move through this project site to meet their critical life history requirements (e.g., foraging, breeding). Any wildlife use of this site would be infrequent and limited to occasional forays from more suitable habitats at the perimeter of the lake bed. Therefore, this project is not expected to contribute considerably to any cumulative impacts to wildlife movements.

Any contribution of the proposed project to a cumulative impact to wildlife movement, access to breeding sites, and known migration corridors would be less than significant, due to: (1) the low likelihood and magnitude of impacts attributable to the proposed project, (2) the low magnitude of potentially adverse effects on wildlife movements as a result of related projects, and (3) beneficial effects of some related projects (Cartago Springs Project, Lower Owens River Project) on wildlife and wetland habitats.

3.2 AIR QUALITY

3.2.1 INTRODUCTION

This analysis supplements the air quality analysis conducted for the 2008 FSEIR (GBUAPCD 2008), available for review at the office of LADWP. Following certification of the 2008 FSEIR, the moat and row component of the project was modified. This supplemental analysis focuses on moat and row dust control measure (DCM) design modifications that, if implemented, could result in impacts on air quality. To determine what effects the design modifications would have on air quality, an initial study (IS) was prepared in December 2008 (Appendix A). As described in the IS, no new long-term operational, toxic air contaminant (TAC), or odor impacts would be associated with the modifications to the 2008 FSEIR because implementing the project would not result in changes in the operation of the moat and rows. This section incorporates by reference the air quality analysis previously conducted for the 2008 FSEIR and the 2008 IS and, where necessary, updates the environmental setting and impact analysis. Potential short-term construction-related air quality impacts of the proposed moat and row project are analyzed in this section. Mitigation measures are identified for those impacts determined to be significant. This analysis also updates the regulatory environment associated with global climate change and greenhouse gases (GHGs).

3.2.2 ENVIRONMENTAL SETTING

The project site is located in the Owens Valley, approximately 5 miles south of the community of Lone Pine, California; 46 miles east of Death Valley National Park; and 45 miles north of the community of Inyokern, California.

The Great Basin Unified Air Pollution Control District (GBUAPCD) regulates fugitive dust particulate matter emissions in the Owens Valley Planning Area (OVPA), consistent the national ambient air quality standards (NAAQS), created by the federal Clean Air Act (CAA), and the California ambient air quality standards (CAAQS), created by the California Clean Air Act (CCAA). The dried Owens Lake bed, located in the OVPA, has been the largest single source of emissions of respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less (PM_{10}) in the United States for many years, with historical annual PM_{10} emissions as high as 80,000 tons and 24-hour concentrations as high as 130 times the NAAQS. The fugitive dust emissions at Owens Lake are the result of wind passing over the drying lake bed; the drying lake bed is a result, in part, of LADWP's long-term diversion of water, which would otherwise feed the lake, from the eastern Sierra Nevada to the city of Los Angeles via the Los Angeles Aqueduct.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

As described in the 2008 FSEIR (see Section 3.2.2, "Existing Conditions," starting on page 3.2-9), the OVPA is located in the Great Basin Valley Air Basin (GBVAB) and is bounded by the Inyo Mountains to the east and the Sierra Nevada to the west. Because the historic Owens Lake bed is located in the rain shadow of the Sierra Nevada, annual rainfall is low, and opportunities to reduce dust through natural rainfall are limited. High winds in the OVPA can exceed average speeds of 40 miles per hour (mph). High southerly winds typically result from a storm front approaching Owens Valley, and strong northerly winds result from the passing of the storm. These general wind directions are sometimes complicated by local eddy effects that can cause 180-degree differences in the wind direction from the west to east side of Owens Valley.

Eleven sensitive airsheds exist in the region: John Muir Wilderness; Golden Trout Wilderness; Kings Canyon National Park; Sequoia National Park; Ancient Bristlecone Pine Forest; South Sierra Wilderness; Dome Land Wilderness; Naval Air Weapons Center, China Lake, and Naval Air Weapons Center, China Lake, Mojave Range B; Fort Irwin National Training Center; Edwards Air Force Base; and Death Valley National Park. Four of these airsheds (John Muir and Dome Land Wilderness areas, King Canyon and Sequoia National Parks) are designated as Class I Prevention of Significant Deterioration areas, which are afforded more stringent protection from visibility degradation and impacts from air pollutants.

Visibility in the OVPA generally ranges from 37 to 93 miles, with best visibility during winter. When Owens Lake dust storms occur, typically from September through May, visibility is limited, and these dust storms can reduce visibility to zero near Owens Lake and obscure visibility up to 150 miles away. The primary cause of visibility degradation in the OVPA is fine particulates in the atmosphere. In addition to dust created by Owens Lake dust storms, visibility degradation at Owens Lake results from transport of air pollutants from the San Joaquin Valley Air Basin, located to the west, and the South Coast Air Basin, located to the south. Most of the visibility degradation can be attributed to interbasin transport of air pollutants.

In the GBVAB, local meteorological conditions are recorded at several stations around Owens Lake, in Lone Pine, and in Haiwee, all located in California. The nearest station with long-term annual data is located in Haiwee, just south of Owens Lake. The normal annual precipitation at this station is approximately 7 inches, which occurs primarily from November through March in the form of snowfall. January temperatures range from a normal minimum of 29ºF to a normal maximum of 52ºF. August temperatures range from a normal minimum of 64ºF to a normal maximum of 94ºF (WRCC 2008a). The annual predominant wind direction and mean speed is from the southwest at 8 mph, according to the monitoring conducted at Armitage Field at the China Lake Naval Air Weapons Center (WRCC 2008b, 2008c).

EXISTING AMBIENT AIR QUALITY – CRITERIA AIR POLLUTANTS

Concentrations of the following air pollutants are used as indicators of ambient air quality conditions: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10}, fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. Because these are the most prevalent air pollutants known to be deleterious to human health, and because there is extensive documentation available on health-effects criteria for these pollutants, they are commonly referred to as “criteria air pollutants.”

Ozone

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_X) in the presence of sunlight. ROG emissions are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

A highly reactive molecule, ozone readily combines with many different components of the atmosphere. Consequently, high levels of ozone tend to exist only while high ROG and NO_X levels are present to sustain the ozone formation process. After the precursors have been depleted, ozone levels rapidly decline. Because these reactions occur on a regional scale, ozone is a regional pollutant.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 2004:169, 170).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults. Exposure to ambient levels of ozone ranging from 0.10 part per million (ppm) to 0.40 ppm for 1–2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes (the amount of air inhaled and exhaled), and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to the above adverse health effects, evidence exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increased response of the respiratory system to challenges and a decrease in the immune system's ability to defend against infection (Godish 2004:169, 170).

Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. The GBVAB has experienced a substantial reduction in maximum 8-hour ozone concentrations and is now designated as an attainment area for the NAAQS. However, the GBVAB is still a nonattainment area for the CAAQS for 8-hour ozone and an unclassified area for 1-hour ozone.

Carbon Monoxide

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. In fact, 77% of the nationwide CO emissions are from mobile sources. The other 23% consists of CO emissions from wood-burning stoves, incinerators, and industrial sources.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2009a).

The highest CO concentrations generally are associated with cold, stagnant weather conditions that occur during winter. In contrast to problems caused by ozone, which tends to be a regional pollutant, CO problems tend to be localized.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (EPA 2009a). The combined emissions of NO and NO_2 are referred to as NO_X and reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, such as coughing, difficulty with breathing, vomiting, headache, and eye irritation, during or shortly after exposure. After a period of approximately 4–12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has occasionally been linked with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung function (EPA 2009a).

Sulfur Dioxide

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant; constriction of the bronchioles occurs with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Particulate Matter

PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources; construction operations; fires and natural windblown dust; and particulate matter formed in the atmosphere by condensation or transformation of SO_2 and ROG (EPA 2009a). $PM_{2.5}$ is a subgroup of PM_{10}, consisting of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less.

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons, and other toxic substances adsorbed onto fine particulate matter (referred to as the "piggybacking effect") or with fine dust particles of silica or asbestos. Generally, effects may result from both short-term and long-term exposure to elevated concentrations of PM_{10} and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2009a). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and may contain substances that are particularly harmful to human health. In 1995, the GBVAB was classified as a serious nonattainment area for direct emissions of PM_{10} and $PM_{2.5}$. GBUAPCD adopted the PM_{10} Attainment Plan in 1998 to work toward reducing PM in the GBVAB. The attainment plan is still in effect, and the GBVAB is still classified as a nonattainment area for these pollutants (GBUAPCD 2008).

Lead

Lead is a metal found naturally in the environment and in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phaseout of leaded gasoline (discussed in detail below), metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. Environmental Protection Agency (EPA) set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (EPA 2009a).

As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (95% between 1980 and 1999), and levels of lead in the air decreased by 94% between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13% of lead emissions. A National Health and Nutrition Examination Survey reported a 78% decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (EPA 2009a).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story regarding air quality management. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phaseout began during the 1970s, and subsequent regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment areas for the state lead standard (the national lead standard does not designate areas). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, California identified lead as a TAC.

Monitoring-Station Data and Attainment-Area Designations

Concentrations of criteria air pollutants are measured at several monitoring stations in the GBVAB. The Death Valley Monument, Keeler, and Dirty Socks monitoring stations are the closest to the project site with recent data for ozone, PM_{10}, and $PM_{2.5}$. In general, the ambient air quality measurements from these stations are representative of the air quality in the vicinity of the county. Table 3.2-1 summarizes the air quality data from the most recent 3 years of validated annual data for PM_{10} emissions.

Table 3.2-1
Summary of Annual Ambient Air Quality Data (2006–2008)

	2006	2007	2008
Ozone[a]			
Maximum concentration (1-hour/8-hour average, ppm)	0.092/0.089	0.107/0.095	0.098/0.095
Number of days state standard exceeded (1-hour)	0	3	1
Number of days national 1-hour/8-hour standard exceeded	0/9	0/18	0/5
Fine Particulate Matter ($PM_{2.5}$)[b]			
Maximum concentration (μg/m^3)	193.0	57.0	58.0
Number of days national standard exceeded (measured[c])	0	0	1
Respirable Particulate Matter (PM_{10})			
Maximum concentration (μg/m^3)	6,338.0 [d]	497.0 [d]	781.0 [b]
Number of days state standard exceeded (measured[c])			
Number of days national standard exceeded (measured/estimated[c])	13/14	2/2	9/13

Notes:
μg/m^3 = micrograms per cubic meter, $PM_{2.5}$ = fine particulate matter, PM_{10} = respirable particulate matter, ppm = parts per million.
[a] Measurements from the Death Valley Monument monitoring station.
[b] Measurements from the Keeler monitoring station.
[c] Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.
[d] Measurements from the Dirty Socks monitoring station.
Sources: ARB 2009a, EPA 2009b

Attainment Area Designations

Both the California Air Resources Board (ARB) and EPA use monitoring data to designate areas according to attainment status for criteria air pollutants published by the agencies. The purpose of these designations is to identify areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are "nonattainment," "attainment," and "unclassified." The "unclassified" designation is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called "nonattainment-transitional." The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. The most recent attainment designations with respect to Inyo County are shown in Table 3.2-2 for each criteria air pollutant.

Table 3.2-2
Summary of Ambient Air Quality Standards and Attainment Designations

Pollutant	Averaging Time	California		National[a]		
		Standards[b, c]	Attainment Status (Inyo County)[d]	Primary[c, e]	Secondary[c, f]	Attainment Status (Inyo County)[g]
Ozone	1-hour	0.09 ppm (180 $\mu g/m^3$)	U	–	–	–
	8-hour	0.070 ppm (137 $\mu g/m^3$)	N	0.075 ppm (147 $\mu g/m^3$)	Same as primary standard	U/A
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	–	U/A
	8-hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)		
Nitrogen dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)	–	0.053 ppm (100 $\mu g/m^3$)	Same as primary standard	U/A
	1-hour	0.18 ppm (339 $\mu g/m^3$)	A	–		–
Sulfur dioxide (SO_2)	Annual Arithmetic Mean	–	–	0.030 ppm (80 $\mu g/m^3$)	–	U
	24-hour	0.04 ppm (105 $\mu g/m^3$)	U	0.14 ppm (365 $\mu g/m^3$)	–	
	3-hour	–	–	–	0.5 ppm (1300 $\mu g/m^3$)	
	1-hour	0.25 ppm (655 $\mu g/m^3$)	U	–	–	–
Respirable particulate matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	N	50 $\mu g/m^3$	Same as primary standard	N
	24-hour	50 $\mu g/m^3$		150 $\mu g/m^3$		
Fine particulate matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	U	15 $\mu g/m^3$	Same as primary standard	U/A
	24-hour	–	–	35 $\mu g/m^3$		
Lead[8]	30-day Average	1.5 $\mu g/m^3$	A	–	–	–
	Calendar Quarter	–	–	1.5 $\mu g/m^3$	Same as primary standard	

Table 3.2-2
Summary of Ambient Air Quality Standards and Attainment Designations

Pollutant	Averaging Time	California		National[a]		
		Standards [b, c]	Attainment Status (Inyo County) [d]	Primary [c, e]	Secondary [c, f]	Attainment Status (Inyo County) [g]
Sulfates	24-hour	25 μg/m³	A	No national standards		
Hydrogen sulfide	1-hour	0.03 ppm (42 μg/m³)	A			
Vinyl chloride [h]	24-hour	0.01 ppm (26 μg/m³)	U/A			
Visibility-reducing particle matter	8-hour	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%	U	No national standards		

Notes: μg/m³ = micrograms per cubic meter, mg/m³ = milligrams per cubic meter, ppm = parts per million, – = no standard.

[a] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

[b] California standards for ozone, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[c] Concentration expressed first in units in which it was issued (i.e., ppm or μg/m³). Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; "ppm" in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] Unclassified (U): The data are incomplete and do not support a designation of attainment or nonattainment.
Attainment (A): The state standard for that pollutant was not violated at any site in the area during a 3-year period.
Nonattainment (N): There was at least one violation of a state standard for that pollutant in the area.

[e] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[f] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[g] Nonattainment (N): Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.
Attainment (A): Any area that meets the national primary or secondary ambient air quality standard for the pollutant.
Unclassifiable (U): Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

[h] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Sources: ARB 2009b, 2009c; EPA 2009c

EMISSIONS INVENTORY

Table 3.2-3 summarizes emissions of criteria air pollutants in Inyo County for various source categories. According to Inyo County's (County's) emissions inventory, mobile sources are the largest contributor to the estimated annual average air pollutant levels of ROG, CO, and NO_X, accounting for approximately 64%, 83%, and 86%, respectively, of the total emissions. Areawide sources account for approximately 99% and 97% of the county's PM_{10} and $PM_{2.5}$ emissions, respectively. Stationary sources account for approximately 92% of the county's SO_X emissions.

EXISTING ON-SITE EMISSIONS

Air quality in the project area is in attainment or unclassified for most criteria air pollutants, with the exception of state 8-hour ozone standard, the annual PM_{10} standard violation and violations of the 24-hour PM_{10} NAAQS related to windblown dust from the Owens Lake bed.

Table 3.2-3
Summary of 2006 Estimated Emissions Inventory for Criteria Air Pollutants and Precursors (Inyo County)

Source Type/Category	Estimated Annual Average Emissions (Tons per Day)					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Stationary Sources						
Fuel combustion	0.0	0.0	0.7	0.6	0.0	0.0
Waste disposal	0.0	0.0	0.0	0.0	0.0	0.0
Cleaning and surface coating	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum production and marketing	0.1	0.0	0.0	0.0	0.0	0.0
Industrial processes	0.0	0.0	0.0	0.0	0.7	0.3
Subtotal (stationary sources)	0.1	0.0	0.7	0.6	0.7	0.3
Areawide Sources						
Solvent evaporation	1.4	0.0	0.0	0.0	0.0	0.0
Miscellaneous processes	0.6	4.3	0.1	0.0	119.5	15.7
Subtotal (areawide sources)	2.0	4.3	0.1	0.0	119.5	15.7
Mobile Sources						
On-road motor vehicles	1.4	12.9	4.0	0.0	0.1	0.1
Other mobile sources	2.4	7.9	0.7	0.0	0.1	0.1
Subtotal (mobile sources)	3.8	20.8	4.7	0.0	0.2	0.2
Total for Inyo County	**5.9**	**25.1**	**5.4**	**0.7**	**120.5**[a]	**16.2**

Notes: CO = carbon monoxide, NO_X = oxides of nitrogen, PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter, ROG = reactive organic gases, SO_X = oxides of sulfur.
[a] The 120.5 tons per day average reflects reduced emissions from historical levels related to operation of previous dust control measures.
Source: ARB 2009d

Because of its small size, PM_{10} has the ability to penetrate deeply into the lungs, which can cause a variety of health problems, including an increase in the number and severity of asthma and bronchitis attacks; breathing difficulties in people with heart or lung disease; and an increase in risk for, or complication of, existing respiratory infections. The NAAQS are intended to protect people who are especially sensitive to elevated levels of PM_{10}, including children, the elderly, and people with existing heart and lung problems. Particulate pollution in the form of dust at concentrations higher than the concentration set by the NAAQS can also adversely affect healthy individuals.

Dust transportation studies from the historic Owens Lake bed show that the NAAQS can be exceeded more than 50 miles away and expose many people in addition to Owens Lake area residents to violations of the PM_{10} standard. The dust from Owens Lake at concentrations above the PM_{10} NAAQS annually affects approximately 40,000 permanent residents living between Ridgecrest and Bishop, in addition to visitors who spend time in the dust-affected area enjoying recreational opportunities in the eastern Sierra Nevada and high desert areas. As stated earlier, the dried Owens Lake bed had historic annual PM_{10} emissions of more than 80,000 tons and 24-hour concentrations as high as 130 times the NAAQS. Since implementation of DCMs in 2000, PM_{10} emissions have substantially decreased, and as of 2007, annual emissions from the lake bed were 33,769 tons, and total emissions were 46,729 tons in the OVPA.

Greenhouse Gases

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. The absorbed radiation is then emitted from the earth, not as high-frequency solar radiation but as lower frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency (longer wavelength) radiation. Most solar radiation passes through GHGs; however, infrared radiation is selectively absorbed by GHGs. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), ozone, nitrous oxide, and fluorinated compounds. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming (Ahrens 2003). It is extremely unlikely that global climate change over the past 50 years can be explained without the contribution from human activities (IPCC 2007).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, it is understood that more CO_2 is being emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54% is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within 1 year, whereas the remaining 46% of human-caused CO_2 emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say that the quantity is enormous, and no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature or to global climate, local climate, or microclimate.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, commercial, institutional, and agricultural sectors (CEC 2006). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (CEC 2006). Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) largely associated with agricultural practices and wastewater and solid waste. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through photosynthesis and dissolution, respectively, two of the most common processes of CO_2 sequestration. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions during 2004, accounting for 38% of total GHG emissions in the state (CEC 2006). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (23%) and the industrial sector (20%) (CEC 2006).

3.2.3 REGULATORY SETTING

Air quality at Owens Lake is regulated by EPA, ARB, GBUAPCD, and Inyo County. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent. Applicable regulations associated with criteria air pollutant and GHG emissions are described separately below.

TAC and odor regulations are not included in this discussion because, as described in the IS (Appendix A), no new TAC or odor impacts would occur as a result of implementing the moat and row design modifications. No new sources of TACs or odors would be constructed.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the CAA, which was enacted in 1970. The most recent major amendments were made by Congress in 1990.

The CAA required EPA to establish NAAQS. As shown in Table 3.2-2, EPA has established primary and secondary NAAQS for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The primary standards protect the public health, and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan referred to as a SIP. The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. EPA must review all SIPs to determine whether they conform to the mandates of the CAA and its amendments and to determine whether implementing them will achieve air quality goals. If EPA determines that a SIP is inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. Failure to submit an approvable SIP or to implement the plan within the mandated time frame may cause sanctions to be applied to transportation funding and stationary air pollution sources in the air basin.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Clean Air Act

ARB is responsible for coordinating and providing oversight for state and local air pollution control programs in California and for implementing the CCAA. The CCAA, which was adopted in 1988, required ARB to establish CAAQS (Table 3.2-2). ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases, the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources and provides districts with the authority to regulate indirect sources.

Among ARB's other responsibilities are overseeing local air districts' compliance with California and federal laws; approving local air quality plans; submitting SIPs to EPA; monitoring air quality; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels. There are 15 nonattainment areas for the national ozone standard and two nonattainment areas for the $PM_{2.5}$ standard. The SIP must show how each area will attain the federal standards. To do this, the SIP identifies the amount of pollution emissions that must be reduced in each area to meet the standard and the emission controls needed to reduce the necessary amount of emissions.

ARB and local air districts are developing plans for meeting new national air quality standards for ozone and $PM_{2.5}$. The draft State Strategy for California's 2007 SIP was released in April 2007 and the adopted version transmitted to EPA in November 2007 (ozone subsection) and April 2008 ($PM_{2.5}$ subsection) (ARB 2009e).

California Health and Safety Code, Section 42316

Under California law, the GBUAPCD may require the City of Los Angeles to undertake reasonable mitigation measures to control dust emissions from Owens Lake in accordance with the California Health and Safety Code, Section 42316, which reads as follows:

> (a) The Great Basin Air Pollution Control District may require the City of Los Angeles to undertake reasonable measures, including studies, to mitigate the air quality impacts of its activities in the production, diversion, storage, or conveyance of water and may require the city to pay, on an annual basis, reasonable fees, based on an estimate of the actual costs to the district of its activities associated with the development of the mitigation measures and related air quality analysis with respect to those activities of the city. The mitigation measures shall not affect the right of the city to produce, divert, store, or convey water and, except for studies and monitoring activities, the mitigation measures may only be required or amended on the basis of substantial evidence establishing that water production, diversion, storage, or conveyance by the city causes or contributes to violations of state or federal ambient air quality standards.
>
> (b) The city may appeal any measures or fees imposed by the district to the state board within 30 days of the adoption of the measures or fees. The state board, on at least 30 days' notice, shall conduct an independent hearing on the validity of the measures or reasonableness of the fees which are the subject of the appeal. The decision of the state board shall be in writing and shall be served on both the district and the city. Pending a decision by the state board, the city shall not be required to comply with any measures which have been appealed. Either the district or the city may bring a judicial action to challenge a decision by the state board under this section. The action shall be brought pursuant to Section 1094.5 of the Code of Civil Procedure and shall be filed within 30 days of service of the decision of the state board.
>
> (c) A violation of any measure imposed by the district pursuant to this section is a violation of an order of the district within the meaning of Sections 41513 and 42402.
>
> (d) The district shall have no authority with respect to the water production, diversion, storage, and conveyance activities of the city except as provided in this section. Nothing in this section exempts a geothermal electric generating plant from permit or other district requirements.

Regional and Local Plans, Policies, Regulations, and Ordinances

Great Basin Unified Air Pollution Control District

GBUAPCD attains and maintains air quality conditions for the Owens Valley portion of Inyo County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of GBUAPCD includes preparing plans and programs for the attainment of ambient air quality standards, adopting and enforcing the rules and regulations concerning sources of air pollution, and issuing permits for stationary sources of air pollution. GBUAPCD also inspects stationary sources of air pollution, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, CAAA, and CCAA. Air quality plans applicable to the proposed project are discussed below.

Air Quality Plans

On August 7, 1987, the OVPA was designated by EPA as a nonattainment area for the PM_{10} NAAQS. As a result of the nonattainment status, GBUAPCD was tasked to prepare and implement a SIP that would demonstrate how PM_{10} emissions would be decreased in the OVPA. In accordance with Section 189(b) of the CAAA, an attainment SIP that demonstrates conformance with the NAAQS through the implementation of a program of control measures was required to be submitted to EPA by February 8, 1997. GBUAPCD adopted the original OVPA PM_{10} SIP in November 1998. EPA approved the 1998 SIP in August 1999. The 1998 SIP included a 5-year extension for attainment and for a SIP update in 2003. The 2003 SIP update was required to include the final control strategies necessary to achieve attainment of the NAAQS by December 2006 (GBUAPCD 2008).

In November 2003, the 2003 Revised SIP (2003 SIP) was adopted by GBUAPCD and later approved by ARB. The purpose of the 2003 SIP was to establish a control program for PM_{10} emissions blown from the exposed playa at Owens Lake. The 2003 SIP's deadline to demonstrate attainment with the PM_{10} NAAQS was December 31, 2006. The 2003 SIP proposed 3 years of control measure implementation before December 2006. However, after the adoption of the 2003 SIP, EPA enacted a new policy that changed the interpretation of the attainment demonstration deadline. EPA's new policy on attainment demonstrations now required 3 years of ambient air monitoring before the attainment date (December 31, 2006, for the OVPA) to show that there have been no violations of the NAAQS. Because many of the DCMs were not completed until the end of 2006, numerous NAAQS violations occurred during the 3-year attainment demonstration period. Consequently, EPA did not take action on the approval or disapproval of the 2003 SIP; it is currently enforced by GBUAPCD (GBUAPCD 2008).

By December 31, 2006, LADWP met its deadline and had implemented DCMs on 29.8 square miles of the lake bed, as anticipated in the 2003 SIP. In 2006, a dispute arose between GBUAPCD and LADWP regarding requirements to control dust from additional areas at Owens Lake beyond the 29.8 square miles identified in the 2003 SIP. On December 4, 2006, a settlement agreement was approved by both parties to resolve this dispute. Under the major provisions of this agreement, LADWP agreed to implement DCMs on a total of 43 square miles of the lake bed, including the 29.8 square miles of lake bed identified in the 2003 SIP, by April 1, 2010, and LADWP agreed to revise the 2003 SIP before March 1, 2008, to incorporate the provisions of the settlement agreement. The 2008 SIP was adopted in February 2008, and the resulting implementation program is the project that was approved in the 2008 FSEIR, with the modifications for the 3.5-square-mile-area being evaluated in this analysis (GBUAPCD 2008). In the 2008 SIP, there were provisions for LADWP to include additional moat and row features at LADWP's discretion under the restriction that if LADWP chose to use additional moat and row features, they would need to be implemented by October 1, 2009. All other DCMs, as described in the 2008 FSEIR, do not have this requirement and would need to be implemented by April 1, 2010. Only the additional moat and row features are required to be implemented by October 10, 2009.

Rules and Regulations

All projects are subject to GBUAPCD rules and regulations in effect at the time of construction. The specific GBUAPCD rule applicable to the project is presented below:

- **Rule 401D: Fugitive Dust.** The City of Los Angeles shall implement dust control measures as ordered by the Board of the Great Basin Unified Air Pollution Control Board (Board) [GBUAPCD was formally known as the Great Basin Unified Air Pollution Control Board], on any wind-blown dust source areas on the bed of Owens Lake (elevation less than 3,600 feet above mean sea level) that cause or contribute to monitored exceedances of the State PM_{10} standards at residences within communities zoned for residential use in the latest Inyo County General Plan Land Use Diagrams. Acceptable dust control measures for Owens Lake shall:

  1. Include Best Available Control Measures for Owens Lake as approved by the Board or any other control method that the APCO [Air Pollution Control Officer] deems sufficient to reduce PM_{10} impacts from the lake bed to below the state PM_{10} standards within community boundaries.

  2. Be fully implemented according to a schedule ordered by the Board.

Inyo County 2001 General Plan

The adopted *Inyo County General Plan Safety Element* (Inyo County 2001) includes the following applicable goal and policies:

GOAL AQ-1: Provide good air quality for Inyo County to reduce impacts to human health and the economy.

> **Policy AQ-1.1: Regulations to Reduce PM_{10}.** Support the implementation of the State Implementation Plan and the agreement between Great Basin Unified Air Pollution Control District and the City of Los Angeles Department of Water and Power
>
> **Policy AQ-1.2: Attainment Programs.** Participate in the Great Basin Unified Air Pollution Control District's attainment programs
>
> **Policy AQ-1.3: Dust Suppression During Construction.** Require dust-suppression measures for grading activities

GREENHOUSE GAS EMISSIONS

Federal Greenhouse Gas Programs

The U.S. Supreme Court ruled on April 2, 2007, that CO_2 is an air pollutant as defined under the CAA and that EPA has the authority to regulate emissions of GHGs. However, at the time this draft EIR was prepared, no federal regulations or policies regarding GHG emissions are applicable to the proposed project.

State Greenhouse Gas Programs

Various statewide initiatives to reduce the state's contribution to GHG emissions have raised awareness that global climate change is occurring, even though the various contributors to and consequences of global climate change are not yet fully understood, and that a real potential exists for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493 (Statutes of 2002, Chapter 200) (amending California Health and Safety Code, Section 42823, and adding California Health and Safety Code, Section 43018.5). AB 1493 (also known as the Pavley Bill) requires that ARB develop and adopt, by January 1, 2005, regulations to achieve "the maximum feasible reduction of GHG emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the State."

To meet the requirements of AB 1493, ARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR Section 1900, 1961) and adoption of Section 1961.1 (13 CCR Section 1961.1) require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and any medium-duty vehicle with a gross vehicle weight rating of less than 10,000 pounds that is designed primarily for the transportation of persons, beginning with the 2009 model year. Emissions limits are reduced further in each model year through 2016. When fully phased in, the near-term (2009–2012) standards will result in a reduction of approximately 22% in GHG emissions compared to the emissions from the 2002 fleet, and the midterm (2013–2016) standards will result in a reduction of approximately 30%.

In December 2004, a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of 13 CCR Sections 1900 and 1961 as amended by AB 1493 and 13 CCR 1961.1 (*Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in Her Official Capacity as Executive Director of the California Air Resources Board, et al.* [2006] 1:04-CV-06663-AWI-LJO). The suit in the U.S. District Court for the Eastern District of California contended that California's implementation of regulations that, in effect, regulate vehicle fuel economy violates various federal laws, regulations, and policies.

In January 2007, the judge hearing the case accepted a request from the State Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court case, *Massachusetts, et al. v. Environmental Protection Agency, et al.* (2007) (549 U.S. 497), the primary issue in question was whether the CAA provides authority for EPA to regulate CO_2 emissions. EPA contended that the CAA does not authorize regulation of CO_2 emissions, whereas Massachusetts and 10 other states, including California, sued EPA to begin regulating CO_2. As mentioned above, the U.S. Supreme Court ruled on April 2, 2007, that GHGs are "air pollutants" as defined under the CAA, and EPA was granted authority to regulate CO_2 (*Massachusetts v. U.S. Environmental Protection Agency* [2007] 549 U.S. 05-1120).

On December 12, 2007, the court found that if California receives appropriate authorization from EPA (the last remaining factor in enforcing the standard), these regulations would be consistent with and have the force of federal law, thus, rejecting the automakers' claim. This authorization to implement more stringent standards in California was requested in the form of a CAA Section 209, Subsection (b) waiver in 2005. Since that time, EPA failed to act on granting California authorization to implement the standards. Governor Arnold Schwarzenegger and Attorney General Edmund G. Brown filed suit against EPA for the delay. In December 2007, Stephen Johnson, the EPA administrator, denied California's request for the waiver to implement AB 1493. Johnson cited the need for a national approach to reducing GHG emissions, the lack of a "need to meet compelling and extraordinary conditions," and the benefits to be achieved through the Energy Independence and Security Act of 2007 as support for his denial (EPA 2007). The State of California has filed suit against EPA for its decision to deny the CAA waiver.

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the snowpack on the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To address those concerns, the executive order established total GHG emission targets. Specifically, emissions must be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050.

The executive order directed the secretary of the California Environmental Protection Agency (Cal/EPA) to coordinate a multiagency effort to reduce GHG emissions to the target levels. The secretary also will submit biannual reports to the governor and California Legislature that describe the progress made toward reaching the emission targets, impacts of global warming on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of the Cal/EPA created the California Climate Action Team, made up of members from various state agencies and commissions. The California Climate Action Team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local government, and communities and through state incentive and regulatory programs.

Assembly Bill 32, California Global Warming Solutions Act of 2006

In September 2006, Governor Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006 (Statutes of 2006, Chapter 488, enacting California Health and Safety Code, Sections 38500–38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. It requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Senate Bill 97

Senate Bill (SB) 97, signed August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA (Statutes of 2007, Chapter 185, enacting Public Resources Code, Sections 21083.05 and 21097). This bill directs the Governor's Office of Planning and Research to prepare, develop, and transmit to the California Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The California Resources Agency is required to certify and adopt those guidelines by January 1, 2010. This bill also removes, both retroactively and prospectively, the legitimacy of litigation for inadequate CEQA analysis of effects of GHG emissions associated with environmental review for projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006 or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1B or 1E). This provision will be repealed by operation of law on January 1, 2010, at which time such projects, if any remain unapproved, will no longer be protected against litigation claims from failure to adequately address climate change issues. In the future, this bill will protect only a few public agencies from CEQA challenges on certain types of projects for a few years' time. As of the preparation of this draft SEIR, a preliminary draft of the proposed GHG guidelines has been issued by the Governor's Office of Planning and Research. They are not discussed here because their preliminary nature makes them subject to substantial change, and they have no current legal status.

Although other legislation related to GHGs (e.g., SB 1078, SB 1368) has been passed by the California Legislature, it is not specifically applicable to this project and thus is not discussed here.

AB 32 Scoping Plan

In December 2008, ARB adopted the *AB 32 Scoping Plan* (Scoping Plan), which is the plan to achieve the GHG reductions in California required by AB 32. The Scoping Plan contains the main strategies that California will implement to reduce 169 million metric tons of CO_2 equivalent (MMT CO_2e), or approximately 30%, from the state's projected 2020 emission level of 596 MMT CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10%, from 2002–2004 average emissions). The Scoping Plan also breaks down the amount of GHG reductions that ARB recommends for each emissions sector of the state's GHG inventory. The largest GHG recommended reductions are from a low-carbon fuel standard (15 MMT CO_2e), a renewable portfolio standard for electricity production (21.3 MMT CO_2e), energy-efficiency measures in buildings and appliances (26.3 MMT CO_2e), and improved vehicle emission standards (estimated reductions of 31.7 MMT CO_2e). ARB also recommends the use of local government actions and regional GHG targets to reduce CO_2e; however, the exact amount of the reductions is still undetermined. The Scoping Plan acknowledges that land use changes will play an important role in reducing emissions in the transportation, energy, water and wastewater, solid waste, and recycling sectors. The ultimate assignments to local governments to achieve GHG reductions will become known as ARB finalizes its scoping plan. Also noteworthy is the fact that the Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity.

In addition to the Scoping Plan, ARB has also released the Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under CEQA. The proposal identifies interim performance standards for project types and emissions sources, including construction, energy, water use, waste, transportation, and total mass GHG emissions (ARB 2008). Specific thresholds and performance criteria for these categories have yet to be developed.

3.2.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

The method of analysis for project-generated, short-term construction-related emissions is consistent with recommendations of GBUAPCD. This impact analysis includes a discussion and analysis of the changes in pollutant emissions between the 2008 FSEIR and this draft SEIR. In accordance with GBUAPCD's approach to CEQA analyses, the determination of significance is based on the consideration of the control measures to be implemented.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following significance criteria, as identified by Appendix G of the State CEQA Guidelines and GBUAPCD have been used to determine whether implementation of the proposed project would result in significant air quality impacts. These thresholds are the same as those used in the 2008 FSEIR. Based on Appendix G of the State CEQA Guidelines, an air quality impact is considered significant if implementation of the proposed project under consideration would result in any of the following:

- conflict with or obstruct implementation of the applicable air quality plan,
- violate any air quality standard or contribute substantially to an existing or projected air quality violation,

- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable NAAQS or CAAQS (including releasing emissions that exceed quantitative thresholds for ozone precursors),

- expose sensitive receptors to substantial pollutant concentrations, or

- create objectionable odors affecting a substantial number or people.

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the above determinations. At this time, GBUAPCD has not identified any specific thresholds for criteria air pollutants, but it does require that fugitive dust controls be implemented for every project. In addition, under the 2008 SIP, any project that would violate the PM_{10} NAAQS would have a significant impact. Therefore, for the purposes of this analysis an impact would be considered significant if:

- required fugitive dust control measures are not incorporated into the project or
- emissions resulting from project construction would exceed the NAAQS standard for PM_{10}.

With respect to GHG emissions, no air district or other regulatory agency in California, including GBUAPCD, has adopted a threshold of significance or a methodology for analyzing impacts related to GHG emissions or global climate change. By adoption of AB 32 and SB 97, however, the State of California has established GHG reduction targets and has determined that GHG emissions as they relate to global climate change are a source of adverse environmental impacts in California that should be addressed under CEQA (see descriptions of AB 32 and SB 97, provided above). Although AB 32 did not amend CEQA, the legislation does include language identifying the various environmental problems in California caused by global warming (California Health and Safety Code, Section 38501[a]). SB 97, in contrast, did amend CEQA to require the Governor's Office of Planning and Research to prepare revisions to the State CEQA Guidelines that address the mitigation of GHGs or their consequences. By protecting only certain projects against CEQA claims of unassessed climate change impacts in the environmental documents used to approve them, the California Legislature implied that the environmental review for other projects would have to address the issue of global warming when project or cumulative impacts are potentially significant. For the purposes of this SEIR, the proper context for addressing climate change is the discussion of cumulative impacts because although the emissions of a single project would not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change.

To meet GHG emission targets of AB 32, in the future, California would need to generate fewer GHG emissions compared with current levels. It is recognized, however, that for most projects, no simple metric is available to determine whether a single project would substantially increase or decrease overall GHG emission levels or conflict with the goals of AB 32.

Although the text of AB 32 focuses on major stationary and area sources of GHG emissions, the primary objective of AB 32 is to reduce California's contribution to global warming by reducing California's total annual production of GHG emissions. The impact that GHG emissions have on global climate change is not dependent on whether they were generated by stationary, mobile, or area sources or whether they were generated in one region or another. Thus, the consistency with the state's requirements for GHG emissions reductions is the best metric for determining whether the proposed project would contribute to global warming. In the case of the proposed project, if the project does not conform with the state mandate to reduce GHG emissions to 1990 levels by 2020 and the associated increase in the amount of mass emissions is considered to be substantial, then the impact of the project would be cumulatively considerable (significant). Because the nature of global climate change impacts of GHG emissions are cumulative, this impact is discussed further in the cumulative impacts section below.

Issues Not Discussed Further

As discussed in the IS (see Appendix A), the sensitive receptors closest to moat and row dust control areas (DCAs) are located in the community of Cartago, approximately one-half mile west of cell T1A-1, the southernmost DCA. Construction activities associated with DCMs are not anticipated to expose sensitive receptors residing in Cartago to pollutant concentrations substantially different from those evaluated in the 2008 FSEIR. Although the design of the moat and rows has been changed from that evaluated in the 2008 FSEIR, construction activities would be nearly identical to those previously evaluated in that the activities would occur in the same areas, would involve the same amount of construction equipment and personnel, would occur over the same number of months, and would involve the same activities (e.g., grading, clearing, trenching, earthmoving). Therefore, this issue was appropriately evaluated in the 2008 FSEIR and is not discussed further.

As discussed in the IS (see Appendix A), the sensitive receptors closest to DCAs are located approximately one-half mile west of cell T1A-1, the southernmost DCA. Construction activities associated with DCMs are not anticipated to expose sensitive receptors residing in Cartago to odors substantially different from those evaluated in the 2008 FSEIR. Specifically, operations and maintenance activities associated with the project would involve the same activity types, levels, and locations. Therefore, this issue was appropriately evaluated in the 2008 FSEIR and is not discussed further.

Project Impacts

IMPACT 3.2-1 **Project-Generated Emissions of Criteria Air Pollutants and Precursors.** *Implementing the proposed project would not result in the generation of short-term construction emissions beyond the level analyzed in the 2008 FSEIR, because the proposed modifications would not require additional daily land disturbance, heavy-duty equipment use, or construction personnel beyond the levels previously evaluated. However, construction of the proposed project (moat and row elements) would cause the delay of implementation of moat and row DCMs, a relatively small part of the overall DCM program, beyond the time frame specified in the 2008 SIP. Thus, implementation of the proposed project, as proposed, would technically conflict with the applicable air quality plan, resulting in a slight potential for an increase in the number of days when violations of the NAAQS and exposure of sensitive receptors would occur. This impact would be considered* ***significant.***

As discussed in the 2008 FSEIR, short- term emissions of criteria air pollutants (e.g., PM_{10}) and precursors (e.g., ROG, NO_X) would occur as a result of project- related construction activities. These emissions were modeled for the 2008 FSEIR using ARB- and GBUAPCD-approved OFFROAD2007, EMFAC2007, and URBEMIS 2007 models. Changes made to the project since the certification of the 2008 FSEIR include delaying project construction 6 months, creating a new completion date of April 1, 2010, for moat and row implementation; changing the configuration of the moat and rows to a gridded pattern instead of the previously proposed curved pattern; and, as a result of the proposed grid pattern, locating the moat and row features possibly as close as 100 feet apart in some areas rather than 250 feet apart, as evaluated in the 2008 FSEIR.

Because the overall size and location of ground disturbance, construction duration and phasing, and required heavy-duty construction equipment and number of construction personnel would fall within the ranges identified in the 2008 FSEIR, construction of the proposed project would be anticipated to result in the same amount of emissions calculated for the 3.5 square miles of moat and row features presented Chapter 3.2, “Air Quality,” in the 2008 FSEIR. As discussed in the 2008 FSEIR, GBUAPCD requires that all feasible control measures, dependent on the size of the construction area and the nature of the activities involved, shall be incorporated into project design and implemented during project construction. As a result, these measures are incorporated into the project as Mitigation Measures Air-1 through Air-6 (see pages 3.2-25 and 3.2-26 of the 2008 FSEIR). However, because DCM operations would be delayed by the new construction schedule beyond the date specified in the 2008 SIP, daily PM_{10} emissions would likely continue to violate the PM_{10} NAAQS for an additional 6 months. The 2008 SIP requires that all moat and row features be implemented by October 1, 2009. Currently, the moat and row features are proposed to be completed by April 1, 2010. The 2008 FSEIR evaluated the implementation of the moat and row DCMs in addition to shallow flooding, managed vegetation, and rock armoring DCMs. The moat and row DCMs would make up 3.5 square miles of the total 15.1 square miles of DCMs that would be implemented under the 2008 SIP. Although the moat and row DCMs would need to be implemented by October 1, 2009, the other DCMs would need to be implemented by April 1, 2010, as identified in the 2008 SIP. LADWP has constructed or is currently constructing other DCMs (e.g., shallow flooding, managed vegetation) to meet the April 1, 2010, deadline. Therefore, although implementation of the moat and row DCMs would be delayed, LADWP has and would continue to make substantial progress toward reducing dust emissions from the lake bed before and during the 6-month period over which implementation of the moat and row elements has been extended.

Although the operational delay caused by the revised construction schedule would result in a conflict with an existing adopted air quality planning effort (i.e., the 2008 SIP) and could potentially lead to more days when violations of the NAAQS and exposure of sensitive receptors to substantial pollutant concentrations would occur, two important considerations must be recognized: (1) because most of the DCMs would be in place (the project delays implementation of only 3.5 square miles of the total 48-square-mile DCM project included in the 2008 FSEIR, PM_{10} emissions would be less than the current baseline, and (2) emissions would continue to decrease over the 6-month construction period as moat and row DCMs are constructed and completed. However, some parts of the project site would continue to create unabated dust emissions over some or all of the additional 6 months, until the DCMs are completed. Because the affected area is confined to 3.5 square miles, it is unknown whether the delay in implementation of the moat and row elements would lead to an increase in the number of days when violation of the NAAQS and additional exposure of sensitive receptors to substantial pollutant concentrations above NAAQS standards would occur.

Because the moat and rows would not be operational in the timeframe required by the 2008 SIP, the project would technically conflict with implementation of the applicable air quality plan. It could contribute to the potential for additional violations of the NAAQS and exposure of sensitive receptors to substantial pollutant concentrations. Therefore, this impact is considered significant.

Mitigation Measure(s) for Impact 3.2-1

The technical conflict with the 2008 SIP (i.e., delay in implementation of 3.5 square miles of DCMs by 6 months) is caused by the need for project changes to address wildlife impact concerns. LADWP is committed to implement all the proposed DCMs, if approved, as quickly as feasible. No other measures are reasonably available to reduce the potential impacts resulting from this conflict.

Significance after Mitigation

All requirements from GBUAPCD for the permit to construct would be met, and project emissions would be reduced to levels acceptable by GBUAPCD with implementation of Mitigation Measures Air-1through Air-6 of the 2008 FSEIR. Mitigation Measures Air-1 through Air-6 include construction-related fugitive reduction techniques, such as watering loose soils and using windbreaks; requiring tune-ups to ensure that the equipment is operating at the highest efficiency possible; using low-emission equipment to ensure that the lowest emitting pieces of equipment are used at all feasible times; using low-sulfur fuel in all capable engines; and using low-emission mobile vehicles to ensure that the lower emission vehicles are used by LADWP during project construction and operation. With implementation of these adopted mitigation measures from the 2008 FSEIR, all feasible emission-reduction methods would be implemented by LADWP, and the lowest possible amount of emissions related to the project would be generated. However, at this time, there is no feasible way to complete implementation of the moat and row features by October 1, 2009. LADWP has shortened the time to implement moat and row DCMs and other DCMs evaluated in the 2008 FSEIR to the greatest extent feasible (i.e., 1 year or less). There are no other measures or actions LADWP can take to implement the moat and row DCMs on a faster timetable. Therefore, implementation of the proposed project would continue to conflict with the applicable air quality plan, resulting in an increased number of days when violations of the NAAQS and the subsequent exposure of sensitive receptors would occur. This impact would be significant and unavoidable.

CUMULATIVE AIR QUALITY IMPACTS

This section analyzes the potential cumulative effects of the proposed project on air pollutant emissions, when considered together with other past, present, and reasonably foreseeable future projects producing related impacts (i.e., related projects). Eight related projects were identified in the vicinity of the proposed project (see Section 3.0, "Environmental Setting, Thresholds of Significance, Project and Cumulative Impacts, and Mitigation Measures") and were evaluated in combination with the proposed project to determine whether any potential impacts of the proposed project contributed considerably to a cumulatively significant impact.

Implementing the proposed project would result in potentially significant direct and indirect impacts on fugitive dust emissions related to the implementation timing of the proposed moat and row features and less-than-significant impacts on short-term construction related criteria air pollutant emissions, as discussed in Section 3.2.4, "Impacts and Mitigation Measures." Project implementation could result in the following potentially significant impacts on an existing violation of NAAQS: (1) conflict with an existing adopted air quality planning effort (the 2008 SIP for PM_{10} in the OVPA), (2) contribute to a violation of NAAQS (an additional 6 months of fugitive dust events from the Owens Lake bed), and (3) continuing exposure of receptors to substantial pollutant concentrations (an additional 6 months of receptor exposure to fugitive dust events from the Owens Lake bed). As described above, no feasible mitigation measures are available to reduce these impacts to a less-than-significant level.

Project-Generated Emissions of Criteria Air Pollutants and Precursors

As described in the discussion of Impact 3.2-1, the overall size and location of ground disturbance, construction duration and phasing, and heavy-duty construction equipment and number of construction personnel required for construction of the proposed project would remain the same as specified in the 2008 FSEIR, for which emissions were calculated and mitigation recommended. However, because DCM operations would be delayed by the new construction schedule beyond the date specified in the 2008 SIP, implementation of the proposed project would result in a significant project-level impact related to the conflict that would be created with the applicable air quality plan, and the project could contribute to the continued potential violation of the NAAQS and the subsequent exposure of sensitive receptors to substantial pollutant concentrations. Thus, emissions attributable to project implementation, along with emissions from other reasonably foreseeable future projects in the OVPA, would continue to contribute to increases in emissions, which would exacerbate existing and projected nonattainment conditions. As a result, project-generated emissions would result in a cumulatively considerable net increase to this significant cumulative impact (e.g., region is a nonattainment area under the applicable ambient air quality standards). No feasible mitigation is available to reduce this impact to a less-than-significant level, so the project's incremental contribution would be cumulatively significant and unavoidable.

Project-Generated Greenhouse Gas Emissions

As stated in the 2008 FSEIR, construction activities associated with construction of the proposed project would occur over a 12-month period (2009–2010). During that time, a net increase in GHG emissions would result from various construction activities. As stated in the discussion of Impact 3.2-1, construction activities would not change as a result of schedule variability; because there would be no net change, emissions from the redesign attributable to this project would be included in the 2008 FSEIR CO_2 emissions modeling.

Therefore, this analysis incorporates by reference the discussion, quantification, and determination of the 2008 FSEIR's GHG analysis presented in Chapter 3.2, "Air Quality," on pages 3.2-20, -21, and -24. It was determined, that the GHG emissions contributable to project would be reduced by Mitigation Measures Air-3 through Air-6, but that the emission reduction amount attributable to the mitigation measures is not known at this time, nor is the amount of CO_2 that would be significant contributor to the cumulative condition. Thus, the 2008 FSEIR concluded that the project's contribution to GHG levels would be a significant unavoidable contribution to the cumulative condition.

As stated above, there would be no net change in GHG emissions as a result of the moat and row design changes resulting from this project. Thus, the actual amount of GHG emissions related to this project would be zero. As a result, the moat and row project would not contribute a significant amount of GHG to the cumulative condition beyond what was previously analyzed in the 2008 FSEIR. Therefore, the project's contribution to cumulative GHG emissions would be less than significant.

However, the GHG emissions quantified in 2008 FSEIR would continue and would contribute a significant amount to the cumulative condition. As a result, this impact would be the same as described in the 2008 FSEIR: cumulatively significant and unavoidable.

3.3 VISUAL RESOURCES

3.3.1 INTRODUCTION

This section addresses potential impacts of the proposed project on visual resources, which are the natural and human-built features of the landscape that can be seen and that contribute to an attractive landscape appearance and the public's enjoyment of the environment. Visual resources are defined generally in terms of positive elements of the project site's physical characteristics; potential visibility; and the extent to which the proposed project's presence would change the perceived visual character and aesthetic quality of the environment.

3.3.2 ENVIRONMENTAL SETTING

The following description of existing conditions at the project site (i.e., the seven moat and row dust control areas [DCAs]) includes the surrounding land and addresses visual character and quality, light and glare, and views of the DCAs. The exhibits herein provide representative photographs of views for potentially sensitive groups (i.e., travelers along nearby roadways) taken during a site visit in December 2008 (see the "Methodology" section below). The locations where these photographs were taken are shown in Exhibit 3.3-1. Three sets of panoramic photographs show viewpoints from U.S. Highway (U.S.) 395, which extends in a north-south direction adjacent to the west side of Owens Lake (Exhibits 3.3-2a through 3.3-4b). A fourth set of panoramic photographs shows a viewpoint from State Route (SR) 190, which extends in a southwest-northeast direction adjacent to the southeast side of the Owens Lake (Exhibits 3.3-5a and 3.3-5b). These roadways provide the most common views for the greatest number of people who would see the project site.

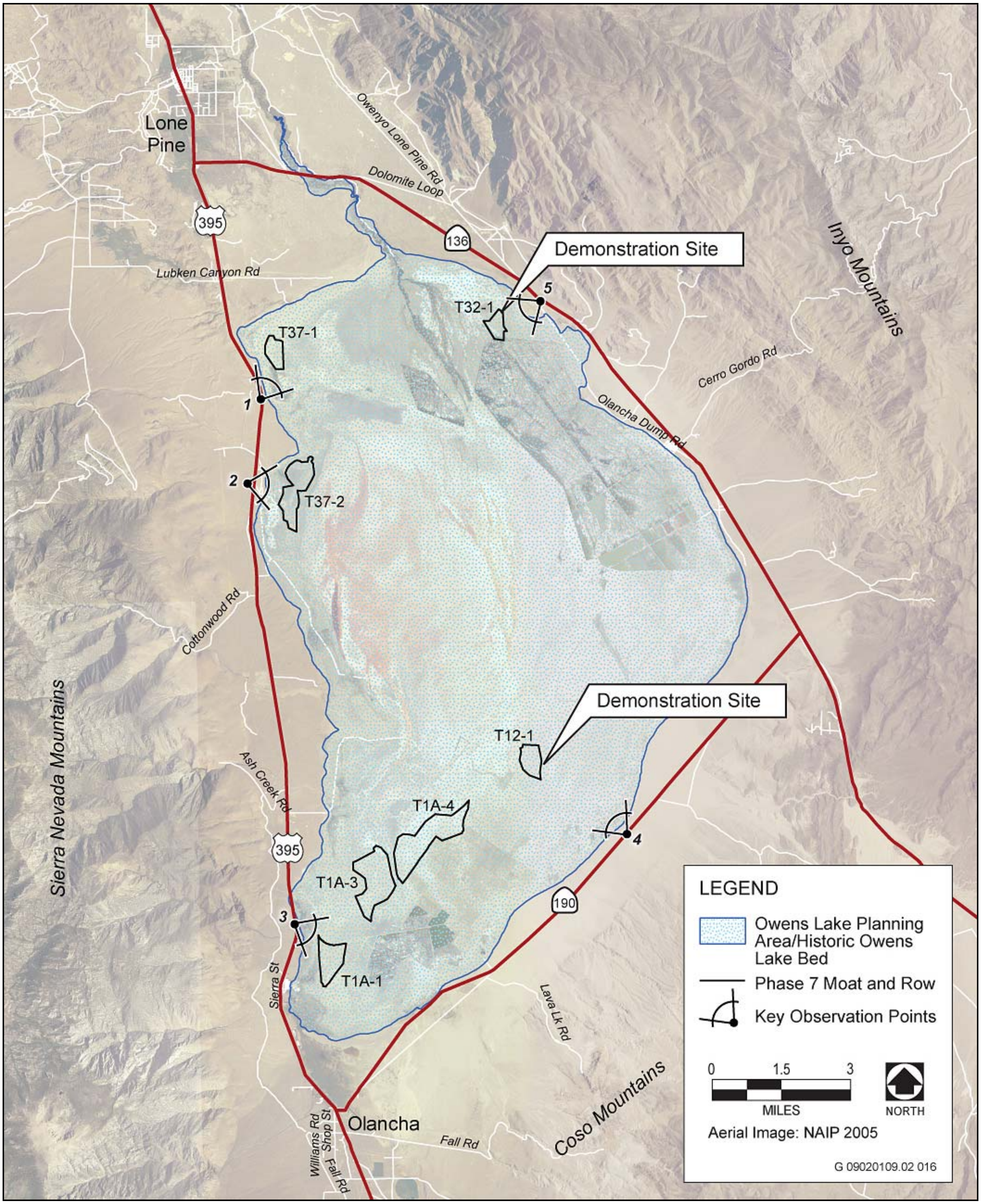
VISUAL CHARACTER AND QUALITY OF THE REGION

The project site is located in the historic Owens Lake bed, which itself is located in the central-western portion of Inyo County. The area surrounding Owens Lake is characterized by relatively flat desert in a valley floor (i.e., the Owens Valley) extending in a north-south direction. The valley floor is straddled by the eastern Sierra Nevada to the west and the Inyo Mountains to the east, and the Coso Range rises to the south. Owens Lake, including the project site, is centrally located in the valley floor and extends to the foot of the Sierra Nevada, the Inyo Mountains, and the Coso Range. The valley floor is interspersed with small, rural communities (e.g., Cartago, Olancha, Keeler) surrounded by dry, desert environment with minimal vegetation. At the outer edges of the valley floor, the eastern Sierra Nevada and Inyo Mountains create a panoramic background. The eastern Sierra Nevada particularly stands out from the other mountains within view from the DCAs, from a panoramic standpoint, because of their significantly higher appearance, greater steepness, and granite rock formations. Lands in the historic Owens Lake bed are characterized by pockets of desert vegetation among barren, desert sand.

VISUAL CHARACTER AND QUALITY SURROUNDING THE PROJECT SITE

The visual character of the area immediately surrounding Owens Lake includes rural residential and open space land uses. Overall, the visual quality is considered high, with sweeping panoramas of a broad, multi-hued desert landscape, bracketed between steep, rugged, dramatic mountains. The viewshed provides an overall natural feel, interspersed with occasional built features such as roads, power lines, and rural residences. The features in the viewshed of the site and vicinity are described below.

- *North:* SR 136 extends in a southeast-northwest direction and creates the northern boundary of Owens Lake. A dry, desert landscape dominates foreground and middle-ground views of open spaces expanding northward into the horizon. A recreational vehicle park is visible at the intersection of U.S. 395 and Lubken Canyon Road, approximately 1 mile north of Owens Lake. Further to the north, the community of Lone Pine is located along U.S. 395, approximately 4 miles north of Owens Lake. However, Lone Pine is not visible from Owens Lake because of intervening terrain. Distant background views to the north are dominated by the eastern Sierra Nevada and Inyo mountain ranges that straddle the valley floor. The mountains provide a dramatic punctuation to the overall viewshed.



Source: Prepared by EDAW in 2008

Representative Viewpoint Locations **Exhibit 3.3-1**

View from SR 395 to the North-Northeast Towards Cell T37-1 – Existing Conditions

View from SR 395 to the North-Northeast Towards Cell T37-1 – Simulated Conditions

G 09020109.02 015

Source: Photograph taken by EDAW in 2008

Panoramic Photographs from U.S. 395 at Viewpoint 1 **Exhibit 3.3-2 a and b**

View from SR 395 to the East Towards Cell T37-2 – Existing Conditions

View from SR 395 to the East Towards Cell T37-2 – Simulated Conditions

G 09020109.02 014

Source: Photograph taken by EDAW in 2008

Panoramic Photographs from U.S. 395 at Viewpoint 2

Exhibit 3.3-3 a and b

View from SR 395 to the Southeast Towards Cell T1A-1 – Existing Conditions

View from SR 395 to the Southeast Towards Cell T1A-1 – Simulated Conditions

G 09020109.02 013

Source: Photograph taken by EDAW in 2008

Panoramic Photographs from U.S. 395 at Viewpoint 3

Exhibit 3.3-4 a and b

View from Highway 190 to the Northwest Towards Cell T12-1 – Existing Conditions

View from Highway 190 to the Northwest Towards Cell T12-1 – Simulated Conditions

G 09020109.02 012

Source: Photograph taken by EDAW in 2008

Panoramic Photographs from SR 190 at Viewpoint 4

Exhibit 3.3-5 a and b

View from SR 136 to the West Towards Cell T32-1 – Existing Conditions

G 09020109.02 017

Source: Photograph taken by EDAW in 2008

Panoramic Photograph from SR 136 at Viewpoint 5 **Exhibit 3.3-6**

- *East:* SR 136, which extends in a southeast-northwest direction, and SR 190, which extends in a northeast-southwest direction, converge to create the eastern boundary of Owens Lake. A dry, desert landscape dominates foreground and middle-ground views of open spaces expanding eastward toward the foot of the Inyo Mountains. The Inyo Mountains jut up from the valley floor. Facilities and structures associated with a mining operation at Keefer located along SR 136 are visible in the middle-ground. The Inyo Mountains dominate the background views to the east.

- *South:* SR 190 extends in a northeast-southwest direction and creates the southern boundary of Owens Lake. A dry, desert landscape dominates foreground and middle-ground views of open spaces expanding southward toward the foot of the Coso Range and into the horizon. Facilities and structures associated with LADWP operations are visible along SR 190 in the middle-ground. In addition, the community of Olancha is located at the intersection of U.S. 395 and SR 190, approximately 1 mile south of Owens Lake. Distant background views to the south are dominated by the eastern Sierra Nevada and Coso Range that straddle the valley floor.

- *West:* U.S. 395 extends in a north-south direction and creates the western boundary of Owens Lake. A dry, desert landscape dominates foreground and middle-ground views of open spaces expanding westward toward the foot of the Sierra Nevada. The Sierra Nevada dominates the background views to the west.

VISUAL CHARACTER AND QUALITY OF THE PROJECT SITE

The dry, desert character of the historic Owens Lake bed, combined with further expanses of desert landscape immediately surrounding Owens Lake, creates a relatively unique and dramatic visual landscape. The lake bed primarily consists of dry, desert grayish to light brown sand with pockets of dry vegetation primarily located along the western, outer edge of the lake bed. Views of the lake bed from publicly accessible areas transition from a rough to smooth texture looking toward the center of the lake bed. Areas of the lake bed have a glassy appearance where standing water is present. There are no major landform features or rock outcroppings in the lake bed. Because of the relatively homogenous landscape of Owens Lake and the similar landscape features surrounding the lake, the lake bed itself is not easily distinguishable from the surrounding landscape, especially when in the background.

Views from the following areas represent the primary views for motorists (i.e., sensitive viewer groups) near the project site.

Views of Owens Lake from U.S. 395

U.S. 395 is the primary north-south motor vehicle route through the Owens Valley and eastern Sierra Nevada. As shown in Exhibits 3.3-2a through 3.3-4b, motorists traveling northbound and southbound on U.S. 395 generally have unimpeded views of the open lake bed. Desert landscape and dry vegetation can be seen in the foreground and the Inyo Mountains can be seen in the distant background, while the historic Owens Lake bed dominates middle-ground views.

Views of Owens Lake from SR 190

SR 190 is the primary northeast-southwest route used to access Death Valley National Park from U.S. 395. Exhibit 3.3-5a shows a typical view of the project site from SR 190. As shown in Exhibit 3.3-5a, motorists traveling to the northeast or southwest have unimpeded views of the open lake bed. Desert landscape and dry vegetation can be seen in the foreground and the historic Owens Lake bed dominates the middle-ground, while the Sierra Nevada creates a panoramic view in the distant background.

Views of Owens Lake from SR 136

SR 136 is an alternative northwest-southeast route, via SR 190, used to access Death Valley National Park in the south and U.S. 395 in the north. As shown in Exhibit 3.3-6, motorists traveling to the northwest or southeast have mostly unimpeded views of the lake bed. Some areas along this highway have obstructed views, where the elevation of roadway changes in relation to the lake bed and the presence of rock formations. Similar to views from SR 190, desert landscape and dry vegetation dominate the foreground and lake bed can be seen in the middle-ground while the Sierra Nevada creates a panoramic view in the distant background.

LIGHT AND GLARE

The terms "glare" and "skyglow" are used throughout this analysis to describe the visual effects of lighting. For the purposes of this impact analysis, *glare* is considered to be direct exposure to bright lights or reflection off metal objects, and *skyglow* is a glow that extends beyond the light source and can dominate or partially dominate views above the horizon.

Light and Glare of the Surrounding Area

The historic Owens Lake bed, including the project site, contains no light sources. In areas on or near Owens Lake the, nighttime lighting sources are associated with a mining operation at Keefer (east side of project area along SR 136) and LADWP facilities (southern area of the lake bed along SR 190). Lights used at these facilities illuminate the immediate work areas and do not spill to areas outside the facilities. In the distant horizon, lights and skyglow are visible in the community of Olancha to the south. Although lights in the community of Lone Pine cannot be seen from Owens Lake, skyglow created by lights in Lone Pine can be seen to the north of Owens Lake. Other than these light sources, nighttime lighting surrounding Owens Lake is minimal, thereby creating a dark sky with stars easily visible.

VISUAL RESOURCE MANAGEMENT PROGRAM

The Visual Resource Management Program (VRMP), created by the Bureau of Land Management (BLM), is an analytical process for determining visual values. Views of Owens Lake were analyzed in terms of scenic quality, distance zones, management class, and contrast rating (see descriptions below) based on VRMP guidelines.

Scenic Quality

Scenic quality is a measure of the visual appeal of a tract of land. As part of the visual resource inventory process, the scenic quality is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. In rating these elements for Owens Lake, one of three BLM standardized descriptions were selected and this description corresponds to a numerical score. The numerical scores were then totaled to produce an overall scenic quality score that ranges from 0 to 33 points. Class A (19 to 33 points) is the highest rating and is defined as an area that combines the most outstanding characteristics of each rating factor. Class B (12 to 18 points) denotes a combination of outstanding features and some that are fairly common to the physiographic region. Class C (0 to 11 points) is defined as an area consisting of features that are fairly common to the physiographic region.

A breakdown of the rating criteria and the score resulting from their application to Owens Lake as viewed from five key observation points (see Exhibit 3.3-1) is shown in Table 3.3-1 below. As described therein, the average scenic quality score of 12 points places the views of Owens Lake into the Class B category. As shown, the project site's most aesthetically desirable qualities include colors, adjacent scenery, and minimal cultural modifications.

Table 3.3-1 Project Site Scenic Quality Evaluation							
Scenic Element	Available Scores	Applicable Rating Criterion	Score for Viewpoint 1	Score for Viewpoint 2	Score for Viewpoint 3	Score for Viewpoint 4	Score for Viewpoint 5
Landform	1,3,5	Low rolling hills, foothills, or flat valley bottoms; or few or no interesting landscape features	1	1	1	1	1
Vegetation	1,3,5	Little or no variety or contrast in vegetation	1	1	1	1	1
Water	0,3,5	Absent, or present, but not noticeable	0	0	0	0	0
Color	1,3,5	Some intensity or variety in colors and contrast of the soil, rock and vegetation, but not a dominant scenic element	3	3	3	3	3
Adjacent Scenery	0,3,5	Adjacent scenery moderately enhances overall visual quality (Rating 3) Adjacent scenery greatly enhances visual quality (Rating 5)	3	3	3	5	5
Scarcity	1,3,5+	Distinctive, though somewhat similar to others within the region	3	3	3	3	3
Cultural Modification	-4,0,2	Modifications add little or no visual variety to the area, and introduce no discordant elements	0	0	0	0	0
		Total Score	**11**	**11**	**11**	**13**	**13**
						Average Score	**12**
Source: Evaluated by EDAW in 2009							

Distance Zones

The visual quality of an area can be influenced by the visibility afforded to it from prominent viewing areas. A landscape can be categorized into three basic distance zones including foreground/middleground, background, and seldom seen. The foreground/middleground zone is the area that can be seen from a viewpoint for a distance of 3 to 5 miles and where project activities might be viewed in detail. The background zone is the remaining area which can be seen from viewpoint to approximately 15 miles but does not include areas in the background which are so far distant that the only thing discernible is the form or outline. The seldom-seen zone are areas that are not visible within the foreground/middleground and background zones and areas beyond the background zones. Views of Owens Lake are characterized as foreground/middleground distance zones from the selected viewpoints. Other less publicly accessible viewpoints (e.g., from surrounding mountain ranges) would be characterized as background distance zones.

Management Class

Management classes of the VRMP are used to determine different degrees of modification allowed to the basic elements of the landscape. The class rating is derived from a table based on user visual sensitivity level and scenic quality. This is then used to assess the impact of any proposed development project.

A medium use area in a Scenic Quality Class B would fall within a management class 3 or 4 depending on whether the development site was located in a foreground/middleground (Management Class 3) or background

(Management Class 4) distance zone. Because the publically accessible views of Owens Lake are located in foreground/middleground distance zones, , Management Class 3 (Class 3 is more restrictive than Class 4) is considered the appropriate designation for the project site and is defined as follows:

> The objective … is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

3.3.3 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

No federal plans, policies, regulations, or laws relating to visual resources are applicable to the proposed project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. No state-designated scenic highways are in the study area (Caltrans 2009). U.S. 395 and SR 190 in the study area are identified as "Eligible State Scenic Highways—Not Officially Designated" by the California Scenic Highway Mapping System. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a scenic highway. In the case of U.S. 395 and SR 190, Inyo County has not yet taken necessary actions to officially designate these roadways as a scenic highway. In addition, Inyo County does not have any policies or regulations (e.g., scenic corridor protection program, ordinances to preserve the scenic quality of the corridor) applicable to these roadways. Although there are no adopted standards related to protecting the aesthetic value of land adjacent to U.S. 395 and SR 190, the designation of U.S. 395 as an "Eligible State Scenic Highway" by the California Legislature indicates the intent of the legislature for "protection and enhancement of [U.S. 395's] natural scenic beauty … which, together with the adjacent scenic corridors, require special scenic conservation treatment" (California Streets and Highways Code, Section 260).

The specific criterion for classifying a highway as scenic requires the government with jurisdiction over abutting land to adopt a Scenic Corridor Protection Program that includes "actions as may be necessary to protect the scenic appearance of the scenic corridor, the band of land generally adjacent to the highway right-of-way, including, but not limited to, (1) regulation of land use and intensity (density) of development; (2) detailed land and site planning; (3) control of outdoor advertising; (4) careful attention to and control of earthmoving and landscaping; and (5) the design and appearance of structures and equipment" (California Streets and Highways Code, Section 261). Therefore, Inyo County would need to take specific actions to protect the scenic beauty of lands surrounding the designated highway including but not limited to adopting zoning and development restrictions and standards.

When Caltrans determines the Scenic Corridor Protection Program has been implemented by local governmental agencies and a plan and program has been developed by Caltrans for bringing the highway up to the standards for official scenic highways established by Caltrans, Caltrans then has the authority to designate the highway as an official state scenic highway (California Streets and Highways Code, Section 262).

In the case of U.S 395, the Inyo County Board of Supervisors was recently approached by the Inyo National Forest concerning interest in applying for a scenic highway designation for portions of U.S. 395 and other local highways. The Board discussed the issue at two public hearings held on January 27 and February 3, 2009. On February 3, 2009, after consideration of public comments and discussion among the Board of Supervisors, a motion was made to designate U.S. 395 as scenic. The motion, however, failed on a 2 to 3 vote, Therefore, while the intent of the legislature is to designate sections of U.S. 395 as scenic, the local government did not approve a motion to do so and U.S. 395 is not designated as a scenic highway.

Route information for SR 190 describes the scenery as a "sculptured landscape of Death Valley National Park, a stark desert setting which contrasts the lowest elevation in North America with mountain ridges along the valley." Similarly, U.S. 395 is described as a "route [that] cuts through the Owens River Valley with the high mountain ranges of the eastern Sierra Nevada as a backdrop" (Caltrans 2009).

LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

No local plans, policies, regulations, or laws relating to visual resources are applicable to the proposed project.

3.3.4 IMPACTS AND MITIGATION MEASURES

METHOD OF ANALYSIS

The level of significance of visual impacts was determined using the thresholds of significance discussed below. Visual impacts of the proposed project were evaluated for the project construction and operation periods. Note that an assessment of aesthetic quality is a subjective matter, and reasonable people can disagree as to whether alteration in the visual character and appearance of the project site would be adverse or beneficial. This visual impact analysis evaluates the visual changes that would occur at the project site by applying the standards of quality, consistency, and symmetry typically used for a visual assessment. The visual impacts were compared against the thresholds of significance discussed below.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would result in a significant visual resources impact if the project would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including but not limited to trees (particularly heritage oaks or unusually large trees), rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

ISSUES NOT DISCUSSED FURTHER

Because the project would not involve operation of any new sources of nighttime lighting, implementation of the proposed project would not result in any significant nighttime lighting impacts. In addition, components of the proposed project (e.g., moats, rows, and sand fencing) would not create glare during the day because the moats and rows would be constructed of lake bed soils or other natural materials (e.g., rock of a color similar to lake bed soils), and the sand fence would be grayish in color and made of a mesh fabric material such that it would not have any reflective properties. Given these specifications, the proposed project would not result in any impacts attributable to the creation of a new source of substantial light or glare adversely affecting day or nighttime views in the study area. For that reason, this issue will not be discussed further.

As stated previously, there are no major landform features or rock outcroppings in the lake bed. In addition, the lake bed itself is not easily distinguishable from the surrounding landscape, especially when in the background, because of the relatively homogenous landscape of Owens Lake and similar landscape features surrounding the lake. The project would involve ground-disturbing activities on historic Owens Lake bed; however, these activities would be temporary and would not result in permanent damage to any scenic resources (e.g., trees, rock outcroppings). Therefore, this issue will not be discussed further.

PROJECT IMPACTS

IMPACT 3.3-1	Potential Degradation of a Scenic Vista. *Although the Sierra Nevada and Inyo Mountains are considered a scenic vista in the area surrounding Owens Lake, are highly visible from all locations surrounding Owens Lake, and create panoramic background views from numerous locations along Owens Valley, views of these mountains would not change and would not be blocked or otherwise altered by the proposed project. This impact would be* ***less than significant****.*

A scenic vista is generally considered a view of an area that has remarkable scenery or a resource that is indigenous to the area. Views of the Sierra Nevada to the west of the lake and the Inyo Mountains to the east provide a remarkable scenic resource and backdrop for views of Owens Lake. Specifically, views of the Sierra Nevada are remarkable because of their topographic features created by the sharp elevation change in relation to primarily flat lands of the Owens Valley and lakebed (Exhibits 3.3-5a, 3.3-5b, and 3.3-6). Because the Sierra Nevada creates a panoramic background for Owens Lake, views of this mountain range are considered a scenic vista.. Views of the eastern Sierra Nevada are available from numerous locations along Owens Valley. In particular, the eastern Sierra Nevada extends within close view (less than 2 miles) of U.S. 395 for over 200 miles (from south of Ridgecrest to north of Reno). Near Owens Lake, the majority of views are composed of dry, barren desert land that does not provide scenery of a remarkable character distinguishable from other surrounding desert areas that contrast with the unique, majestic views of the eastern Sierra Nevada.

Implementation of the project would result in construction of moats approximately 5 feet deep, rows approximately 5 feet high, and sand fences approximately 5 feet tall on top of rows. As shown in Exhibits 3.3-2b, 3.3-3b, 3.3-4b, and 3.3-5b, construction of the moat and row elements along with sand fences would not impede views of the Sierra Nevada because project elements would be constructed at an elevation below publicly accessible viewpoints (i.e., U.S. 395, SR 190) and at an elevation that is minor in relation to the height of the surrounding mountains. Further, views of the surrounding mountains would not change and would not be blocked or otherwise altered by the proposed project. For this reason, any impact related to degradation of a scenic vista would be less than significant.

Mitigation Measure(s) for Impact 3.3-1:

No significant impacts would occur; therefore, no mitigation measures are required.

IMPACT 3.3-2	Potential Degradation of the Visual Character of Owens Lake*. Views of moat and row elements at the project site would be indistinguishable, barely perceptible, or would not change the dramatic backdrop or natural feel of the overall landscape of Owens Lake because of their distance from the viewer, the size of the features in relation to the elevation of the viewpoints and surrounding mountains, and the predominant natural features of the surrounding landscape would be retained. Therefore, construction of moat and row elements at the project site would not result in substantial degradation of the viewshed as viewed by motorists traveling along U.S. 395, SR 190, or SR 136 or by visitors to the lakebed. This impact would be* ***less than significant.***

Views from Selected Viewpoints

The study area primarily consists of a dry, desert landscape with pockets of dry vegetation located along the perimeter edge of the lake bed. The landscape of the seven moat and row cells consists of dry, desert sands that are grayish to light brown in color. The proposed project would construct 5-foot-deep moats, 5-foot-tall rows, 5-

foot-tall sand fences on top of rows, and sand fences on the open playa. As shown in Exhibits 2-5 through 2-11 (Chapter 2, "Project Description"), the orientation, density, and scale of moat and row features would vary from cell to cell. For example, cell T1A-1 (Exhibit 2-9, "Sand Fence on Moat and Row—T1A-1") would include the placement of sand fences in north-south and east-west orientations, with approximately 600 feet between fences. On the opposite scale, cell T37-1 (Exhibit 2-7, "Sand Fence on Moat and Row—T37-1") would include a dense grid pattern of moats and rows with sand fences and moats and rows without sand fences, with minimal spacing between individual elements. While moats may be visible from areas closest to the moat and row cells, these features would generally be located below the open playa surface and would be less visible than the elevated rows and sand fences. As shown in Exhibits 3.3-2b, 3.3-3b, 3.3-4b, and 3.3-5b, moat and row elements would be most prominent from viewpoints 1 and 2 as compared with viewpoints 3 and 4. As can be seen from viewpoint1, the moats and rows oriented in a north-south direction and the sand fences would be a viewable, built element and would be visible on the open playa. As viewed from viewpoint2, the moats would be noticeable on the lake bed because the sightline would be directed downward and because of the shadows created by the rows. Views of the lake bed would be changed from a relatively pristine and undisturbed state, to an altered landscape with built features, which could be considered an adverse change. While changes to the landscape would occur from viewpoints 1 and 2, these changes would be a small component of the overall visual landscape, the primary natural characteristics of the surrounding landscape would be retained, the moat and rows would not block views of the surrounding area or background mountains, and would not change the dramatic features of the overall landscape (i.e., steep mountains separated by open expanses). The viewshed from viewpoints 1 and 2 would continue to provide an overall natural feel and the moat and row elements would not dominate the visual landscape.

Although views from viewpoints1 and 2 appear from the visual simulations to be unobstructed, undulating topography along U.S. 395 limits open, direct views by motorists along the perimeter of the lake in some locations. Views would be disrupted by topographical features (e.g., small hills) located between U.S. 395 and the moat and row cells. In addition, views would be interrupted and shortened by topographical undulations of the U.S. 395 road surface, along with areas located between the highway and the lake bed. The closest distance between a roadway and moat and row cell would be approximately 0.75 mile, which would occur between U.S. 395 and moat and row cell T37-1 (see Exhibit 3.3-1). Therefore, motorists would only have brief periods where they could view the lake bed and then focus on the moat and row cell area. Lastly, motorists along U.S. 395 would have to turn their heads nearly 90 degrees to view an individual moat and row cell at a specific viewpoint location (i.e., viewpoint1 or 2). High rates of vehicle speed (i.e., around 55 miles per hour) would leave little time for viewers to turn their heads, at just the right moment, to catch sight of the individual moat and row cells. Although views from viewpoints1 and 2 would be adversely changed with the project, those changes would not be significant when viewed in relation to the entire landscape, for the reasons described above. As can be seen from viewpoint 3, sand fences located on the right side of this viewpoint would be distinguishable from the lake bed, and rows would be barely discernable in the distance. As shown in viewpoint 4, rows would be barely discernable in the distance. Lastly, existing rows are barely visible in the distance from viewpoint5.

Implementation of the project would not result in noticeable alteration to the visual character of the project site or surrounding area. As shown in Exhibits 3.3-2a through 3.3-5b, the most noticeable alteration to the landscape would occur from viewpoint 2 because this moat and row cell would be located closest to and at lower elevation than U.S. 395. Given proximity to U.S. 395 and relative elevations, alterations would also be easily visible from viewpoint1 and a portion of viewpoint3 (Exhibits 3.3-3a and 3.3-3b). However, the moat and row elements would be barely perceptible in the middle-ground from viewpoints 3 and 4 because the rows and sand fences would be constructed sufficiently distant (i.e., a minimum 1.5 miles) from U.S. 395 and SR 190. Also, they would be of minimal height (i.e., a maximum of 10 feet tall) in relation to the viewpoint location and would be constructed with lake bed sediments which blend into the landscape. Lastly, the sand fence material would be a shade of grey similar to the existing lake bed sediments (Exhibits 3.3-4a through 3.3-5b).

Views from the Cartago Wildlife Area

The Cartago Wildlife Area, a 232.5-acre parcel recently acquired by the California Department of Fish and Game (DFG) for protection of riparian and wetland habitat, is located adjacent and to the west of proposed moat and row cell T1A-1 (the closest moat and row DCA). The Cartago Wildlife area is open to the public (i.e., pedestrians) and is considered a sensitive viewing location. Views of cell T1A-1from the Cartago Wildlife area would be similar in nature to views from viewpoint3 as shown in Exhibit 3.3-4b. As shown in far right of Exhibit 3.3-4b, sand fences would be barely perceptible from this viewpoint. However, views of the sand fences in cell T1A-1 from the Cartago Wildlife area would likely be more visible and appear slightly larger because of their closer proximity. In viewpoint 3, the nearest sand fences are approximate 0.75 mile from the viewpoint, whereas the nearest sand fence to the Cartago Wildlife Area would be approximately 200 feet. As shown in viewpoint 3, the sand fences would be constructed of a burlap material that matches the color of soils in the Owens Lake bed. Views of the sand fences, while perceptible from the Cartago Wildlife Area, would not dominate the viewshed.

Views from the Lakebed Interior

Owens Lake is publicly accessible to pedestrians (non-authorized motor vehicles are prohibited). Views of the lake bed would vary depending on the specific location. In general, existing views of the lake bed consist of large open expanses of desert, barren landscape interrupted by built features including, roads, water infrastructure, shallow flooding ponds, existing moat and row demonstration areas, mining operations, and managed vegetation areas. Exhibit 3.3-7 a, b, and c present representative photos of some of the existing built features on the lake bed and that are visible by the public. Exhibits 2-13 and 2-16 in the Project Description depict the existing managed vegetation areas and gravel cover on the lake bed.

The project would construct five new moat and row DCAs and would slightly modify the two existing moat and row demonstration areas. Views of these built features from the lake bed would be similar to views depicted in Exhibit 3.3-7a. A row and sand fence is located on the left hand side of the picture with a moat in the center of the picture. The overall visual changes of Owens Lake from commonly visible public viewpoints are described above. With regards to views of the proposed moat and row DCAs, when directly viewed from a close-range location (e.g., 10 to 100 feet), the moat and row features would dominate the landscape. However, depending on the location, when the viewer turns in position (e.g., rotate 90 to 180 degrees), views of the landscape would substantially change and would include views of shallow flooding areas, managed vegetation areas, open playa, roads and infrastructure, or mining operations. Close range views are highly specific to the viewer's location within the lake bed. In some locations (i.e., in the northern or central portion of the lake bed) wide, open, unobstructed views dominate the view shed while in other locations (i.e., eastern edge of the lake) built features dominate the view shed. The proposed moat and row DCAs (five new areas) would be consistent with the type, level, and intensity of built features currently on the lake bed. Further, the moat and row features consist of little to no industrial infrastructure (i.e., constructed primarily of lake bed soils) such that it would not introduce a new source of light and glare. Sand fencing would be constructed of natural-looking materials (e.g., looks like burlap) and would be of similar color as existing lake bed soils. Further, the moat and row DCAs would be located in areas where other built features currently exist (i.e., eastern edge of the lake bed, existing demonstration areas) or would be isolated such that DCAs would not dominate the 360 degree, close-range view of the landscape. Therefore, the project would not result in a significant impact to interior views of the lake bed.

Source: Photograph taken by EDAW in 2008

Close-up View of Existing Dust Control Measures on the Owens Lake Bed **Exhibit 3.3-7a**

Source: Photograph taken by EDAW in 2008

Close-up View of Existing Infrastructure on the Owens Lake Bed **Exhibit 3.3-7b**

Source: Photograph taken by LADWP in 2008

Close-up View of Existing Infrastructure on the Owens Lake Bed **Exhibit 3.3-7c**

VRMP Rating

The BLM VRMP system, a Contrast Rating System, was used to measure the degree of contrast that would occur to the existing visual environment with implementation of the project. As described above, the project area is classified as a Management Class 3. Consistent with the BLM VRMP protocol, the landscape of the moat and row DCAs was divided into features and elements. Features of the landscape include land/water body, vegetation, and structures. Elements of the landscape include form (shape and mass of landforms or structures), line (edge types, bands, silhouette), color (value and hue to create contrast), and texture (grain, density, internal contrast). Each element was assigned a value based on its significance in the landscape (4 = most important, 1 = least important). The proposed project was then compared to the existing landscape by element and by feature according to a degree of contrast (3 = strong, 2 = moderate, 1 = weak, 0 = none). Table 3.3-2 below shows how the project scored in the contrast rating system.

As shown in Table 3.3-2, the project's degree of contrast for land/water body (i.e., rows) had a scored value between 10 and 19, a vegetation scored value of 0, and a structure (i.e., sand fences) scored value between 10 and 17. A rating of 0 is defined as: contrast is not visible or perceived. A rating between 1 and 10 is defined as: contrast can be seen, but does not attract attention. A rating between 11 and 20 is defined as: contrast begins to attract attention and begins to dominate the characteristic landscape. A rating of 21 to 30 is defined as: contrast demands attention, will not be overlooked, and is dominant in the landscape. Based on the results presented in Table 3.3-2, for most viewpoints (viewpoints 3, 4, and 5) the project would introduce features that are visible but that would not dominate the visual landscape. For viewpoints 1 and 2 the land/water body and structure elements begin to attract attention and could start to dominate the landscape from some locations. However, as described above, undulating topography along U.S. 395 would disrupt and interrupt open, direct views by motorists. In addition, motorists along U.S. 395 would have to turn their heads nearly 90 degrees to view an individual moat and row cell at a specific viewpoint location (e.g., viewpoints 1 and 2).

Table 3.3-2
Project Contrast Rating

Features	Elements and Weights	x	Degree of Contrast									
			Viewpoint 1	Score	Viewpoint 2	Score	Viewpoint 3	Score	Viewpoint 4	Score	Viewpoint 5	Score
Land/ Water Body	Form – 4 Line – 3 Color – 2 Texture – 1		Moderate – 2 Moderate – 2 Weak – 1 Weak – 1	8 6 2 1	Moderate – 2 Moderate – 2 Moderate – 2 Weak – 1	8 6 4 1	Weak – 1 Weak – 1 Weak – 1 Weak – 1	4 3 2 1	Weak – 1 Weak – 1 Weak – 1 Weak – 1	4 3 2 1	Weak – 1 Weak – 1 Weak – 1 Weak – 1	4 3 2 1
			Total	**17**	**Total**	**19**	**Total**	**10**	**Total**	**10**	**Total**	**10**
Vegetation	Form – 4 Line – 3 Color – 2 Texture – 1		None None None None	0 0 0 0	None None None None	0 0 0 0	None None None None	0 0 0 0	None None None None	0 0 0 0	None None None None	0 0 0 0
			Total	**0**	**Total**	**0**	**Total**	**0**	**Total**	**0**	**Total**	**0**
Structures	Form – 4 Line – 3 Color – 2 Texture – 1		Moderate – 2 Moderate – 2 Weak – 1 Weak – 1	8 6 2 1	Moderate – 2 Moderate – 2 Moderate – 2 Weak – 1	8 6 4 1	Weak – 1 Weak – 1 Weak – 1 Weak – 1	4 3 2 1	Weak – 1 Weak – 1 Weak – 1 Weak – 1	4 3 2 1	None None None None	0 0 0 0
			Total	**17**		**17**		**10**		**10**		**0**

Source: Evaluated by EDAW in 2009

Conclusion

Overall, views of moat and row elements at the project site would be indistinguishable, barely perceptible, or would not change the dramatic backdrop or natural feel of the overall landscape of Owens Lake because of their distance from the viewer and the size of the features in relation to the elevation of the viewpoints and surrounding mountains. Although views within Owens Lake bed would allow direct, close-range views of moat and row elements, onsite views are not the common publically accessible viewpoints. Further, the moat and row DCAs would be located in areas where other built features currently exist (i.e., eastern edge of the lake bed or existing demonstration areas) or would be isolated such that they would not dominate the 360 degree landscape for a close range view. Finally, the BLM Contrast Rating System indicates that for the majority of views the project would attract attention of viewers, but would not dominate the overall characteristic landscape of Owens Lake. Therefore, construction of moat and row elements at the project site would not result in a substantial degradation of the viewshed, as viewed by motorists traveling along U.S. 395, SR 190, and SR 136. This would be a less-than-significant impact.

Mitigation Measure(s) for Impact 3.3-2:

No significant impacts would occur; therefore, no mitigation measures are required.

IMPACT 3.3-3 — Potential Construction-related Visual Impacts. *Construction activities at the project site would result in a change in the existing visual character of Owens Lake. However, changes to views of individual moat and row cells would be temporary and brief. This impact would be* **less than significant***.*

During the 1-year construction period of the proposed project, the existing visual character on the project site would include additional construction workers, vehicles, and equipment. Although construction activities would be visible from nearby viewpoints (i.e., U.S. 395, SR 190, and SR 136), constraints to these views exist in the study area. Specifically, the minimum distance to the nearest moat and row cell is 0.75 mile from the closest viewer (i.e., motorists along U.S. 395), and views of construction activities would be temporary and brief. After project construction, views of the Owens Lake bed would not substantially change from pre-project conditions. Therefore, impacts related to degradation of visual character from construction activities would be less than significant.

Mitigation Measure(s) for Impact 3.3-3

No significant impacts would occur; therefore, no mitigation measures are required.

CUMULATIVE VISUAL IMPACTS

This section analyzes potential cumulative effects of the project on visual resources, when considered together with other past, present, and reasonably foreseeable future projects producing related impacts (i.e., related projects). A total of seven related projects were identified in the vicinity of the proposed project (see Section 3.0.2, “Cumulative Projects”) and were evaluated in combination with the proposed project to determine whether any potential impacts of the proposed project would contribute considerably to a cumulatively significant impact.

The proposed project would result in less-than-significant impacts to potential degradation of a scenic vista, potential degradation of the visual character of the study area, and potential degradation of the visual character of the study area during construction, as discussed above.

Impacts associated with three related projects have the potential to contribute incrementally to effects on visual resources: the 2003 SIP; 2008 SIP; and the U.S. Borax, Owens Lake Expansion Project. These three projects are located in the Owens Lake bed near the study area and would result in visual changes of the Owens Lake bed. The 2003 and 2008 SIP projects are similar in nature to the proposed project and would result in the implementation of 44.9 square miles of dust control measures on the Owens Lake bed, including moat and row, managed vegetation, shallow flooding, and rock armoring. Impacts would include the potential degradation of the long-term and short-term visual character of the study area. The U.S. Borax, Owens Lake Expansion Project would expand mining and processing operation within the existing facility footprint on Owens Lake.

The remaining five related projects (i.e., Cartago Springs Wildlife Habitat Improvement and Mitigation Project, Lower Owens River Project, Cartago/Olancha Four-Lane Project, Whitney Portal Subdivision Project, Pine Creek Village Project, and Tentative Parcel Map #384/Hinds) are located 1–12 miles from the project site and outside the viewshed of the proposed project.

Cumulative impacts to visual resources resulting in a potential degradation of a scenic vista, potential degradation of the visual character of the study area, and degradation of the visual character of the study area were assessed from publicly available viewpoints. The project, in combination with cumulative projects, would result in the transition of approximately 45 square miles of the lake bed (approximately 41% of the lake bed surface) from barren playa to active mining areas, flooded areas, berms and moats (3.5 square miles, or 8% of the total cumulatively affected area, and 3% of the entire lake bed surface), vegetation beds, and rocky surfaces. Flooded areas would return the lake bed to a wet condition, which would be reminiscent of historic conditions and would not substantially degrade views of the lake bed, but instead may have a positive visual effect. Where views of vegetation are available, these areas would resemble the vegetated upland areas of the perimeter of the lake. Overall visual changes of the vegetated areas would not be substantial and would not substantially change views of the dried lake bed surface.

As discussed above, areas where moat and rows are proposed would result in adverse changes to the lake bed, but these changes would be a small component of the overall visual landscape, the moat and rows would not block views of the surrounding area or background mountains, and would not change the dramatic features of the overall landscape (i.e., steep mountains separated by open expanses). In addition, the BLM Contrast Rating System calculated that land and structure elements of the project do not demand attention, can be overlooked, and do not dominant the overall landscape. Areas where gravel application would occur or where mining operations currently occur would result in adverse changes to the lake bed through the introduction of structures, construction equipment, and materials not native to the lake bed surface (e.g., gravel). However, these areas constitute a small component of the expansive lake bed. When considered together, the cumulative changes that would occur with the project and the gravel application and mining areas would not result in cumulatively significant visual changes because overall views of the lake bed would be largely unchanged (greater than 59% of the lake bed surface), cumulative projects would be barely perceptible from public viewpoints (e.g., managed vegetation areas and moat and row DCAs T1A-1 and T12-1), or cumulative projects would return views of the lake bed to resemble historic conditions (e.g., flooded areas). Further, the lake bed is a subservient part of the viewshed, which is dominated by the surrounding steep, dramatic mountains. Overall, cumulative visual impacts would be less than significant. Further, the project's cumulative visual impacts would not be considerable.

While the project's contribution to the less-than-significant cumulative visual impact would not be considerable, LADWP would continue to take steps to reduce the visibility of the moat and row elements through the use of existing lake bed materials wherever feasible; use of non-reflective, mesh fabric for sand fences that are shaded to match the color of the lake bed soils; use of pressure-treated wood posts for the sand fence; minimization of the height of the rows (i.e., no more than 10 feet with sand fence, 5 feet without sand fence) to the greatest degree feasible while also achieving adopted dust control efficiencies; and the minimization of the placement of structures (e.g., signs, water tanks) in the moat and row cells that could be more readily visible from distant locations.

4 OTHER CEQA CONSIDERATIONS

4.1 GROWTH-INDUCING IMPACTS

4.1.1 INTRODUCTION

According to Section 15126.2(d) of the State CEQA Guidelines, an EIR must discuss the growth-inducing impacts of the proposed project. Specifically, Section 15126.2(d) states that the EIR shall:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have the potential to induce direct and/or indirect growth. A project would directly induce growth if a project involved constructing new housing. A project would indirectly induce growth if, for instance, implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- a construction effort with substantial short-term employment opportunities that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

Growth inducement itself is not an environmental effect but may foreseeably lead to environmental effects. These environmental effects may include increased demand on other community and public services and infrastructure, increased traffic and noise, or degradation of air or water quality.

4.1.2 GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

The proposed project would result in changes to the design of moat and row dust control measures (DCM). The moat and row DCM was originally approved as part of the 2008 SIP project (approved by the Great Basin Unified Air Pollution Control District [GBUAPCD] in February 2008). The 2008 FSEIR for that project evaluated the growth-inducing impacts associated with the program of DCMs for Owens Lake. The growth-inducing analysis contained within the 2008 FSEIR (see page 7-1 of the 2008 FSEIR) is hereby incorporated by reference in this analysis and is summarized below.

> The proposed project would not result in a significant growth-inducing impact [because]…jobs related to construction would be short-term in nature [and]…permanent jobs…currently exist for operation and maintenance of the existing dust control measures on the lake. A significant demand for additional housing would not be created as a result of the proposed project. No new infrastructure that could support

future growth is part of the proposed project. The air quality in all communities in the Owens Valley would be expected to improve dramatically as a result of the proposed project's reduction in PM_{10} emissions. Therefore, the implementation of the proposed dust control measures may constitute the removal of an existing barrier to growth in the Owens Valley, and may result in some future population growth. However, due to the lack of private land in the area, this growth is expected to be minor and would not constitute a significant impact for the immediate area.

While this draft SEIR has been prepared to evaluate the impacts of design changes to the moat and row DCMs, these design changes would not result in any changes to the construction, operation, and maintenance activities that were previously analyzed in the 2008 FSEIR. Therefore, the proposed project would not result in any additional growth-inducing impacts not previously analyzed in the 2008 FSEIR.

4.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS

4.2.1 INTRODUCTION

Section 15126.2(b) of the State CEQA Guidelines requires EIRs to discuss any significant environmental impacts that cannot be avoided if the project is implemented. Chapter 3 of this EIR provides a detailed analysis of all significant and potentially significant environmental impacts of the proposed project, feasible mitigation measures that could avoid or substantially reduce the project's significant impacts, and whether these mitigation measures would reduce these impacts to less-than-significant levels. If a specific impact cannot be reduced to a less-than-significant level, it is considered a significant and unavoidable adverse impact.

4.2.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROPOSED PROJECT

Implementation of DCMs on the Owens Lake bed would result in significant and unavoidable impacts as analyzed in the 2008 FSEIR and this draft SEIR. The proposed project would result in significant and unavoidable adverse impacts on air quality and visual resources, as described below.

SIGNIFICANT AND UNAVOIDABLE IMPACTS IDENTIFIED IN THE 2008 FSEIR

The air quality analysis in Section 3.1.4 of the 2008 FSEIR determined that implementation of the 2008 SIP would result in significant unavoidable impacts on air quality from construction of DCMs. Specifically, construction activities would result in unavoidable short-term and long-term emissions of particulate matter (i.e., PM_{10}, $PM_{2.5}$), ozone, and greenhouse gases (GHGs). However, beneficial impacts on air quality are expected to result with implementation of the 2008 SIP because it is specifically designed to reduce fugitive dust emissions from the lakebed once implemented. Regulations and standards at the time of preparing the 2008 FSEIR regarding GHG were not developed or finalized. As a result, it could not be determined to a reasonable degree of certainty whether implementation of the 2008 SIP would result in a considerable, incremental contribution to a significant cumulative impact of global climate change. Implementation of mitigation measures Air-2 through Air-6 recommended in the 2008 FSEIR would assist in reducing impacts from construction- and operation-related GHG emissions. Although the project's overall contribution to GHG emissions was considered quantitatively small to overall statewide GHG emissions and mitigation measures are recommended in the 2008 FSEIR, for purposes of CEQA, impacts of the project on global climate change were considered significant and unavoidable.

SIGNIFICANT AND UNAVOIDABLE IMPACTS IDENTIFIED IN THE SEIR

As analyzed in Section 3.2, "Air Quality," the proposed project would contribute to project and cumulative conflicts with implementation of an adopted air quality control plan. The project would be implemented by April 2010, which is an approximate 6-month delay (for moat and row elements only) from the schedule outlined in the 2008 SIP. Construction of the proposed project (i.e., additional moat and row elements) would cause DCM operations to be delayed beyond the time frame specified in the 2008 SIP. Thus, implementation of the proposed project would conflict with the applicable air quality plan, resulting in a potential increase in the number of days for which violations of the national ambient air quality standards (NAAQS) are likely, along with the related exposure of sensitive receptors that would occur. No feasible mitigation is available to accelerate construction and implementation of the moat and row features by October 1, 2009. Therefore, this project-specific impact is considered significant and unavoidable.

Regarding cumulative impacts, as a result of moat and row DCM operations being delayed by the new construction schedule, implementation of the proposed project would result in the continued violation of the NAAQS and the subsequent exposure of sensitive receptors to substantial pollutant concentrations. Thus, emissions attributable to project implementation, along with the combined emissions from other reasonably foreseeable future projects in the project area would continue to contribute to increases in emissions that would exacerbate existing and projected nonattainment conditions. As a result, project-generated emissions would result in a cumulatively considerable net increase to this significant cumulative impact (e.g., the region is nonattainment under the applicable ambient air quality standards). Therefore, this cumulative impact is considered significant and unavoidable.

5 ALTERNATIVES TO THE PROJECT

5.1 INTRODUCTION

State CEQA Guidelines Section 15126.6(a) requires that an EIR “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” The project objectives are stated in Section 2.3, “Project Goal and Objectives,” of this draft SEIR.

The primary goal of the project is to prevent emissions from the lake bed that cause or contribute to violations of the PM_{10} National Ambient Air Quality Standards (NAAQS) by the implementation of moat and row dust control measures (DCMs) on the bed of Owens Lake by 2010. The dry Owens Lake bed is primarily owned and operated in trust for the people of California by California State Lands Commission (CSLC). Therefore, the project must also be consistent with the State of California’s obligation of land and resource stewardship. The objectives of the project are to:

- implement moat and row DCMs by April 1, 2010, pursuant to the 2008 State Implementation Plan (SIP) to achieve the NAAQS;
- provide clean, reliable water in a safe, environmentally responsible and cost-effective manner with excellent customer service;
- allow for the sparing use of water that would otherwise be delivered for municipal and industrial use and substantially reduce or eliminate the use of water in implementing new dust control projects on the Owens Lake bed;
- minimize or compensate for long-term, significant adverse changes to sensitive resources in the natural and human environment by implementing mitigation strategies proposed in this SEIR;
- create a dust control program with a high likelihood of success and without substantial delay;
- substantially conform to adopted plans and policies and existing legal requirements. These requirements include the National Ambient Air Quality Standards, the 1998, 2003 and 2008 SIPs and their associated EIRs, lease agreements and environmental and administrative permits with other agencies including California State Lands Commission, Lahontan Regional Water Quality Control Board, California Department of Fish and Game (DFG), U.S. Environmental Protection Agency, and Great Basin Unified Air Pollution Control District (GBUAPCD);
- minimize the long-term consumption of natural resources (e.g., water); and,
- be consistent with the State of California’s obligation to preserve and enhance the public trust values associated with Owens Lake.

Alternatives are used to determine whether a variation of the project would reduce or eliminate significant project impacts in the basic framework of the objectives. State CEQA Guidelines Section 15126.6(f) specifies that the range of alternatives is governed by the “rule of reason,” requiring evaluation of only those alternatives “necessary to permit a reasoned choice.” Further, an EIR “need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative” (State CEQA Guidelines Section 15126.6[f][3]).

State CEQA Guidelines Section 15126.6(e) requires that, among other alternatives, a "no-project" alternative be evaluated in comparison to the project. It requires that the no-project analysis "discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with the available infrastructure and community services." Accordingly, a no project alternative that assumes continuation of the existing land uses is analyzed in this draft SEIR because without implementation of the project, no DCMs could be implemented on the 3.5-square-mile moat and row project site.

Although the State CEQA Guidelines (Section 15126.6[d]) require an evaluation of alternatives, they permit the evaluation to be conducted in less detail than is done for the proposed project. Consistent with Section 15126.6(d), sufficient information is provided about each alternative to allow for a meaningful evaluation and analysis of the proposed project and a meaningful comparison of the alternatives with the project. Further, because this is a supplement to an EIR, the impacts of the project are also considered, as relevant, in the context of alternatives evaluated in the certified 2008 FSEIR.

5.2 SUMMARY OF ENVIRONMENTAL CONSTRAINTS

The purpose of this section is to summarize the site-specific environmental constraints, as identified and discussed in Chapter 3, "Environmental Setting, Thresholds of Significance, Project and Cumulative Impacts, and Mitigation Measures," of this draft SEIR. These site-specific environmental constraints, if not avoided through either project design or mitigation, could result in significant or potentially significant environmental impacts.

Implementing the proposed project would result in the following significant and unavoidable impacts. These constraints and their effects on the range of alternatives were considered in the analysis of alternatives. Implementing the proposed project would contribute to project and cumulative conflicts with implementation of an adopted air quality control plan. As described in Section 3.2, "Air Quality," construction of the proposed project (i.e., additional moat and row elements) would cause DCM operations to be delayed 6 months beyond the time frame specified in the 2008 SIP (October 1, 2009). Thus, implementation of the proposed project would conflict with the applicable air quality plan, resulting in a potential increase in the number of days when violations of the NAAQS and the related exposure of sensitive receptors would occur. No feasible mitigation is available to accelerate construction and implementation of the moat and row features by October 1, 2009. Therefore, implementation of the proposed project would still conflict with the applicable air quality plan, resulting in an increased number of days when violations of the NAAQS and the subsequent exposure of sensitive receptors would occur.

In addition to the impacts identified above, emissions attributable to project implementation, along with emissions from other reasonably foreseeable future projects in the Owens Valley Planning Area as a whole, would continue to contribute to increases in emissions that would exacerbate existing and projected nonattainment conditions. As a result, project-generated emissions would result in a cumulatively considerable net increase to this significant cumulative impact (e.g., region is nonattainment under the applicable ambient air quality standards).

The potential to avoid or reduce the project's significant impacts was considered in the analysis of alternatives.

5.3 EVALUATION OF ALTERNATIVES

5.3.1 ALTERNATIVES EVALUATED IN THE 2008 FSEIR

Implementing the proposed project would result in changes to the design of moat and row DCM approved in the 2008 FSEIR. The moat and row DCM originally were approved as part of the 2008 SIP project (approved by GBUAPCD in February 2008). The 2008 FSEIR evaluated project alternatives associated with implementing moat and row DCMs on the historic Owens Lake bed, as well as other alternatives. Specific alternatives analyzed in the 2008 FSEIR included the All Shallow Flooding Alternative, All Managed Vegetation Alternative, and Gravel Application Alternative. The alternatives analysis contained in the 2008 FSEIR (see Section 4.0, "Alternatives to the Proposed Project," pages 4-1 through 4-16 of the 2008 FSEIR) is hereby incorporated by reference into this analysis and is summarized below.

In addition to the alternatives considered in the 2008 FSEIR, consistent with the requirements of CEQA, the analysis presented in this SEIR also evaluates an Off-Site Alternative and No-Project Alternative, as described below. The analysis of alternatives is comparative, identifying whether implementing the alternative would result in impacts that are "greater," "lesser," or "similar" in comparison with those of the proposed project. This determination is made in brackets at the end of the discussion for each alternative analyzed.

SHALLOW FLOODING ALTERNATIVE

The Shallow Flooding Alternative involves implementing the shallow flooding DCM over 15.1 square miles of the Owens Lake bed, including the 3.5 square miles of moat and row dust control areas (DCAs). No other DCMs would be implemented on Owens Lake. Shallow flooding generally consists of wetting emissive lake bed surfaces sufficiently to control dust emissions between October 1 and June 30 of each year. Approximately 75% of the DCAs would be wetted to achieve 99% dust control efficiency. Water would be released on the lake bed and would spread across the surface. Approximately 3–4 acre-feet of water would be used annually per acre of shallow flooding DCAs. In areas where moat and row DCMs are proposed (3.5 square miles of lake bed), this alternative would require installation of additional shallow flooding infrastructure (e.g., mainline, submain, lateral, and raiser pipes; perimeter berms; tailwater recycling facilities). Construction activities would result in disturbances to the lake bed throughout the 3.5-square-mile DCA; therefore, construction-related air quality impacts would be similar.

Although construction activities would result in comparable environmental impacts (e.g., air quality), implementing the Shallow Flooding Alternative would provide greater habitat for biological species of concern, thereby resulting in a net biological benefit. Implementing this alternative would change the visual landscape from a dried lake bed to a wet lake bed, which is representative of historical conditions. Therefore, although views would be changed, they would be changed to reflect historic natural conditions and would be considered to be less adverse than under the proposed project. The 2008 FSEIR concluded that the Shallow Flooding Alternative would meet most of the 2008 FSEIR project objectives; however, because this alternative would entail the use of shallow flooding, the objective to minimize the long-term use of natural resources (e.g., water) and the objective to implement a DCM that minimizes the use of water to the maximum extent practical would not be met. Overall, this alternative would result in reduced environmental impacts compared to the proposed project but would not meet important project objectives related to conservation of natural resources. Further, with regard to objectives established for this SEIR, this alternative would not meet the objectives to allow for the sparing use of water for non-municipal and industrial uses or to eliminate the use of water for new dust control measures on Owens Lake. ***[Lesser]***

ALL MANAGED VEGETATION ALTERNATIVE

The All Managed Vegetation Alternative involves implementing the managed vegetation DCM over 15.1 square miles of the Owens Lake bed, including the 3.5 square miles proposed for moat and row DCAs. No other DCMs would be implemented on Owens Lake. Under this alternative, vegetation would be planted in approximately 40-acre blocks and would be irrigated by a system of turnouts and pipelines. Implementing this alternative would require installation of infrastructure (e.g., mainline, submain, lateral, and riser pipes; irrigation lines; fertilizer injection; water treatment systems) in the 3.5-square-mile moat and row DCA. Construction activities would result in disturbances to the lake bed throughout the 3.5-square-mile DCA; therefore, construction-related air quality impacts would be similar. However, implementing this alternative would result in the complete transformation of the moat and row DCA from a sandy lake bed surface to planted vegetation. These changes would affect the habitat of a biological species of concern (i.e., snowy plover) to a greater degree. Further, implementing the moat and row DCM would result in changes within a maximum 33% of the DCA, whereas the All Managed Vegetation Alternative would cover a greater percentage of the DCA; therefore, habitat impacts would be greater under this alternative. With regard to visual impacts, this alternative, like the proposed project, involves installation of human-made features (i.e., rows of vegetation) and would change views of the lake bed. The magnitude of the changes would be comparable to the changes that would occur under the proposed project but would present a different visual landscape (i.e., vegetation vs. moats and rows).

The 2008 FSEIR concluded that the All Managed Vegetation Alternative would meet most of the 2008 FSEIR project objectives; however, because of the time needed for vegetation to reach the level of growth required for dust control, the likelihood for success would be difficult to achieve by April 2010, as prescribed in the 2008 SIP. Further, implementing this alternative would result in greater biological habitat impacts compared with the proposed project. Finally, with regard to the objectives established for this SEIR, this alternative would not meet the objective to eliminate the use of water for new dust control measures on Owens Lake. Overall, impacts would be greater under this alternative. ***[Greater]***

GRAVEL APPLICATION ALTERNATIVE

The Gravel Application Alternative involves applying gravel to cover 15.1 square miles of the Owens Lake bed, including the 3.5 square miles proposed for the moat and row DCMs. After the gravel cover is applied, limited maintenance would be required to preserve the gravel blanket. The gravel would be visually monitored to ensure that the gravel blanket was not filled with sand or dust or has not been inundated or washed out by flooding. If any of these conditions were observed, additional gravel would be transported to the project site and applied to the surface. Operation of this alternative would require an average ongoing gravel application amounting to 7,000 cubic yards per square. Construction activities would result in disturbances to the lake bed throughout the 3.5-square-mile DCA; however, implementing this alternative would require the substantial importation of rock material from off-site areas, which would require a substantial number of truck trips to deliver this material. These truck trips would generate substantially greater diesel emissions compared to the construction activities associated with the proposed project; therefore, construction-related air quality impacts would be greater under this alternative. Additionally, implementing this alternative would result in the complete transformation of the moat and row DCA from a sandy lake bed surface to an imported gravel surface. These changes would affect the habitat of a biological species of concern (i.e., snowy plover) to a similar degree as the proposed moat and row DCA. Regarding visual impacts, this alternative, like the proposed project, involves installation of human-made features (i.e., a layer of gravel) and would change views of the lake bed. The magnitude of the changes would be comparable to the changes that would occur under the proposed project but would present a different visual landscape (i.e., rocky substrate vs. moats and rows).

The 2008 FSEIR concluded that the Gravel Application Alternative would not meet most of the project 2008 FSEIR objectives. Although this alternative would conform to adopted plans and policies, it could be incompatible with the State of California's public trust values because it would cover the lake bed with nonnative (to the lake) materials. This alternative would not minimize the proposed project's impacts on sensitive biological resources, it would result in comparable impacts with environmental tradeoffs. Overall, impacts would be similar under this alternative. ***[Similar]***

5.3.2 ADDITIONAL ALTERNATIVES EVALUATED IN THIS SEIR

OFF-SITE ALTERNATIVE

Off-site alternatives generally are considered in EIRs when one of the means to avoid or eliminate the significant impacts of a proposed project is to develop the project in a different, available location. They also are considered to provide a greater range of possible alternatives to consider in the decision-making process. The key question is whether an off-site alternative is available that would feasibly attain most of the basic objectives of the proposed project and that would avoid or substantially lessen any of the environmental effects of the project (State CEQA

Guidelines Section 15126.6[a]). The basic objective of the proposed project is to implement a revised design of moat and row DCMs on the historic Owens Lake bed. The moat and row DCM was originally approved as part of the 2008 FSEIR.

The proposed project would need to be located in the historic Owens Lake bed because the main objective of the DCM is to reduce PM_{10} emissions created on the dry lake bed. Goals and objectives of the proposed project would not be applicable to any sites other than the Owens Lake bed. In addition, the specific locations of DCAs to construct DCMs in the Owens Lake bed were determined through extensive modeling and are identified as part of the 1998 SIP, 2003 Revised SIP, and 2008 SIP. Given this consideration, no alternative sites can feasibly be used to meet the project objectives. For this reason, an off-site alternative is not evaluated further in this SEIR.

NO-PROJECT ALTERNATIVE – CONTINUATION OF 2008 FSEIR

Under the No-Project Alternative, moat and row DCMs would be constructed, operated, and maintained on Owens Lake in accordance with the 2008 SIP, which involves construction, operation, and maintenance of moat and rows along with the application of DCM enhancements (e.g., shallow flooding, managed vegetation, row armoring) on the 3.5-square-mile project site.

Although moat and row DCMs were approved, as outlined in the 2008 SIP, the moat and row DCM likely would not be implemented because City of Los Angeles Department of Water and Power (LADWP) would not be able to secure and acquire necessary environmental permits from regulatory agencies (e.g., DFG and CSLC). As described in Chapter 2, "Project Description," DFG and CLSC raised concerns over specific features of the moat and row DCMs related to potential impacts on wildlife and other issues. This SEIR is intended to address those issues of concern. Without the changes proposed for the moat and row DCMs (see Chapter 2, "Project Description") and the supplemental analysis provided in this SEIR, the regulatory agencies would not issue their permits for the moat and row DCMs; therefore, this element of the 2008 SIP would not be implemented. Without implementation of the moat and row DCM, LADWP would not be able to meet the important dust control objectives outlined in the 2008 SIP. Therefore, implementation of the No-Project Alternative would result in a conflict with implementation of an adopted air quality plan. although the discussion of Impact 3.2-1, Project-Generated Emissions of Criteria Air Pollutants and Precursors, (see Chapter 3.2, "Air Quality") states that implementing the proposed project would result in a conflict with implementation of an adopted air quality control plan, the conflict is a delay in implementation of the plan rather that the inability of the plan to be fully implemented, which is the case under this alternative. Implementing this alternative would not meet an important objective of the 2008 SIP and would not achieve prescribed dust control efficiencies for the 3.5 square miles of the lake bed where moat and row DCMs are proposed.

Because no construction activities would occur in the 3.5 square miles where moat and row DCMs are proposed, no construction-related air quality impacts would occur. Implementing the No Project Alternative would not result in the generation of short-term construction emissions beyond what was analyzed in the 2008 FSEIR, because the proposed modifications would not require any additional daily land disturbance, heavy-duty equipment usage, or construction personnel (see the discussion of Impact 3.2-1). Further, because the lake bed would not be altered with any human-made features, the visual impacts of the proposed project (although determined to be less than significant, see the discussion of Impact 3.3-2) would not occur under the No-Project Alternative. Implementing this alternative also would eliminate the project's considerable contribution to a significant cumulative visual impact. Finally, biological resources impacts associated with the proposed project would not occur under this alternative, because no construction would occur on the 3.5-square-mile project site. ***[Environmental tradeoffs]***

5.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of the alternatives to the proposed project, CEQA Section 15126.6 requires that the "environmentally superior" alternative among the alternatives considered be selected and the reasons for such selection disclosed. In general, the environmentally superior alternative is the alternative that would generate the fewest or least severe adverse impacts. The No-Project Alternative was considered in this analysis, but it would not achieve any goals or objectives of the proposed project and would not achieve dust control efficiencies needed to protect public health in and around Owens Lake. Although other alternatives were evaluated as part of the 2008 FSEIR, two alternatives (i.e., All Shallow Flooding, All Managed Vegetation) were determined to not be feasible because and long-term use of natural resources (e.g., water). The third alternative (i.e., Gravel Application) was determined to result in comparable impacts as the project. No other alternatives are available that could feasibly and have been proven to reduce dust emissions at Owens Lake.

CEQA requires the lead agency to identify an alternative that is feasible and superior to the proposed project; however, in this case, the proposed project is the environmentally superior alternative. The All Shallow Flooding Alternative would have been identified as the environmentally superior alternative, but it had already been considered and rejected in the 2008 FSEIR. No other environmentally superior alternatives are available that would attain most of the proposed project's basic objectives. The primary purpose of the proposed project was to improve on a previously approved project because of environmental concerns raised by DFG and CSLC and implement DCMs that require little or no water. As a result, the proposed project is the environmentally superior alternative.

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APPENDIX A

Notice of Preparation, Initial Study, and
Initial Study Comments

Notice of Preparation

Department of Water and Power the City of Los Angeles

ANTONIO R. VILLARAIGOSA
Mayor

Commission
EDITH RAMIREZ, *Vice President*
LEE KANON ALPERT
WALLY KNOX
FORESCEE HOGAN-ROWLES
BARBARA E. MOSCHOS, *Secretary*

H. DAVID NAHAI,
Chief Executive Officer and General Manager

December 16, 2008

NOTICE OF PREPARATION

To: State Clearinghouse, Responsible and Trustee Agencies, and Interested Individuals and Organizations

Subject: Notice of Preparation of a Supplemental Environmental Impact Report for the Owens Lake Revised Moat and Row Dust Control Measures Plan

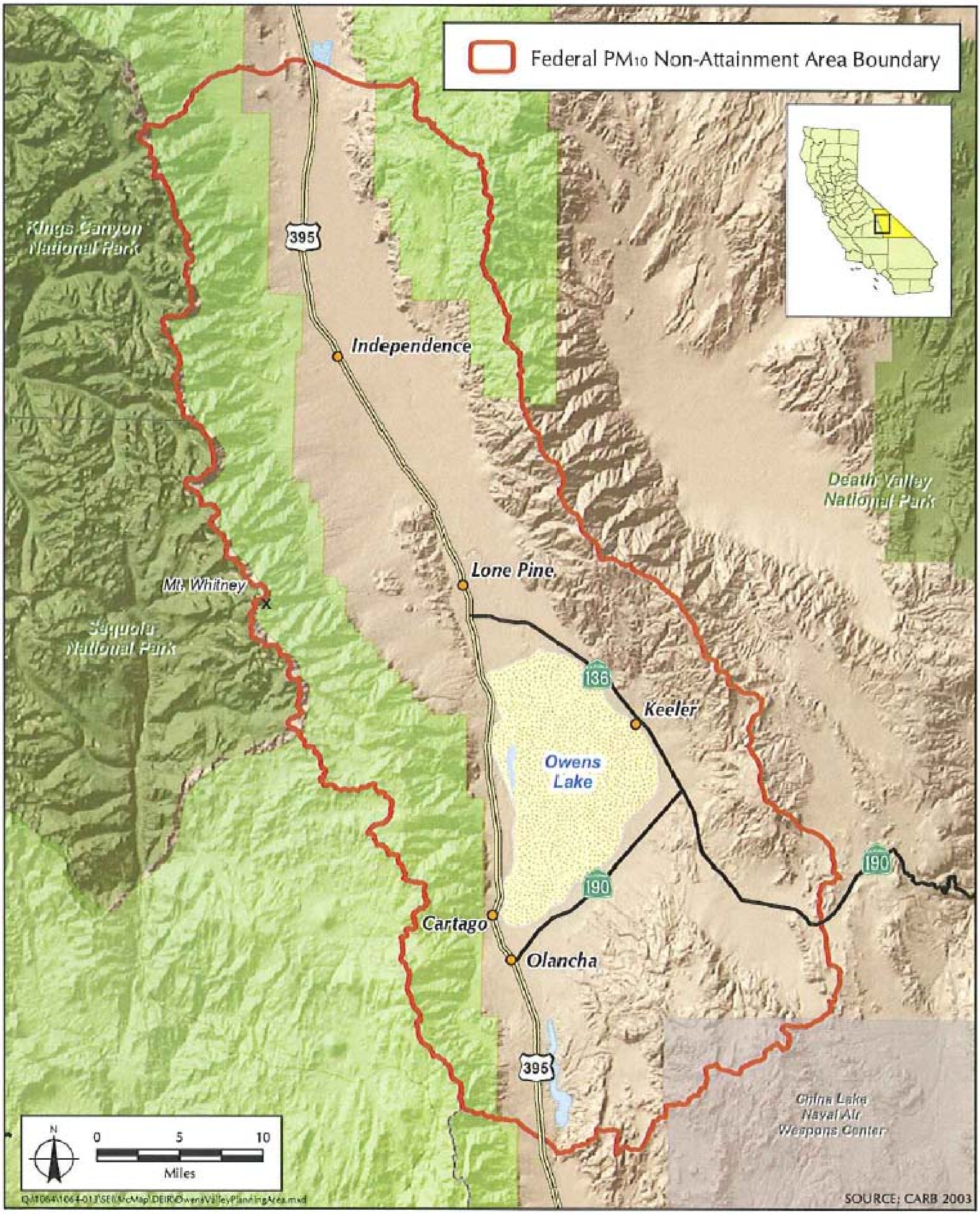
Project Title: Owens Lake Dust Mitigation Plan

The City of Los Angeles Department of Water and Power (LADWP) will be the Lead Agency pursuant to the California Environmental Quality Act (CEQA) and will prepare a Supplemental Environmental Impact Report (SEIR) for the *Owens Lake Revised Moat and Row Dust Control Measures Plan*. The SEIR will be a supplement to the *2008 Final Subsequent Environmental Impact Report* (2008 FSEIR) which was adopted on February 1, 2008 by the Great Basin Unified Air Pollution Control District (GBUAPCD). The SEIR is being prepared to evaluate the potentially significant environmental effects related to minor additions and changes to dust control measures previously approved for construction within the Owens Lake Planning Area.

LADWP is requesting the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. To the extent that your agency has authority to issue permits or take other actions related to the project, your agency will be able to use the SEIR when considering your permit or other approval for the project. LADWP is also requesting comments regarding environmental issues associated with the proposed project from interested individuals and organizations.

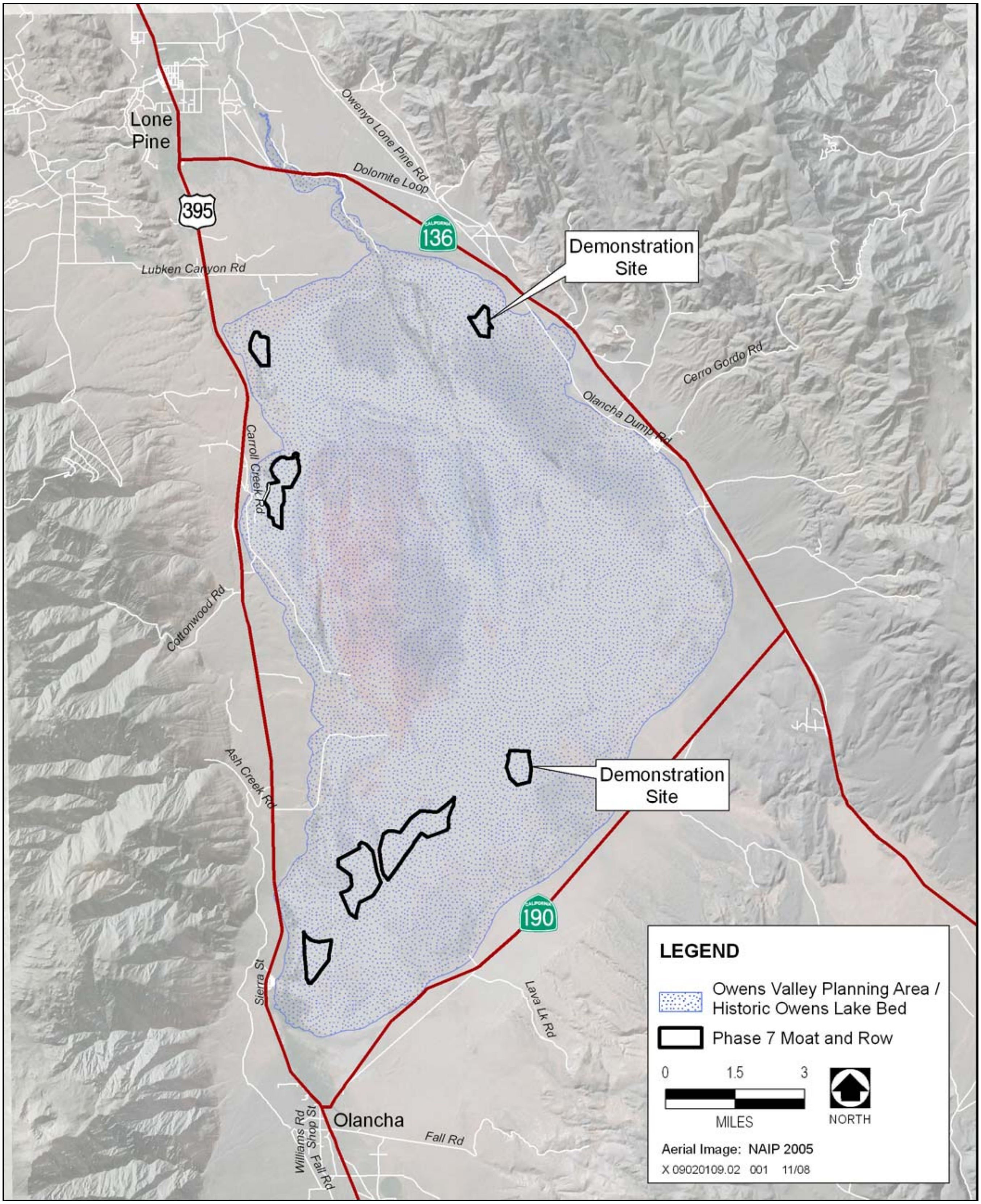
PROJECT LOCATION

The proposed project encompasses approximately 3.5 square miles of the 110 square-mile dry Owens Lake bed (which is part of the Owens Lake Planning Area) located in Owens Lake. Owens Lake is located approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the City of Bishop. In addition, Owens Lake is located approximately 11 miles east of the easternmost boundary of Sequoia National Park and located approximately 19 miles west of the westernmost boundary of Death Valley National Park. Owens Lake is bounded by Highway 136 to the north, Highway 190 to the south, and Highway 395 to the west. A portion of the project is adjacent to the California Department of Fish and Game's Cartago Springs Wildlife Area (see Exhibits 1 and 2).



Source: Adapted by EDAW 2008

Regional Location **Exhibit 1**



Source: Adapted by EDAW 2008

Project Location **Exhibit 2**

PROJECT BACKGROUND

The GBUAPCD regulates fugitive dust (PM_{10}) emissions in the Owens Lake Planning Area consistent with the requirements of the National Ambient Air Quality Standards (NAAQS). Prior to construction of dust controls in 2000, the dried Owens Lake bed, within the Owens Lake Planning Area, was the largest single source of PM_{10} emissions in the United States, with annual PM_{10} emissions of more than 80,000 tons and 24-hour concentrations as high as 130 times the federal air quality standard. The fugitive dust emissions at Owens Lake are the result of prevailing winds passing over the exposed lake bed. The dry lake bed is a result, in part, of LADWP's long-term diversion of water, which would otherwise feed the lake, from the Eastern Sierra to the City of Los Angeles via the Los Angeles aqueduct.

In 1987 the U.S. Environmental Protection Agency (EPA) designated the Owens Lake Planning Area as non-attainment for the NAAQS for PM_{10}. The GBUAPCD is the agency designated by the EPA and State of California to develop, implement and enforce a plan that addresses the problem. As a result, GBUAPCD was required to prepare a state implementation plan (SIP) that demonstrates how the NAAQS for PM_{10} would be attained. GBUAPCD adopted SIPs for the Owens Lake Planning Area in 1997 and 1998. The SIP was then forwarded to the EPA who then approved the 1998 SIP. The 1998 SIP and its associated environmental document evaluated and approved the implementation of a variety of dust control measures (DCMs) on 19.4 square miles of the lake bed. The SIP also identified that GBUAPCD would continue to study the lake bed and revise the SIP to address changing conditions within the lake bed and/or to implement newer or more efficient dust control measures that were developed over time. Through monitoring of the lake bed and the effectiveness of dust control strategies already in place, GPUAPCD revised the SIP in 2003 to expand the area where dust control measures would be implemented by 10.4 square miles and required that LADWP implement all new DCMs by December 31, 2006. With approval for the 2003 Revised SIP, which was also approved by the California Air Resource Board, a total of 29.8 square miles of DCMs were implemented on Owens Lake by the end of 2006. Both the 1998 SIP and 2003 Revised SIP underwent comprehensive environmental review in compliance with CEQA. Table 1 describes the environmental documents prepared to address the DCMs proposed for the 1998 SIP and 2003 Revised SIPs as well as previous environmental documents addressing dust control within the Owens Lake Planning Area.

Table 1
Environmental Documents Addressing Dust Control Measures within the Owens Lake Planning Area

Adopted SIP	Environmental Document	Subject
1997 and 1998 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIPs	*Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Final Environmental Impact Report (1997)* , SCH Number 1996122077; GBUAPCD CEQA Lead Agency	This environmental document evaluated implementation of DCMs for approximately 19.4 square-miles within the Owens Lake Planning Area. DCMs evaluated and approved in this document included shallow flooding, managed vegetation, and application of gravel.
	Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP Addendum No.1 to the Final Environmental Impact Report (1998), SCH Number 1996122077; GBAPCD CEQA Lead Agency	This environmental document addressed changes to the 1997 SIP project description approved in a MOA (July 28, 1998) between GBUAPCD and City of Los Angeles. No new or expanded DCAs were approved.

Table 1 Environmental Documents Addressing Dust Control Measures within the Owens Lake Planning Area		
Adopted SIP	Environmental Document	Subject
2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP	*2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP Integrated Environmental Impact Report (February 2004),* SCH Number 2002111020; GBUAPCD CEQA Lead Agency	The 2003 SIP was prepared in response to monitoring data on the effectiveness of DCMs implemented as part of the 1997 SIP. This environmental document evaluated implementation of an additional 10.4 square miles of DCMs (i.e., shallow flooding, managed vegetation), mainline and drainline water pipeline connections, subsurface drainage system improvements, power supply and control facilities, fertilizer and water treatment injection systems, utility corridors, power cables and access roads, and construction corridors. A total of 10.4 square miles of DCMs were approved with this project bringing the total area of DCMs approved to 29.8 square miles (19.4 square miles approved with 1997 SIP).
	Environmental Impact Report Addendum No. 1 to the 2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP (2004); SCH Number 2002111020; LADWP CEQA Lead Agency	This environmental document evaluated the exchange of 1.3 square miles of DCAs originally designated for managed vegetation to shallow flooding and the addition of 223 acres of shallow flooding outside the area analyzed in the 2003 SIP EIR.
2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan	*2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Integrated Subsequent Environmental Impact Report (2008),* SCH Number 2007021127; GBUAPCD CEQA Lead Agency	This environmental document evaluated implementation of an additional 15.1 square miles of DCMs within the Owens Lake Planning Area. DCMs evaluated and approved included shallow flooding, moat and row, and application of gravel. Approximately 3.5 square miles of moat and row DCMs were evaluated and approved in this project.
	– SUBJECT OF THIS NOP- ***Supplemental Environmental Impact Report for the 2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (December 2008);*** **LADWP CEQA Lead Agency**	This environmental document evaluates changes to the design and operation and maintenance plan for the 3.5 square miles of moat and row DCMs evaluated within the 2008 SIP environmental document. No expanded DCAs are considered.

The 2003 Revised SIP contains provisions requiring the GBUAPCD to continue monitoring dust emissions from the lake bed and to identify any additional areas beyond the 29.8 square miles of DCAs that may require DCMs in order to meet NAAQS for PM_{10}. As a result of the continued monitoring, the GBUAPCD identified up to 15.1 additional square miles of which 9.2 square miles will be shallow flood, 3.5 square miles will be moat and row, 1.9 square miles will be study areas and 0.5 square miles will be channel areas. The study areas and the channel areas may or may not require mitigation. Please see Table 2 below. These additional DCAs were outlined in the

2008 SIP. The environmental impacts were evaluated as part of the 2008 *Final Subsequent Environmental Impact Report* (see Table 1). Specific details regarding the operation and maintenance of the moats and rows were not available at the time the Subsequent EIR was certified and, therefore, could not be evaluated at a project-level of detail.

After publication and certification of the 2008 FS EIR, the California Department of Fish and Game (DFG) and the California State Land Commission (CSLC) raised concerns over specific features of the project-level description of the moat and row DCM and its impact on wildlife, as well as other issues.

Table 2
2008

Supplemental Dust Control Area/Measure	Square Miles	Acres	Percentage
Shallow Flood	9.2	5,888	61%
Moat & Row	3.5	2,240	23%
Study Area	1.9	1,216	13%
Channel Area	0.5	320	3%
Total Proposed Project Area	15.1	9,664	100%

In response to comments received, LADWP refined the design of the moat and row DCM to address DFG's concerns regarding wildlife impacts and developed additional details regarding the operation and maintenance plan. These refinements are the subject of this SEIR. The SEIR will be a supplement to the *2008 Final Subsequent Environmental Impact Report.* While GBUAPCD was the CEQA lead agency for the 2008 FS EIR, it has taken its final action regarding the proposed project and it was agreed to by GBUAPCD and the responsible and trustee agencies, the California State Lands Commission and California Department of Fish and Game (CDFG), that LADWP would be the CEQA lead agency for the SEIR.

To comply with CEQA, LADWP is preparing a project-level SEIR for the construction and operation of up to 3.5 square miles of moat and row DCMs, based on the refined design and the operations and maintenance plan. The refined plan may result in some environmental impacts that were not identified or assessed in the 2008 FS EIR LADWP has determined that a supplemental EIR is appropriate, based on Section 15163 of the CEQA Guidelines. A supplemental EIR is generally required when modifications to a project are made, following project approval, and the modifications result in one or more significant environmental effects that were not previously addressed. The supplemental analysis need only address the new significant impacts resulting from the project modification. The supplemental EIR will be prepared in accordance with CEQA and the CEQA guidelines. A draft of the supplemental EIR will be circulated for public comments and responses to those comments will be prepared. The lead agency is required to consider the supplement, together with the prior certified EIR, in determining the full extent of project impacts if it chooses to approve the project.

LADWP has prepared an Initial Study (IS) consistent with the requirements of CEQA (CEQA Guidelines Sections 15060 through 15065), to identify those areas or elements of the project that have been appropriately evaluated in previously approved environmental documents and to determine whether the proposed project would result in any new significant environmental effects that have not been previously evaluated and mitigated to the maximum extent practicable. Based on the results of the IS, LADWP has determined that with the exception of four resource areas (biological resources, construction-related air quality, construction-related traffic, and visual resources), the project would not result in any new potentially significant environmental impacts that were not sufficiently addressed and mitigated in previous environmental documents.

PROJECT DESCRIPTION

LADWP proposes to reduce dust emissions in the Owens Lake Planning Area in order to eliminate exceedances of the federal particulate matter (PM_{10}) standard, through the construction of a landform feature called moat and row. The moat and row dust control measure, as initially configured, is a method of dust control that does not require the addition of supplemental water to reduce dust emissions from the lake bed. A moat and row element is up to an 89-foot wide disturbed linear corridor that consists of an earthen berm (row) approximately 5-feet-high with 1.5:1 (horizontal to vertical) sloping sides and a base of up to 19 feet wide, an access road on both sides of the row of up to 15 feet wide, flanked on the other side by ditches (moats) approximately 4 to 5.5- feet-deep and up to 20 feet wide at the widest point. Rows serve as wind breaks and the primary function of the moats is to capture sand. Moat and row elements would typically be arrayed in a grid pattern oriented to be perpendicular with the primary and secondary wind directions. Minimum spacing of the elements will be approximately 100 feet center to center. Generally, the rows would run the length of the dust control area (DCA) with breaks in the rows at distances determined to be suitable for the habitat requirements for biological species present in the area as determined through the SEIR analysis. Other features that would be constructed within the moat and row DCAs include sand fences. Sand fences are generally constructed of a mesh fabric up to 5-feet tall with 14-inch diameter round or square stainless steel or arsenic-free wood treated posts supporting the fabric. The sand fences would be placed on top of rows or in open playa areas as determined to be appropriate through on-site monitoring of prevailing wind direction and speed. A detailed description of the project is provided in the attached IS.

Construction of the moat and row DCMs may also include the application of a variety of enhancements within the moat and row areas to gain greater dust control efficiencies within the Owens Lake Planning Area. These enhancements would be implemented in response to air quality monitoring of PM_{10} emissions in the moat and row DCAs. Five enhancement options would be considered and are evaluated as part of this SEIR as described below.

Shallow Flood Enhancements

This enhancement would involve applying water to the lakebed surface during the dust emission season (i.e., October 1 through June 30) to stabilize air emission areas. The water would flood the playa between the moat and row elements and would sufficiently wet surface soils to prevent dust emissions.

Managed Vegetation Enhancements

This enhancement would be implemented within the moat and row elements and/or in open playa areas between moat and row elements. The enhancement would involve planting local, native drought- and/or salt-tolerant plant species. The root systems of the plants would serve to stabilize emissive or eroding areas and the plants would shelter the soils from blowing winds. Vegetation would be irrigated through the construction of an irrigation system that may include drip, surface flood, and/or sprinkler irrigation systems.

Moat and Row Augmentations

This enhancement involves the construction of additional moat and row elements between previously constructed moat and row elements to shorten unobstructed space (i.e., open playa areas) within the lake bed, provide a greater number of features to capture mobile sand, and reduce the rate of dust emissions. The additional moat and row elements would generally be constructed in between originally constructed moat and row elements, either in a parallel or perpendicular direction. This enhancement would be implemented if existing moat and row elements are determined to not be sufficiently controlling PM_{10} emissions. In no case would the additional moat and row elements increase the density beyond the 100-foot center-to-center minimum spacing specified above.

Row Armoring Enhancements

This enhancement would apply crushed rock or gravel on the side slopes of the rows and the access roads adjacent to the rows to reduce dust emissions in these areas. The gravel would provide a protective cover over surface soils to prevent dust emissions. This enhancement would not allow the placement of gravel on open playa areas outside the disturbed moat and row areas.

APPLICATION OF BRINE ENHANCEMENTS

This enhancement would apply brine to the moat and row side slopes and to access roads within the moat and row DCAs. Brine is water with a heavy concentration of salt. Brine is produced in shallow flooding DCAs on Owens Lake. Brine pipelines have been constructed within the shallow flooding areas to collect the brine. The brine would be collected from the brine pipelines in the shallow flooding areas and delivered to the moat and row DCAs via water trucks. The brine would stabilize surface soils by creating a hardened salt crust (through the evaporation of water) on top of the emissive soils that would substantially reduce dust emissions. This enhancement would not allow the application of brine on open playa areas outside the disturbed moat and row areas.

POTENTIAL ENVIRONMENTAL EFFECTS

Based on the analysis prepared in the attached IS, the potential environmental effects of the proposed project that will be addressed in the SEIR will include, but may not be limited to, the following:

- Biological Resources
- Aesthetics
- Construction-related Air Quality
- Construction-related Transportation/Traffic

PUBLIC COMMENT PERIOD

The 30-day public comment period for this NOP will commence on December 16, 2008 and conclude on January 13, 2009. Copies of the NOP and IS will be available for review at the following locations:

- Inyo County Free Library, 168 N. Edwards Street, Independence, CA, 93526, (760) 878-0260
- Big Pine Library, 110 North Main,, Big Pine, CA, 93513, (760) 938-2420
- Lone Pine Branch Library, South Washington Street, Lone Pine, CA, 93545, (760) 876-5031
- Bishop Branch Library, 210 Academy Street, Bishop, CA, 93514 (760) 873-5115
- Ridgecrest Public Library, 131 E. Las Flores Avenue, Ridgecrest, CA, 93555 (760) 384-5870

A copy of the NOP will also be posted online at http://www.ladwp.com/ladwp/cms/ladwp004156.jsp. Please submit comments in writing to the address provided below. Comment letters must be received by 5:00 p.m. on January 13, 2009.

Department of Water and Power
City of Los Angeles
111 North Hope Street, Room 1044
Los Angeles, CA 90012
Contact: Tom Dailor
Fax: (213) 367-4710

If there are any questions regarding this Notice of Preparation, please contact Mr. Tom Dailor at (213) 367-0221.

PUBLIC MEETINGS

A public meeting will be held on January 7, 2009 at 6:00 p.m. in the community of Independence at the County Administrative Center, 224 North Edwards, to solicit input from interested parties on the proposed content of the Supplemental EIR. For more information, please contact Mr. Tom Dailor at the phone number listed above.

Date: 12/16/08 Signature: Thomas A. Dailor

Initial Study

Initial Study

Owens Lake Revised Moat and Row Dust Control Measures

Lead Agency:

Department of Water and Power
City of Los Angeles
111 North Hope Street, Room 1044
Los Angeles, CA 90012

December 16, 2008

EDAW | AECOM

Initial Study

Owens Lake Revised Moat and Row Dust Control Measures

Prepared for:

Department of Water and Power
City of Los Angeles
111 North Hope Street, Room 1044
Los Angeles, CA 90012

Contact:

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December 16, 2008

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1 INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This document is the IS for the revised Moat and Row Project. Prior to its proposed revision, the Project was evaluated and adopted as part of the *2008 Owens Valley PM_{10} Planning Area State Implementation Plan Final Subsequent Environmental Impact Report (2008 FSEIR)* (adopted by the Great Basin Unified Air Pollution Control District [GBUAPCD] in February 2008). This Initial Study (IS) has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 *et seq*., and the State CEQA Guidelines, Title 14 California Code of Regulations (CCR) Section 15000 *et seq*. An initial study is prepared by a lead agency to determine if a project may have a significant effect on the environment, which in turn helps to determine the appropriate environmental documentation. The initial study may rely on reports, field studies, technical studies, or other substantial evidence to document its findings. However, an initial study is neither intended nor required to include the level of detail included in an environmental impact report (EIR).

In accordance with State CEQA Guidelines Section 15064(a), an EIR must be prepared if there is substantial evidence that a project may have a significant effect on the environment. This consideration includes whether a project may contribute considerably to a cumulatively significant impact. Preparation of an initial study helps to identify the environmental issues that should be addressed in the EIR (i.e., items identified in the Initial Study as having a potentially significant impact) and those that need not be addressed (i.e., items identified in the initial study as having a less-than-significant impact or no impact). In the instance here, where an EIR has already been prepared but the project has changed, the initial study is used to identify new significant impacts that were not addressed in the prior EIR. If an impact was addressed in the prior EIR, even if it is significant, it need not be addressed again; the focus here is only on new significant effects.

This IS has been prepared to evaluate if there are new potentially significant environmental effects related to additions and changes to the moat and row DCM previously approved (by GBUAPCD) for construction within the Owens Lake Planning Area.

1.2 RELATIONSHIP TO THE 2008 OWENS VALLEY PM10 PLANNING AREA DEMONSTRATION OF ATTAINMENT STATE IMPLEMENTATION PLAN, INTEGRATED SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

The GBUAPD prepared and adopted the 2008 FSEIR on February 1, 2008. The 2008 FSEIR evaluated the implementation of 15.1 square miles of Dust Control Measures (DCMs) within the Owens Lake Planning Area. DCMs evaluated and approved included shallow flooding, moat and row elements, and application of gravel as riprap (a loose assemblage of broken stones) on berms within shallow flooding ponds or as a cap on rows in moat and row elements. Approximately 3.5 square miles of moat and row DCMs were evaluated and approved in that project. Since the time the 2008 FSEIR was published, changes to the design and operation and maintenance plan for the moat and row DCMs have been proposed. This IS describes the impacts associated with revised moat and row DCMs and determines which impacts would be new, and which were already identified in the GBUAPCD-approved 2008 FSEIR. Section 15162 of the Guidelines explains that when an EIR has been certified for a project, no subsequent EIR shall be prepared for a project unless the agency determines based on substantial evidence that:

- Substantial changes are proposed or occur with respect to the circumstances under which the project is undertaken that will require major revisions to the previous EIR due to the involvement of significant effects or a substantial increase in the severity of previously identified significant effects;

- New information of substantial importance, which was not known and could not have been known at the time the previous EIR was certified shows the following
  - The project would have one or more significant effects not discussed in the previous EIR
  - The significant effects previously examined would be substantially more severe than shown in the previous EIR;
  - Mitigation measures or alternatives previously found to be infeasible would in fact be feasible and would substantially reduce one or more significant effects of the project; or
  - Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment.

The project would result in changes to the design of the moat and row elements and a more robust operations and maintenance plan is proposed. These changes were not known at the time the 2008 FSEIR was prepared; therefore, an analysis of their environmental effects is required under CEQA. However, these changes only affect the moat and row dust control areas (DCAs), as opposed to the larger dust control program evaluated in the 2008 FSEIR. In cases where only minor additions or changes to a previous EIR are required to make the previous EIR apply to the changed project, CEQA Section 15162 allows the preparation of a supplement to a previous certified EIR if any of the conditions that require the preparation of a Subsequent EIR are present. Further, CEQA states that the Supplement to the EIR need only contain the information necessary to make the previous EIR adequate.

The proposed project would only be a change to one element of the larger dust control program evaluated in the 2008 FSEIR. The majority of land use-related issues (e.g., geology, hydrology, land use, hazards, public services and utilities, recreation, mineral resources, agricultural resources, and noise) have been appropriately evaluated in the 2008 FSEIR and the project would not result in any new significant impacts in these areas. As such, LADWP has determined that a Supplemental EIR that focuses on the issues of construction-related air quality, visual resources, biological resources, and construction-related traffic would be appropriate in compliance with CEQA requirements. Consistent with Section 15162 of the CEQA Guidelines, this IS identifies impacts that would result from the changed project but were not indentified in the prior EIR, or the significant impacts that would be more severe.

1.3 LEAD AGENCY

The lead agency under CEQA is the public agency with primary responsibility over the proposed project. The lead agency for the proposed project is the City of Los Angeles Department of Water and Power (LADWP). Because the LADWP is supplementing an EIR prepared by another agency, the GBUAPD, this IS summarizes prior impact conclusions, where relevant, pertaining to the project that is the subject of this CEQA analysis.

1.4 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this document is to evaluate the potential environmental impacts of the proposed project. Mitigation measures have been recommended, where available, to reduce or eliminate identified significant and/or potentially significant impacts.

This IS is divided into the following 5 chapters:

- Chapter 1 provides an introduction and describes the purpose and organization of this document;
- Chapter 2 provides a detailed description of the proposed project;

- Chapter 3 describes the environmental setting for each of the environmental subject areas; the checklist has been modified as appropriate to address that a prior EIR was prepared and is being supplemented. Thus, it evaluates a range of impacts identified as “no impact,” “less-than-significant,” “significant impact already addressed in 2008 FSEIR,” or “new potentially significant impacts” in response to the environmental checklist; and provides mitigation measures, where appropriate, to mitigate potentially significant impacts to a less-than-significant level;

- Chapter 4 identifies the preparers of this IS; and

- Chapter 5 identifies the references used in preparation of this IS.

2 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed project encompasses approximately 3.5 square miles of the 110 square-mile dry Owens Lake bed (which is part of the Owens Lake Planning Area) located in Owens Valley. Owens Lake is located approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the City of Bishop. In addition, Owens Lake is located approximately 11 miles east of the easternmost boundary of Sequoia National Park and located approximately 19 miles west of the westernmost boundary of Death Valley National Park. Owens Lake is bounded by Highway 136 to the north, Highway 190 to the south, and Highway 395 to the west. Part of the project is adjacent to the California Department of Fish and Game's Cartago Springs wildlife area (see Exhibits 2-1 and 2-2).

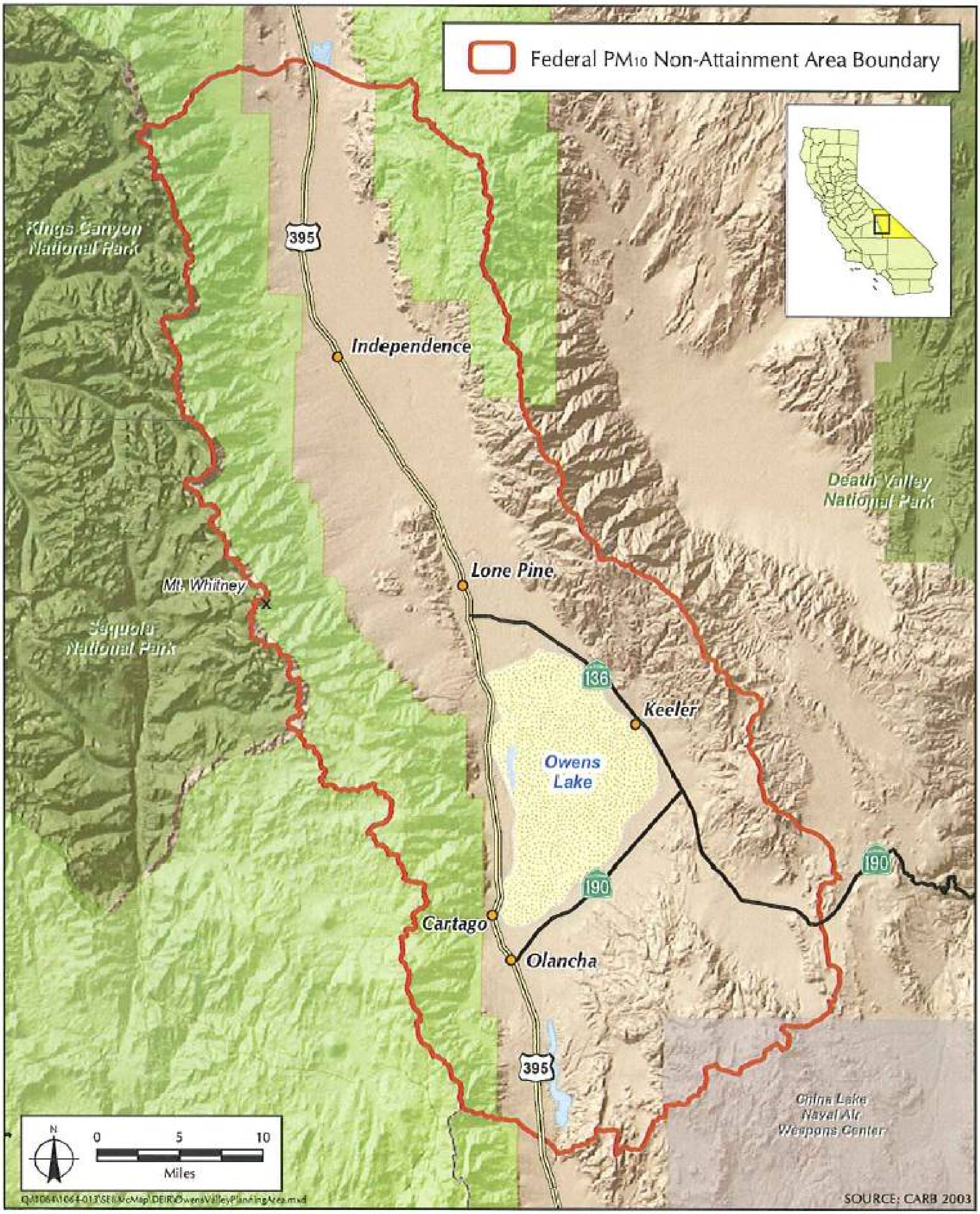
Four communities exist in the vicinity of the project area in the unincorporated area of Inyo County: the community of Lone Pine to the north, the community of Keeler to the east, and the communities of Olancha and Cartago to the southwest. The Lone Pine Indian Reservation is also located north of the project area.

2.2 PROJECT BACKGROUND

Owens Lake is part of an ancient chain of lakes that was active during the Pleistocene era, about 1.8 million years ago. Until approximately 3,000 years ago, Owens Lake drained from the basin to the south. Seismic uplift along the Coso Range combined with the post-glacial drying trend eliminated outflows from the basin, creating a closed system with water losses resulting from surface evaporation and transpiration. Because of the arid environment and high evaporation rates, a highly saline water body developed. In the late 1800s, Owens Lake was approximately 110 square miles in size and was one of the largest and most saline water bodies with salinity of about 1.5 times that of seawater (Exhibit 2-3).

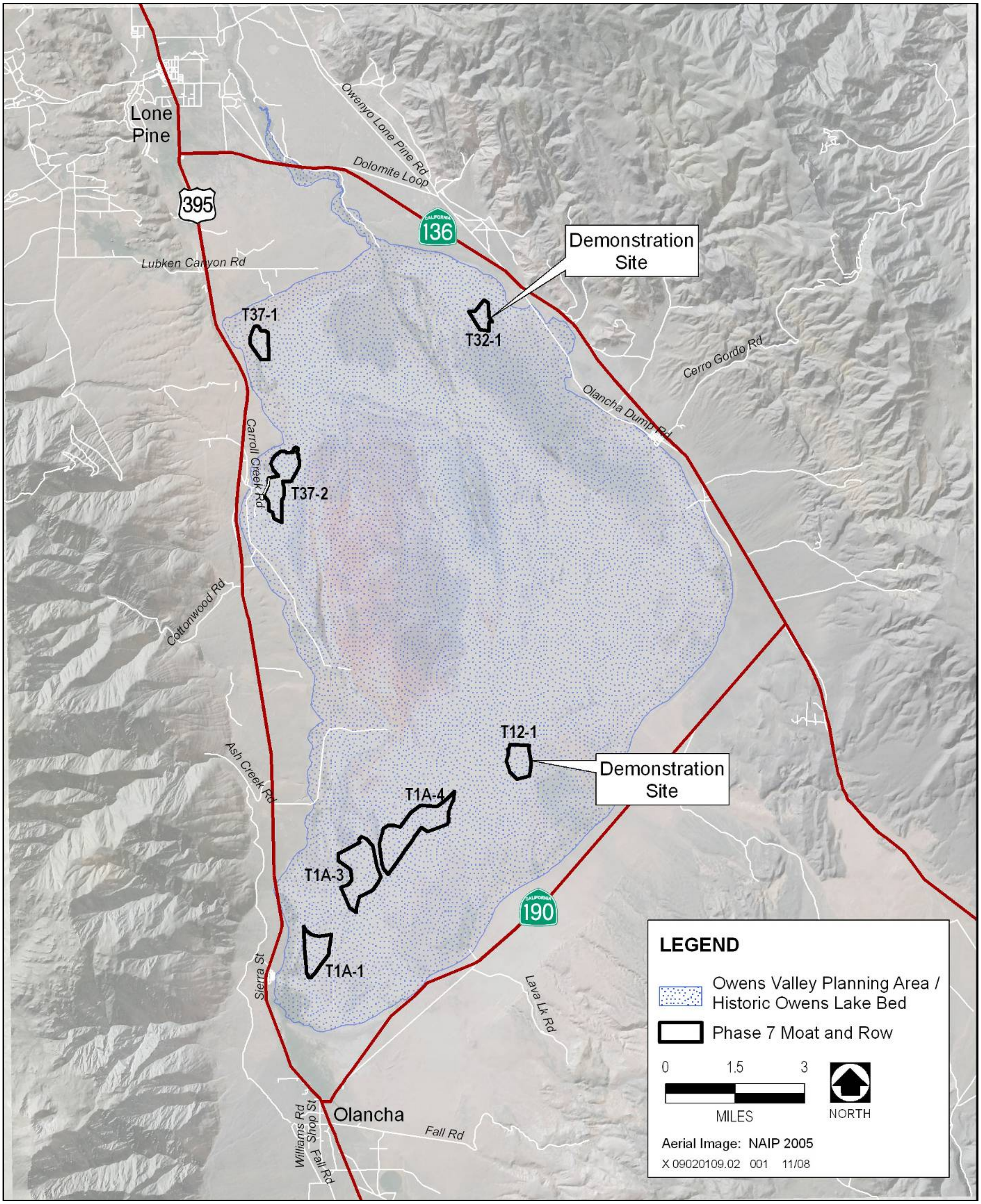
Surface water diversions from the lake from approximately the 1860s to the early 1900s substantially reduced surface water inflow to the lake. While historic lake levels were as high as 3,597 feet above mean sea level (msl) in 1878, by 1906 when extensive irrigation projects had been implemented and drought conditions occurred the lake level had dropped to as low as 3,565 feet above msl (a 32 foot drop in elevation). With the end of the drought in 1912, lake levels rose slightly to 3,579 feet above msl, but then continued their decline once the City of Los Angeles completed their freshwater aqueduct system and began diverting waters from the Owens River south to serve residents within the City. With increasing demand for exported water to serve the growing Los Angeles metropolitan area and increased diversions for irrigation in the Owens Valley (primarily on City of Los Angeles-owned land), the historic Owens Lake levels continued to decline creating a small hyper-saline remnant brine pool approximately 26 square miles in size and by 1930 the lake was virtually dry with a lake elevation of 3,554 feet above msl (43 foot drop). The historic shoreline of Owens Lake is 3,600 feet above msl (Exhibit 2-3). A permanent brine pool exists in the lowest portion of the basin and is surrounded by dry playa soils and crusts. The U.S. Army Corps of Engineers (USACE) has identified the ordinary high water mark of the brine pool to be at an elevation of 3,553.55 feet above msl, with evaporative deposits and brine covering much of the brine pool area.

The exposed open playa area (lake bed) between the historic shore line (3,600 feet above msl) and the brine pool (3,553.55 feet above msl) consists of unstable soils that can be highly emissive during wind events. The GBUAPCD regulates fugitive dust (particulate matter 10 microns in diameter or less, or PM_{10}) emissions in the Owens Lake Planning Area consistent with the requirements of the National Ambient Air Quality Standards (NAAQS). Prior to construction of dust controls in 2000, the dried Owens Lake bed, within the Owens Lake Planning Area, was the largest single source of PM_{10} emissions in the United States with annual PM_{10} emissions of more than 80,000 tons and 24-hour concentrations as high as 130 times the federal air quality standard. The fugitive dust emissions at Owens Lake are the result of wind passing over the exposed lake bed. The dry lake bed is a result of the LADWP's long-term diversion of water, which would otherwise feed the lake, from the Eastern Sierra to the City of Los Angeles via the Los Angeles aqueduct.



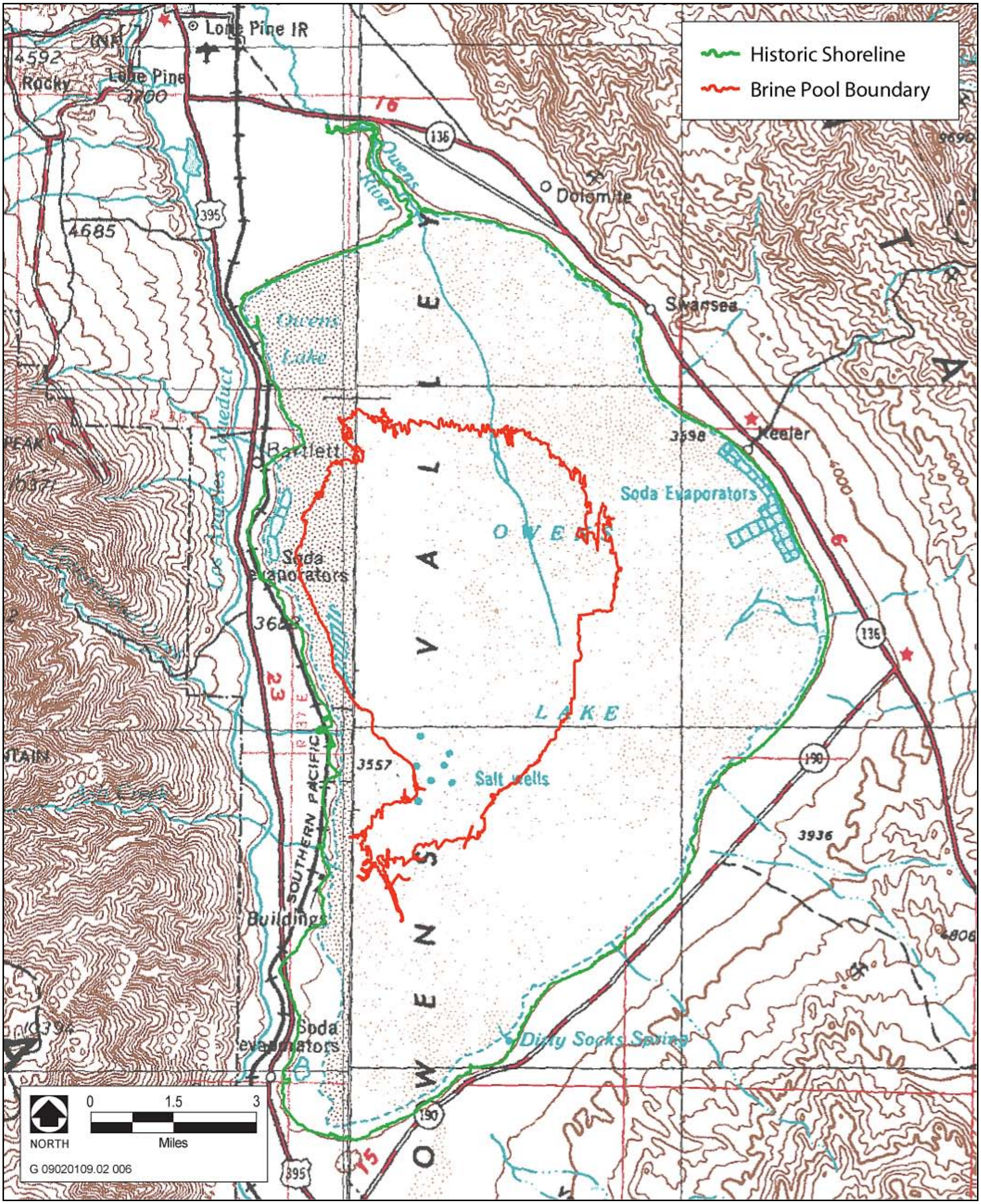
Source: Adapted by EDAW 2008

Regional Location **Exhibit 2-1**



Source: Adapted by EDAW 2008

Project Location **Exhibit 2-2**



Source: 2008 SIP Subsequent EIR, Great Basin Unified Air Pollution Control District

Owens Lake Historic Shoreline **Exhibit 2-3**

In 1987 the U.S. Environmental Protection Agency (EPA) designated the Owens Lake Planning Area as non-attainment for the NAAQS for PM_{10}. The GBUAPCD is the agency designated by the EPA and State of California to develop, implement, and enforce a plan that addresses the problem. As a result, GBUAPCD was required to prepare a state implementation plan (SIP) that demonstrates how the NAAQS for PM_{10} would be attained. GBUAPCD adopted SIPs for the Owens Lake Planning Area in 1997 and 1998. EPA approved the 1998 SIP. The 1998 SIP and its associated environmental document evaluated and approved the implementation of a variety of dust control measures (DCMs) on 19.4 square miles of the lake bed. The SIP also identified that GBUAPCD would continue to study the lake bed and revise the SIP to address changing conditions within the lake bed and/or to implement newer or more efficient DCMs that were developed over time. Through monitoring of the lake bed and the effectiveness of dust control strategies already in place, GPUAPCD revised the SIP in 2003 to expand the area where DCMs would be implemented by 10.4 square miles and required that LADWP implement all new DCMs by December 31, 2006. With approval of the 2003 Revised SIP, which was also approved by the California Air Resource Board, a total of 29.8 square miles of DCMs were implemented on Owens Lake by the end of 2006. Both the 1998 SIP and 2003 Revised SIP underwent comprehensive environmental review in compliance with CEQA. Table 2-1 describes the environmental documents prepared to address the DCMs proposed for the 1998 and 2003 SIPs.

Table 2-1
Environmental Documents Addressing Dust Control Measures within the Owens Lake Planning Area

Adopted SIP	Environmental Document	Subject
1997 and 1998 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIPs	*Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Final Environmental Impact Report (1997)* , SCH Number 1996122077; GBUAPCD CEQA Lead Agency	This environmental document evaluated implementation of DCMs for approximately 19.4 square-miles within the Owens Lake Planning Area. DCMs evaluated and approved in this document included shallow flooding, managed vegetation, and application of gravel.
	Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP Addendum No.1 to the Final Environmental Impact Report (1998), SCH Number 1996122077; GBAPCD CEQA Lead Agency	This environmental document addressed changes to the 1997 SIP project description approved in a MOA (July 28, 1998) between GBUAPCD and City of Los Angeles. No new or expanded dust control areas (DCAs) were approved.
2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP	*2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP Integrated Environmental Impact Report (February 2004),* SCH Number 2002111020; GBUAPCD CEQA Lead Agency	The 2003 SIP was prepared in response to monitoring data on the effectiveness of DCMs implemented as part of the 1997 SIP. This environmental document evaluated implementation of an additional 10.4 square miles of DCMs (i.e., shallow flooding, managed vegetation), mainline and drainline water pipeline connections, subsurface drainage system improvements, power supply and control facilities, fertilizer and water treatment injection systems, utility corridors, power cables and access roads, and construction corridors. A total of 10.4 square miles of DCMs were approved with this project bringing the total area of DCMs approved to 29.8 square miles (19.4 square miles approved with 1997 SIP).
	Environmental Impact Report Addendum No. 1 to the 2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP (2004); SCH Number 2002111020; LADWP CEQA Lead Agency	This environmental document evaluated the exchange of 1.3 square miles of DCAs originally designated for managed vegetation to shallow flooding and the addition of 223 acres of shallow flooding outside the area analyzed in the 2003 SIP EIR.

Table 2-1 Environmental Documents Addressing Dust Control Measures within the Owens Lake Planning Area		
Adopted SIP	Environmental Document	Subject
2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan	*2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Integrated Subsequent Environmental Impact Report (2008),* SCH Number 2007021127; GBUAPCD CEQA Lead Agency	This environmental document evaluated implementation of an additional 15.1 square miles of DCMs within the Owens Lake Planning Area. DCMs evaluated and approved included shallow flooding, moat and row, and application of gravel. Approximately 3.5 square miles of moat and row DCMs were evaluated and approved in this project.

The 2003 Revised SIP contains provisions requiring the GBUAPCD to continue monitoring dust emissions from the lake bed and to identify any additional areas beyond the 29.8 square miles of DCAs that may require DCMs in order to meet NAAQS for PM_{10}. As a result of the continued monitoring, the GBUAPCD identified up to 15.1 additional square miles of additional DCAs of which 9.2 square miles would be constructed with shallow flooding DCMs, 3.5 square miles would be constructed with moat and row DCMs, 1.9 square miles would reserved for future study areas, and 0.5 square mile would be channel areas (Table 2-2). The study areas and the channel areas may or may not require dust mitigation (i.e., implementation of approved DCMs). These additional DCAs were outlined in the 2008 SIP. The environmental impacts were evaluated as part of the 2008 FSEIR (see Table 2-1). After publication and certification of the 2008 FSEIR, the California Department of Fish and Game (DFG) and the California State Land Commission (CSLC) raised concerns over specific features of the moat and row DCM and its impact on wildlife, as well as other issues. In addition, specific details regarding the operation and maintenance of the moats and rows were not available at the time the 2008 FSEIR was certified and, therefore, could not be evaluated at a project-level of detail.

Table 2-2 Dust Control Areas Identified in 2008 SIP Supplemental EIR			
2008 SIP Subsequent EIR DCA	Square Miles	Acres	Percentage of Total DCA
Shallow Flood	9.2	5,888	61
Moat and Row	3.5	2,240	23
Study Area	1.9	1,216	13
Channel Area	0.5	320	3
Total	**15.1**	**9,664**	**100**

In response to comments received, LADWP refined the design of the moat and row DCM to address DFG's concerns regarding wildlife impacts and developed additional details regarding the operation and maintenance plan. These refinements are the subject of this IS.

LADWP has prepared this IS consistent with the requirements of CEQA (CEQA Guidelines Sections 15060 through 15065), to identify those areas or elements of the project that have been sufficiently evaluated in previously approved environmental documents and to determine whether the proposed project would result in any new significant environmental effects or a substantial increase in the severity of any previously evaluated environmental impacts.

2.3 PROJECT GOAL AND OBJECTIVES

The primary goal of the project is to prevent emissions from the lake bed that cause or contribute to violations of the PM_{10} NAAQS by the implementation of moat and row DCMs on the bed of Owens Lake by 2010. The dry Owens Lake bed is primarily owned and operated in trust for the people of the State of California by CSLC. Therefore, the project must also be consistent with the State of California's obligation of land and resource stewardship.

Objectives of the project include the following:

- Implement moat and row DCMs by April 1, 2010, pursuant to the 2008 SIP to achieve the NAAQS,
- Minimize or compensate for long-term, significant adverse changes to sensitive resources within the natural and human environment,
- Create a dust control program with a high likelihood of success without substantial delay,
- Substantially conform to adopted plans and policies and existing legal requirements,
- Minimize the long-term consumption of natural resources,
- Minimize the cost per ton of particulate pollution controlled,
- Implement a DCM that minimizes the use of water to the maximum extent practical.

2.4 PROJECT CHARACTERISTICS

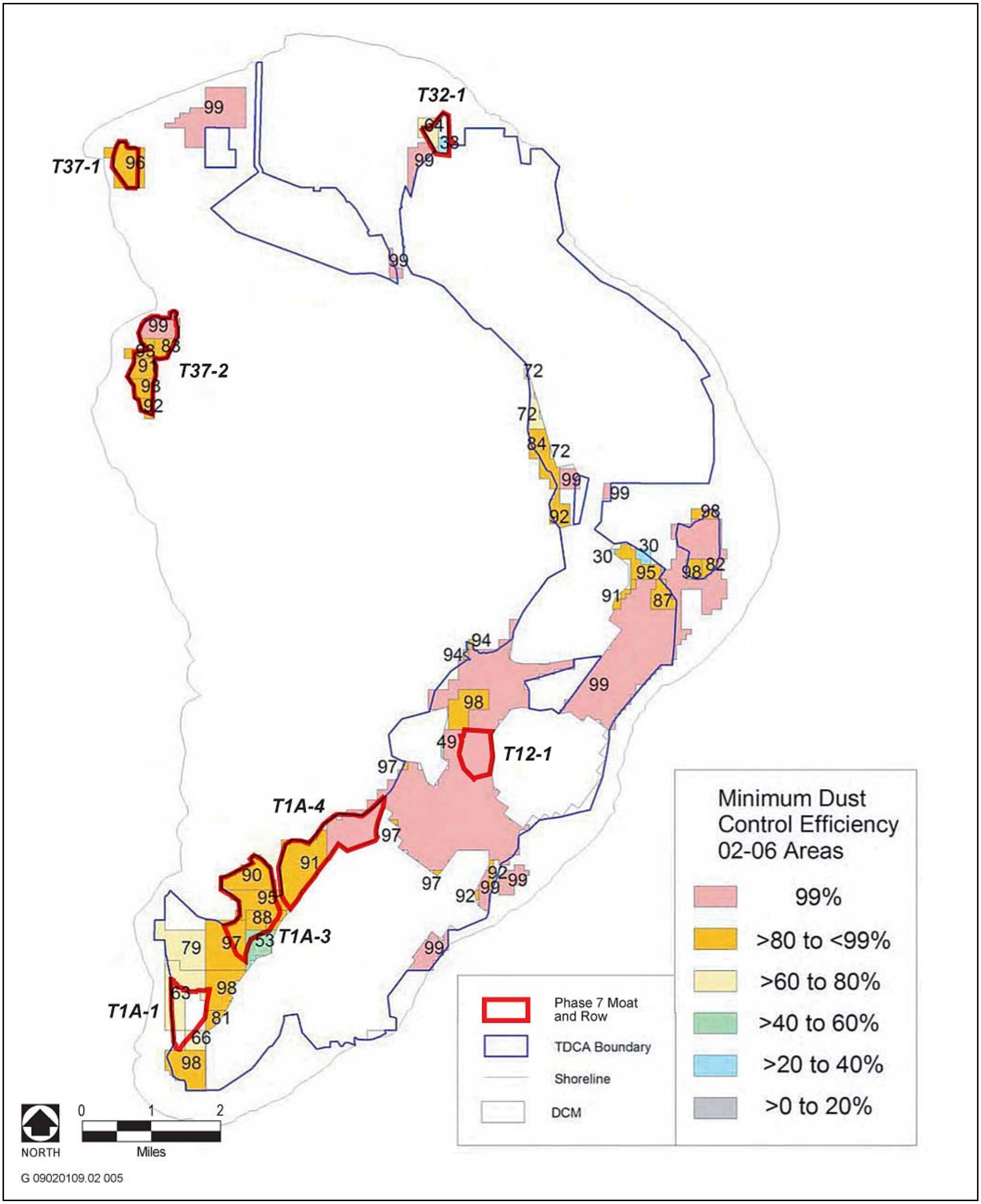
LADWP proposes to reduce dust emissions in the Owens Lake Planning Area, particularly achieving adopted control efficiencies for fugitive dust (PM_{10}), through the construction of landform features called moats and rows. Moat and row DCMs would be constructed on 3.5 square miles of the Owens Lake bed (Exhibit 2-2).

2.4.1 DUST CONTROL AREAS

In 2006, during settlement negotiations regarding dust control strategies between the GBUAPCD and LADWP, LADWP proposed a new Owens Lake PM_{10} control measure known as moat and row. It was LADWP's intent to develop a control measure that cost less to implement and uses significantly less water than previously approved DCMs (e.g., shallow flooding, managed vegetation). The Settlement Agreement that resulted from the 2006 negotiations contains provisions for the implementation of up to 3.5 square miles of moat and row DCMs.

2.4.2 PERFORMANCE STANDARDS FOR DUST CONTROL

GBUAPCD has monitored ambient PM_{10} concentrations within the Owens Valley including the communities of Keeler, Olancha, and Lone Pine for over 20 years. Monitoring data has been used to determine whether compliance with the federal PM_{10} standard has been achieved. Based on this monitoring data and air quality modeling conducted by GBUAPCD, minimum dust control efficiencies (MDCE) have been established for areas of the Owens Lake bed as shown in Exhibit 2-4. The MDCE standard establishes the minimum level at which the concentration of PM_{10} emissions must be reduced (through monitoring of the site) in order to achieve federal PM_{10} standards. MDCE's vary from 30 percent to 99 percent. The control efficiencies reflect the fact that different areas of the lake bed have different emissions rates and that areas closer to the historic shoreline require higher control efficiencies than areas well away from the shoreline. The MDCE for the moat and row DCAs varies from 60 to 99 percent.



Source: 2008 SIP Subsequent EIR, Great Basin Unified Air Pollution Control District

Minimum Dust Control Efficiency Map **Exhibit 2-4**

2.4.3 MOAT AND ROW CHARACTERISTICS

A moat and row element consists of an earthen berm (row) approximately 5-feet-high with 1.5:1 (horizontal to vertical) sloping sides and a base of up to 19 feet wide, an access road on both sides of the row of up to 15 feet wide, flanked on the other side by ditches (moats) approximately 4 to 5.5- feet-deep and up to 20 feet wide at the widest point. Rows serve as wind breaks and the primary function of the moats is to capture sand. Moat and row elements would typically be arrayed in a grid pattern oriented to be perpendicular with the primary and secondary wind directions (Exhibit 2-5). The predominant winds are from the north-northwest and the south, with the north-northwest –blowing wind the strongest but less frequent. Moat and row elements may also be placed at the perimeter of the moat and row DCAs.

Minimum spacing of the moat and row elements would be approximately 100 feet from center of the row to center of the next row (Exhibit 2-6). Generally, the rows would run the length of the DCA with breaks in the rows at distances determined to be suitable for the habitat requirements for biological species present in the area as determined through environmental analysis. The top of the rows would be armored with gravel to prevent wind erosion.

Other features that would be constructed within the moat and row DCAs include sand fences, which would also physically shelter the lake bed from blowing winds. Sand fences are generally constructed of a mesh fabric up to 5-feet tall with up to 14-inch diameter round or square stainless steel or arsenic-free, treated wood posts supporting the fabric (Exhibit 2-7). The sand fences would be placed on top of rows or in open playa areas as determined to be appropriate through modeling or on-site monitoring of prevailing wind direction and speed. The following summarizes the characteristics of the sand fences:

- Fence end posts and intermediate structural posts for fencing on top of rows will be stainless steel set in a concrete footing that will be buried by the row. Concrete footings for stainless steel end posts and intermediate structural posts in sand fence only areas will be below grade.

- Mid-fence posts would be placed at approximately 20 feet on center and would be driven into the ground..

- The sand fence fabric would be secured to the sand fence posts via tension cables. In general, a 2-inch gap between the top of the rows and the bottom of the sand fence fabric would be provided.

- The sand fence fabric color would match the visual character of the surrounding area.

- The sand fence fabric would have aerodynamic porosity of 49 to 51 percent with minimum openings of 0.0787-inch to allow sand particles to pass through. The clips attaching the bottom of the sand fence fabric to the bottom cable would be designed to break off to prevent the destruction of the fence during wind events in excess of 71 miles per hour (mph), as measured 12 inches from the ground surface.

- Monofilament line and/or other methods would be used on top of the sand fence to prevent perching by corvids near occupied nesting shorebird habitat as determined to be appropriate through environmental analysis.

- If guy wires are used to stabilize sand fences, sand fence fabric would be installed to fill in the gap between the guy wire and the sand fence posts.

The spacing and density of moat and row elements and sand fence only elements would generally vary from approximately 100 feet to 1,000 feet on center. These spacing dimensions are in both the principal and secondary directions of the grid.

The ground disturbance for the moat and row elements, including enhancements (see description below) would vary; however, ground disturbance within the 3.5 square miles of the moat and row DCAs would not exceed a maximum of 33 percent. For purposes of this environmental document, ground disturbance areas include the surface foot print of small grading berms, access roads, moats, rows, and sand fences. These features would generally be above the surface of the lake bed.

Potential ground disturbing activities or facilities located outside the 33% disturbance area would be implemented at the moat and row DCAs. These activities and facilities are considered temporary because they would be implemented below the ground surface and site conditions would return to pre-project conditions. However, for purposes of this IS, the environmental impacts of construction of these features were considered in the analysis. A 50-foot temporary construction footprint has been established around the limits of the moat and row DCAs. The following describes the temporary ground-disturbing activities and facilities that would occur in the DCAs:

- Installation of underground facilities including, but not limited to, grading for drainage facilities, pipeline, drip irrigation, and irrigation emitter installation;
- Grading or digging holes associated with managed vegetation or shallow flooding enhancements;
- Spreading of water or maintaining a water body within the moat and row DCAs;
- Vegetation planted between moat and row elements or on faces of the rows; and
- Maintenance activities.

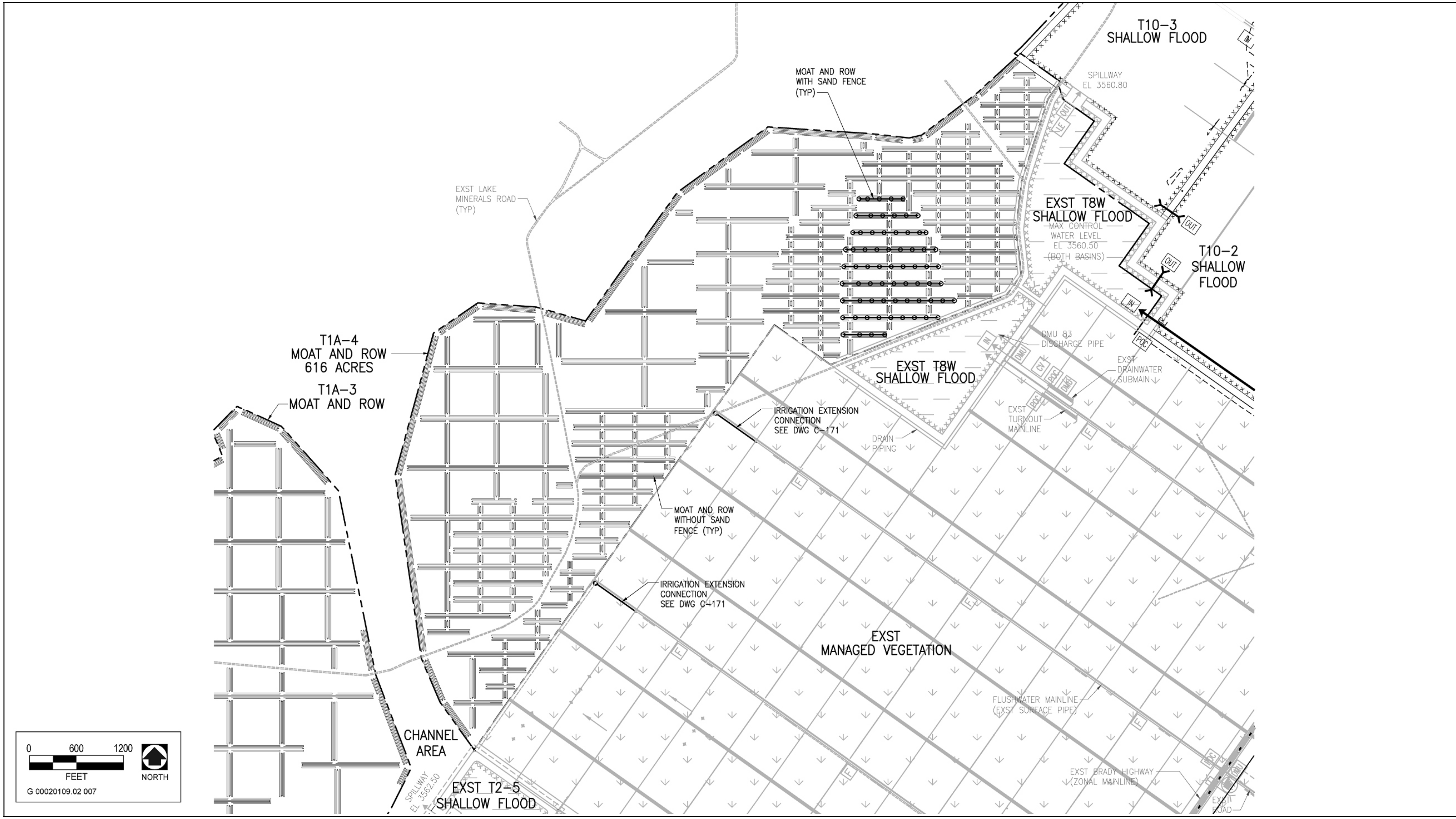
Moat and row DCMs would be constructed in such a way to result in an "earth balance." Earth balance would be achieved by using excavated dirt from moats for the construction of rows. This design and construction technique would eliminate the need to haul dirt out or into DCAs. Because the design of moat and row DCMs results in a greater volume of dirt excavated for moats compared to the volume of dirt required to construct rows, dirt used in the construction of rows would be compacted to a minimum 25% factor.

2.4.4 ENHANCEMENT OPTIONS

Construction of the moat and row DCMs may also include the application of a variety of enhancements to gain greater dust control efficiencies within the Owens Lake Planning Area. These enhancements would be implemented in response to air quality monitoring of PM_{10} emissions in the moat and row DCAs. Five enhancement options would be considered and are evaluated as part of this IS as described below. These enhancements would ensure that if significant dust sources (i.e., hot spots) develop within the moat and row DCAs, they would be promptly addressed. Any single method or combination of the enhancements could be implemented for both primary and secondary wind direction elements, where demonstrated to be in substantial conformance with the performance standards for the moat and row DCM. Many factors would influence the determination of which enhancement method would be selected with a preference towards non-water or low water consumption methods. These factors include, but are not limited to soil type, crust condition, nearest water source, material availability, existing vegetation, if any, and time frame for implementing the enhancement.

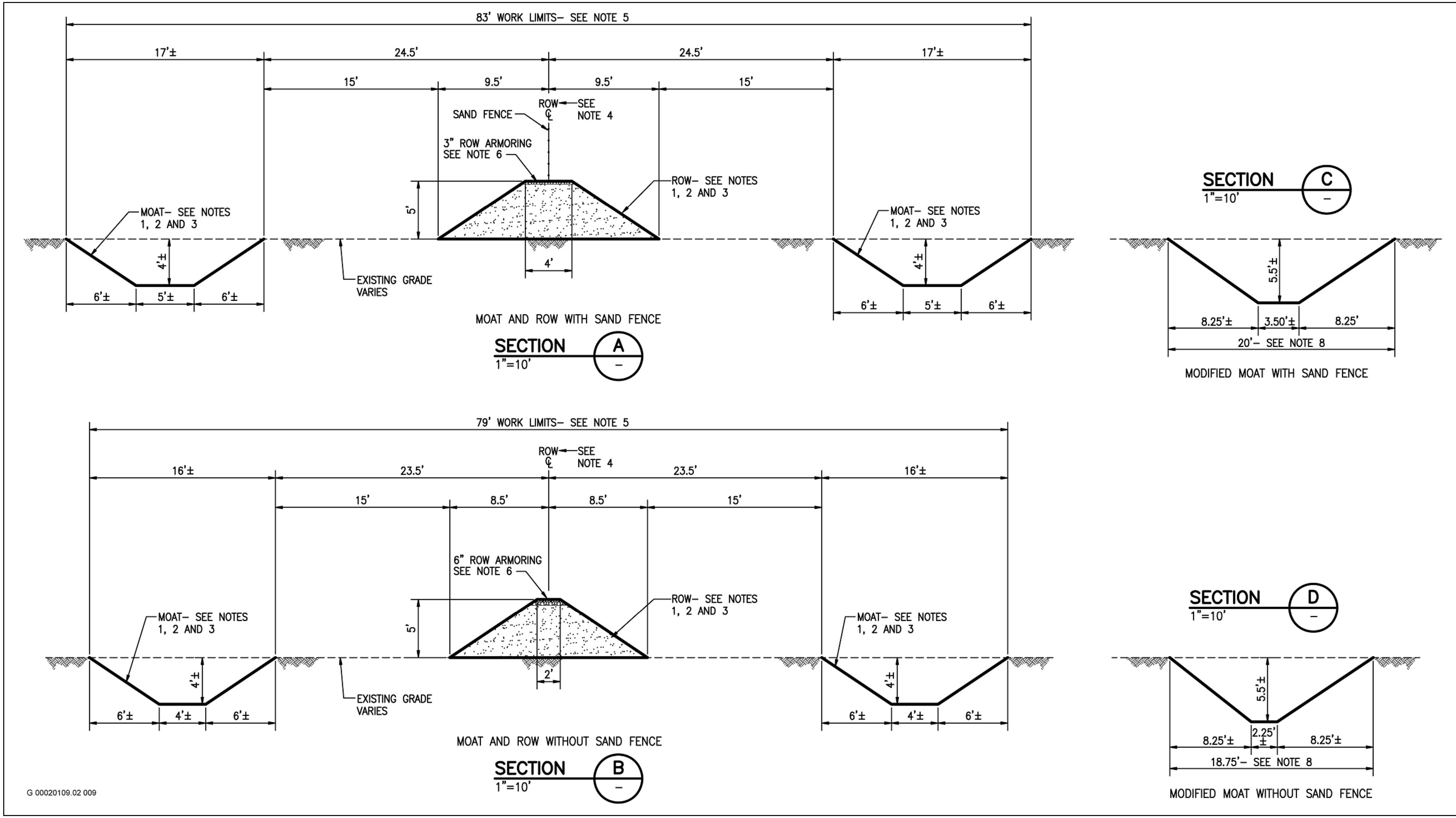
SHALLOW FLOOD ENHANCEMENTS

This enhancement involves applying water to the lakebed surface during the dust emission season (i.e., October 1 through June 30) to stabilize air emission areas. The water would flood the playa between the moat and row elements and would sufficiently wet surface soils to prevent dust emissions (Exhibit 2-8). The water for this enhancement would be supplied from existing shallow flooding DCAs, the Los Angeles Aqueduct, and/or Owens River. This measure would include the extension of a water lateral pipeline (12-inch diameter maximum) from a nearby shallow flooding DCA (previously approved and implemented by LADWP), the existing zonal mainline near the moat and row DCA, or from the shallow flooding DCA (previously approved) controlled outlet that is adjacent to the moat and row DCAs.



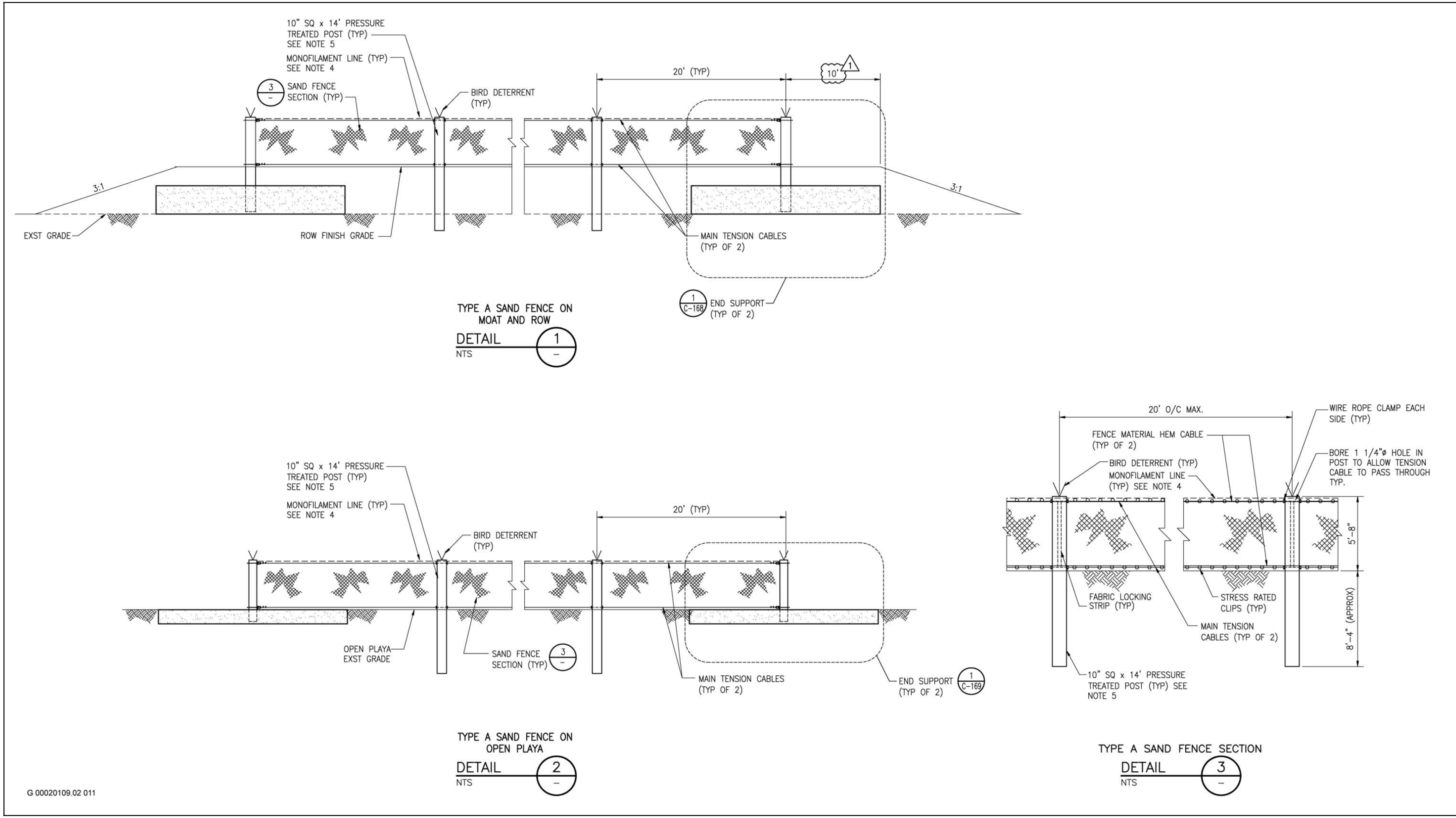
Source: Department of Water and Power 2008

Moat and Row Elements Grid Pattern **Exhibit 2-5**



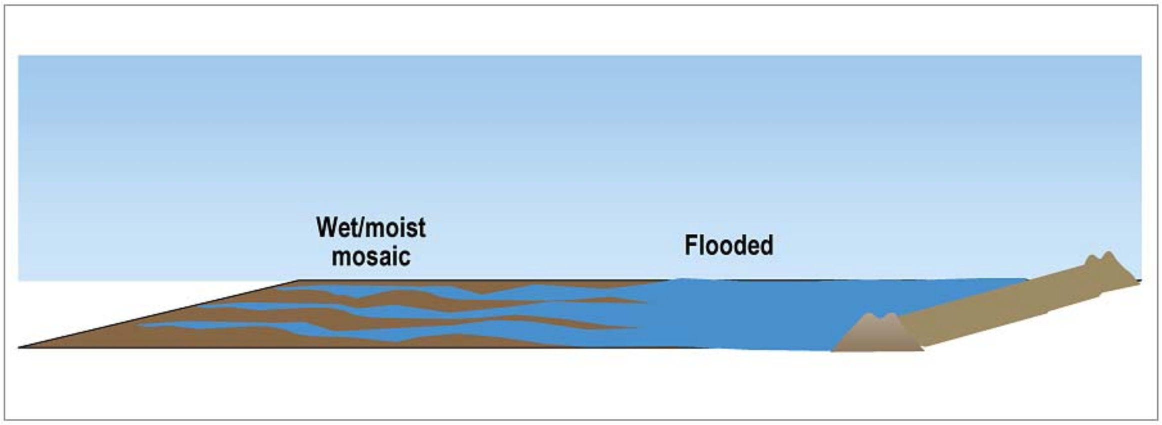
Source: Department of Water and Power 2008

Typical Moat and Row Sections **Exhibit 2-6**

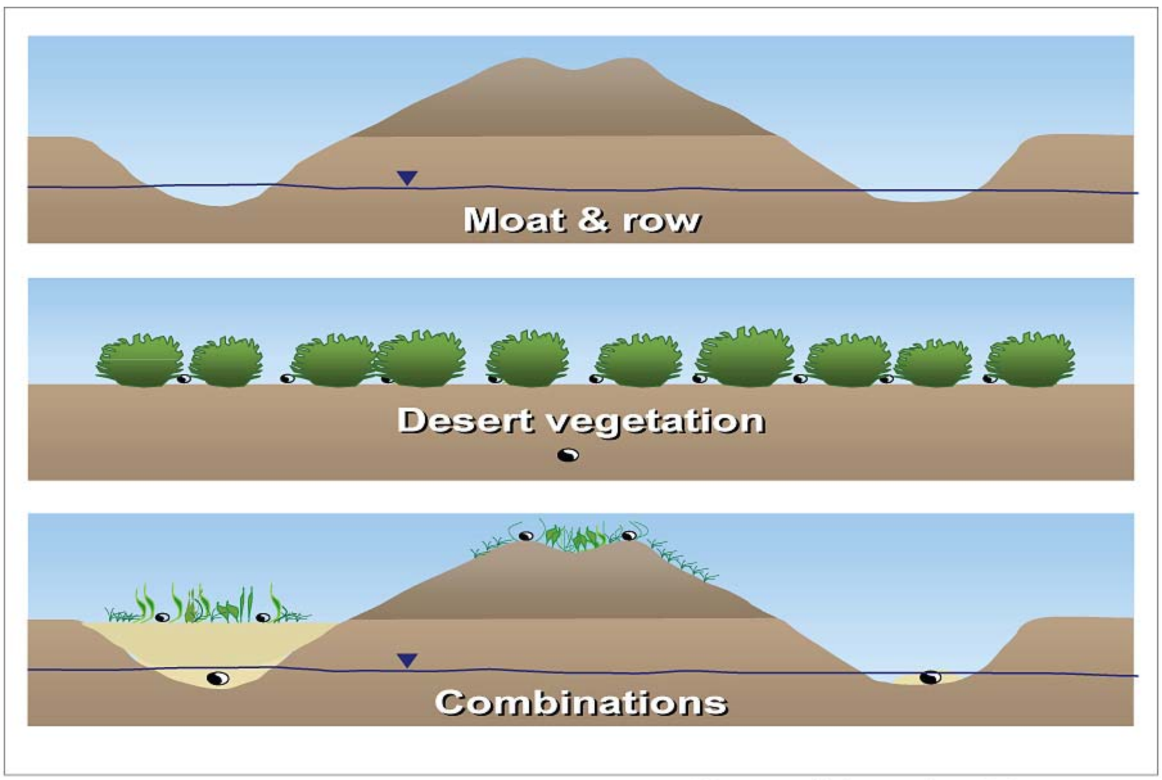


Source: Department of Water and Power 2008

Sand Fence on Moat and Row **Exhibit 2-7**



Shallow Flooding/Wetting Enhancement



Managed Vegetation Enhancement

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Source: 2008 SIP Subsequent EIR, Great Basin Unified Air Pollution Control District

Schematic of Moat and Row Elements and Shallow Flooding Enhancement **Exhibit 2-8**

The use of this enhancement is best suited for areas that currently have patches of vegetation as this enhancement would serve the dual purpose of encouraging vegetation growth to control dust. Seeding these areas with native populations of species already found in the moat and row DCAs would also be implemented to encourage vegetative growth. Water demands associated with the shallow flooding enhancement would vary between 1.0 acre-foot per acre per year (af/ac/yr) to 3.5 af/ac/yr. The proximity of water conveyance infrastructure to moat and row DCMs and water conveyance capacity would influence how and when this enhancement would be implemented.

This enhancement could not be used in combination with the application of brine enhancement as discussed below.

MANAGED VEGETATION ENHANCEMENTS

Vegetation has been shown to be effective at controlling dust. The enhancement would involve planting local, native drought- and/or salt-tolerant plant species within the moat and row area and/or in between the elements to stabilize emissive or eroding areas. Vegetation reduces sand motion by acting as a natural wind break and reduces erosion problems through the holding power of root systems. The enhancement works well for sandy and loose soils, allowing for easy root establishment and nutrient delivery. The vegetation would be planted in between the moat and row elements or on the side slopes of the rows to assist with the reduction of dust. For areas in between moat and row elements, a broad bed vegetation concept is proposed (Exhibits 2-8 and 2-9). If determined to be appropriate based on the conditions and needs of the specific site, the vegetation would be placed on the undisturbed playa between or around the moat and row elements. Vegetation beds would be spaced wider and be slightly above grade when compared to the traditional managed vegetation DCAs constructed on the lake bed. Irrigation, fertilization, and subsurface drainage would be provided as required.

The exact size and shape of the areas would be adjusted to fit site-specific conditions, including avoidance of sensitive resources. Each area would be planted with locally adapted native plant species, or other species as approved by GBUAPCD and CSLC. Previously saltgrass (*Distichlis spicata*) has been used successfully in managed vegetation areas; however, other species such as salt-tolerant Owens Valley native shrubs may also be used in combination with saltgrass with approval by GPUABCD and the CSLC. Each area would include a typical irrigation pipe layout, drip tube laterals, furrows, and flush fields (Exhibit 2-10). The vegetation areas may include a 16-foot-wide perimeter service road. The service road would typically be compacted native material, but would likely be surfaced with gravel or brine if necessary to reduce dust emissions or to improve accessibility.

Mainline turnouts could convey water from the turnout connection to distribution manifolds and then to the vegetation areas (Exhibit 2-11). Mainline turnouts would be constructed of plastic pipe, sized up to approximately 18 inches in diameter. Water would flow from the manifold to the field submains and then into a network of subsurface drip tubes, sprinklers, or gated pipe, based upon the specific irrigation plan selected. Where drip irrigation is implemented, flexible risers would convey water from the buried submains and secondary submains to the drip tubes. A typical drip system arrangement would likely consist of one emitter per 10 square feet, with a 2-foot long emitter tubing laid at 5-foot lateral spacing intervals, although drip tube alignments and emitter spacing would be expected to vary with site conditions and local needs.

Sprinkler irrigation would potentially be used in the vegetation fields as an alternative to drip systems. Sprinklers are able to wet the entire ground surface, providing greater flexibility in leaching and reclaiming difficult soils. Where sprinkler irrigation is used, water would be distributed from the mainline turnouts through 2 to 8-inch plastic piping. Field piping would be spaced 10 to 50 feet apart, typically with risers and spray nozzles at 20 to 50-foot intervals (Exhibit 2-10). To minimize ground disturbance to sensitive areas or to plant vegetation in areas where below ground construction is difficult, above ground temporary piping would be used to deliver water to the sprinklers. Temporary above ground piping could also be used in addition to permanent drip irrigation to reclaim difficult soils or to provide additional water for short-term plant establishment.

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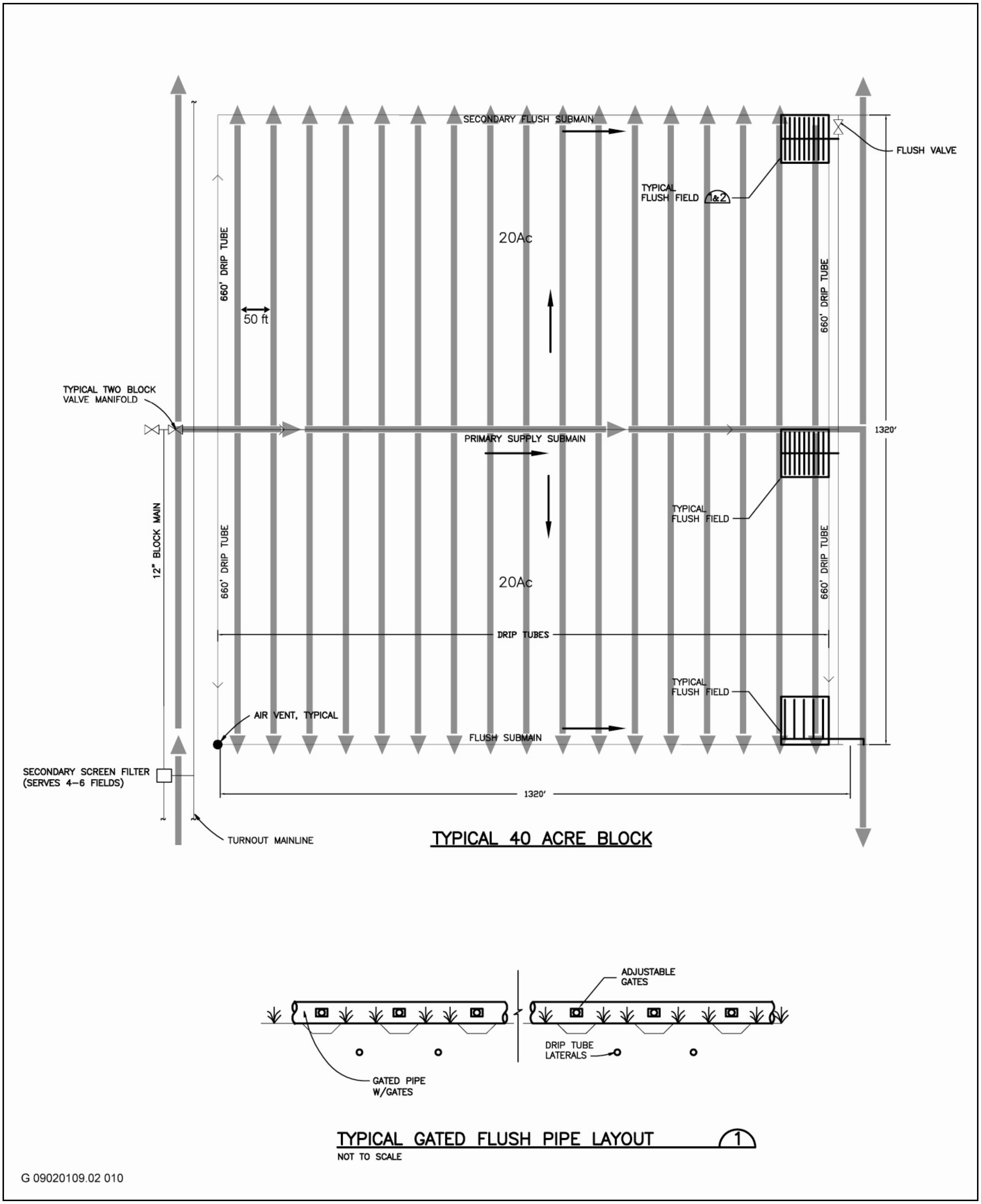
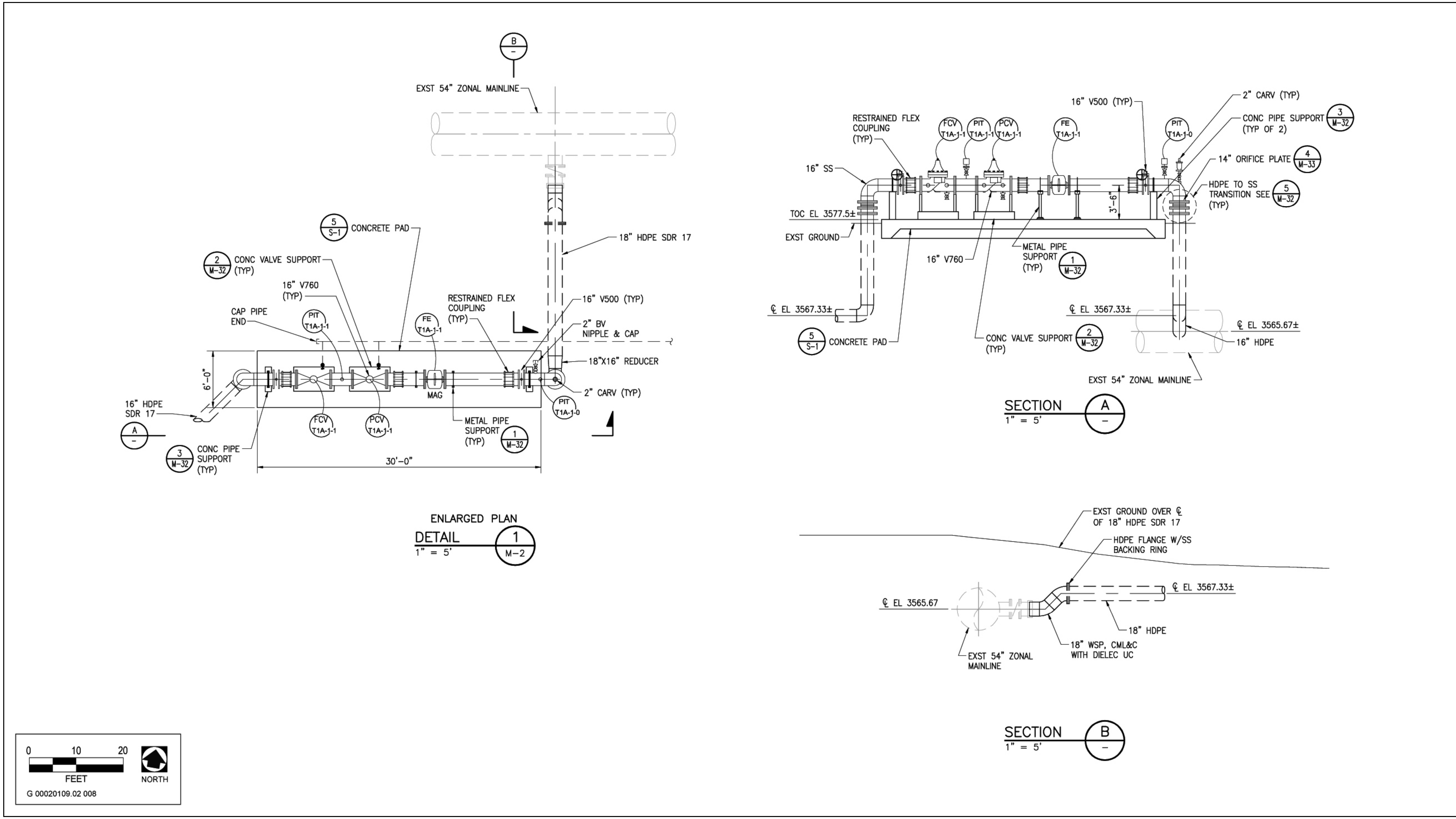
Source: Los Angeles Department of Water and Power 2008

Representative Photo of Managed Vegetation Enhancement **Exhibit 2-9**



Source: Great Basin Unified Air Pollution Control District

Typical Irrigation Layout for a 40 Acre Block of Vegetation **Exhibit 2-10**



Source: Department of Water and Power 2008

Turnout Facility **Exhibit 2-11**

Surface irrigation could also be implemented as another alternative to drip irrigation system (Exhibit 2-10). Water would be distributed to the vegetation areas through 2- to 12-inch plastic piping. Surface irrigation of the vegetation area would be accomplished through gated plastic pipe, a series of risers, or through direct spillage from a pipe outlet. Spacing between vegetation may range from 10 to 40 feet depending on the plant species used. Where surface irrigation is used, the areas would typically be surrounded by low berms to contain ponded water to prevent it from flowing off-site until it seeps into the soil. These berms would be constructed of local material and may be up to 2 feet in height with 1.5:1 side slopes. The temporarily ponded water in these surface irrigated areas would generally be less than 4 inches deep, but may be deeper in some limited areas due to variation in local topography. Existing managed vegetation DCMs at Owens Lake consumes approximately 1 af/ac/yr and it is expected that the managed vegetation enhancement at the moat and row DCAs would consume a similar amount of water. The proximity of water conveyance infrastructure to moat and row DCAs and water conveyance capacity would influence how and when this enhancement is utilized.

MOAT AND ROW AUGMENTATIONS

This enhancement involves the construction of additional moat and row elements between previously constructed moat and row elements to shorten unobstructed space (i.e., open playa areas) within the lake bed, provide a greater number of features to capture mobile sand, thus reducing the rate of dust emissions. The additional moat and row elements would generally be constructed in between originally constructed moat and rows, either in a parallel or perpendicular direction. This enhancement would be implemented if existing moat and row elements are determined to not be sufficiently controlling PM_{10} emissions.

ROW ARMORING ENHANCEMENTS

This enhancement would apply crushed rock or gravel on the side slopes of the rows and the access roads adjacent to the rows to reduce dust emissions in these areas (Exhibit 2-12). The gravel would provide a protective cover over surface soils to prevent dust emissions. Application of the rock armoring would involve the use of dump trucks, a scraper, and an excavator. Crushed rock would be transported to the moat and row cell or element needing enhancement. On maintenance roads, the crushed rock would be applied via a scraper that would spread the rock across the road. On rows, the crushed rock would be transported to the row via a dump truck and applied to face of the row by an excavator.

APPLICATION OF BRINE ENHANCEMENTS

This enhancement would apply brine to the moat and row side slopes and to access roads within the moat and row DCAs. Brine is water with a heavy concentration of salt. Brine is produced in shallow flooding DCAs on Owens Lake. Brine pipelines have been constructed within the shallow flooding areas to collect the brine and delivered to the moat and row DCAs via water trucks. The brine would stabilize surface soils by creating a hardened salt crust (through the evaporation of water) on top of the emissive soils that would substantially reduce dust emissions.

2.5 OTHER IMPROVEMENTS

2.5.1 ACCESS ROADS

The 2008 FSEIR evaluated the impacts associated with the construction of unpaved and gravel-paved, permanent all-year access roads that would be used for the construction, operation, and maintenance of the moat and row DCAs. Access is currently provided from U.S. Highway 395 via the existing north and south zonal mainline pipeline access roads (Brady Highway), from State Route 136 via Sulfate Road, and from State Route 190 via the existing Dirty Socks access road. Two new access roads were evaluated and approved and would be constructed directly off U.S. Highway 395 for the northwestern areas (including sites T37-1 and T37-2 of the moat and row DCAs). Because these access roads were previously evaluated and approved as part of the 2008 FSEIR and no changes to these access roads are proposed as part of this project, no further analysis of the access roads will be provided in this IS.

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Source: 2008 SIP Subsequent EIR, Great Basin Unified Air Pollution Control District

Example of Gravel Cover on Owens Lake **Exhibit 2-12**

2.5.2 STAGING AREAS

Two existing staging areas are established to provide contractors a place to store heavy equipment and construction materials. One staging area is located south of Sulfate Road and west of State Route 136 and the other is located above the southeast shoreline of the lakebed near Dirty Socks Spring. A third staging area was proposed and approved in the 2008 FSEIR and would be located at near the northwest corner of the lakebed. No new staging areas are proposed as part of this project. Because these staging areas were previously evaluated and approved as part of the 2008 FSEIR and no changes to the staging areas are proposed as part of this project, no further analysis of the staging areas will be provided in this IS.

2.5.3 DUST EMISSIONS MONITORING PROGRAM

The 2008 FSEIR evaluated the implementation of a dust emissions monitoring program, known as the Dust ID Program. The program consists of air monitoring devices and a grid of sand motion monitoring devices deployed on the lake bed, remote cameras, visual observations, and global positioning system mapping to measure and map dust emissions from the lake bed. The program would monitor dust emissions within the lake bed to determine the effectiveness of DCMs and determine whether additional DCMs or DCAs would need to be implemented. This program was approved with the 2008 SIP project and would not change with implementation of the proposed project. Because the dust emissions monitoring program was previously evaluated and approved as part of the 2008 SIP Subsequent EIR and no changes to this program are proposed as part of the proposed project, no further analysis of this program will be provided in the IS.

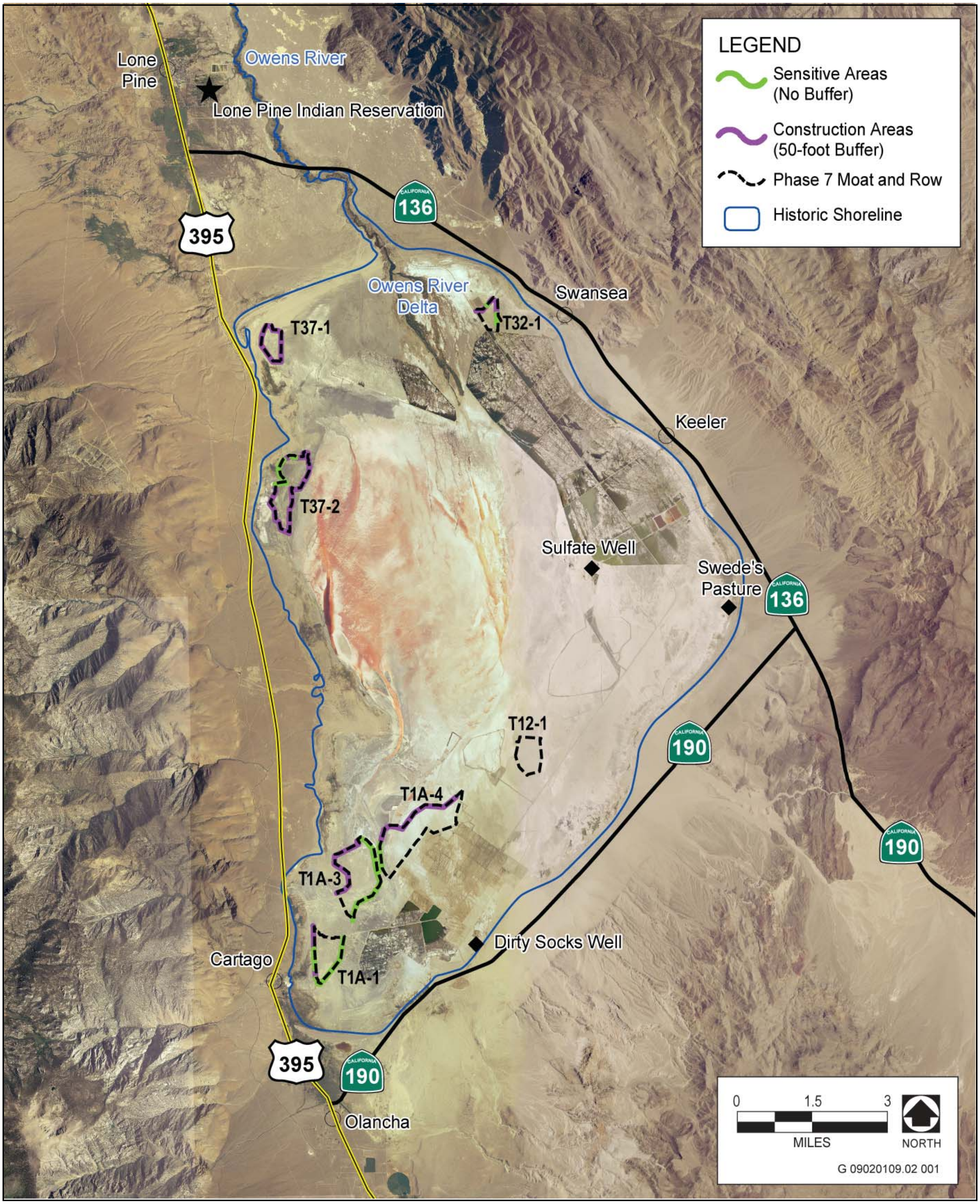
2.6 CONSTRUCTION SCHEDULE

Construction of the seven moat and row DCAs would require approximately 12 months to complete and would begin in Spring 2009. All DCMs are anticipated to be implemented by Spring 2010.

Construction of the moat and row DCMs would generally involve site preparation (surface grading and earthmoving); berm construction and access road grading; dewatering where necessary, mainline water delivery pipeline extension (trenching, pipeline installation, trench backfilling); water distribution system installation (e.g., drip or surface irrigation facilities for shallow flood enhancements); and power line and DCM controls installation.

Supporting activities include material and equipment delivery, fence installation, and transportation of construction crews to and from moat and row DCAs. All moat and row DCAs would have a 50-foot construction area buffer around the outer boundary of the DCA. In total, 0.1 square mile would be temporarily affected by construction activities in addition to the 3.5 square miles of DCAs. Exhibit 2-13 shows where the 50-foot construction buffer areas would be established. In some locations a construction buffer was not established on one or more sides of the moat and row DCA because the moat and row DCA is located adjacent to an existing DCA where construction is on-going or complete and access roads have been established. The temporary construction buffer is necessary to allow the transport of heavy, wide-tracked equipment to the construction site. Wide-tracked equipment is necessary because of the varying soil conditions and high water tables present on the lake bed.

Construction activities would occur six days a week for 12 hours a day. However, where consistent with local construction ordinances, construction activities may be expanded to seven days a week, 24 hours a day in order to meet dust emission deadlines established by GBUAPCD. Prior to shift change, the incoming shift will arrive and stage at the construction site. Once the shift begins, the incoming shift would begin work and the outgoing shift would leave the construction site.



Source: 2008 SIP Subsequent EIR, Great Basin Unified Air Pollution Control District

Temporary Construction Impact Areas **Exhibit 2-13**

The table below describes the specific construction activities and associated construction equipment that could occur within each of the DCAs.

Table 2-3
Anticipated Construction Activities, Equipment, and Crews for Construction of the Moat and Row DCAs

Construction Activity	Activity Length (Estimate)	Equipment	Total Crew Members
Site Preparation: clearing site of vegetation and debris, leveling of site	30 days	1 bulldozer 1 front-end loader 1 grader 2 dump trucks 1 scraper	One crew consisting of 11 crew members
Earthmoving: excavation, grading for drainage, and ripping	60 days	2 bulldozers with disc plow 1 scraper	Two crews consisting of 4 crew members (8 total personnel)
Stormwater control berms: construct earthen berms along perimeter of site, includes excavation, backfill, grading, and compaction	30 days	Up to 2-3 excavators 1 front-end loader 1 compactor 1 water truck 1 job pick-up truck 1 scraper 2 haul trucks	One crew consisting of 12 members
Dewatering: dewatering and discharge of on-site groundwater within construction areas	150 days	2 job pick-up trucks Pumps	One crew consisting of 2 members
Turnout mainline pipelines: excavation, pipeline delivery, pipeline excavation, installation, backfilling	60 days	Up to 2-3 tracked excavators/ trencher w/ conveyor 1 tracked chain machine Trencher 1 bulldozer 1 front-end loader 1 crane/pipe layer 1 compactor 3 pipe delivery trucks 3 job pick-up trucks	One crew consisting of 12 members
Road Construction: construction of elevated roads on berms using native materials, placement of soils, compaction, grading, and gravel placement	75 days	Up to 2-3 excavators 2 compactors 2 graders 3 haul trucks 1 job pick-up truck 1 scraper	One crew consisting of 13 members
Management activities: construction management and field inspection	312 days	10 job vehicles	One crew consisting of 15 members
Environmental mitigation crews: conduct surveys and mitigation monitoring activities	Ongoing	All-terrain vehicles 4-wheel drive vehicles	Seven crews consisting of 2-6 members each (total of 14 to 42 members)

2.7 OPERATION AND MAINTENANCE PLAN

2.7.1 MOATS

The function of the moat section of moat and row elements is to capture sand as the wind velocity is reduced by the row and/or sand fence sections. To keep the performance of this DCM at its highest level, removal of sand from the moats would need to occur on a periodic basis. Based on the data collected from moat and row demonstration areas (sites T12-1 and T32-1, see Exhibit 2-2), the perimeter moats facing the predominant wind direction and adjacent to open lake playa would require the most frequent maintenance procedures. Perimeter moats adjacent to shallow flood DCAs or managed vegetation areas and moats on the interior of moat and row DCAs would require less frequent maintenance because these areas have significantly lower levels of sand movement than elements adjacent to open lake playa. The frequency of maintenance of perimeter moats adjacent to open lake playa and facing primary wind directions is estimated to be once per year. Frequency of maintenance of interior DCA moats and perimeter moats surrounded by other DCMs is estimated to be once every five years.

Maintenance for removal of sand collected in the moats would be performed using a crawler type excavator, 10-wheel dump trucks, pick-up trucks, water truck, and a bulldozer. The excavator would traverse the length of the maintenance road located between the moat and the row to remove sand from the moats and place it in the dump trucks, which would then transport the material and place it in a shallow flood pond. Water trucks would be used to control fugitive emissions along the maintenance road and to pre-wet the sand prior to excavation. The bulldozer would be on-site as a precaution to extricate equipment stuck in mud. Crushed rock or gravel may be placed on the maintenance road surface to stabilize the road during the maintenance activity. Upon completion of the material removal water trucks will apply brine to the maintenance roads to rebuild the protective soil crust. Other equipment that may be used on-site to support maintenance equipment includes a fuel truck, back hoes and back hoe carriers, flatbed trucks, and 6-wheel dump trucks.

2.7.2 ROWS

Erosive forces of wind and rain may cause degradation of the side slopes of the rows, which could transport soil materials into the moats. The top of the rows would be armored with crushed rock or gravel and the rows would be constructed in lifts compacted to 85% to reduce the effects of wind and rain erosion. It is anticipated that maintenance to the rows would occur on a 10year cycle consistent with the frequency of sand fence replacement. Row maintenance would consist of rebuilding eroded side slopes of the rows using existing soil and rock materials.

2.7.3 SAND FENCES

The sand fences would have a design life of ten years and would generally be replaced after this time has elapsed or as required based on maintenance needs. Fence posts would be inspected for deterioration at the time of fence replacement and would be replaced as necessary. The sand fence would have break-away clips installed at the bottom of the fence which would allow the fence to swing from the top cable in winds over 71 mph. In the event the fence breaks away from the bottom cable, a crew of three to four would enter the affected area once it is determined to be safe based on ambient wind speeds and would reattach the fence to the bottom cable. Pick-up trucks would be used to transport personnel and materials for fence repair.

In areas where only a sand fence is present (i.e., no moat and rows), maintenance would be performed on an as-needed basis as determined during the monthly inspections. It is anticipated that materials removal would need to occur once sand has reached 50% of the height of the sand fence (or approximately 2 ½ feet. Sand built up against the fence would be removed using an excavator, dump trucks, and pick-up trucks, supported by a bulldozer to extricate equipment stuck in the mud and a water truck to control fugitive dust emissions. Fencing disturbed by maintenance activities would be repaired as needed. Water trucks would apply brine to the access roads after material removal to rebuild the protective soil crust.

2.7.4 OTHER MAINTENANCE ACTIVITIES

Inspections of the moat and row DCAs would occur on a monthly basis or as needed after high wind events (winds greater than 25 mile per hour) to verify that moats are free of debris and that sand fences are in proper working order. One person on an ATV or in a pick-up would able to perform the monthly inspection. In the case a severe wind event occurs (greater than 70 miles per hour), an immediate inspection of the moat and row DCAs would be implemented. Inspections would be conducted using a four-wheel ATV or a pick-up truck using access roads.

Operational activities in the moat and row DCAs would include water quality testing of groundwater present in the moats to ensure construction or operational activities have not resulted in water quality contamination. It is anticipated that this activity would occur once per week. This activity would also supplement the monthly inspections of the moat and row DCAs. ATVs or pick-up trucks would use the access roads to the moat and row DCAs for maintenance activities.

2.8 ENTITLEMENTS

LADWP is the lead agency under CEQA for the proposed project. The Board of Water and Power Commissioners will consider the project and its environmental documents prior to making a decision on whether to approve, approve with modifications, or deny the project.

If the project is approved, other trustee and responsible agencies may require additional permits or amendments to existing permits prior to implementation of the project. The following describes those agencies and permit approvals.

- *U.S. Army Corps of Engineers* – Possible amendment to existing Section 404 of the Clean Water Act permit.
- *U.S. Bureau of Land Management* – Possible amendment to existing temporary and permanent right-of-way grants on federal lands.
- *California State Lands Commission* – Possible amendment to existing land-use lease and permits for use of state lands, including some state land currently leased by U.S. Borax.
- *California Department of Fish and Game* – New Streambed Alteration Agreement for all ground-disturbing activities associated with the moat and row elements within jurisdictional areas pursuant to Section 1600 of the State Fish and Game Code.
- *California Department of Transportation*- Possible amendment to existing right-of-way encroachment permit for access/power off State Route 190 and Highway 395 and a permit authorizing the transport of overweight vehicles to the moat and row DCAs.
- *California Regional Water Quality Control Board* – Possible amendment to existing Section 401 Water Quality Certification and Waste Discharge Requirement and Monitoring Reporting Plan.

3 ENVIRONMENTAL CHECKLIST AND DISCUSSION

The following analysis includes a summary of environmental impacts and analysis contained within the *2008 Owens Valley PM_{10} Planning Area State Implementation Plan Final Subsequent Environmental Impact Report* prepared by the Great Basin Unified Air Pollution Control District in February 2008.

3.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
I. Aesthetics. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☒	☐	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Owens Lake is located in an area devoid of urban development. The closest urban communities include Lone Pine and Olancha which are located at the northernmost and southernmost portion of the historic Owens Lake bed respectively. The overall viewshed is both stark and dramatic, with sparsely vegetated areas surrounded by steep mountains, forming a deep valley. Owens Lake is framed against mountain backdrops from most accessible viewpoints. State Highways 395, 190, and 136 border the historic Owens Lake bed (see Exhibit 2-2). The sites identified for construction of moat and rows are located approximately ¼ mile from Highway 395 and approximately 3 miles from Highway 190 (see Exhibit 2-2). Primary scenic resources in the project area include the Sierra Nevada Mountains located approximately ½ mile to the west of Highway 395 and the White-Inyo Mountains located approximately ½ mile northeast of Highway 136. The historic Owens Lake bed and surrounding shoreline incorporates unique landform features including a varying texture of white- and red-colored soils that contrasts with the surrounding, elevated features of brown and gray soil-features of the desert and mountain ranges. Although there are not any officially state-designated scenic highways near the historic Owens Lake bed, Highway 395 and Highway 190 adjacent to Owens Lake are identified as Eligible State Scenic Highways (Caltrans 2008).

DISCUSSION

a) Have a substantial adverse effect on a scenic vista?

Potentially Significant impact. The project involves construction of moat and row DCMs to control dust emissions in the Owens Lake Planning Area. Construction of the moat and row features has the potential to change the aesthetics and visual quality of the Owens Lake Planning Area. In general, the moat and row DCMs would change the landscape of the Owens Lake bed by constructing a grid of 5-foot tall earthen berms with 5-foot tall sand fences placed on top of the rows. This would introduce and obvious manmade feature into a natural-appearing viewshed.

Construction of the moat and row DCMs would be located approximately ¼ mile from Highway 395 which is the primary north-south travel route in the Upper Mojave Desert and is designated as an Eligible State Scenic Highway. Sites T1A-1, T37-1, and T37-2 would most be visible from Highway 395 and site T32-1 would likely be fully to partially visible from Highway 136 (Exhibit 2-2).

Because DCMs would be constructed within relatively close proximity of Highway 395 and 136 and could result in substantial changes to the landscape of the Owens Lake bed, implementation of the proposed project could potentially affect a scenic vista (e.g., views of historic Owens Lake bed and associated landform features). The previous 2008 FSEIR did not address potential impacts to scenic vistas as a result of construction of moat and row DCMs; therefore, this issue will be analyzed in the Supplemental EIR.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Potentially Significant impact. Development of the DCMs has the potential to damage scenic resources of the Owens Lake Planning Area. Specifically, the varying soil colors of the historic lake bed create unique, natural scenery not readily found in other parts of the Mojave Desert. The DCMs could provide a visual distraction from the natural and dramatic viewshed of the area. The previous 2008 FSEIR did not address potential impacts to scenic vistas as a result of construction of moat and row DCMs; therefore, this issue will be analyzed in the Supplemental EIR.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Potentially Significant impact. Development of the moat and row DCMs has the potential to change the aesthetics and overall visual character of the Owens Lake Planning Area along with the surrounding desert and mountain ranges. In particular, construction of DCMs would be located approximately ¼ mile from Highway 395 which is the primary north-south travel route in the Upper Mojave Desert and is designated as an Eligible State Scenic Highway. Owens Lake incorporates varying soil colors which create a unique, visual character not readily found in the surrounding Mojave Desert. Because dust control measures would be constructed on the historic Owens Lake bed, implementation of the proposed project has the potential to degrade the existing visual character or quality of the site. The 2008 FSEIR did not address potential impacts to the visual character of the site as a result of construction of moat and row DCMs; therefore, this issue will be analyzed in the Supplemental EIR.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No impact. Development of the moat and row DCMs would not involve construction of any new sources of nighttime lighting or daytime glare. Facilities would primarily consist of earthen features made of material native to the area (e.g., soils). While some irrigation facilities may be constructed if managed vegetation features are implemented in the dust control area (DCAs), these facilities would either be located below ground or on the ground surface and would consist of plastic non-reflective materials. Operation and maintenance activities would occur during daylight hours and would involve the operation of heavy equipment, trucks, and other maintenance vehicles (e.g., water trucks, ATVs). This equipment would be used on a rotational basis throughout the seven moat and row DCAs and would not become a permanent feature. As such, these vehicles and activities would not adversely affect day or nighttime views within the area. No impact would occur.

3.2 AGRICULTURAL RESOURCES

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
II.	**Agricultural Resources.**				
	In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.				
	Would the project:				
	a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
	b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
	c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Owens Lake bed contains soils associated with a desert environment which do not contain any agricultural properties. In addition, the Owens Lake Planning Area is located in an area not mapped by the California Department of Conservation, Farmland Mapping and Monitoring Program (CDC 2008a).

DISCUSSION

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No impact. There are no agricultural resources located in the Owens Lake Planning area. Specifically, no soils in the Owens Lake Planning Area are classified as farmland (NRCS 2008). Therefore, construction of moat and row DCMs would have no impact to agricultural resources. This issue will not be analyzed in the Supplemental EIR.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

No impact. According to Inyo County General Plan land use diagrams, no agricultural land uses are designated in the Owens Lake Planning Area (Inyo County 2002). Therefore, construction of moat and row DCMs would not conflict with any designated agricultural land uses. In addition, there are no lands under a Williamson Act contract (CDC 2008b). No impacts would occur and this issue will not be analyzed in the Supplemental EIR.

c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

No impact. As described in item b above, there are no agricultural resources (e.g., farmland) located in the Owens Lake Planning Area. Therefore, construction of the moat and row DCAs would not result in the conversion of any farmland to a non-agricultural use. No impact would occur and this issue will not be analyzed in the Supplemental EIR.

3.3 AIR QUALITY

ENVIRONMENTAL ISSUES		Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
III.	**Air Quality.**				
	Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations.				
	Would the project:				
	a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
	b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
	c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
	d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
	e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The GBUAPCD regulates fugitive dust (PM_{10}) emissions in the Owens Lake Planning Area consistent with the requirements of the National Ambient Air Quality Standards (NAAQS). The dried Owens Lake bed, within the Owens Lake Planning Area, has been the largest single source of PM_{10} emissions in the United States for many years, with annual PM_{10} emissions of more than 80,000 tons and 24-hour concentrations as high as 130 times the federal air quality standard. The fugitive dust emissions at Owens Lake are the result of wind passing over the drying lake bed; the drying lake bed is a result, in part, of LADWP's long-term diversion of water, which would otherwise feed the lake, from the Eastern Sierra to the City of Los Angeles via the Los Angeles aqueduct.

As described in the 2008 FSEIR (see Section 3.1.2, Existing Conditions, starting on page 3.1-9), the Owens Lake Planning Area is located in the Great Basin Valley Air Basin and is bounded by the Inyo Mountains to the east and the Sierra Nevada Mountains to the west. Because the historic Owens Lake bed is located in the rain shadow of the Sierra Nevada, annual rainfall is very low, so opportunities to reduce dust through natural rainfall are limited. High winds in the Owens Lake Planning Area can exceed average speeds of 40 miles per hour. High southerly winds typically result from a storm front approaching Owens Valley and strong northerly winds result from the passing of the storm. These general wind directions are sometimes complicated by local eddy effects that can cause 180-degree differences in the wind direction from the west- to east-side of Owens Valley.

Eleven sensitive airsheds exist in the region: John Muir Wilderness, Golden Trout Wilderness, Kings Canyon National Park, Sequoia National Park, Ancient Bristlecone Pine Forest, South Sierra Wilderness, Dome Land Wilderness, Naval Weapons Center China Lake and Naval Weapons Center China Lake Mojave Range B, Fort

Irwin National Training Center, Edwards Air Force Base, and Death Valley National Park. Four of these airsheds (i.e., John Muir and Dome Land Wilderness Areas, King Canyon and Sequoia National Parks) are designated as Class I Prevention of Significant Deterioration areas, which are afforded more stringent protection from visibility degradation and for impacts from air pollutants.

Visibility in the Owens Lake Planning Area generally ranges from 37 to 93 miles, with the best visibility occurring during the winter. When Owens Lake dust storms occur, typically from September through May, visibility is very limited and these dust storms can reduce visibility to zero near Owens Lake and obscure visibility up to 150 miles away. The primary cause of visibility degradation in the Owens Lake Planning Area is fine particulates in the atmosphere. In addition to dust created by Owens Lake dust storms, visibility degradation at Owens Lake results from transport of air pollutants from the San Joaquin Valley Air Basin, located to the west, and the South Coast Air Basin, located to the south. The majority of visibility degradation can be attributed to inter-basin transport of air pollutants.

Air quality in the proposed project area is excellent for most criteria pollutants, with the notable exception the annual PM_{10} standard violation and numerous federal 24-hour PM_{10} standard violations due to wind blown dust from the historic Owens Lake bed.

Because of their small size, PM_{10} has the ability to penetrate deeply into the lungs which can cause a variety of health problems. Health problems can include an increase in the number and severity of asthma and bronchitis attacks, breathing difficulties in people with heart or lung disease, and an increase in risk for, or complication of, existing respiratory infections. The NAAQS are intended to protect people who are especially sensitive to elevated levels of PM_{10} including children, the elderly, and people with existing heart and lung problems. The particulate pollution in the form of dust at concentrations higher than that set by the NAAQS can also adversely affect healthy individuals.

Dust transportation studies from the historic Owens Lake bed show that the federal standard can be exceeded more than 50 miles away and expose many people to violations of the PM_{10} standard beyond residents near Owens Lake. The dust from Owens Lake at concentrations above the federal PM_{10} standard annually affects approximately 40,000 permanent residents living between Ridgecrest and Bishop in addition to visitors who spend time in the dust-impacted area enjoying recreational opportunities in the Eastern Sierra and high desert areas.

REGULATORY SETTING

Air quality within Owens Valley is regulated by the U.S. Environmental Protection Agency (EPA), California Air Resources Board (ARB), and GBUAPCD. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

The Clean Air Act (CAA) requires EPA to establish National Ambient Air Quality Standards (NAAQS). EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution.

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, adopted in 1988, requires ARB to establish California Ambient Air Quality Standards (CAAQS). ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals. The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

The GBUAPCD was formed through a joint power agreement in 1974 for Inyo, Mono, and Alpine Counties, which covers the Great Basin Valleys Air Basin in California. The District regulates PM_{10} emissions in the Owens Lake Planning Area consistent with the requirements of the NAAQS. The GBUAPCD also has the responsibility to enforce federal, state, and local air quality regulations and to ensure that the federal and state air quality standards are met within the district. These standards are set to protect the health of sensitive individuals by restricting how much pollution is allowed in the air. To meet these standards, the GBUAPCD enforces those federal laws and state laws related to stationary sources of air pollution. In addition, GBUAPCD passes and enforces its own regulations as they become necessary for specific air quality issues.

DISCUSSION

a) Conflict with or obstruct implementation of the applicable air quality plan?

Potentially significant impact. The 2008 FSEIR evaluated the operational air quality impacts associated with operation of the moat and row DCAs. As described on page 3.1-16 of the Subsequent EIR, the DCMs would be operated consistent with terms and conditions of the Memorandum of Agreement between the LADWP and the GBUAPCD, and thus the SIP, would also be consistent with the region's Air Quality Management Plan (Section 3.1.4, Air Quality Management Plan (AQMP) Consistency, page 3.1-16). Therefore, no additional evaluation of the operational air quality impacts including operation and maintenance activities associated with the moat and row DCAs is needed and this issue will not be evaluated in the Supplemental EIR

Regarding construction impacts, the DCMs would result in changes to the configuration and intensity of the moat and row elements compared to those evaluated in the 2008 FSEIR. Because the changed configuration and intensity of the moat and row elements were not evaluated in the 2008 FSEIR, additional analysis is warranted. Therefore, it is concluded that construction of the project would result in potentially significant impacts related to obstruction of the implementation of the air quality management plan. The construction-related air quality impacts of the project will be analyzed further in the Supplemental EIR.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Potentially significant impact. The 2008 FSEIR identified that operation of DCMs would result in substantial beneficial impacts to air quality in the Owens Lake Planning Area because the DCMs would reduce PM_{10} emissions in accordance with the GBUAPCD's SIP. Specifically, implementation of DCMs would reduce PM_{10} emissions generated in the DCAs to below the federal 24-hour PM_{10} standard by the end of 2010 (Section 3.1.4, Ambient Air Quality and Criteria Pollutants, page 3.1-22). The 2008 FSEIR identified that project operation and maintenance activities would include year-round inspections of maintenance of valves, pipeline sections, pumps, electronic components, and access roads and would monitor the effectiveness of the managed vegetation, shallow flooding, and moat and row DCMs. Operations and maintenance activities associated with the project contemplated in this IS would involve the same activity types, levels, and locations. Therefore, the project-related operations and maintenance activities would be consistent with the analysis of ambient air quality impacts included in the 2008 FSEIR (Section 3.1.4, Ambient Air Quality and Criteria Pollutants, page 3.1-22) and this issue will not be evaluated further in the Supplemental EIR.

The project would, however, result in changes to the configuration and intensity of the moat and row elements compared to those evaluated in the 2008 FSEIR. Because the changed configuration and intensity of the moat and row elements were not evaluated in the 2008 FSEIR, additional analysis is warranted. Therefore, it is concluded that construction of the project would result in potentially significant impacts related to violation of an air quality standard or contribution to an existing or projected air quality violation and the construction-related air quality impacts of the project will be analyzed further in the Supplemental EIR.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Potentially Significant impact. The 2008 FSEIR identified that operation of DCMs would result in beneficial impacts to air quality in the Owens Lake Planning Area because the DCMs would reduce PM_{10} emissions in accordance with the GBUAPCD's SIP. Specifically, implementation of DCMs would reduce PM_{10} emissions generated in the DCAs to below the federal 24-hour PM_{10} standard by the end of 2010 (Section 3.1.4, Ambient Air Quality and Criteria Pollutants, page 3.1-22). PM_{10} is currently a criteria pollutant and the Owens Lake Planning Area is in non-attainment for this pollutant. As described above, the 2008 FSEIR identified that project operation and maintenance activities would include year-round inspections of maintenance of valves, pipeline sections, pumps, electronic components, and access roads and would monitor the effectiveness of the managed vegetation, shallow flooding, and moat and row DCMs. Operations and maintenance activities associated with the project contemplated in this IS would involve the same activity types, levels, and locations. Therefore, the project-related operations and maintenance activities would be consistent with the analysis of cumulative air quality impacts included in the 2008 FSEIR (Section 3.1.4, Ambient Air Quality and Criteria Pollutants, page 3.1-22) and this issue will not be evaluated further in the Supplemental EIR.

The project would, however, result in changes to the configuration and intensity of the moat and row elements compared to those evaluated in the 2008 FSEIR. Because the changed configuration and intensity of the moat and row elements were not evaluated in the 2008 FSEIR, additional analysis is warranted. Therefore, it is concluded that construction of the project would result in potentially significant impacts related to cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment. This issue will be analyzed in the Supplemental EIR.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant. As described in the 2008 FSEIR, the closest sensitive receptors to moat and row DCAs are located in the community of Cartago approximately ½ mile west of cell T1A-1, the southernmost DCA (Exhibit 2-2). Construction activities associated with DCMs are not anticipated to expose sensitive receptors residing in Cartago to pollutant concentrations substantially different from those evaluated in the 2008 FSEIR (see Section 3.1.4, Sensitive Receptors). As described on page 3.1-20, potential construction pollutants emitted during construction activities associated with the moat and row DCAs would include gas and diesel fumes. The 2008 FSEIR concluded that because of the substantial distance between construction areas and sensitive receptors, the fumes would not be anticipated to be detectable. While the configuration of the moat and rows has changed from that evaluated in the 2008 FSEIR, the construction activities would be substantially similar to what was previously evaluated in that the activities would occur in the same areas, would involve the same number of construction equipment and personnel, would occur over the same number of months, and would involve the same activities (e.g., grading, clearing, trenching, earthmoving, etc.). Therefore, this issue has been appropriately evaluated in the previous 2008 FSEIR and will not be evaluated in the Supplemental EIR.

Regarding operation and maintenance activities, the 2008 FSEIR identified that project operation and maintenance activities would include year-round inspections of maintenance of valves, pipeline sections, pumps, electronic components, and access roads and would monitor the effectiveness of the managed vegetation, shallow flooding, and moat and row DCMs. Operations and maintenance activities associated with the project contemplated in this IS would involve the same activity types, levels, and locations. Therefore, the project-related operations and maintenance activities would be consistent with the evaluation of sensitive receptors conducted for the 2008 FSEIR (Section 3.1.4, Sensitive Receptors, page 3.1-22). This issue has been appropriately evaluated in the previous 2008 FSEIR and will not be evaluated in the Supplemental EIR.

e) Create objectionable odors affecting a substantial number of people?

Less than Significant. As described in item d above, the 2008 FSEIR identified that the closest sensitive receptors to DCAs are approximately ½ mile west of cell T1A-1, the southernmost DCA. Construction activities associated with DCMs are not anticipated to expose sensitive receptors residing in Cartago to odors substantially different from those evaluated in the 2008 FSEIR (see Section 3.1.4, Sensitive Receptors). Therefore, this issue has been appropriately evaluated in the previous 2008 SIP Subsequent EIR and will not be evaluated in the Supplemental EIR.

Regarding operation and maintenance activities, the 2008 FSEIR identified year-round activities would involve maintenance of valves, pipeline sections, pumps, electronic components, access roads and involving monitoring the Managed Vegetation, Shallow Flooding, habitat Shallow Flooding, and Moat & Row DCMs. Operations and maintenance activities associated with the project contemplated in this IS would involve the same activity types, levels, and locations. Therefore, this issue has been appropriately evaluated in the previous 2008 FSEIR and will not be evaluated in the Supplemental EIR (Section 3.1.4, Objectionable Odors, page 3.1-22).

3.4 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
IV. Biological Resources. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

As described in the 2008 FSEIR, the Owens Lake Planning Area is located in the upper Mojave Desert and the dry, barren environment dominates the project area. There are no plant communities in the moat and row project footprint. The 2008 FSEIR identified nine wildlife species listed as endangered or threatened (i.e., American peregrine falcon, Owens tui chub, Owens pupfish, desert tortoise, bald eagle, Swainson's hawk, western yellow-billed cuckoo, least Bell's vireo, and Mohave ground squirrel) have the potential to occur within the Owens Lake Planning Area. However, surveys determined that only the American peregrine falcon had the potential to occur in the Owens Lake Planning Area because suitable foraging habitat exists throughout the area (Section 3.2, Biological Resources, pages 3.2-15 and 3.2-16). The 2008 FSEIR also identified that 36 sensitive wildlife species have the potential to occur in the Owens Lake Planning Area. However, surveys determined that only eight sensitive wildlife species (i.e., (northern harrier, merlin, prairie falcon, western snowy plover, pallid bat, Townsend's big-eared bat, spotted bat, and Owens Valley vole) have the potential to occur in the Owens Lake

Planning Area (Section 3.2, Biological Resources, pages 3.2-16 and 3.2-17). Although wildlife species present in the project area are limited, the presence of western snowy plover is well documented in Owens Valley. Lastly, the 2008 FSEIR identified three plant species (i.e., Inyo phacelia, Inyo County star-tulip, alkali cord grass) and five wildlife species (i.e., monarch butterfly, willet, Franklin's gull, Nuttall's woodpecker, sage sparrow) designated as locally important have the potential to occur in Owens Lake Planning Area (Section 3.2, Biological Resources, pages 3.2-20 and 3.2-24).

Because the surface of Owens Lake has been permanently lowered as a result of combined natural and human forces, existing wetlands in the historic Owens Lake bed are limited to an area defined as the brine pool.

DISCUSSION

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

Potentially significant impact. While no expanded DCAs are proposed, the project includes changes to the configuration and intensity of the moat and row DCMs. Further, an operation and maintenance plan has been prepared. Neither the changed configuration nor the operation and maintenance plan were evaluated in the 2008 FSEIR with regards to effects on sensitive species; therefore, additional analysis is warranted. For purposes of this IS it is concluded that implementation of the project would result in potentially significant impacts related to sensitive habitats, wildlife species, and sensitive species. This issue will be analyzed further in the Supplemental EIR.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?

No impact. No riparian habitat is present within the moat and row project footprint. Therefore, no impact to this community would occur and this issue will not be analyzed further in the Supplemental EIR.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No new impacts. The 2008 FSEIR identified seven potential wetland areas in the Owens Lake Planning Area with four areas, total of 393.2 acres, subject to U.S. Army Corps of Engineers (USACOE) jurisdiction pursuant to Section 404 and Section 401 of the Clean Water Act (Section 3.2, Biological Resources, pages 3.2-24 to 3.2-26). These and other areas may also be subject to the regulatory authority of the CDFG pursuant to Sections 1600 through 1603 of the State Fish and Game Code. If determined to be subject to the jurisdiction of CDFG, a Streambed Alteration Agreement would be required.

The 2008 FSEIR determined the larger dust control program would result in impacts to jurisdictional wetlands. While the moat and row DCAs do not support wetlands subject to USACOE jurisdiction, they could support wetland subject to CDFG jurisdiction. Mitigation requiring the implementation of a programmatic Streambed Alteration Agreement was approved in the 2008 FSEIR (Mitigation Measure Biology-6, page 3.2-35 through 3.2-37). With implementation of this mitigation, no new environmental impacts that were not previously identified or that are peculiar to the Owens Lake Planning Area would occur. This issue will not be evaluated further in the Supplemental EIR.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Potentially significant impact. Implementation of the project would result in changes to the configuration and intensity of the moat and row elements compared to that evaluated in the 2008 FSEIR. Further, a more refined and detailed operation and maintenance plan for the moat and row elements has been developed. Neither the changed configuration nor the operation and maintenance plan were evaluated in the 2008 FSEIR; therefore, implementation of the project could result in potentially significant impacts related to impacts to wildlife movement. This issue will be analyzed further in the Supplemental EIR.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No new impacts. The 2008 FSEIR evaluated whether the project would conflict with any regulations addressing the protection of biological resources in the Owens Lake Planning Area (Section 3.2.1, Regulatory Framework, pages 3.2-3 through 3.2-8) along with evaluating the potential conflicts with Inyo County General Plan policies and provisions of an adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) (Section 3.2.2; Conflict with the Policies Established by the Inyo County General Plan to Provide Protection for Threatened and Endangered Species, and Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan; pages 3.2-31 and 3.2-32).

The 2008 FSEIR identified that the Owens Basin Wetland and Aquatic Species Recovery Plan covers an area near the historic Owens Lake bed. Specifically, the Owens Basin Wetland and Aquatic Species Recovery Plan describes 16 recommended conservation areas that are integral to the recovery plan of which one conservation area, the Owens Conservation Area, is located along the western perimeter of the historic Owens Lake bed. Based on evaluation of the moat and row elements, the 2008 FSEIR concluded that the moat and row DCMs would need to be consistent with goals and policies of the Owens Basin Wetland and Aquatic Species Recovery Plan, Owens Conservation Area (pages 3.2-31 and 3.2-32) and, concluded that implementation of the moat and row DCMs would result in no conflicts with local policies related to the protection of biological resources (i.e., Inyo County) (page 3.2-31). To ensure consistency with the plans, the 2008 FSEIR includes mitigation requiring the preparation of a Long-term Habitat Management Plan to ensure compatibility between the construction, maintenance, and operation of moat and row DCMs and the protection of public trust values (Mitigation Measure Biology-14, Long-Term Management Plan, pages 3.2-43 and 3.2-44). Actions required under this mitigation measure would apply to the proposed project. Therefore, implementation of changes to the configuration, operation, and maintenance plan for the project would not result in any conflicts with policies and regulations protecting biological resources in the Owens Lake Planning Area. No new environmental impacts that were not previously identified or that are peculiar to the Owens Lake Planning Area would occur. This issue will not be evaluated in the Supplemental EIR.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No new impacts. As described in item e above, the 2008 FSEIR identified that construction and operation of moat and row DCMs would need to be consistent with provisions of the existing Owens Basin Wetland and Aquatic Species Recovery Plan for the Owens Conservation Area, which is located along the western perimeter of the historic Owens Lake bed. The 2008 FSEIR includes mitigation requiring the preparation of a Long-term Habitat Management Plan (LHMP) to ensure compatibility between the future construction, maintenance, and operation of DCMs and the protection of existing public trust values (Mitigation Measure Biology-14, Long-Term Management Plan, pages 3.2-43 and 3.2-44). Actions required under this mitigation measure would apply to the project evaluated in this IS. Therefore, no conflicts with existing, adopted policies, and regulations protecting biological resources in the Owens Lake Planning Area would occur. LADWP would continue to coordinate with appropriate regulatory agencies regarding development and implementation of the LHMP as required by the standards outlined in adopted mitigation. No new environmental impacts that were not previously identified or that are peculiar to the Owens Lake Planning Area would occur. Therefore, this issue will not be evaluated in the Supplemental EIR.

3.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

CEQA broadly defines what can constitute a cultural resource. Such resources can include traces of prehistoric habitation and activities, historic-era sites and materials, and places used for traditional Native American observances or places with special cultural significance. In general, any trace of human activity more than 50 years in age must be treated as a potential "historical" resource (a cultural resource that is eligible for listing on the California Register of Historical Resources [CRHR]) under CEQA. However, because many projects occur over a period of years from planning to implementation, 45 years is the study threshold Therefore, this analysis identifies traces of human activity that are already 45 years of age or older or will be 45 years of age or older at project completion. In addition, the State CEQA Guidelines require consideration of unique archaeological sites (Section 15064.5). If an archaeological site does not meet the criteria for inclusion in the CRHR but does meet the definition of a unique archaeological resource as outlined in the California Public Resources Code (Section 21083.2), it may be treated as a historical resource.

The 2008 FSEIR determined the potential existence of cultural resources in the Owens Lake Planning Area based on queries at the Eastern Information Center (EIC) at the University of California, Riverside, and reviews of the information center's U.S. Geological Survey (USGS) 7.5-minute series topographic quadrangles of Lone Pine, Dolomite, Cerro Gordo Peak, Bartlett, Owens Lake, Keeler, Olancha, Vermillion Canyon, and Centennial Canyon. Research was also conducted at the Natural History Museum of Los Angeles County and with the Native American Heritage Commission. To ascertain the presence of archaeological and historic resources in the Owens Lake Planning Area, the 2008 FSEIR also evaluated historic resources by reviewing published and unpublished literature including the 2006 editions of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the listing of California Historic Landmarks (CHL), and the California Points of Historical Interest (CPHI). In addition, reconnaissance surveys moat and row DCAs were conducted as part of a larger survey effort conducted between January and October 2007.

DISCUSSION

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No new impacts. The 2008 FSEIR identified five historic archaeological sites previously recorded on the historic Owens Lake bed and identified several historic resources recorded or designated within 1 mile of the historic

Owens Lake shoreline including resources recognized as California Historical Landmarks or Points of Historical Interest (Section 3.3.2.3, Historical Resources, pages 3.3-14 through 3.3-16). The 2008 FSEIR determined that implementation of the moat and row DCMs would result in a substantial adverse change in the significance of an historical resource. A total of 4 historic archaeological resource sites that satisfy the CEQA definition of historical resources or unique archaeological resources would be subjected to direct and indirect impacts from construction and maintenance of the moat and row DCMs (Section 3.3.4.3, Moat and Row, page 3.3-22). Mitigation was recommended and approved requiring the assessment of individual historical sites through subsequent investigations and to mitigate impacts to these resources to a less-than-significant level through implementation of a detailed recovery program. The recovery program would include:

- Development of a comprehensive research design to answer questions addressed during archaeological site assessments and to provide procedural framework for collection of data at archeological sites determined to be significant,
- Mapping and systematic collection of surface artifacts,
- Subsurface investigations,
- Analysis of recovered material,
- Preparation of a report,
- Transmittal of report to involved parties and Eastern Information Center, and
- Curation of artifact collection.

In addition, mitigation requires coordination with the California State Lands Commission and implementation of a monitoring program during construction or any ground-disturbing activities (Section 3.3.5, Mitigation Measures, pages 3.3-25 through 3.3-29) to verify no additional features or artifacts would be affected during DCM construction activities. Actions required under the mitigation measures approved in the 2008 FSEIR would apply to the proposed project. Because the physical footprint of the moat and row DCAs would not change, the project would not result in any new significant impacts to historical resources that were not previously identified and mitigated in the 2008 FSEIR. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

No new impacts. The 2008 FSEIR identified 13 potentially significant prehistoric archaeological sites located in the DCAs and determined implementation of moat and row DCMs would result in direct impacts to 3 archeological resources from construction and earthmoving activities (Section 3.3.4.4, Archeological Resources, pages 3.3-20 and 3.3-21). Mitigation was recommended and approved requiring assessment of individual archaeological sites through subsequent investigations and implementation of a detailed recovery program. The recovery program is described

.Actions required under the mitigation measures approved in the 2008 FSEIR would apply to the proposed project. Because the physical footprint of the moat and row DCAs would not change, the project would not result in any new significant impacts to historical resources that were not previously identified and mitigated in the 2008 FSEIR. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No new impacts. The 2008 FSEIR summarized records searches conducted with the San Bernardino County Museum, the Natural History Museum of Los Angeles County, and the Eastern California Museum in Independence, which identified a number of fossil localities within and near the Owens Lake Planning Area. Specifically, surveys conducted in 2003 discovered 7 fossil localities on the Owens Lake playa between Swansea and Keeler along State Route 136. The 2008 FSEIR concluded that moat and row DCAs are located within a 1-mile monitoring area for paleontological resources. As a result, construction of the moat and row DCMs would have the potential to destroy a unique paleontological resource as a result of excavations required for the berms and ditches and from compression of sediment caused by the movement of heavy equipment (Section 3.3.4.1, Moat & Row, page 3.3-19). The 2008 FSEIR includes mitigation requiring monitoring of ground-disturbing activities during construction of moat and row DCMs located in the 1-mile monitoring area and are anticipated to occur in early Pleistocene to late Holocene units. In addition, mitigation requires construction salvage and recovery of unique paleontological resources if fossil localities are discovered (Section 3.3.5, Mitigation Measures, page 3.3-23 through 3.3-25). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, mitigation approved in that document would apply to the proposed project and the project would not result in any new significant impacts to paleontological resources that were not previously identified and mitigated. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

d) Disturb any human remains, including those interred outside of formal cemeteries?

No new impacts. The 2008 FSEIR identified that implementation of DCMs have the potential to directly or indirectly disturb human remains, including those interred outside of formal cemeteries. Although no recorded cemeteries or Native American burial sites are located within the Owens Lake Planning Area, known burials are located within approximately 3 miles. Therefore, the potential exists for the unanticipated discovery of burials during construction activities (Section 3.3.4.4, Human Remains, pages 3.3-22 and 3.3-23). Mitigation was recommended and approved requiring assessment of individual archaeological sites through subsequent investigations and to mitigate impacts to these resources to a less-than-significant level through implementation of a detailed recovery program, as outlined in item a above.

In addition, mitigation requires Native American consultation to be undertaken (Section 3.3.5, Mitigation Measures, pages 3.3-25 through 3.3-29). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, mitigation approved in that document would apply to the proposed project and the project would not result in any new significant impacts to human burials that were not previously identified and mitigated. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Subsequent EIR.

3.6 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
VI. Geology and Soils. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Owens Valley is a deep north-south trending basin lying between the Sierra Nevada on the west and the White-Inyo Mountains on the east. The valley's maximum topographic relief is approximately 10,800 feet between Mount Whitney (14,494 feet) and Lone Pine (approximately 3,700 feet), a horizontal distance of only about 13 miles. The Owens Valley was formed as a fault block basin with the valley floor dropped down relative to the mountain blocks on either side. Such linear fault bounded basins, known as "grabens," are formed when a region of the earth's crust undergoes tension and the crust is broken and pulled apart by the extensional forces. The Owens Valley is a classic "graben" formed by extensional forces pulling the western regions of California and Oregon westward away from the interior of North America.

The Owens Valley is the westernmost basin in a geologic province known as the Basin and Range, a region of fault bounded closed basins separated by parallel mountain ranges stretching from central Utah to the Sierra Nevada. The Owens Valley bedrock basin is actually much deeper than the present topography suggests, because the bedrock beneath the Owens Valley is covered with thousands of feet of sediment. The valley fill is particularly thick east of the Alabama Hills near Lone Pine and beneath Owens Lake, where gravity surveys indicate a sediment thickness of nearly two miles.

Material filling Owens Valley is made up of sediments eroded and shed from the surrounding mountain ranges. The core of these sediments consists of granitic plutons, which are uplifted remnants of quartz and feldspar rich crystallized magma chambers that intruded the pre-existing rock of the region and cooled 80-120 million years ago. These plutons have been uplifted and exposed during the current mountain building cycle that began as recently as 2 to 5 million years ago through processes related to Basin and Range extension. The granitic rocks exposed in the high mountains are subject to high rates of mechanical weathering and erosion and the resultant granitic rocks and sediments have been carried down to the deep valley by ice during glacial ages and water through stream action and mass movement onto Owens Valley's alluvial fans (Owens Valley Committee 2008).

DISCUSSION

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

No impacts. The Owens Lake Planning Area is located in an area delineated as an Alquist-Priolo Earthquake Fault Zone (California Geological Survey 2008). Specifically, the Sierra Nevada fault zone and Owens Valley fault zone extend in a north-south direction along the western portion of the Owens Lake Planning Area (USGS 2008). Because the project only involves changes to the configuration, operation, and maintenance plan for the 3.5 square miles of additional moat and row DCMs, implementation of DCMs would not involve development of any habitable structures or place large numbers of people at one location. Although the FSEIR did not evaluate potential geologic impacts, construction of moat and row DCMs would not expose people or structures to substantial adverse effects involving a rupture of a known earthquake fault. This issue will not be analyzed further in the Supplemental EIR.

ii) Strong seismic ground shaking?

No impacts. The Owens Lake Planning Area is located in an area with delineated earthquake fault zones including the Sierra Nevada fault zone and Owens Valley fault zone which extend in a north-south direction along the western portion of the Owens Lake Planning Area (USGS 2008). Implementation of moat and row DCMs would not involve development of any habitable structures or place large numbers of people at one location. Although the 2008 FSEIR did not evaluate potential geologic impacts, construction of moat and row DCMs would not expose people or structures to substantial adverse effects involving strong seismic ground shaking because no structures are proposed. This issue will not be analyzed further in the Supplemental EIR.

iii) Seismic-related ground failure, including liquefaction?

No impacts. Implementation of DCMs would not involve development of any habitable structures or place large numbers of people at one location. Although the 2008 FSEIR did not evaluate potential geologic impacts, construction of moat and row DCMs would not expose people or structures to substantial adverse effects involving seismic-related ground failure. This issue will not be analyzed further in the Supplemental EIR.

iv) Landslides?

No impacts. The proposed moat and row DCMs are not located near any hillsides or steep-sloped areas and topography in the DCAs is relatively flat. Although the 2008 FSEIR did not evaluate potential geologic impacts, construction of moat and row DCMs would not expose people or structures to substantial adverse effects involving landslides. This issue will not be analyzed further in the Supplemental EIR.

b) Result in substantial soil erosion or the loss of topsoil?

Less-than-significant impact. Soils in the Owens Lake Planning Area are made up of sediments eroded and shed from the surrounding mountain ranges. As a result of the historic draining Owens Lake by natural and human actions, a large, flat area encompassing these sediments is now exposed to the weather, particularly winds. The naturally-occurring weather in the Owens Lake Planning Area has resulted in the soils susceptible to wind-sweep and erosion. The purpose of the proposed project is to reduce naturally-occurring soil erosion. Therefore, construction of moat and row DCMs would result in a beneficial impact related to soil erosion during operation of the project. Construction of the moat and row DCMs would involve grading, trenching, and other soil moving activities. Construction activities have the potential to result in the loss of topsoil and erosion during rain and wind events. As described in the 2008 FSEIR, LADWP would implement a Stormwater Pollution Prevention Plan (SWPPP) that would include Best Management Practices (BMPs) to prevent the erosion of on-site soils including salt fences, sand bag barriers, and hydroseeding (Section 3.5.4, Impact Analysis, page 3.5-14). With implementation of the SWPPP and BMPs, erosion impacts would be less than significant. The project would result in similar construction activities in the same location as the moat and row DCAs evaluated in the 2008 FSEIR and, therefore, with implementation of the SWPPP and BMPs less-than-significant erosion impacts would occur. This issue will not be analyzed further in the Supplemental EIR.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

No impacts. The project would not involve development of any structures that could be located on an unstable geologic unit or soil. Although the 2008 FSEIR did not evaluate potential geologic impacts, construction of moat and row DCMs would not place any structures that would be susceptible to an unstable geologic unit or soil. This issue will not be analyzed further in the Supplemental EIR.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?

No impacts. Implementation of the project would not involve development of any structures that could be located on an expansive soil, and, therefore, would not create any substantial risks to life or property. Although the 2008 FSEIR did not evaluate potential geologic impacts, construction of moat and row DCMs would not place any structures or buildings that would be susceptible to an expansive soil. This issue will not be analyzed further in the Supplemental EIR.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No impacts. No septic tanks are proposed with the project. Therefore, no impacts involving any land uses requiring the use of septic tanks or waste water disposal systems would occur. This issue will not be analyzed further in the Supplemental EIR.

3.7 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
VII. Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☒	☐	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☒	☐	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

The Owens Lake Planning Area is currently undergoing construction, operation, and maintenance of existing DCMs. These activities involve the routine transport, use, generation, storage, and disposal of hazardous materials. Hazardous materials currently used in the Owens Lake Planning Area include diesel fuel; gasoline; vehicle maintenance degreasers and solvents; and limited quantities of cleaners, detergents, and pesticides. Where needed secondary containment structures and spill control equipment is employed to prevent the accidental release of contaminants to on-site soils and groundwater. In the approved managed vegetation enhancement DCAs, operational activities involve routine transport, use, generation, storage, and disposal of fertilizers, descalent, and sodium hypochlorite. These hazardous materials are stored in approved tanks adjacent to existing managed vegetation DCAs.

DISCUSSION

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No new impacts. The 2008 FSEIR identified that implementation of moat and row DCMs would involve the routine transport, use, generation, storage, or disposal of hazardous materials. Activities in the DCAs would in involve the storage of diesel and gasoline in aboveground storage tanks located in the construction staging areas. The 2008 FSEIR concluded that implementation of DCMs including the moat and row DCMs could result in the unauthorized release of hazardous substances and materials in construction staging areas and along pipeline corridors during refueling, vehicle maintenance, trenching, and pipeline construction. This would be a potentially significant impact (Section 3.4.4, Routine Transport, Use, or Disposal of Hazardous Materials, page 3.4-8). Mitigation was recommended and approved requiring LADWP to ensure through their construction permitting processes, or through enforcement of contractual obligations for projects, that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines. In addition, LADWP will prepare and submit an operation plan for the routine transport, use, storage, handling, and disposal of hazardous materials prior to the operation of DCMs (Section 3.4.5, Mitigation Measures, page 3.4-11). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, mitigation approved in that document would apply to the proposed project and the project would not result in any new significant impacts to the public or the environment through the routine transport, use, or disposal of hazardous materials that were not previously identified and mitigated. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

No new impacts. The 2008 FSEIR identified that implementation of DCMs could use fuel storage facilities previously constructed near the City Operations and Maintenance building located on the historic Owens Lake eastern shore. The unauthorized release of fuel at the fuel storage facilities and other unauthorized release of hazardous substances and materials in construction staging areas and along pipeline corridors during refueling, vehicle maintenance, trenching, and pipeline construction could occur and this would be a potentially significant impact (Section 3.4.4, Release of Hazardous Materials into the Environment, page 3.4-8). Mitigation was recommended and approved requiring preparation and approval of a Spill Prevention Control and Countermeasure Program (Section 3.4.5, Mitigation Measures, page 3.4-11 and 3.4-12). The program requires approval by Inyo County and requires that LADWP identify a plan for the safe handling of hazardous materials within the Owens Lake bed including designing all aboveground storage tanks within the fertilizer injection and water treatment systems in accordance with all federal, state, and local laws and regulations. Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR and would not result in the construction of any new fertilizer injection systems, mitigation approved in that document would apply to the proposed project and the project would not result in any new significant impacts to the public or the environment involving the release of hazardous materials into the environment that were not previously identified and mitigated. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less-than-significant impact. The 2008 FSEIR identified that implementation of moat and row DCMs would not involve the use, generation, or disposal of hazardous materials, or the emission of acutely hazardous materials or substances within ¼ mile of an existing or proposed school. In addition, no existing or proposed school sites are located within ¼ mile of the moat and row DCAs. The nearest schools include the Lo-Inyo Elementary School, located at 223 E. Locust Street, and Lone Pine High School, located at 538 Main Street, both in the City of Lone Pine. These schools are located approximately 4.8 miles north-northwest of the closest DCA (Section 3.4.4, Existing or Proposed Schools, page 3.4-8 and 3.4-9). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less-than-significant impact. The 2008 FSEIR identified that implementation of the moat and row DCMs would not be located on a hazardous materials site based on a review of the government databases compiled pursuant to Government Code Section 65962.5.In addition, the California Environmental Protection Agency, Department of Toxic Substances Control's Hazardous Waste and Substance List (Cortese List) did not identify public drinking water wells, hazardous substance sites, sites with known toxic materials, or known solid waste disposal facilities located within 1 mile of the moat and row DCAs (Section 3.4.4, Hazardous Waste Sites, page 3.4-9). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving hazardous materials sites compiled pursuant to Government Code Section 65962.5 that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No new impacts. The 2008 FSEIR identified that implementation of the moat and row DCMs would not be located within a 2-mile radius of an existing airport land use plan. The nearest public airport is Lone Pine Airport located approximately 4 miles north of the nearest DCA (Section 3.4.4, Proposed Project Located Near Airport, page 3.4-9). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any significant impacts involving safety hazards associated with airport operations that were not previously identified. Therefore, no environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No new impacts. The 2008 FSEIR identified that implementation of the moat and row DCMs would not be located within a 2-mile radius of an existing airport land use plan. The nearest private airstrip is Amarogosa Airport located at Death Valley Junction, approximately 80 miles east of the closest DCA (Section 3.4.4, Proposed Project Located Near Airport, page 3.4-9). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving safety hazards associated with airport operations that were not previously identified. Therefore, no environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-significant impact. The 2008 FSEIR identified that implementation of the moat and row DCMs would not be expected to result in impacts that impair the implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan because the Owens Lake Planning Area is not designated as an emergency staging area. In addition, activities associated with construction, operation, and maintenance of moat and row DCMs are not anticipated to interfere with local emergency response or evacuation routes (Section 3.4.4, Emergency Response Plan or Emergency Evacuation Plan, page 3.4-10). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving impairment of or physical interference with an adopted emergency response plan or emergency evacuation plan that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Subsequent EIR.

h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No new impacts. The 2008 FSEIR identified that while there are no areas within the Owens Lake bed that are typically subject to wildland fires, areas where managed vegetation enhancements would be implemented could result in an increase in the frequency and magnitude of fires in the area because of the presence of vegetation that could burn (Section 3.4.4, Wildland Fires, page 3.4-10). Mitigation was recommended and approved requiring the provision of adequate firefighting equipment and personnel to DCAs to the satisfaction of Inyo County (Section 3.4.5, Mitigation Measures, page 3.4-12). The project may implement managed vegetation enhancements within the moat and row DCAs; however, these enhancements were evaluated in the 2008 FSEIR. Therefore, mitigation recommended and approved in that document would apply to the proposed project and the project would not result in any new significant impacts involving the exposure of people or structures to a significant risk of loss, injury, or death from wildland fires that were not previously identified and mitigated. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

3.8 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
VIII. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☒	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☒	☐	☐
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The floor of the Owens Valley ranges in elevation from a low of approximately 3,550 feet above mean sea level (MSL) on the Owens Lake bed to the south to approximately 4,100 feet above MSL near Bishop to the north. Topographically, the bed of Owens Lake is relatively flat with only 50 feet of topographic relief from the historic shore to the lowest portion of the lake bed.

The lake bed can be divided into two main areas including the brine pool (below an elevation of 3,553.53 MSL) and the playa (the area between the brine pool and the historic shoreline at 3,600 MSL). The playa generally consists of laustrine and alluvial sediments ranging in size from fine gravels to clays and containing a high salt content. The brine pool is the remnant portion of the historic Owens Lake and contains a high accumulation of mineral salts. The brine pool is generally wet during part of the year, depending on the amount of precipitation and runoff from the surrounding mountains. Distinct surficial areas occur within the lake bed, including the Owens River delta, sand sheets, crusted clay, evaporative salt pans, and brine pools.

DISCUSSION

a) Violate any water quality standards or waste discharge requirements?

No new impacts. The 2008 FSEIR identified that during construction of moat and row DCMs, groundwater could be encountered, which could require dewatering activities. These activities could potentially cause contamination of groundwater as a result of an accidental release of hazardous materials used during the construction (e.g., fuels, oils, solvents). The 2008 FSEIR also identified that construction of the moat and row DCMs could expose areas of shallow groundwater along the lake bed to pollutants from construction activities (Section 3.5.4, Surface Water Quality, pages 3.5-14 and 3.5-15). Mitigation was recommended and approved requiring LADWP to obtain and adhere to the requirements of the National Pollution Discharge Elimination System General Permit. Specific requirements include developing and implementing a SWPPP which specifies BMPs that prevent construction pollutants from contacting storm water, preventing the products of erosion from moving off the project site into receiving waters, eliminate or reduce unauthorized non-storm water discharges, and inspect of BMPs. In addition, LADWP is required to identify BMPs to control temporary construction dewatering discharges (Section 3.5.5, Mitigation Measure Hydrology-1, page 3.5-19). In addition, mitigation requires LADWP to implement a Water Quality Monitoring and Reporting Program (WQMRP) to ensure that there is no substantial degradation of surface water and groundwater quality. LADWP is required to monitor operational water volumes and flows, and analyze the quality of project surface waters and groundwater including the existing and newly exposed groundwater in moat and row areas (Section 3.5.5, Mitigation Measure Hydrology-2, pages 3.5-19 through 3.5-21). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, mitigation approved in that document would apply to the proposed project and the project would not result in any new significant impacts involving the violation of any water quality standards or waste discharge requirements that were not previously identified and mitigated. Therefore, no new significant environmental impacts would occur and this issue will not be evaluated further.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

Less-than-significant impact. The 2008 FSEIR identified that construction of moat and row DCMs with managed vegetation enhancements would require irrigation of the DCA which could potentially increase the level of shallow groundwater within the lake bed sediments if rate of application exceeds evaporation and plant transpiration rates. However, water application rates would be minimized to conserve water. Additionally, the 2008 FSEIR identified the source of water for managed vegetation enhancements would be delivered from the Los Angeles Aqueduct, a surface water supply source. Therefore, the 2008 FSEIR concluded groundwater levels would not substantially change as a result of implementing moat and row DCMs (Section 3.5.4, Groundwater, pages 3.5-15 through 3.5-17). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR or increase or decrease the irrigation rates of managed vegetation enhancement areas, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving depletion of groundwater supplies or interference with groundwater recharge that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?

No new impacts. The 2008 FSEIR identified that construction of moat and row DCMs would include the addition of rows similar to large berms and moats similar to large channels. These channels would be approximately 20 feet wide and have the potential to channel storm water flows and convey the increased storm water toward areas of the historic Owens Lake bed, including the mineral lease or brine pool areas. As a result, the analysis concluded that implementation of moat and row DCMs could substantially affect drainage patterns and increase storm water flows within the DCA (Section 3.5.4, Surface Water Quality, page 3.5-17). Mitigation was recommended and approved that requires the implementation of sediment protection measures that will protect the moat and row DCAs and downstream areas from the effects of flash flood events. The measures will meet the performance standard of not increasing the rate and quantity, or decrease in the quality, of storm water flows to the brine pool mineral lease areas. The final design of the measures will be approved by the CSLC, the GBUAPCD, and the Lahontan Regional Water Quality Control Board (Section 3.5.5, Mitigation Measures, page 3.5-22). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR and would not increase the size or number of moats, mitigation approved in that document would apply to the proposed project and the project would not result in any new significant impacts involving alteration of existing drainage patterns in a manner which would result in substantial off-site erosion or siltation that were not previously identified and mitigated. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?

No new impacts. As described in item c above, implementation of moat and row DCAs would require the implementation of mitigation to prevent the adverse effects associated with flash flooding and alluvial sediment pollution. With implementation of this mitigation (previously approved), the project's drainage impacts on- and off-site would be reduced to a less-than-significant level an no on- or off-site flooding or alluvial sediment pollution impacts would occur (see Section 3.5.5, Mitigation Measures, page 3.5-22). Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

No new impacts. See Item c above. As described therein, implementation of moat and row DCAs would require the implementation of mitigation to prevent the adverse effects associated with flash flooding and alluvial sediment pollution. With implementation of this mitigation (previously approved), the project's drainage impacts on- and off-site would be reduced to a less-than-significant level an no on- or off-site flooding or alluvial sediment pollution impacts would occur (see Section 3.5.5, Mitigation Measures, page 3.5-22). Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

f) Otherwise substantially degrade water quality?

No new impacts. Please refer to Responses to items a and b.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Less-than-significant impact. The 2008 FSEIR identified that the moat and row DCAs are located within a designated flood hazard area; however, no residential structures would be constructed. Flood hazards would be limited to people involved with maintaining and operating the moat and row DCMs and these workers would be able to promptly vacate the area should a flood hazard occur (Section 3.5.4, 100-Year Flood Zone, page 3.5-18). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR nor change the features constructed in the DCAs, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving the placement of housing within a 100-year flood hazard area that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

Less-than-significant impact. The 2008 FSEIR identified that the moat and row DCAs are located within a designated flood hazard area; however, no structures would be constructed are part of the moat and row DCMs. Flood hazards would be limited to people involved with maintaining and operating the moat and row DCMs and these workers would be able to promptly vacate the area should a flood hazard occur (Section 3.5.4, 100-Year Flood Zone, page 3.5-18). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR nor change the features constructed in the DCAs, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving the placement of structures within a 100-year flood hazard area that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

No new impacts. The 2008 FSEIR identified that the potential failure of stormwater berms in moat and row DCAs could increase stormwater flows to the mineral extraction operation of Trona, which is located down-gradient of the Owens Lake Planning Area, thereby potentially increasing flood hazards (Section 3.5.4, 100-Year Flood Zone, page 3.5-18). Mitigation was recommended and approved requiring provision for flood damage and alluvial sediment protection in the design of all DCMs and development of an emergency management plan for potential berm failures. The plan is required to include:

- Immediate notification of the down-gradient Trona mineral extraction operation and all other lake bed personnel to ensure the safety of personnel and equipment on the historic Owens Lake bed,
- Commitment by the LADWP to take prompt action to repair failed berms and to set forth the actions to be taken by the LADWP to do so,
- Provisions for notification to the California State Lands Commission and the Great Basin Unified Air Pollution Control District and
- Review and approval by the California State Lands Commission prior to operation of the proposed project DCMs (Section 3.5.5, Mitigation Measures, page 3.5-22).

Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, mitigation approved in that document would apply to the proposed project and the project would not result in any new significant impacts involving exposure of people or structures to a significant risk of loss, injury, or death involving flooding that were not previously identified and mitigated. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

j) Result in inundation by seiche, tsunami, or mudflow?

No impacts. The 2008 FSEIR identified that due to the low surface gradient of the Owens Lake Planning Area and the distance from the ocean and other bodies of water, implementation of moat and row DCMs would not result in inundation by seiches or tsunamis. In addition, the low relief of the Owens Lake Planning Area would not contribute to the risk for earthquake-related ground failures that could result in mudflows (Section 3.5.4, Seiche, Tsunamis, and Mudflows, page 3.5-18). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving the inundation by seiche, tsunami, or mudflow that were not previously identified. Therefore, no environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

3.9 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
IX. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☒	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒	☐	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

The historic Owens Lake bed is primarily owned and operated in trust for the people of the State of California by the CSLC. The CSLC has land use jurisdiction over the historic Owens Lake bed. The CSLC has authorized several leases at Owens Lake: PRC 5464.1 and PRC 3511.1 to Rio Tinto Minerals, formerly U.S. Borax, and several public agency leases (PRC 8079.9 to the City and PRC 8277.9 to the GBUAPCD). Although the historic Owens Lake bed is not subject to local regulatory authority by Inyo County, the County's General Plan recognizes the location of state and federally owned lands at Owens Lake. Specifically, the Land Use element of the Inyo County General Plan designates the DCAs as Natural Resources and State and Federal Lands.

Lands adjacent to the lake bed are primarily flat, desert open space with little to no vegetation. Communities closest to the historic Owens Lake bed include Keeler and Cartago which are located along the historic shoreline of Owens Lake. The Los Angeles Aqueduct extends parallel to the historic western shoreline and west of Highway 395. The town of Olancha is located at the southern end of the historic Owens Lake bed at the junction of Highway 395 and State Route 190. The second largest community in Inyo County is Lone Pine, which is located approximately 5 miles north of the historic Owens Lake bed.

The Owens Valley is primarily owned by the U.S. Forest Service, the Bureau of Land Management (BLM), and the City of Los Angeles. The majority of land ownership within and adjacent to the DCAs includes the City of Los Angeles, CSLC, U.S. Borax, and BLM. A small percentage of the land located near the historic shoreline is privately owned.

DISCUSSION

a) Physically divide an established community?

Less-than-significant impact. The 2008 FSEIR identified that because the local communities of Keeler, Cartago, and Lone Pine are located outside of the historic Owens Lake bed and outside of DCAs, implementation of moat and row DCMs would not physically divide an established community (Section 3.6.4, Physical Division of an Established Community, page 3.6-7). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving the physical division of an established community that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No new impacts. The 2008 FSEIR identified that moat and row DCMs would be consistent with public trust values of the CSLC Public Trust Doctrine and Land Use designations of the Inyo County General Plan by maintaining current open space and assisting in the natural resource preservation and conservation while maintaining recreational opportunities. However, the construction of moat and row DCMs would have the potential to increase the numbers of biting insects and mosquitoes in the region, due to increased areas of potential standing water in moats, which would be considered a nuisance and land use conflict to residents in nearby communities (Section 3.6.4, Conflict with Adopted Relevant Plans and Policies in the Proposed Project Area, page 3.6-7). Mitigation was recommended and approved requiring LADWP to institute a vector-control program for existing nearby residents wherein the windows of existing residences in the communities of Swansea, Keeler, Cartago, and Olancha that are within three (3) miles of a water-based DCMs (e.g., moats where groundwater is present) will be screened or other insect control devices will be provided to residents to reduce nuisance insect populations in the vicinity of their residence. In addition, LADWP is required to make arrangements for vector control treatments on the DCAs and within affected communities to control mosquitoes and other biting insects. Finally, LADWP is required to conduct a study to evaluate the cause of insects in the adjacent communities and to require continued support of treatment methods, or by other means, if the DCMs are found to cause insect pest problems (Section 3.6.5, Mitigation Measures, page 3.6-9). Because the project would not alter the boundaries of the moat and row DCAs nor increase the number or area of water features within the DCAs evaluated under the 2008 FSEIR, mitigation approved in that document would apply to the proposed project and the project would not result in any new significant impacts involving conflicts with applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect that were not previously identified and mitigated. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

Please refer to discussion under question Biological Resources, item f.

3.10 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
X. Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☒	☐	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The Owens Lake Planning Area contains known mineral resources of statewide or regional importance. Existing mining operations in the Owens Lake Planning Area consist primarily of extracting crystalline trona ore (carbonate minerals) located within the areas adjacent to the brine pool. The existing mineral lease for this area is held by Rio Tinto Minerals–Owens Lake Operations (referred to as the U.S. Borax lease by the California State Lands Commission), which mines trona (carbonate minerals), and leases a large area at the low portion (Owens Lake brine pool) of the lake where minerals were deposited when the lake dried to its current size for mineral extraction activities.

Other important mineral resources are located in the vicinity of the historic Owens Lake bed including gravel deposits associated with alluvial fans and sand deposits associated with the Owens River and local dunes. These mineral resources, however, are located either outside of DCAs, outside of the historic Owens Lake bed, or on the western edge of the historic shoreline outside of DCAs in areas of the lake bed that are saturated with highly concentrated brine.

DISCUSSION

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No new impacts. Based on a review of California Division of Mines and Geology publications, there are known mineral resources of statewide or regional importance located within the historic Owens Lake bed. In addition, existing mining operations are currently extracting crystalline trona ore (carbonate minerals) within the areas adjacent to the brine pool. Although no construction or operation activities associated with moat and row DCMs would occur within the brine pool, four DCAs are located adjacent to the brine pool. Construction, operation, and maintenance of moat and row DCMs could result in impacts to the trona ore mining operations. Specifically, some DCAs are leased to U.S. Borax by the CSLC for mineral extraction activities. According to the 2008 FSEIR, the CSLC, U.S. Borax, and the LADWP will coordinate to renegotiate the existing U.S. Borax lease to remove DCAs from the U.S. Borax lease and grant the DCAs to LADWP. These DCAs do not contain valuable trona material and implementation of DCMs would not directly affect or otherwise alter mining operations. However, the 2008 FSEIR identified that portions of the DCAs designated by the U.S. Borax lease are identified as at risk from increased flash floods which may cause erosion, deposition of sediment, or loss of ore material to the brine pool (Section 3.7.4, Mineral Resources of Statewide or Regional Importance, pages 3.7-3 and 3.7-4). Mitigation was recommended and approved requiring LADWP to obtain approval from the CSLC prior to working in the areas that overlap with the areas leased to U.S. Borax. In addition, LADWP is required to implement measures identified for potential drainage impacts (see discussion under questions 3.8(c), (d), and (e)). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, mitigation approved in that document would apply to the proposed project and the project would not result in any new significant impacts involving the loss of availability of a known mineral resource that were not previously identified and mitigated. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Less-than-significant impact. The 2008 FSEIR identified that moat and row DCMs would not result in significant impacts to a locally important mineral recovery site. Although areas in the northeast portion of the historic Owens Lake bed are located within a Mineral Resource Zone, no known mineral resource recovery sites of local importance are located within moat and row DCAs according to the Conservation element of the Inyo County General Plan (Section 3.7.4, Mineral Resources in a Mineral Resource Recovery Site, page 3.7-4). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts involving the loss of availability of a locally important mineral resource recovery site that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

3.11 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
XI. Noise. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Owens Lake Planning Area is located in a remote area of the upper Mojave Desert. The primary noise generators in the area involve mining operations adjacent to the brine pool and roadway noise along Highways 395, 190, and 136. Occasional aircraft overflights from Navy jets occur in the project vicinity. Sensitive noise receptors in the Owens Lake Planning Area include residents in the communities of Lone Pine, Olancha, Keeler, Swansea, Barlett, and Cartago.

DISCUSSION

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?

Less-than-significant impact. The Owens Lake Planning Area is located in a remote area of the upper Mojave Desert and is not located in an area of substantial numbers of sensitive noise receptors. However, moat and row DCAs are located within one mile of the communities of Cartago and Barlett. All other communities are located a minimum of three miles from the closest moat and row DCA. Construction of moat and row DCMs would involve the use of construction equipment (e.g., dirt haulers) which has the potential to expose residents to noise levels above the existing ambient noise levels in the Owens Lake Planning Area. However, construction activities would be temporary and would not involve activities that create substantial noise (e.g., pile driving). In addition, the minimum distance of one mile between residents and DCAs is considered sufficient distance to minimize noises generated from construction activities. Although the 2008 FSEIR did not evaluate potential noise impacts, construction of moat and row DCMs is not anticipated to expose people to noise levels in excess of applicable standards. This impact would be less-than-significant and this issue will not be analyzed further in the Supplemental EIR.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less-than-significant impact. Construction of moat and row DCMs would involve the use of construction equipment (e.g., dirt haulers) but would not involve activities that create groundborne vibrations or noise (e.g., pile driving) that could be felt a nearby sensitive receptors (greater than one mile away). Although the 2008 FSEIR did not evaluate potential groundborne vibration and noise impacts, construction of moat and row DCMs would not exposure of people to excessive groundborne vibrations or noise levels. This impact would be less-than-significant and this issue will not be analyzed further in the Supplemental EIR.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-significant impact. Operation and maintenance of the moat and row DCMs would use heavy duty equipment (e.g., back hoes, dump truck, crawler excavators). While this type of equipment can produce substantial noise, because of the substantial distance (i.e., greater than one mile) to the nearest sensitive receptor, a substantial increase in noise levels would not occur. Further, maintenance activities would be rotated between moat and rows within the seven moat and row DCAs; therefore, noise activities would be periodic and no one location would have a substantial permanent increase in ambient noise level. Although the 2008 FSEIR did not evaluate potential noise impacts, construction of moat and row DCMs would result in a less-than-significant permanent increase in ambient noise levels in the Owens Lake Planning Area. This issue will not be analyzed further in the Supplemental EIR.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less-than-significant impact. See item a above. The project would not result in a substantial temporary or periodic increase in ambient noise levels at nearby sensitive receptors because of the substantial distance (greater than one mile) between DCAs and the nearest sensitive receptor. This issue will not be analyzed further in the Supplemental EIR.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No impacts. The 2008 FSEIR identified that implementation of DCMs would not be located within a 2-mile radius of an existing airport land use plan. The nearest public airport is Lone Pine Airport located approximately 4 miles north of the nearest DCA (Section 3.4.4, Proposed Project Located Near Airport, page 3.4-9). Therefore, moat and row DCMs would not result in any new significant impacts involving the exposure of people residing or working in the Owens Lake Planning Area to excessive noise levels. No environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No impacts. The 2008 SIP FSEIR identified that implementation of DCMs would not be located within a 2-mile radius of an existing airport land use plan. The nearest private airstrip is Amarogosa Airport located at Death Valley Junction, approximately 80 miles east of the closest DCA (Section 3.4.4, Proposed Project Located Near Airport, page 3.4-9). Therefore, moat and row DCMs would not result in any new significant impacts involving the exposure of people residing or working in the Owens Lake Planning Area to excessive noise levels. No environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

3.12 POPULATION AND HOUSING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
XII. Population and Housing. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Owens Lake Planning Area is located in a remote area of the upper Mojave Desert. The nearest communities to Owens Lake include Lone Pine, Olancha, and Cartago (Exhibit 2-2). In addition, the Cities of Bishop and Ridgecrest are located within 60 miles of the Owens Lake Planning Area.

DISCUSSION

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less-than-significant impact. The Owens Lake Planning Area is located in a remote area of the upper Mojave Desert and is not located in an area with communities that support substantial populations, businesses, or homes. The largest communities in the Owens Lake Planning Area include Lone Pine, Olancha, and Cartago of which Lone Pine is the largest with a population of approximately 1,655 people (Census 2008). Outside the Owens Lake Planning Area, the City of Bishop and Ridgecrest have a population of 3,457 and 25,470 residents respectively (Census 2008). Construction, operation, and maintenance of moat and row DCMs is not anticipated to generate substantial numbers of workers, which would be the primary precipitator of population growth in the Owens Lake Planning Area and vicinity. The numbers of workers needed for construction activities would be filled by available workers from the local labor pool. Specifically, the City of Ridgecrest offers a labor force of approximately 16,300 people (EDD 2008). Operation and maintenance workers would be supplied by staff of LADWP. Therefore, the project would not induce substantial population growth through either construction or operation of the DCMs. This would be a less-than-significant impact and this issue will not be analyzed further in the Supplemental EIR.

b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?

No impact. There are no homes within the moat and row DCAs. Therefore, no homes would be displaced and no impact would occur. This issue will not be analyzed further in the Supplemental EIR.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No impact. As described in item b above, no homes are located within the moat and row DCAs; therefore, no people would be displaced with implementation of the project. No impact would occur. This issue will not be analyzed further in the Supplemental EIR.

3.13 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
XIII. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Public services in the Owens Lake Planning Area are primarily provided by Inyo County but also include local community services provided in individual communities (i.e., Lone Pine Fire Department) and school services provided by the Lone Pine Unified School District.

DISCUSSION

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

No impacts. The Owens Lake Planning Area is expansive and is not located in an area with fire protection services of a single department or district. Fire protection services are provided locally in the communities of Lone Pine and Olancha. Construction, operation, and maintenance of moat and row DCMs would not increase demands for fire protection services because no new homes, structures, or people would need protection. Therefore, no impact would occur and this issue will not be evaluated further in the Supplemental EIR.

Police protection?

No impacts. The Owens Lake Planning Area is provided with police protection services by the Inyo County Sheriff Department. The construction, operation, and maintenance of moat and row DCMs would not increase demands for police protection services because no new homes, structures, or people would need protection. Therefore, no impact would occur and this issue will not be evaluated further in the Supplemental EIR.

Schools?

No impacts. As described in the 2008 FSEIR, the nearest schools to the Owens Lake Planning Area include the Lo-Inyo Elementary School, located at 223 E. Locust Street, and Lone Pine High School, located at 538 Main Street, both in the City of Lone Pine. These schools are located approximately 4.8 miles north-northwest of the closest moat and row DCA (Section 3.4.4, Existing or Proposed Schools, page 3.4-8 and 3.4-9). Construction, operation, and maintenance of moat and row DCMs would not construct any housing and, therefore, would not result in any increased demands for school facilities. Further, it is not expected that construction workers would relocate to the local area because of the relatively short construction period (i.e., less than one year). Therefore, no impact would occur and this issue will not be analyzed further in the Supplemental EIR.

Parks?

No impacts. The Owens Lake Planning Area is located in a remote area of the upper Mojave Desert and closest parks include the Manzanar National Historic Site, Death Valley National Park, and Sequoia/Kings Canyon National Park. A community park is located in the nearby community of Lone Pine adjacent to the Lo-Inyo Elementary School. The next closest community park is located in the City of Ridgecrest approximately 55 miles to the south. The construction, operation, and maintenance of moat and row DCMs would not involve any land uses that would generate the need for the provision or upgrade of new park facilities. Therefore, no impact would occur and this issue will not be analyzed further in the Supplemental EIR.

Other public facilities?

No impacts. The majority of public facilities in the Owens Lake Planning Area are provided by local communities (e.g., Lone Pine, Olancha). The proposed project would be operated and maintained by LADWP and would be fully self-contained (i.e., facilities served by LADWP (e.g., water) or would not require other public services). Therefore, the project would have no impacts to other public facilities and this issue will not be analyzed in the Supplemental EIR.

3.14 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
XIV. Recreation. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The Owens Lake Planning Area is located in a remote area of the upper Mojave Desert and the desert area provides unique outdoor recreation opportunities (e.g., hunting, off-road motorcycling, hiking, camping). Community and neighborhood recreational facilities located closest to the Owens Lake Planning Area include those in the cities of Bishop and Ridgecrest. The largest recreational facility is located in the City of Ridgecrest and includes the 56-acre Leroy Jackson Park Sports Complex.

DISCUSSION

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No impacts. The Owens Lake Planning Area is located in a remote area of the upper Mojave Desert and closest parks include the Manzanar National Historic Site, Death Valley National Park, and Sequoia/Kings Canyon National Park. There are no local or community parks in nearby communities (e.g., Lone Pine, Olancha). The closest community park is located in the City of Ridgecrest approximately 55 miles to the south. The construction, operation, and maintenance of moat and row DCMs would not involve any activities (e.g., construction of housing) that would result in bringing a substantial number of people to the Owens Lake Planning Area. Because the proposed project would not substantially increase the numbers of people, a substantial increase in the use of existing neighborhood and regional parks would not occur. Therefore, implementation of moat and row DCMs would not result in an increased use of parks or recreational facilities such that physical deterioration would occur. This issue will not be analyzed further in the Supplemental EIR.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No impacts. See item a above. Regarding public access, the dry Owens Lake bed is a public trust resource and is openly accessible to the public for recreational activities. Existing dust control operations and proposed moat and row operations would generally occur within the lake bed and access to the DCAs would occur from existing maintenance and access roads. The project would not result in any blockages of surrounding roadways.

LADWP, as the agency responsible for implementation of DCMs, is also responsible for ensuring public safety to workers and persons accessing the lake bed in the DCM areas. Public access to the moat and row DCAs would generally be allowed unless those activities would interfere or conflict with LADWP's construction and/or maintenance activities. Signs would be erected at road entrances into the moat and row DCAs cautioning the public that they are entering a particulate emissions control project operated by the City of Los Angeles on land belonging to the State of California under the jurisdiction of the California State Lands Commission (CSLC), and that permission to enter may be temporarily limited when and where it has been determined by LADWP to be necessary for public and/or workers safety. Specific wording for public access signage will be reviewed and approved by CSLC staff prior to installation. LADWP will continue to coordinate with the California State Lands Commission and GBUAPCD regarding maintaining public access to the lake bed while also ensuring worker and public safety. Therefore, this would be a less-than-significant impact.

3.15 TRANSPORTATION/TRAFFIC

ENVIRONMENTAL ISSUES		Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
XV.	**Transportation/Traffic. Would the project:**				
	a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
	b) Exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
	c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☒	☐
	d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
	e) Result in inadequate emergency access?	☐	☐	☒	☐
	f) Result in inadequate parking capacity?	☐	☐	☒	☐
	g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The roadway network in the Owens Lake Planning Area includes U.S. Highway 395, State Route (SR) 136, and SR 190. In addition, several unimproved roads also provide access to the historic Owens Lake bed (2008 FSEIR, Section 3.8.2, Existing Conditions, pages 3.8-3 through 3.8-8).

REGIONAL ROADWAY SYSTEM

U.S. Highway 395

U.S. Highway 395 (Highway 395) is the main transportation route through Inyo County. Highway 395 is part of the Inter-Regional Road System and is functionally classified as a rural principal arterial. The highway connects the Owens Lake Planning Area with Mono County and the City of Reno to the north and with metropolitan areas to the south (e.g., Los Angeles basin, Bakersfield). Highway 395 is also a major roadway used by commercial traffic traveling within the Owens Valley and by recreational traffic traveling between Death Valley and the Sierra Nevada Mountain Range.

Adjacent to Owens Lake, the majority of Highway 395 is a divided four-lane expressway. From Cartago to just south of SR 136, Highway 395 is a four-lane divided highway and then transitions to a two-lane highway.

State Route 190

SR 190 is a two-lane highway oriented southwest to northeast between Highway 395 to the west and SR 136 to the east. Twelve-foot-wide lanes with unimproved gravel shoulders are provided in each direction along SR 190 in the vicinity of Owens Lake Planning Area. This highway serves as a primary access to the southern portions of Owens Lake.

State Route 136

SR 136 is a two-lane highway oriented northwest to southeast between Highway 395 to the north and SR 190 to the south. Twelve-foot-wide lanes with unimproved gravel shoulders are provided in each direction on SR 136 in the vicinity of Owens Lake Planning Area. Primary access to the northern and eastern portions of Owens Lake is provided via this highway.

EXISTING TRAFFIC VOLUMES AND LEVEL OF SERVICE

The 2008 FSEIR provides recent traffic counts for Highway 395, SR 136, and SR 190 in the vicinity of the Owens Lake Planning Area gathered from data provided by Caltrans. Caltrans provides data showing peak hours, peak month average daily traffic (ADT) volumes, and annual ADT (AADT) volumes for each count location in the project area. AADT is the total traffic volume for the year divided by 365 days. The traffic count year is from October 1 through September 30.

The highway capacity as determined by the Highway Capacity Manual 2000 for a two-lane highway is 1,600 passenger cars per hour (pc/h) for each direction of travel; the capacity of a two lane-highway is 3,200 pc/h for both directions of travel combined.

Level of service (LOS) reflects the relative flow of traffic on a roadway and is based on a variety of factors, including capacity and number of vehicles. LOS A reflects free-flow conditions and LOS E reflect that a road is operating at capacity and is congested. LOS C or LOS D typically represent acceptable flow conditions.

Highway 395

The AADT volume on Highway 395 south of SR 136 and north of SR 190 is 6,695 and 6,590 vehicles per day respectively, with a peak hour traffic volume of 1,175 vehicles. This AADT volume is well below the capacity of the four-lane section of the highway as determined by the Highway Capacity Manual 2000. Highway 395 currently operates at LOS A under existing conditions.

State Route 136

The AADT along SR 136 ranges from 630 vehicles east of Highway 395 to approximately 450 vehicles near SR 190 at the Olancha cutoff. The peak hour traffic volume at both of these locations is 105 vehicles. The current traffic volume data indicates that this route is currently operating well below capacity as determined by the Highway Capacity Manual 2000. SR 136 currently operates at LOS A under existing conditions.

State Route 190

The SR 190 AADT volume east of Highway 395 is approximately 345 vehicles and west of SR 136 is approximately 210 vehicles. Peak hour traffic volumes range between 85 and 40 vehicles per hour along this segment. The current traffic volume data indicates that this route is currently operating well below capacity as determined by the Highway Capacity Manual 2000. SR 190 currently operates at LOS A under existing conditions.

EXISTING VEHICULAR EMERGENCY ACCESS / EGRESS

The historic Owens Lake bed is currently accessible to emergency vehicles via SR 136/Sulfate Road, SR 190/Dirty Socks access road, and Highway 395/North and South Mainline access roads.

DISCUSSION

a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

Less-than-significant impact. The 2008 FSEIR analysis of the project traffic volumes focused solely on the construction phase because construction activities were anticipated to generate the highest level of peak overall vehicle trips (approximately 272 daily trips which included up to 72 haul trucks) as compared to traffic volumes that would occur during operation and maintenance of DCMs. The 2008 FSEIR assumed peak construction for the DCMs (moat and row in combination with other DCMs) would occur between late spring 2009 and early summer 2009 because construction of moat and row DCMs would occur during this time (2008 FSEIR, Section 3.8.4, Traffic Volumes, page 3.8-9).

To provide a conservative worst-case analysis, the 2008 FSEIR anticipated that all 272 daily vehicle trips would be generated during the construction phase and were assigned to each highway in the project vicinity. Transportation of construction equipment to DCAs, including the hauling of water lines, would result in a one-time, short-term traffic impact because the majority of all equipment would be left on-site for the duration of construction. During operation and maintenance of DCMs, the majority of activities would not require the use of heavy trucks or a significant number of vehicles accessing the DCAs (approximately 20 per week with approximately 3 to 4 vehicles a day) (2008 FSEIR, Section 3.8.4, Traffic Volumes, page 3.8-9).

State Route 395

Under pre-project conditions, it was estimated that AADT volume on Highway 395 between SR 136 and SR 190 would be 7,155 and 7,045 vehicles per day respectively, with a peak hour traffic volume of 1,255 vehicles. Under project conditions during peak construction, it was anticipated that AADT volume on Highway 395 between SR 136 and SR 190 would be 7,430 and 7,320 vehicles per day, respectively, with a peak hour traffic volume of 1,325 vehicles. The AADT volume is well below the capacity of the four-lane section of Highway 395 extending between SR 136 and 190 and Highway 395 was forecast to operate at LOS A under future with project conditions (2008 FSEIR, Section 3.8.4, Future with Project Conditions Year 2010, page 3.8-10). Therefore, less-than-significant traffic impacts (construction and operational) would occur.

State Route 136

Under pre-project conditions, it was estimated that AADT along SR 136 would range between 675 vehicles east of Highway 395 and approximately 480 vehicles near SR 190 at the Olancha cutoff. The peak hour traffic volume at both of these locations was estimated to be 112 vehicles. Under project conditions during peak construction, it was estimated that AADT along SR 136 would range from 950 vehicles east of Highway 395 to approximately 750 vehicles near SR 190 at the Olancha cutoff. The peak hour traffic volume at both of these locations was estimated to be 180 vehicles. The forecast traffic volume data indicate SR 136 is forecasted to operate at LOS A under with implementation of the project (2008 FSEIR, Section 3.8.4, Future with Project Conditions Year 2010, page 3.8-10). Therefore, less-than-significant traffic impacts (construction and operational) would occur.

State Route 190

Under pre-project conditions, it was estimated that AADT along SR 190 would range between 370 vehicles east of Highway 395 and 210 vehicles west of SR 136 is. Peak hour traffic volumes were estimated to range between 90 and 45 vehicles per hour along this segment. Under project conditions during peak construction, it was anticipated that AADT along SR 190 would range between 640 vehicles east of Highway 395 and approximately 500 vehicles west of SR 136. Peak hour traffic volumes were anticipated to range between 115 vehicles per hour along this segment. The analysis indicated that SR 190 is would operate at LOS A with implementation of the project (Section 3.8.4, Future with Project Conditions Year 2010, page 3.8-11). Therefore, less-than-significant traffic impacts (construction and operational) would occur.

The project would not result in a substantial change to the number of construction personnel, vehicles, or deliveries required to construct the moat and row DCAs from what was evaluated in the 2008 FSEIR; therefore, the conclusions identified in that document would apply to the proposed project and less-than-significant construction- and operational-related traffic impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

b) Exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

Less-than-significant impact. Please refer to item a above. That analysis included an evaluation of cumulative traffic impacts on local roadways.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Less-than-significant impact. The 2008 FSEIR identified that implementation of DCMs would change air traffic patterns because of the nature of proposed activities in the Owens Lake Planning Area would not involve high structures or other air space obstructions and because of the substantial distance between DCAs and the nearest commercial airport (Lone Pine Airport located approximately 4 miles north of the nearest DCA)(Section 3.8.4, Air Traffic Patterns, page 3.8-11). Because the project would not change the features that would be implemented within the moat and row DCAs or alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts related to changing air traffic patterns that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No new impacts. The 2008 FSEIR identified that implementation of moat and row DCMs would not require any changes to the existing design of the roadway network or increase incompatible uses (Section 3.8.4, Hazardous Roadway Design, page 3.8-11). However, the 2008 FSEIR indicated that the periodic events during which construction equipment is hauled to a DCA for construction of moats and rows may result in safety hazards associated with other oncoming or turning vehicles on Highway 395, SR 136, and SR 190. In addition, heavy trucks transporting construction material and equipment could damage the roadway surface of SR 136.

The numbers of heavy equipment used for moat and row construction would total approximately 45 pieces, of which the majority would be left on site during construction. The transport of construction equipment to DCAs, including the hauling of pipelines, could result in a one-time, temporary, short-term significant impact (Section 3.8.4, Hazardous Roadway Design, page 3.8-11). Mitigation was recommended and approved that requires LADWP to work with the California Department of Transportation to develop a Traffic Work Safety Plan to determine the necessity for traffic safety equipment to be installed and maintained on Highway 395, SR 136, and

SR 190 in order to ensure traffic safety during construction. Specific measures recommended in the plan (e.g., signage, flag persons) would be implemented and maintained by LADWP for each location on Highway 395, SR 136, and SR 190 that would be affected by the construction phase of moats and rows to ensure traffic safety. Mitigation also requires that LADWP would be responsible for funding, installing, and conforming to the measures specified in the approved Traffic Work Safety Plan prior to the use of Highway 395, SR 136, and SR 190 for gravel hauling or other heavy truck trips such as the delivery of materials, heavy equipment, and construction vehicles to DCAs to ensure traffic safety during construction. Lastly, mitigation requires LADWP to repair damage to the regional transportation network (i.e., Highway 395, SR 136, SR 190) from construction activities associated with moats and rows to pre-project conditions (Section 3.8.5, Mitigation Measures, pages 3.8-13 and 3.8-14). The project would not alter the boundaries of the moat and row DCAs or increase the number of truck deliveries and construction personnel that would access the moat and row DCAs. Therefore, mitigation recommended and approved as part of the 2008 FSEIR would apply to the proposed project would reduce impacts associated with the proposed project to a less-than-significant level. No new significant impacts related to an increase in hazards due to a design feature that were not previously identified and mitigated would occur and this issue will not be evaluated further in the Supplemental EIR.

e) Result in inadequate emergency access?

Less-than-significant impacts. The 2008 FSEIR identified that the Owens Lake Planning Area is currently accessible to emergency vehicles via SR 136/Sulfate Road, SR 190/Dirty Socks access road, and Highway 395/North and South Mainline access roads. Implementation of moat and row DCMs would not require any changes to these existing access points (Section 3.8.4, Emergency Vehicle Access/Egress, page 3.8-11). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts related to inadequate emergency access that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

f) Result in inadequate parking capacity?

Less-than-significant impact. During construction period, the 2008 FSEIR identified that employees would park their personal vehicles in designated areas near Highway 395, SR 136, and SR 190 and adequate parking would be available to meet construction demands (Section 3.8.4, Parking Capacity, page 3.8-12). Because the project would require a similar number of construction personnel for moat and row DCMs as evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts related to inadequate parking capacity during construction of moats and rows that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

The 2008 FSEIR identified that once project construction is completed, limited parking would be provided in the Owens Lake Planning Area to accommodate routine maintenance and monitoring vehicles for moats and row DCMs and this parking could adequately serve project parking demands (Section 3.8.4, Parking Capacity, page 3.8-12). Because the project would require a similar number of maintenance personnel for moat and row DCMs as evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts related to inadequate parking capacity during maintenance and operation of moats and rows that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

No impact. The 2008 FSEIR identified that no existing or planned transportation facilities would be removed or prevented from being constructed or operated with implementation of DCMs (Section 3.8.4, Alternative

Transportation, page 3.8-12). Because the project would not alter the boundaries of the moat and row DCAs evaluated under the 2008 FSEIR, conclusions made in that document would apply to the proposed project and the project would not result in any new significant impacts related to alternative transportation that were not previously identified. Therefore, no environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

3.16 UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
XVI. Utilities and Service Systems. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

Wastewater Treatment

Sources of wastewater associated with the Owens Lake Planning Area include portable toilets and a septic system at the LADWP's support offices and the GBUAPCD's office in the community of Keeler. In addition, the LADWP operates an Operation and Maintenance facility located adjacent to Highway 136 on Sulfate Road, which treats wastewater through a septic system. Construction and maintenance crews on-site use portable toilets that are periodically emptied and transported to the wastewater treatment facility. Similarly, the septic system in the community of Keeler, which includes a septic tank and leach lines, is periodically cleaned and transported to the Lone Pine facility. These sources represent a nominal amount of wastewater.

Wastewater from the Owens Lake Planning Area that is collected from portable toilets or pumped from septic systems is treated by the Lone Pine Community Services District. The Lone Pine facility has a remaining capacity of 989,912 cubic yards and is estimated to close in the year 2073. The Lone Pine facility is regulated by the Lahontan Regional Water Quality Control Board (RWQCB), and wastewater treatment requirements are outlined in the Water Quality Control Plan for the Lahontan Region, North and South Basins.

Storm Drain System

The Owens Lake Planning area does not have an on-site storm drain system that conveys storm water off site to a water treatment facility. In order to protect existing DCMs from flood damage in response to infrequent, high-magnitude storm events, earthen storm water control berms have been constructed to direct storm water flows within the DCAs.

Water Supply

Water service is provided to existing DCAs by the LADWP via the Los Angeles Aqueduct. The City of Los Angeles historical demand for water peaked in 1989 at more than 700,000 acre-feet per year (AF/yr). Since that time, the population of the City of Los Angeles has grown by 750,000 individuals and water demand is currently at the same level it was approximately 20 years ago, due to implementation of conservation strategies. In 2004, LADWP supplied 696,000 AF of water to the City of Los Angeles, including 200,000 AF via the Los Angeles Aqueduct. According to the most recent Urban Water Management Plan, current sources of water were sufficient to meet the demand in 2004 and are projected to be available in the future from either dedicated sources of the City such as the Los Angeles Aqueduct or from purchased supplies from the Metropolitan Water District.

Solid Waste

The Owens Lake Planning Area is served by the Lone Pine Landfill, the nearest permitted solid waste disposal facility. Based on previous documentation, the Lone Pine Landfill has a remaining site life of approximately 15 years. Solid waste generated at the moat and row DCAs would be disposed of at a permitted landfill with sufficient capacity.

DISCUSSION

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less-than-significant impact. Wastewater generated within the lake bed, is either disposed in a septic system or portable toilets and; therefore, the project would not discharge any wastewater to a municipal sewer system. These sources represent a nominal amount of wastewater. As described in the 2008 SIP FSEIR, because the wastewater would be appropriately disposed in accordance with relevant regulations, the project would not exceed the wastewater treatment requirements of the applicable RWQCB (Section 3.9.4, Wastewater Treatment, page 3.9-6). The proposed project would not alter how wastewater is disposed at the DCAs. Further, the project would not result in an increase in the generation of wastewater. Therefore, conclusions made in 2008 FSEIR would apply to the proposed project and the project would not result in any new significant impacts related to exceeding wastewater treatment requirements that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less-than-significant impact. The 2008 FSEIR identified that all DCMs (i.e., moat and row, shallow flooding) would use an additional 20,000 AF/yr of water and may use up to 28,000 AF/yr if all DCMs implemented shallow flooding DCMs. The water supply needed for DCMs would be provided by existing entitlements and supplies of the City of Los Angeles which has planned for the water demands of all DCMs and would supply this water via the Los Angeles Aqueduct (Section 3.9.4, Water Supply, pages 3.9-6 and 3.9-7). Water supplied from the Los Angeles Aqueduct for use as part of DCMs would not require treatment because this water would not be used for potable uses. In addition, as discussed under item a above, wastewater generated in the Owens Lake Planning Area would not be discharged to the municipal sewer system because sources of wastewater associated with activities in the area include portable toilets and a septic system which are periodically emptied and transported to the Lone Pine wastewater treatment facility. Therefore, the construction or expansion of water or wastewater facilities would not be required. The project would not change how water is delivered to the project or increase demand for water supplies. Therefore, conclusions made in the 2008 FSEIR would apply to the proposed project and the project would not result in any new significant impacts related to construction or expansion of water or wastewater treatment facilities that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No new impacts. The historic Owens Lake bed is subject to flood damage from flash floods in response to infrequent, high-magnitude storm events. The continued effectiveness of DCMs requires treated areas to be protected from flooding. DCMs would include the expansion of storm water control berms to convert channeled storm water flows from adjacent off-site alluvial fans into sheet flows. Regarding the moat and row DCMs, these DCMs could channel storm water flows that result in an increase of flash flood potential by directing water and sediment loads toward the mineral lease areas of the lake bed, (refer to Section 3.10, Mineral Resources, of this Initial Study) thereby causing either erosion, deposition of sediment, or loss of ore material to brine pool (Section 3.9.4, Storm Drainage System, page 3.9-6). The 2008 FSEIR identified that implementation of mitigation including the use of sediment traps, road/berms with clay core, or parallel alignment of moat and row DCMs (Mitigation Measure Hydrology-4, Reduction of Flash Flood and Alluvial Sediment Damage Potential, Section 3.5.5, page 3.5-22) would reduce impacts related to flood flows (i.e., storm drain system) to a less-than-significant level (Section 3.9.6, Storm Drain System, page 3.9-6). The project would not change the design or location of stormwater control berms; therefore, conclusions made and mitigation approved in the 2008 FSEIR would apply to the proposed project and the project would not result in an new significant impacts related to construction of new stormwater drainage facilities that were not previously identified. Therefore, no new environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR. With regard to biological impacts associated with stormwater control berms, these impacts are evaluated under item 3 above, and will be evaluated further in the Supplemental EIR.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less-than-Significant impact. The 2008 FSEIR evaluated the water demands of the moat and row DCMs in combination with the water demands of all other proposed DCMs. The 2008 FSEIR identified that DCMs are expected to utilize an additional 20,000 AF/yr of water and may use up to 28,000 AF/yr if all DCMs implemented shallow flooding DCMs. This would bring the total water demand associated with all dust control activities on Owens Lake to between 75,120 AF/yr or 83,120 AF/yr, respectively. Projected water demands for DCMs would be provided by existing entitlements and supplies of the City of Los Angeles which has planned for the water demands of all DCMs. See item b above. Furthermore, the project is consistent with the Urban Water Management Plan of the City of Los Angeles, which specifies the current and future demands and sources of water for the City of Los Angeles (Section 3.9.4, Water Supply, pages 3.9-6 and 3.9-7). Because the project would not change how water is delivered to the DCAs or increase demand for water supplies, the conclusions made in the 2008 FSEIR would apply to the proposed project and the project would not result in any new significant impacts related to inadequate water supplies that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?

Less-than-significant impact. Please refer to discussion under question 3.16(a) above.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less-than-significant impact. The 2008 FSEIR identified that moat and row DCMs would not generate a significant amount of solid waste due to the nature of the DCM operations (i.e., landform features, no facilities). In addition, any solid waste generated at the site during construction would be disposed of at a permitted landfill with sufficient capacity. Based on the 2008 FSEIR, the Lone Pine Landfill, which serves the Owens Lake Planning Area has a remaining site life of approximately 66 years (Section 3.9.4, Solid Waste, page 3.9-7). Because the project would increase the solid waste generated within the DCAs, conclusions made in the 2008 FSEIR would apply to the proposed project and the project would not result in any new significant impacts related to solid waste disposal or landfill capacity that were not previously identified. Therefore, less-than-significant environmental impacts would occur and this issue will not be evaluated further in the Supplemental EIR.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

Less-than-significant impact. Please refer to discussion under question 3.16(f) above.

3.17 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES		Potentially Significant Impact	Significant Impact Already Addressed in 2008 SIP Subsequent EIR (No New Impacts)	Less Than Significant Impact	No Impact
XVII.	**Mandatory Findings of Significance.**				
	a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
	b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
	c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Authority: Public Resources Code Sections 21083 and 21087.
Reference: Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.3, 21093, 21094, 21151; *Sundstrom v. County of Mendocino*, 202 Cal.App.3d 296 (1988); *Leonoff v. Monterey Board of Supervisors*, 222 Cal.App.3d 1337 (1990).

DISCUSSION

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

As described in the preceding sections, the project has the potential to degrade the quality of the environment by creating impacts related to construction-related air quality, biological resources, and aesthetics. These impacts will be evaluated in the relevant sections of the Supplemental EIR.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Implementation of the proposed project would result in impacts related to construction-related air quality, biological resources, and aesthetics that, when added to other past, present, and reasonably foreseeable future projects, could result in impacts in these areas that are cumulatively considerable. Therefore, the cumulative impacts associated with these issue areas will be evaluated in the Supplemental EIR.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

As described in the previous sections, the proposed project has the potential to result in construction-related air quality impacts, biological resources impacts, and aesthetic impacts that could result in substantial adverse effects on human beings either directly or indirectly. Therefore, these impacts will be evaluated in the relevant sections of the Supplemental EIR.

4 REFERENCES

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Initial Study Comment Letters

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January 13, 2009

File Ref: WP 8079.9
SCH# 2008121074

Mr. Tom Dailor
Department of Water and Power
City of Los Angeles
111 North Hope Street, Room 1044
Los Angeles, CA 90012

SUBJECT: Comments on Notice of Preparation (NOP) and Initial Study for a Supplemental Environmental Impact Report (SEIR) for the Owens Lake Revised Moat and Row Dust Control Measure Plan, Inyo County

Dear Mr. Dailor:

Staff of the California State Lands Commission (CSLC) has reviewed the subject document. The city of Los Angeles is the Lead Agency for the preparation of the proposed supplemental document and the CSLC is a responsible and trustee agency under the California Environmental Quality Act. Based on staff's review of the NOP and Initial Study, we offer the following comments.

<u>Jurisdiction</u>

The State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation and open space. The boundaries of these State-owned lands generally are based upon the last naturally occurring location of the ordinary high or low water marks prior to artificial influences which may have altered or modified the river or shoreline characteristics. On tidal waterways, the State's sovereign fee ownership extends landward to the ordinary high water mark as it last naturally existed. On navigable non-tidal waterways, the State holds fee ownership of the bed landward to the ordinary low water mark and a Public Trust easement landward to the ordinary high water mark, as they last naturally existed. Such boundaries may not be readily apparent from present day inspections. The State's sovereign interests are under the jurisdiction of the CSLC.

The proposed project involves the historic bed of Owens Lake, which is State sovereign land under the jurisdiction of the CSLC; therefore, the city of Los Angeles Department of Water and Power (City) is required to submit an application for CSLC consideration of an amendment to Lease No. PRC 8079.9.

General Comments

The SEIR should include a description clearly identifying when enhancements to and augmentations of the Moat and Row project will be implemented and with whom these additions will be coordinated. Staff of the CSLC will need to be included in this review process.

Notice of Preparation
Page 8 - Please provide a more detailed description of the brine collection and distribution process, including maintenance of equipment.

Initial Study
Page 2-9 – All methods for securing the sand fences in place should be included in the SEIR analysis. The worst case visual scenario for moat and row elements that includes maximum potential enhancements and augmentation of moat and row elements needs to be analyzed in the DEIR.)

Page 2-28, Section 2.7.1., second paragraph, the SEIR should describe how the location of the shallow flood pond will be selected in the maintenance function for disposal of sediments collected from the moats, including how sediments will be evenly distributed.

Page 2-29, Section 2.7.4 – The SEIR should describe the frequency of historic occurrences of winds exceeding 70 mph to understand the frequency of dust events on the Lake.

Please describe the purpose and need for the frequency of water quality testing to be conducted within the moat areas.

Page 3-24, Section 3.8 Hydrology Water Quality – Staff recommends that the discharging of lakebed sediment material collected from the moats be analyzed as a "new discharge" and include appropriate mitigation measures.

Since distribution of the NOP, a berm failure in one of the shallow flooding areas has occurred due to recent inclement weather. Please include the potential for berm failure in this analysis.

Page 3-30 – Land Use and Planning, sub (b), the CSLC has not yet considered the moat and row dust control measure and has not made a determination whether the moat and row measure is or is not consistent with the public trust. The CSLC is the land owner and is charged with the responsibility to determine compatibility of a project with the public trust values associated with the project site. Therefore, consultation with staff of the CSLC should be made to clarify in the SEIR that there is a possible conflict with the Public Trust Doctrine.

Vector control treatment required for the moat and row sites must be compatible with local wildlife.

Page 3-31 – Section 3.10 – The SEIR should indicate that lakebed sediments may not be removed from the lakebed.

Page 3-40 – Section 3.14 – Recreation – The SEIR environmental setting needs to include a discussion of existing public recreational enjoyment of Owens Lake and include a discussion as to when and why a perimeter fence was constructed around Owens Lake. CSLC staff suggests close coordination on the clarification of this issue prior to public review of the SEIR.

"Owen's Valley Revised Moat and Row Dust Control Measures Plan Supplimental EIR" January 6, 2009. (PowerPoint presentation from EDAW for the January 6, 2009 conference call; provided to CSLC for additional detail and clarification.)

Slide 16: Habitat loss/degradation;

1. For shallow flood to be used as part of the project to off-set habitat to less than significant, a link to the previous EIR must be made.
2. Compensation of "historic habitat" for new "artificial habitat" should be at a ratio of 1:1 or greater.
3. Provide an analysis that looks at a "formula" that quantifies the habitat loss and analyses the newly created habitat for proper replacement values.
   a) Is a ratio required or is habitat value equivalent.
   b) How is the habitat calculated? (as measured from water to 1/2 mile)
4. Any future removal of shallow flood would be subject to separate CEQA analysis, with a focus on snowy plover and other aquatic fowl impacts.

Slide 17: Displacement and loss of individuals;

1. Moat entrapment. CEQA does not allow for ranking impacts other than "significant" or "less than significant." "Significant effect on the environment means a substantial, or potentially substantial, adverse change . . ." as defined in the CEQA Guidelines section 15382.
2. CEQA requires that once an impact is determined to be significant, feasible mitigation measures must be included in the project to avoid the significant effects.
3. Mitigation can not be deferred until an impact has occurred. See CEQA Guideline section 15126.4: "Formulation of mitigation measures should not be deferred until some future time."
4. If remedial features or design changes are not feasible, this needs to be evaluated as part of the CEQA process, not at some point in the future, after the project has been constructed.
5. The EIR should have substantial evidence for the slope justification and that the lack of ramps would not result in a significant impact to wildlife.

State of California - The Resources Agency
DEPARTMENT OF FISH AND GAME
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January 13, 2009

Mr. Thomas Dailor
Department of Water and Power
City of Los Angeles
111 North Hope Street, Room 1044
Los Angeles, CA 90012

Owens Lake Revised Moat and Row Dust Control Measures
(State Clearinghouse Number: 2008121074)

Dear Mr. Dailor:

The Department of Fish and Game (Department) has reviewed the Notice of Preparation (NOP) of the draft Supplemental Environmental Impact Report (SEIR). Los Angeles Department of Water and Power (LADWP) proposes to reduce dust emissions on approximately 3.5 square miles of the Owens Lake bed in order to eliminate exceedances of the federal particulate matter (PM10) standard, through construction of a landform feature called Moat and Row. Moat and Row is a method of dust control that typically does not require the addition of supplemental water to reduce dust emissions. A typical Moat and Row element is an 89-foot wide disturbed linear corridor that consists of an earthen berm (row) approximately five feet high with 1.5:1 (horizontal to vertical) sloping sides and a base of up to 19 feet wide, with a five–foot sand fence at the top flanked on either side by two ditches (moats) approximately 4 to 5.5 feet deep and up to 20 feet wide at the widest point. Rows serve as windbreaks and the primary function of the moats is to capture sand.

The Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project, relative to impacts to biological resources. To enable Department staff to adequately review and comment on the proposed project, we recommend the following information is included in the SEIR (or referenced when provided in previous CEQA documents), as applicable:

1. A complete assessment of the flora and fauna within and adjacent to the project area should be conducted, with particular emphasis upon identifying special status species including rare, threatened, and endangered species. This assessment should also address any locally unique species and rare natural communities.

   a. Rare, threatened, and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, § 15380).

   b. "Species of Special Concern" status applies to animals generally not listed under the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. At a minimum, Species of Special Concern are considered to be "rare" under CEQA. Owens Lake provides an opportunity to contribute to the long-term conservation of western snowy plover (*Charadrius alexandrinus nivosus*), a state Species of Special Concern.

c. A thorough assessment of rare plants and rare natural communities, following the Department's May 1984 Guidelines (revised May 2000) for Assessing Impacts to Rare Plants and Rare Natural Communities should be included, as applicable. Impacts to vegetation communities may be addressed in a similar manner as the 2008 Owens Valley PM Planning Area Demonstration of Attainment State Implementation Plan PM_{10} Final Subsequent Environmental Impact Report (FSEIR).

d. A complete assessment of rare, threatened, and endangered invertebrate, fish, wildlife, reptile, and amphibian species should be developed as applicable. Seasonal variations in use of the project area should also be addressed.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, should be included.

a. The SEIR should include descriptions of each Moat and Row "cell", the types of Moat and Row elements to be implemented at each site (i.e., Moat and Row, sand fence only, etc.), and the density/percent cover of the Moat and Row elements within each cell. This may be represented by one or more summary tables.

b. As discussed in the Department's letter to the Great Basin Unified Air Pollution Control District dated October 30, 2007, the Department requests a general comparison of the existing habitat values with the post-construction habitat values within the Moat and Row project area. The attractiveness of Moat and Row areas for nesting by snowy plover and other resident shorebirds should be evaluated. Habitat values should also be evaluated in light of possible changes to Moat and Row areas that may require enhancements in the future.

c. All expected direct impacts to wildlife habitat and vegetation should be quantified (e.g., acres, linear feet, etc. to the extent feasible). The area of snowy plover habitat to be impacted by Moat and Row construction should be separately identified and quantified from summary totals if the two figures differ. Mitigation for loss or degradation of existing snowy plover use areas should be proposed in the draft SEIR.

d. Impacts associated with initial project construction as well as long-term operation and maintenance of the project should be addressed in the SEIR. Potential long-term impacts to wildlife should be discussed along with mitigation measures proposed to offset significant impacts. Adaptive management measures should be included to address uncertainty with regard to long-term impacts.

e. Expected wildlife interactions should be evaluated for each Moat and Row cell, in consideration of spatial context and nearby biological resources.

f. Impacts to and maintenance of wildlife movement and other key seasonal use areas should be fully evaluated and provided. The SEIR should address the potential for the Moat and Row elements to present barriers to wildlife movement. Moat and Row cells with the highest potential to impede wildlife movement should be identified. This analysis should encompass all life stages of all animal species potentially entering Moat and Row areas, with an emphasis on juvenile flightless shorebirds, especially western snowy plover. Impact analysis should consider the proximity of Moat and Row elements to all habitat types found at Owens Lake (e.g., seeps and springs, open playa, shallow flood, etc.) Gaps between Moat and Row elements and gaps along individual Moat and Row elements should be evaluated for wildlife passage and escape. On the other hand, in some situations preventing wildlife from entering Moat and Row areas (to prevent trapping wildlife) may be a prudent course of action.

g. The SEIR should discuss the vertical clearance needed between the bottom of the fences and the tops of the rows to provide adequate space for movement of juvenile shorebirds. If the proposed two-inch gap is not sufficient, fence modifications should be identified, such as the addition of larger vertical gaps (e.g., four to six inches) at determined increments along the sand fences at important locations. "Sand fence only" areas should also be addressed.

h. The SEIR should evaluate whether 1.5:1 (run over rise) moat slopes will present a movement barrier and entrapment threat to wildlife, particularly flightless juvenile shorebirds. As all moats are anticipated to hold permanent or semi-permanent water, the moats may pose higher risks to certain small animals versus a dry situation. The SEIR should describe the expected water quality (particularly concentrated salts) in the moats, and explain any water quality impacts on all life stages of wildlife that may enter water in the moats.

i. The SEIR should identify specific areas of Moat and Row cells with a moderate to high potential for animals to enter the moats. Measures to manage risk may be appropriate additions to the project design in specific areas. For other areas where the risk cannot be predicted, a detailed adaptive management and monitoring plan with a range of remedial actions should be developed.

j. Predation effects (e.g., avian predator perching), and any risk of avian collisions with fences should also be addressed with regard to Moat and Row. The tops of the sand fences would be up to ten feet above the playa surface.

k. Project impacts should be analyzed relative to their effects on off-site habitats. Specifically, this may include public lands, open space, offsite aquatic habitats, or any other natural habitat that could be affected by the project. Direct and indirect impacts (including viewshed impacts) to the Department's Cartago Springs Wildlife Area should be evaluated.

l. Subject to direction by the Great Basin Unified Air Pollution Control District, removal of Moat and Row followed by replacement with one or more approved dust control measures is possible if PM_{10} standards are not met. The SEIR should describe a basic procedure for possible decommissioning of Moat and Row and describe the environmental analysis that would be completed in such an event.

3. Alternatives which avoid or otherwise minimize impacts to sensitive biological resources should be included. Because the SEIR is focused on the Moat and Row method, alternatives would primarily consist of design modifications to Moat and Row not previously discussed.

4. Mitigation measures for adverse project-related impacts to sensitive vegetation, animals, and habitats should be thoroughly discussed, or reference made from the FSEIR when applicable. Mitigation measures should first emphasize avoidance and reduction of project impacts. For unavoidable impacts, the feasibility of on-site, in-kind habitat restoration or enhancement should be discussed. If on-site mitigation is not feasible, off-site mitigation through habitat creation, enhancement, acquisition and preservation should be addressed.

   a. Mitigation for loss or degradation of existing nesting areas should be proposed in the draft SEIR.

   b. The SEIR should clarify whether Phase 7 Shallow Flood is part of the project, and describe a mechanism if Phase 7 Shallow Flood is intended to function as mitigation for habitat loss.

   c. The Department recommends that areas reserved as mitigation for project impacts should generally be protected from future direct and indirect impacts. Other potential considerations include monitoring/ management programs, operational flexibility, and mitigation compatibility with the overall dust control program. The FSEIR addresses the development of a Long Term Habitat Management Plan. The Department recommends that specific mitigation for Moat and Row is incorporated into the Long Term Habitat Management Plan. Other avoidance/mitigation measures previously addressed in the FSEIR should be referenced and incorporated in the SEIR where applicable.

5. The project may require a Lake or Streambed Alteration Agreement, pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant prior to the applicant's commencement of any activity that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or use material from a streambed. The Department's issuance of a Lake or Streambed Alteration Agreement for a project that is subject to CEQA will require CEQA compliance actions by the Department as a responsible agency. The Department as a

responsible agency under CEQA may consider the local jurisdiction's (lead agency) Negative Declaration or Environmental Impact Report for the project. To minimize additional requirements by the Department pursuant to Section 1600 et seq. and/or under CEQA, the document should fully identify the potential impacts to the lake, stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the agreement.

6. The majority of Owens Lake is held in the public trust by the California State Lands Commission. The Lake's value to wildlife has been greatly enhanced by LADWP's flooding of much of the lake surface. The Lake and the wildlife it supports are of statewide importance. The Department believes that future dust control activities, including Moat and Row, can and should continue to be implemented while maintaining ample and sustainable opportunities for wildlife. Abundant wildlife populations at Owens Lake benefit public uses and wildlife values central to the mission of the Department. We request that impact analysis and mitigation measures discussed in the SEIR are developed with this concept in mind.

Thank you for this opportunity to comment. Questions regarding this letter and further coordination on these issues should be directed to Brad Henderson at (760) 873-4412 or Tammy Branston at (760) 872-0751.

Sincerely,

Brad Henderson
Senior Environmental Scientist

cc: Department of Fish and Game
State Clearinghouse
State Lands Commission
GBUAPCD

If you wish to discuss this letter in greater detail, please contact Steven Mindt for environmental issues at (916) 574-1497, or Judy Brown for lease issues at (916) 574-1868.

Sincerely,

Gail Newton, Chief
Division of Environmental Planning
and Management

cc: Denyse Racine
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January 9, 2009

Mr. Tom Dailor
Environmental Supervisor
Los Angeles Department of Water & Power
111 North Hope Street, Room 1044
Los Angeles, California 90012

Subject: Comments on Initial Study for Owens Lake Revised Moat & Row Dust Control Measures Supplemental Environmental Impact Report

Dear Mr. Dailor:

The Great Basin Unified Air Pollution Control District (District) appreciates the opportunity to review and comment on the Initial Study (IS) prepared by the City of Los Angeles Department of Water and Power (City) for the revised Owens Lake Moat & Row dust control measures project Supplemental Environmental Impact Report (SEIR). In general, the City has done an excellent job of identifying the potential impacts caused by the proposed project. However, the District does have some important comments that relate to potential air quality impacts caused by the delayed completion of the proposed project.

The City and the District entered into a Memorandum of Agreement in 2006 (2006 Agreement) wherein the City and the District committed to many actions that will ultimately lead to attaining the federal and state PM_{10} standards at Owens Lake. The District incorporated the provisions of the 2006 Agreement into a revised Owens Lake PM_{10} State Implementation Plan that was adopted in February 2008 (2008 SIP). The 2008 SIP requires the City to install dust controls on the 3.5 square-mile project area being analyzed in the proposed SEIR. The 2008 SIP requires that the project area be controlled with either an approved Best Available Control Measure (BACM) or, at the City's option, the experimental Moat & Row control measure. If BACM is implemented in the project area, the controls must be operational by April 1, 2010. However, if the City implements Moat & Row, the controls are required to be operational by October 1, 2009 (For details, see paragraph 2 in the 2006 Agreement and Paragraph 3 in Chapter 8, "Enabling Legislation to Implement Control Strategy" of the 2008 SIP). The schedule set forth in the IS, and elaborated on at the public scoping meeting in Independence on January 7, calls for project completion by April 2010. This is six months beyond the deadline for Moat & Row required by the 2006 Agreement and 2008 SIP.

The IS concludes that the proposed project's potentially significant air quality impacts will result from construction activities only. With regard to operational air quality impacts, the IS states that "the DCMs would be operated consistent with the terms and conditions of the Memorandum of Agreement between the LADWP and the GBUAPCD" (IS, pg. 3-7). This is not correct. As mentioned above, the proposed project will be completed six months later than the deadline set forth in the Agreement and SIP and will therefore be in violation of the SIP (the "applicable air quality plan" referred to in III.a. of the CEQA checklist). This means that Owens Valley air breathers (both human and non-human) will be subjected to six additional months of PM_{10} emissions from the project area. This is a significant impact requiring mitigation.

Based on past air quality monitoring and modeling, it is likely that the six months of continued emissions from the 3.5 square-mile project area will cause or substantially contribute to exceedances of the federal 24-hour PM_{10} NAAQS at the historic shoreline and the state 24-hour PM_{10} standard in local communities. This would be a significant impact under section III.b. of the CEQA checklist. In addition, the additional six months of emissions will likely result in a "cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard" (III.c. of the CEQA checklist). The additional emissions will also "expose sensitive receptors to substantial pollutant concentrations" (III.d. of the CEQA checklist) that they would not be exposed to, if the City completed the Moat & Row on the schedule required in the 2008 SIP. As part of the environmental impact analysis, the City must review previous air quality data and re-run the model to determine the likely impacts (in terms of PM_{10} concentrations, tons of PM_{10} and impacts on sensitive receptors) caused by the six-month delay. If federal or state exceedances are expected to occur, mitigation measures will be required.

The District encourages the City to meet with us to discuss methods of mitigating any significant impacts that your analysis may identify. Please contact me if you have any questions or need any information for your analysis.

Sincerely,

Theodore D. Schade, P.E.
Air Pollution Control Officer

Cc (via e-mail): William Van Wagoner, LADWP
David Christensen, LADWP
Amanda Olekszulin, EDAW
Judy Brown, California State Lands Commission

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SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT REPORT
Public Hearing for the Draft EIR for the Owens Lake Dust Mitigation Plan Project

Bruce Pischel
P.O. Box 957
Lone Pine, CA 93545
760-876-4541
760-614-0018 cell

I attended your NOP meeting on the moat & rows 1/8/09. I was surprised by the turnout. There was the usual environmental / bird / visual people.

You should be prepared to face the people who:
Lost the water for their farm
Lost the pasture water for their stock
The people that have been trained to conserve water then find out where it is going
A drought year will multiply the pressure.

I invented the Moat & Row as a cost effective waterless dust abetment method for Owens Lake. You addressed the sand and gravel the Moat & Rows will stop from grinding on the playa.

Another benefit is to break the capillary action of the brine and salts. On the flat playa when it rains or the right moisture occurs it wicks saltes to the surface, at cold temperatures a decahighdrate forms. When these decahidrates dry out they are like light ash. The Moat & Rows are deisined to break the capillary action and leach the saltes into the moat.

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APPENDIX B

Summary of Snowy Plover Ecology and Life History Information Relevant for Impact Analysis

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Ecological Variable	Geographic Location	Summary Description	Source
Morphology			
General		Height: ca. 2-3 inches (adult); ca. 1.5 to 2 inches (newly-hatched chick) Body length: 6.25 inches (adult)	Page, pers. comm., 2009; Sibley 2000
		Eggs are buffy colored, lightly to moderately covered with small brown to black spots. In general, eggs are fairly inconspicuous and it is often difficult to locate nests by eggs alone.	Page et al. 1995; Prather, pers. comm., 2008
		Young chicks are very well camouflaged, especially when they squat down and remain still as a predator avoidance strategy.	Prather, pers. comm., 2008
Habitat Associations			
General	Inland (e.g., Owens Lake)	Snowy plovers breed up to 10,000 feet elevation on barren to sparsely vegetated ground at alkaline or saline lakes, reservoirs, and ponds; on riverine sand bars; and occasionally at sewage, salt evaporation, and agricultural wastewater ponds.	Page et al. 1995
	Inland (e.g., Owens Lake)	Foraging habitat for snowy plover occurs on the shores of lakes, reservoirs, ponds, braided river channels, and playas (mostly at seeps and along streams).	Page et al. 1995
Water/Distance to Water Relationships	General	Snowy plovers consistently occur on bare or sparsely vegetated alkaline substrates associated with water.	Page et al. 1995
	General	Snowy plover nesting can occur where a distant small seep is the only apparent surface water.	Page et al. 1995
	Coastal	Most snowy plover nests are located within approximately 328 feet of water, but can be more than 1,000 feet away when no vegetative barrier exists between the nest and the water, providing chicks easy access to the shoreline.	Oregon Parks and Recreation Department 2008:4-3
	Owens Lake	The greatest documented distance from a nest site to water on Owens Lake was approximately 5,250 feet, based on the most recent nest records for which distance to water measurements were taken (nests detected in 2000–2002).	PRBO 2000, 2001, 2002
	Owens Lake	In 1978, nest distances to water averaged almost 40 feet for nests found on a small island in a flooded area, and approximately 387 feet for all other nests. More recently, but before artificial flooding, nest distances to water averaged approximately 1,535 feet in 1999, and approximately 1,243 feet in 2001. In 2002, after initiation of shallow flooding as a dust control measure, nest distances to water averaged almost 1,395 feet for nests in natural areas, and approximately 26 feet on average in artificially flooded areas.	Ruhlen, Page, and Stenzel 2006

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	Owens Lake	After initiation of artificial shallow flooding for dust control in winter 2001, nest distributions on the lake bed reflected a strong association with artificially flooded areas. In 2001, before flooding, Zone 2 accounted for 27% of nests found on the lake bed while natural areas accounted for the remaining majority. After being subject to artificial flooding in 2002, Zone 2 accounted for 71% of nest detections, while natural areas only accounted for 29%. Similarly, in 2003, 80% of all nests found were located within the four artificially flooded areas.	Ruhlen, Page, and Stenzel 2006
	Owens Lake	Implementation of shallow flooding as a dust control measure on Owens Lake has resulted in large increases in nesting snowy plover, and other migratory waterbirds. Artificial shallow flooding is likely responsible for shifts in snowy plover distributions from predominantly natural areas to predominantly artificially flooded areas.	PRBO 2003
		Snowy plover is the only waterbird species known to nest far from water sources on Owens Lake.	Nordin, pers. comm., 2008; Prather, pers. comm., 2008
Nest Microhabitat			
General	Owens	Snowy plovers are known to nest on improved and unimproved roads, as well as undisturbed playa. Nest sites consist of any dry surface (e.g., gravel, sand, road berms) above or near water with a food source. Between 1999 and 2002, nests were located on open, dry alkali flats, the majority of which were near distinct features such as dry washes, sparse patches of salt grass, rocks, woody debris, unimproved roadsides, or vehicle tracks.	PRBO 2000, 2001, 2002; Prather, pers. comm., 2008; Ruhlen, Page, and Stenzel 2006
Topographic relief	Eastern Oregon/ Western Nevada	Snowy plover nests are often located in “corrugated” topography	Herman, Bulger, and Buchanan 1988
	San Francisco Bay	Snowy plovers prefer large unobstructed views, and generally flat areas to serve as suitable nest sites. Snowy plovers have been observed to nest near gentle slopes that lead to food sources rather than near steeper slopes that lead to food sources. Sand fences are likely to pose a vertical threat to snowy plovers; they do not nest near tall vertical objects.	Robinson, pers. comm., 2008; Strong, pers. comm., 2008

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Ecological Variable	Geographic Location	Summary Description	Source
	Inland alkali flats	Snowy plovers nest in areas of moderate relief, and often cluster nests near wet or dry channels of depressions sculpted by runoff flowing onto or pooling on the playa.	Shuford, Abbott, and Ruhlen 2008
	Owens Lake	Topographic relief measured around nest sites on Owens Lake between 2000 and 2002 ranged from 0 to approximately 39.4 inches; and averaged approximately 8.2 inches (s.d. = 8.7) in 2000, 2.7 inches (s.d. = 17.2) in 2001, and 1.5 inches (s.d. = 4.7) in 2002.	PRBO 2000–2002
		Snowy plovers seem to prefer using the flat playa, using areas with “microtopography” for placing their nests. Implementation of dust control measures on Owens Lake has contributed a lot of microtopographic features to support such nest sites.	Nordin, pers. comm., 2008
Nest site fidelity	General	Nests are rarely reused because weather usually destroys nest sites within days of egg hatching; however, occasionally exact locations are used in consecutive years.	Page et al. 1995
		Snowy plovers and other inland waterbirds need to be responsive to the fluctuating seasonal and annual water levels at their breeding sites; and generally disperse from sites that are no longer favorable to sites that are suitable.	Shuford, Abbott, and Ruhlen 2008
Nest Success	Owens Lake	Overall clutch-hatching rate across all areas surveyed was 53.7% in 2001 and 82.5% in 2002.	PRBO 2001, 2002
Breeding Phenology			
Breeding Season	Inland	March–September.	Shuford, Abbott, and Ruhlen 2008
Incubation	General	Lasts approximately 1 month (mean of 26.9 days in the Great Basin).	Page et al. 1995
Incubation	General	Both sexes take turns incubating the eggs; the female tends to incubate during the day and the male generally at night.	Oregon Parks and Recreation Department 2008:4-3
Brooding Period	General	Lasts approximately 1 month until young can fly; males stay with young until they are 29–47 days old. Females will generally desert broods to initiate another clutch by 6 days after hatching.	Page et al. 1995
	Owens Lake	Peak nesting occurred during early May through first week June before shallow flooding in 2001, and outside of flooded areas in 2002; however, peak nesting occurred in late May to early July, with some into mid-August in areas subject to shallow flooding in 2002.	PRBO 2002

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Ecological Variable	Geographic Location	Summary Description	Source
	Owens Lake	Since implementation of artificial shallow flooding on Owens Lake, the snowy plover breeding season has become increasingly extended. Chicks have been observed as early as late February, indicating an earlier start to the breeding season on Owens Lake than has been previously thought. (However, the core brooding season when nearly all brooding occurs is considered to be March 15–August 15.)	Ramirez, pers. comm., 2008
Multiple Clutches	General	Snowy plover commonly initiate two and sometimes three clutches in a given year. Additionally, replacement clutches are generally initiated 6–8 days after destruction of a completed clutch.	Page et al. 1995
Foraging Habitat and Strategies			
	General	Snowy plovers are primarily visual foragers; also, they will routinely forage at night.	Oregon Parks and Recreation Department 2008:4-5; Page, pers. comm., 2008
	Inland	Adults and broods generally forage near shallow water (0.39–0.79 inch deep), sometimes up to 2.5 miles from their nests.	Shuford, Abott, and Ruhlen 2008
	Pacific Coast	Foraging opportunities for snowy plover are directly related to salinity levels; salt ponds of medium salinity seem to provide the best quality foraging habitat.	USFWS 2007:18
	Owens Lake	Nearly all of the biomass in shallow flood areas results from two species of brine fly, which provide the primary food source for shorebirds on Owens Lake. Brine flies are only supported in water up to a certain salinity, above which they will not be present and the water will not support shorebird foraging. The brine pool is an area on Owens Lake that is too saline for brine flies, and hence does not support foraging shorebirds.	Nordin, pers. comm., 2008
	Owens Lake	Surface water of salinity greater than 120 electroconductivity is generally avoided by snowy plovers.	Ramirez, pers. comm., 2008
	Owens Lake	Brine flies were observed in the groundwater in the bottom of some moats in the southernmost moat and row demonstration site (T12-1), suggesting that groundwater in moats may be suitable to support a food source to snowy plover in some areas.	Roth, pers. obs., 2008
Movements and Locomotion			
Adults	General	Snowy plovers can jump up onto features like logs or rocks, but do not climb vertical objects.	Page et al. 1995
	General	During nest incubation, the male and the female trade off between shifts of incubation and foraging; therefore, the parents move between the nest site and foraging areas substantially during the incubation period.	Page et al. 1995, Prather, pers. comm., 2008

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Ecological Variable	Geographic Location	Summary Description	Source
	General	In hotter climates, parental incubation shifts are much shorter in time than in cooler climates; at the Great Salt Plains, shifts were ~8–16 hours at temperatures under 86 degrees F compared to <1 hour shifts when temperatures were $\geq$105.8 degrees F.	Page et al. 1995
Chick and brood movements	General	Chicks are precocial, and leave the nest site, permanently, within hours after hatching to search for food. However, they are not able to fly (fledge) for approximately 1 month after hatching. First flight occurs 28–33 days (mean = 30.9, n = 22) after hatching.	USFWS 2007:14; Oregon Parks and Recreation Department 2008:4-4; Page et al. 1995
	General	Chicks are able to walk, run, swim, and forage, but require periodic brooding from parents for many days after hatching. Adults provide predator warnings and thermoregulatory assistance, and guide chicks to foraging areas. Most broods remain within 1 mile of the nest site until fledging, but some have traveled as far as 7 miles.	Page et al. 1995; Oregon Parks and Recreation Department 2008:4-4, 4-5.
	General	Soon after hatching, chicks make longer, increasingly frequent foraging trips, up to approximately 328 feet from the nest.	Page et al. 1995
	Pacific Coast	Within the first 3 days of life, chicks make their greatest movements away from their nests, between approximately 1,640 and 3,280 feet per day. Thereafter, they gradually decreased their daily distance moved away from the nest. Broods varied significantly in the total distance they moved away from nest sites during the brooding period; some remained within 1,640 feet of nest sites, while others moved more than 1.55 miles from nest sites.	Wilson 2007
	Owens Lake	Broods move often and over large distances (up to approximately 3.1 miles).	Page, pers. comm., 2008
	Owens Lake	Broods are capable of a large degree of movement, particularly within wet areas.	PRBO 2002
Chick and brood mobility	General	Snowy plovers do not tend to “funnel” well along landscape features, such as fences.	Page, pers. comm., 2008; Robinson, pers. comm., 2008
	General	Chick age and surface substrate affect the ability of broods to move up and down slopes. Older chicks can navigate steeper slopes (perhaps as steep as 60 degrees) while younger chicks require shallower slopes. Additionally the more consolidated (i.e., solid), or rough the substrate, the steeper the slope that chicks are able to navigate.	Page, pers. comm., 2008
	General	Chicks (of all ages) are expected to be able to navigate slopes of 30 degrees (1.7:1) or less.	Page, pers. comm., 2008

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	Owens Lake	Snowy plover broods have been observed successfully navigating up one side of a steep salt crusted road berm, measured at 20 degrees (2.7:1) slope, in the southeast portion of Owens Lake, between shallow flood cell T2-1 Addition and southern channels area to the west; and T2-1 and T3SE to the east. Slopes up to 35–39 degrees (slightly steeper than 1.5:1) were measured on the opposite side of the road berm where broods were observed climbing up. Although broods were not directly observed moving over the steeper side of the road berm, this steeper slope angle was thought to be potentially navigable by snowy plover.	Deane, pers. comm., 2008; Prather, pers. comm., 2008
	Owens Lake	Snowy plover chicks were once observed to hop up and over one of the steep riprap-covered berms that border many of the shallow flood areas on Owens Lake.	Nordin, pers. comm., 2008
	Owens Lake	A snowy plover brood was once observed taking 10 minutes to move over the riprap at the edge of a shallow flood area, so while steep slopes may be possible for broods to navigate, they are likely to be energetically demanding.	Page, pers. comm., 2008
Predator avoidance movements		Adults will frequently use alarm calls and distraction displays to lure people and predators from hatching eggs and chicks, but will generally lead larger chicks away from predators. Adults may chase and fight other snowy plovers that come too close to their broods.	USFWS 2007:12
		Snowy plovers will walk and run for many purposes, including retreating from and returning to the nest site upon approach of a predator or person. Typically, adults run when disturbed, but sometimes fly when surprised by a potential predator. In response to predator warnings from an adult, small chicks (<10 days) usually crouch, or flatten themselves on the ground and remain still, while older chicks (>14 days) often run, along with the adult.	Page et al. 1995
		Undisturbed chicks are either nonvocal or too quiet to be heard at any distance. Frightened chicks sometimes peep loudly while running to escape danger.	Page et al. 1995
Threats			
Thermoregulation and mortality of eggs and chicks	General	In hotter climates (e.g., inland), adults will stand over eggs, or sit on them after wetting their belly feathers in water to keep eggs from overheating.	Page et al. 1995
	Owens Lake	Two chick mortalities were observed in a dewatering trench near T13-1 that was 3–4 feet deep with 1:1 side slopes and a moist ground surface. The chick's feet were stuck in the mud, presumably the cause of mortality.	Ramirez, pers. comm., 2008

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Nest Failure	Owens Lake	Causes of snowy plover nest failure that have been documented on Owens Lake include inundation due to fluctuations in water levels, either due to water management, storms, or wind; abandonment; crushing by vehicle; and predation.	PRBO 2001, 2002
Predation	Owens Lake	The following potential predators of snowy plover and other shorebirds have been recorded on Owens Lake, in approximate order of frequency of detection: common raven, coyote, northern harrier, loggerhead shrike, peregrine falcon, American kestrel prairie falcon, red-tailed hawk, merlin, fox, golden eagle, American crow, raccoon, and bobcat.	PRBO 2000, 2001, 2002, 2003
Toxicity	General	Snowy plovers appear to be less susceptible to selenium defects than other shorebirds.	Page et al. 1995
Human disturbance	Owens Lake	Clutch hatching rates in areas of active construction were lower than areas outside active construction; this was attributed to differences in rates of nest abandonment in 2001, and differences in predation in 2002.	PRBO 2001, 2002
	Owens Lake	Snowy plovers vary substantially in the distance at which they respond to disturbance. They are likely to tolerate some disturbances during nesting without effects on nest success. However, disturbances to incubating adults during the middle of a hot day have a greater potential for consequences to nest success than during cooler time periods; eggs are more likely to lose viability due to overheating than cooling. Existing 200-foot construction nest buffers, along with worker education program, and speed limits appear to be suitable in terms of avoiding and minimizing impacts on nests.	Page, pers. comm., 2008
	Owens Lake	Incubating adults were remarkably tolerant of construction work and passing vehicles outside of the 500-foot buffer zone in place around nests; on several occasions new nests were initiated within 800 feet of active construction work. Plovers seemed to get accustomed to moving vehicles on roads, but reacted more strongly to people walking or getting out of vehicles. Overall, broods appeared to react to disturbance at greater distances than plovers on nests; and plovers reacted more often to other birds than to human disturbances.	PRBO 2001
Population Dynamics			
		The health of inland waterbird populations, including snowy plover, depends on the availability of alternative sites that can be used when conditions change.	Shuford, Abbott, and Ruhlen 2008

APPENDIX B REFERENCES

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APPENDIX C

Biological Resources Mitigation Measures from the 2008 SIP FSEIR

3.2.5 Mitigation Measures

Construction Measures

Measure Biology-1, Lake Bed Worker Education Program

To minimize potential direct impacts to western snowy plover from construction activities to below the level of significance, the City of Los Angeles Department of Water and Power shall continue the lake bed worker education program consistent with the previous approach and per California Department of Fish and Game recommendations. The program shall mirror the program instituted for workers for the 1997 EIR and shall focus on western snowy plover identification, basic biology and natural history, alarm behavior of the snowy plover, and applicable mitigation procedures required of the City of Los Angeles Department of Water and Power and construction personnel. The program shall be conducted by a biologist familiar with the biology of the western snowy plover at Owens Lake and familiar with special status plant and wildlife species of the Owens Lake basin. The biologist shall be approved by the Great Basin Unified Air Pollution Control District prior to implementation of the education program. The qualifications of the biologist shall be submitted to the California Department of Fish and Game for review. The education program shall be based on the 1997 program EIR and shall include relevant updates by the biologist. The education program shall explain the need for the speed limit in the snowy plover buffer areas and the identification and meaning of buffer markers. All construction, operation, and maintenance personnel working within the project area shall complete the program prior to their working on the lake bed. A list of existing personnel who have completed the program shall be submitted to the Great Basin Unified Air Pollution Control District prior to the start of any work on the lake bed. A list of new personnel who have participated and completed the education program shall be submitted monthly to the Great Basin Unified Air Pollution Control District. A copy of the worker education program shall be provided to the California Department of Fish and Game and California State Lands Commission.

Measure Biology-2, Preconstruction Surveys for Western Snowy Plover

To minimize potential direct impacts to western snowy plover within the project area due to construction activities, the City of Los Angeles Department of Water and Power shall conduct a preconstruction survey for western snowy plover in all potential snowy plover habitat prior to any construction activity that is performed during the snowy plover breeding season (March 15 to August 15). Preconstruction surveys will be performed no more than seven days prior to the start of ground-disturbing activities. The City of Los Angeles Department of Water and Power shall place a 200-foot buffer around all active snowy plover nests that are discovered within the construction area. This buffer shall protect the plover nest from both destruction and construction noise. Green-colored stakes of less than 60 inches in height with yellow flagging will be used to mark buffer edges, with stakes spaced at eight approximately equidistant locations. The location of the nest (global positioning system coordinates) and current status of the nest shall be reported within 24 hours of discovery to the Great Basin Unified Air Pollution Control District. Maps of snowy plover nest locations shall be posted at the construction office and made available to all site personnel and Great Basin Unified Air Pollution Control District staff. The activity of the nest shall be monitored by a biological monitor approved by the Great Basin Unified Air Pollution Control District, as per existing guidelines for the North Sand Sheet and Southern Zones dust control projects and any revisions to the monitoring protocol that have been approved by the California Department of Fish and Game. Active snowy plover nests shall be monitored at least weekly. The qualifications of the biological monitor will be submitted to the California Department of Fish and Game for review. The nest buffer shall remain in place until such time as the biological monitor determines that the nest is no longer active and that fledglings are no longer in danger from proposed construction activities in the area. Buffers shall be more densely marked where they intersect project-maintained roads. Vehicles shall be allowed to pass through nest buffers on maintained roads at speeds less than 15 miles per hour, but shall not be allowed to stop or park within active nest buffers. Permitted activity within the nest buffer shall be limited to foot crews working with hand tools and shall be limited to 15-minute intervals, at least one hour apart, within a nest buffer at any one time. Compliance with this mitigation measure shall be confirmed by the Great Basin Unified Air Pollution Control District through issuance of a weekly written report by the City of Los Angeles Department of Water and Power to the Great Basin Unified Air Pollution Control District.

Measure Biology-3, Snowy Plover Nest Speed Limit

To minimize potential direct and cumulative impacts to western snowy plover and other sensitive biological resources from vehicles construction activities, the City of Los Angeles Department of Water and Power shall implement a speed limit of 30 miles per hour within all active construction areas on Owens Lake during construction of dust control measures. Speed limits shall be 15 miles per hour within active snowy plover nest buffers. Designated speed limits for other construction areas outside of active nest buffers shall be maintained at 30 miles per hour where it is determined to be safe according to vehicle capabilities, weather conditions, and road conditions. Site personnel and Great Basin Unified Air Pollution Control District staff shall be informed daily of locations where active nest buffers overlap with roads in the construction area. Signs shall be posted that clearly state required speed limits. Speed limit signs shall be posted at all entry points to the lake. The number of speed limit signs shall be kept at a minimum near active snowy plover nest areas to reduce potential perches for raptors and other snowy plover predators and shall be outfitted with Nixalite or the functional equivalent if greater than 72 inches (increased from the original 60 inches) in height at entry points to the lake and 60 inches in height by active snowy plover nest areas. Compliance with this mitigation measure shall be confirmed by the Great Basin Unified Air Pollution Control District through issuance of a summary written report by the City of Los Angeles Department of Water and Power to the Great Basin Unified Air Pollution Control District after posting of speed limits. A copy of the summary report shall be provided to the California Department of Fish and Game.

Measure Biology-4, Lighting Best Management Practices

To minimize indirect impacts to nesting bird species associated with project lighting during construction activities, the City of Los Angeles Department of Water and Power shall institute all best management practices to minimize lighting impacts on nocturnal wildlife consistent with previous requirements and California Department of Fish and Game recommendations. Best management practices include those listed below, and are included in the Project Description of the 2008 State Implementation Plan Environmental Impact Report. Previous construction has occurred during nighttime hours to complete construction schedules and to prevent personnel from working during times of high temperatures. If night work is deemed necessary, then construction crews shall make every effort to shield lighting on equipment downward and away from natural vegetation communities or playa areas, and especially away from known nesting areas for snowy plovers during the nesting season (March to August). All lighting, in particular any permanent lighting, on newly built facilities shall be minimized to the greatest extent possible, while still being in compliance with all applicable safety requirements. Required lighting shall be shielded so that light is directed downward and away from vegetation or playa areas. Proof of compliance with this mitigation measure shall be confirmed by the Great Basin Unified Air Pollution Control District, and a copy of the compliance record shall be provided to the California Department of Fish and Game.

Measure Biology-5, Marking of Nonemissive Wetland and Upland Scrub Areas

To minimize the potential direct impacts to nonemissive wetland and upland scrub vegetation communities from construction activities to below the level of significance, the City of Los Angeles Department of Water and Power shall clearly mark the boundary of construction zones (including the 50-foot buffer) within 50 feet of the boundary of nonemissive wetland areas and upland scrub communities to prevent incursion into these vegetation communities. No construction zone buffer is allowed for construction areas immediately adjacent to wetland or sensitive areas. Construction zone buffers are not allowed to impact wetland or sensitive areas. Construction zone boundaries near nonemissive areas shall be marked using stakes less than 72 inches (originally 60 inches) high, spaced 10 feet apart, along the edges of spring mounds, and spaced 100 feet apart along other wetland and vegetated edges. Marking shall occur prior to the initiation of construction activities. Construction buffer areas outside of the dust control boundaries shall not exceed 50 feet in width and shall be reduced as required to prevent construction activities from impacting adjacent vegetated areas. No temporary or permanent access routes through vegetated areas shall be established, except those specified in the Project Description. Incursions into established vegetated areas, including vegetated areas within the temporary impact area of the 50-foot construction zone buffer, that cause measurable loss of plant cover shall require revegetation with suitable local, native plant species. Proof of compliance with this mitigation measure shall be verified by submitting a written report to the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game that details the location of markings and the type and locations of delineated wetland and upland areas that are marked. This report shall be submitted prior to the start of construction activities. A written mitigation plan for those vegetated areas where plant cover loss has been measured must be submitted to the Great Basin Unified Air Pollution Control District following the completion of construction. The mitigation plan must contain a schedule and protocol for achieving revegetation within two years of any impacts to vegetation caused by access routes or construction activities outside the areas specified in the Project Description.

Operations and Maintenance Measures

Measure Biology-6, Wetland Mitigation Program

To minimize direct impacts to riparian and wetland communities caused by installation of dust control measures to below the level of significance, the City of Los Angeles Department of Water and Power shall obtain a Programmatic Streambed Alteration Agreement for all existing or proposed activities that may impact areas subject to the jurisdiction of the California Department of Fish and Game pursuant to Section 1600 of the California Department of Fish and Game Code that requires the approval of the California Department of Fish and Game in the form of a Streambed Alteration Agreement. If previous phases or the proposed work covered by the 2008 State Implementation Plan and Environmental Impact Report do not require a Streambed Alteration Agreement, then they will not be incorporated into the Programmatic Streambed Alteration Agreement. The City of Los Angeles Department of Water and Power shall institute a wetland mitigation program prior to the initiation of construction activities as recommended by the California Department of Fish and Game. The program shall be designed to emphasize restoration of equivalent functions and values of wetlands within the project area as compared to pre-project impacts.

The wetlands mitigation program shall include mitigation goals, target success criteria, identification of impact areas, an implementation plan, plant species and spacing, irrigation design, post-implementation monitoring plan, and maintenance requirements. Managed Vegetation is deemed to have equivalent functions and values to dry transmontane alkali meadow that would be impacted by the project at a ratio of 2 acres of Managed Vegetation created for every 1 acre of dry transmontane alkali meadow impacted. Up to 413 acres of dry transmontane alkali meadow may be converted to dust control measures as a result of the project. The creation-to-impact ratio for the proposed project would be approximately 2:1. A Managed Vegetation area of up to 826 acres, based on actual impact area identified, shall be designated as the wetland mitigation area within the prescribed Managed Vegetation areas as proposed in the Project Description. The City of Los Angeles Department of Water and Power shall designate the wetland mitigation area within a Managed Vegetation area that is on the bed of Owens Lake. The City of Los Angeles Department of Water and Power currently has a bank of 53.9 acres of excess installed transmontane alkali meadow that may count toward the total number of acres that would be required as mitigation. Potential mitigation areas may include the Sulfate Well outflow area and Swansea outflow area. Potential mitigation areas may not include state-owned lands currently used for cattle grazing. Banked mitigation (Table 2.4.4-1) credits may be applied for in-kind mitigation.

A design and plan for the designated wetland mitigation area shall be provided to the Great Basin Unified Air Pollution Control District and California State Lands Commission for approval prior to construction of any Managed Vegetation. Included in the plan shall be the location, plant species, schematics, schedule, irrigation requirements, performance criteria, and contingency measures. A copy of the plan shall be provided to the California Department of Fish and Game, U.S. Army Corps of Engineers, and the California State Lands Commission. A transmontane alkali meadow management plan shall be created by the City of Los Angeles Department of Water and Power that sets forth a program to monitor the designated wetland mitigation areas for appropriate coverage of native plant species, for change in the extent of transmontane alkali meadow over a five-year period postconstruction, and for management of invasive, nonnative plant species in wetland areas in and within 500 feet of the project area. The transmontane alkali meadow management plan shall be approved by the Great Basin Unified Air Pollution Control District prior to the initiation of construction activities. A copy of the management plan and subsequent monitoring reports shall be provided to the California Department of Fish and Game, U.S. Army Corps of Engineers, and California State Lands Commission.

Calculations of dry transmontane alkali meadow impacts from implementation of the project are estimates based on the mapped extent of transmontane alkali meadow areas within the project area and a determination of whether an area is emissive or nonemissive based on dust monitoring data. The total acreage of wetland mitigation for dry transmontane alkali meadow shall be two times the actual direct and indirect impact area caused to dry transmontane alkali meadow by both construction and postconstruction activities. If any unanticipated indirect postconstruction impacts to riparian communities proximal to Shallow Flooding dust control measures occur as a result of project construction or operation, the City of Los Angeles Department of Water and Power shall designate additional wetland mitigation areas and incorporate design parameters that would result in the replacement of equivalent functions and values to the impacted moist or saturated transmontane alkali meadow wetlands within two years of the initiation of the replacement effort. Significant impacts would include loss of vegetative cover due to ground disturbance or change in species composition attributable to drying of springs or ponds, which does not self-repair within two years of detection. Managed Vegetation would not be suitable mitigation for impacts to moist or saturated transmontane alkali meadow communities. The City of Los Angeles Department of Water and Power shall compensate for all loss of transmontane alkali meadow that occurs. Mitigation for impacts to all transmontane alkali meadow associated with construction and operation of dust control measures constructed between 1998 and 2008 (prior to the project) shall be replaced at a ratio of 1 acre of wetland replacement for every acre of wetland impact (1:1 replacement ratio). Replacement wetlands shall consist of similar habitat function and values as the wetland that is lost. Banked mitigation (described in Table 2.4.4-1 in the Environmental Impact Report) credits may be applied for in-kind mitigation. All wetland replacement described in this mitigation measure shall be approved by the Great Basin Unified Air Pollution Control District, California Department of Fish and Game, U.S. Army Corps of Engineers, and California State Lands Commission. All wetland replacements for anticipated impacts shall be constructed and fully functional no later than April 1, 2010. All wetland replacements for unanticipated impacts shall be constructed and fully functional within two years of when the impact was determined.

Measure Biology-7, Toxicity Monitoring Program

To avoid direct and cumulative impacts to native wildlife communities that may potentially result from bioaccumulation of toxic substances resulting from naturally occurring heavy metals and other potential toxins in lake bed deposits to below the level of significance, the City of Los Angeles Department of Water and Power shall implement a toxicity monitoring program to investigate the potential of bioaccumulation of heavy metals and other potential toxins in wildlife from feeding in dust control areas throughout the Owens Lake bed. A copy of the long-term monitoring program shall be submitted to the California State Lands Commission and Great Basin Unified Air Pollution Control District for review and comment at least 60 days prior to the start of operation of new water-based dust control measures. Monitoring shall take place in all dust control areas within the Owens Lake as well as at all spring and outflow areas within 500 feet of the construction boundaries. The purpose of the monitoring program shall be to determine if bioaccumulation of toxins is occurring within native wildlife populations attributable to the Dust Control Mitigation Program. Procedures for bioaccumulation monitoring shall follow existing permits issued by the Lahontan Water Quality Control Board (Lahontan Water Quality Control Board) and any subsequent water quality monitoring requirements deemed necessary by the Lahontan Water Quality Control Board. All monitoring shall be conducted by individuals familiar with the native wildlife species of the Owens Lake bed. Monitoring personnel shall be approved by the Great Basin Unified Air Pollution Control District prior to implementation of the long-term monitoring. The monitoring plan shall include adaptive management procedures and mitigation procedures to follow in the instance that signs of toxicity do develop in native wildlife populations that are attributable to the Dust Control Mitigation Program. Management procedures would be implemented depending on the type and extent of impact that was observed and could potentially, but not necessarily, include covering of dust control areas to prevent wildlife utilization, hazing of wildlife to prevent utilization of dust control areas, or any other appropriate measures. Any adaptive management measures that would potentially be implemented shall be approved by the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game prior to implementation.

The monitoring shall be conducted as described in Table 3.2.5-1, *Biology-7, Postconstruction Bioaccumulation Monitoring Schedule*. In order to have the 2003 State Implementation Plan and 2008 State Implementation Plan monitoring schedules coincide, the final year for monitoring in 2003 State Implementation Plan areas has been moved from 2020 to 2023. Monitoring shall be conducted on a semiannual basis (summer and winter) during each year that monitoring is conducted. If, after the completion of the 14-year monitoring schedule as described in mitigation measure Biology-7, it is determined that there is no evidence of toxicity issues in native wildlife populations, then the monitoring program may be discontinued. If monitoring determines that impacts to native wildlife species are occurring, then the monitoring shall continue on a semiannual basis (summer and winter) in every year until significant impacts are not detected, and the monitoring sequence shall resume at the Year 3 monitoring event and shall continue at the intervals shown in Table 3.2.5-1. Written monitoring reports shall be provided to the Great Basin Unified Air Pollution Control District, the California Department of Fish and Game, Lahontan Water Quality Control Board, and the State Lands

Commission by the approved biological monitor within four months following the end of the monitoring year. Any changes in the existing monitoring requirements by the Regional Water Quality Control Board shall be included into this mitigation measure.

TABLE 3.2.5-1
BIOLOGY-7, POSTCONSTRUCTION BIOACCUMULATION MONITORING SCHEDULE

2003 SIP areas only	2003 SIP areas only	Year 1 monitoring event*	Year 2 monitoring event*	Year 3 monitoring event†
2008	2009	2010	2011	2012
Year 4 monitoring event*	**Year 5 monitoring event†**	**Year 6 monitoring event***	**Year 9 monitoring event†**	**Year 14 monitoring event***
2013	2014	2015	2018	2023

* 2003 and 2008 SIP areas monitored
† 2008 SIP areas only

Measure Biology-8, Exotic Pest Plant Control Program

To minimize indirect impacts to native vegetation communities that may result from the project construction and operations and to prevent creating an environment for weedy plant species to become established in native plant communities, the City of Los Angeles Department of Water and Power shall continue the exotic pest plant control program initiated in 2007 per the 2003 State Implementation Plan within all current and previously constructed designated dust control areas after full build-out of the project (April 1, 2010). The spread of exotic, invasive plant species, such as salt cedar (*Tamarix* spp.), has detrimental effects on habitat quality for native plant and wildlife species and, in the case of species like salt cedar, can reduce the availability and quality of water within native vegetation areas for plant and wildlife species. The goals of the program shall be consistent with the goals specified in the Inyo County General Plan, the Inyo County Inter-Agency Weed Management Program, and the U.S. Fish and Wildlife Service Owens Basin Wetland and Aquatic Species Recovery Plan[102] for the portion of the Recovery Plan included within the project area. The program shall be written by a pest management specialist or other person familiar with exotic plant species management and shall be submitted to the Great Basin Unified Air Pollution Control District no later than April 1, 2010. Measures for control shall include all best management practices, which include prudent and safe use of control measures such as herbicides, brushing, direct weed removal, tire washing, or comparable measures such that no increase in invasive plant cover occurs. The program shall include yearly monitoring to ensure that exotic plant species are being sufficiently controlled. The draft exotic plant species control program shall be submitted to both the Great Basin Unified Air Pollution Control District and California State Lands Commission and approved by the Great Basin Unified Air Pollution Control District prior to the initiation of exotic plant control activities. All pesticide use shall be undertaken by a state-certified and licensed pesticide applicator. Annual written monitoring reports documenting exotic plant location, type, pretreatment abundance, control type used, and control efficacy shall be delivered to the Great Basin Unified Air Pollution Control District within four months following the end of each calendar year (by April 30). A copy of the control program and resulting monitoring reports shall be provided to the California State Lands Commission and to the California Department of Fish and Game.

[102] U.S. Fish and Wildlife Service. 2006. *Owens Basin Wetland and Aquatic Species Recovery Plan: Inyo and Mono Counties, California*. Portland, OR.

Measure Biology-9, Plover Identification Training

To minimize potential direct, indirect, and cumulative impacts to western snowy plover resulting from required maintenance within Shallow Flooding dust control areas during the western snowy plover breeding season (March to August), foot crews and all-terrain vehicle (ATV) operators that must enter Shallow Flooding panels within the entire Owens Lake bed during the snowy plover breeding season shall be briefed in plover identification, nest identification, and adult alarm behavior, and the identification and meaning of buffer markers. Crews shall receive this training from a biologist knowledgeable in western snowy plover biology at Owens Lake as part of the contractor education program as described in mitigation measure Biology-1. The qualifications of the biological monitor shall be submitted to the California Department of Fish and Game for review. Maintenance crews shall utilize hand tools and ATVs only to conduct maintenance activities during this time period in Shallow Flooding panels where snowy plovers may be present. Crews shall minimize time within the Shallow Flooding and playa areas to the greatest extent possible. In the event that a crew discovers an active nest, a biologist shall be contacted to mark the nest buffer. If crews are working within an active nest buffer, they shall be limited to 15 minutes out of every hour within the buffer. If an unanticipated take to western snowy plovers or an active snowy plover nest occurs during any maintenance activities, a project biologist shall document the impact and report the incident to the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game within 48 hours of the event. A take in this case would be defined as mortality to adults, chicks, or fledglings, or a modification in adults' behavior due to human pressure that results in a loss of a nest and its contents. Proof of compliance with this mitigation measure shall be verified by submitting copies of any incident reports to the Great Basin Unified Air Pollution Control District, the State Lands Commission, and the California Department of Fish and Game.

Emergency repair activities are exempt from the requirements of this provision. An emergency is defined in the State of California Environmental Quality Act Guidelines, Section 15269, as "a sudden, unexpected occurrence that presents a clear and imminent danger, demanding action to prevent or mitigate loss of or damage to life, health, property, or essential public services." Emergency repairs as defined under the 2003 State Implementation Plan revision and the 1998 State Implementation Plan are further defined as those repairs that must be completed immediately to protect human health and safety, ensure the project is in compliance with required air quality standards, or protect project infrastructure from significant and immediate damage that could result in the failure of a dust control measure to maintain compliance with required air quality standards. In the event that an emergency repair must be performed on a Shallow Flooding panel during the snowy plover breeding season, a qualified biological monitor shall be present on site during the duration of the repair activity to document any impacts to western snowy plover adults, juveniles, or active nests. The Great Basin Unified Air Pollution Control District and the California Department of Fish and Game shall be notified within 24 hours of the start of all emergency repair activities. A copy of the biological monitor's written report shall be provided to the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game within 48 hours of completion of the emergency repair activity. Any appropriate mitigation that may be required from impacts to western snowy plovers shall be negotiated between City of Los Angeles Department of Water and Power and the California Department of Fish and Game based on the report provided by the biological monitor. A copy of the resultant mitigation that is negotiated between the City of Los Angeles Department of Water and Power and the California Department of Fish and Game shall be provided to the Great Basin Unified Air Pollution Control District and California State Lands Commission.

Measure Biology-10, Long-Term Monitoring Program for Western Snowy Plover

To minimize potential direct, indirect, and cumulative impacts resulting from operation and maintenance of dust control measures to western snowy plover, the City of Los Angeles Department of Water and Power shall implement a long-term snowy plover population monitoring program for the entire Owens Lake bed. Long-term monitoring is required due to long-term implementation of the proposed project. Long-term population monitoring allows for the distinction between natural population fluctuations and human-induced population changes. Postconstruction surveys implemented under the 2003 State Implementation Plan shall be continued under the 2008 State Implementation Plan 1, 2, 3, 4, 5, 7, 9, and 14 years after project implementation. The final western snowy plover monitoring schedule for all dust control measures on Owens Lake bed shall be coordinated so that long-term monitoring for all dust control measures covered within this document, as well as for preceding environmental documents, are conducted simultaneously. The long-term monitoring shall begin in 2010 or at such time that full build-out is completed. The goals of the monitoring are to confirm that overall numbers of snowy plovers within the dust control areas do not decrease due to implementation of the 2008 State Implementation Plan relative to baseline plover population numbers prior to implementation of the 2003 State Implementation Plan as shown by the 2002 plover report for Owens Lake, which found the population to be 272 plovers.[103] Monitoring shall be conducted during the months of May and June by a qualified biologist familiar with the natural history and habitat requirements of western snowy plovers within the Owens Lake basin. The qualifications of the biological monitor shall be submitted to the California Department of Fish and Game for review. The monitoring methodology shall be consistent with the methodology used for the Owens Lake 2002 plover surveys.

Annual summary reports for the monitoring efforts shall be filed with the Great Basin Unified Air Pollution Control District, the California State Lands Commission, and the California Department of Fish and Game by December 31 of each monitoring year. The Great Basin Unified Air Pollution Control District shall require adaptive management changes to operation and maintenance of dust control measures if it determines that a decline in snowy plover numbers is occurring that is directly attributable to operation or maintenance procedures of the Owens Lake Dust Mitigation Program. The Great Basin Unified Air Pollution Control District shall consult with the City of Los Angeles Department of Water and Power, California State Lands Commission, and California Department of Fish and Game prior to requiring adaptive management changes. Monitoring shall continue for a minimum of five years after implementation of adaptive management procedures to ensure that the procedures are having the desired effect on the lake-wide snowy plover population. If after the Year 5 monitoring event, it is determined that no adverse impacts to the western snowy plover population at Owens Lake are occurring as a result of the project, then the long-term monitoring program and subsequent reporting may be discontinued.

Specified calendar years for conducting lake-wide plover population surveys are provided in Table 3.2.5-2, *Biology-10, Postconstruction Lake-wide Plover Population Monitoring Schedule*. Lake-wide surveys in 2008 and 2009 will be conducted per the 2003 State Implementation Plan. Beginning in 2010, lake-wide surveys shall conform to the 2008 State Implementation Plan schedule. Proof of compliance with this mitigation measure shall be through issuance of a written monitoring summary report for each monitoring year specified in Table 3.2.5-2. Reports shall be submitted to the Great Basin Unified Air Pollution Control District by December 31 of each monitoring year. The report will document survey locations and dates, the number of plovers observed, and an estimate of the total

[103] CH2MHill. 2002. *Summary of Surveys for Snowy Plovers at Owens Lake, March 1 through April 30, 2002.* Prepared by: Point Reyes Bird Observatory (Ruhlen and Page), Stinson Beach, CA.

plover population. A copy of the yearly summary reports shall be provided to the California Department of Fish and Game and the California State Lands Commission.

TABLE 3.2.5-2
BIOLOGY-10, POSTCONSTRUCTION LAKE-WIDE PLOVER POPULATION MONITORING SCHEDULE

Year 1 monitoring event	Year 2 monitoring event	Year 3 monitoring event	Year 4 monitoring event
2010	2011	2012	2013
Year 5 monitoring event	**Year 7 monitoring event**	**Year 9 monitoring event**	**Year 14 monitoring event**
2014	2016	2018	2023

Measure Biology-11, Corvid Management Plan

To reduce potential direct and cumulative impacts to western snowy plover and other migratory shorebirds within the project area due to increased predation on shorebird young and eggs from potential corvid population increases on Owens Lake resulting from construction of dust control measures, the City of Los Angeles Department of Water and Power shall continue to implement the corvid management plan resulting from the 2003 State Implementation Plan with an extension of one year within the project area, or comparable corvid control measures, to the satisfaction of the California Department of Fish and Game, that are capable of achieving the same performance standard of no substantial net increase in corvid predation of native nesting shorebirds (including eggs). The corvid management plan was implemented in 2005 and may conclude in 2011 depending on success. Components of the corvid management plan include lake bed trash management procedures associated with dust control measures, utilization of Nixalite or the functional equivalent on all structures greater than 72 inches in height (increased from the original 60 inches in height) to minimize perching of corvids and raptor species on dust control equipment where they can easily observe shorebirds during the nesting season, burial of power and communication lines on all lake bed areas below the elevation of 3,600 feet, and use of harassment techniques for corvids in specific instances where corvids are proving to be particularly harmful to nesting shorebirds. Specifically in conjunction with the Moat & Row dust control measure, the corvid management techniques shall be expanded to specify that the sand fence fabric and fence posts shall be designed to prevent perching by corvids, within 0.25 mile of occupied nesting shorebird habitat. The use of sand fencing on top of rows within the Moat & Row areas will be considered under this mitigation measure as exceeding the height of 72 inches, thereby requiring the utilization of Nixalite or the functional equivalent on top of sand fencing. The corvid management plan shall be implemented by a wildlife biologist familiar with the sensitive shorebird populations within the project area and familiar with corvid management techniques. The qualifications of the wildlife biologist shall be submitted to the California Department of Fish and Game for review. Lethal methods of corvid control such as shooting or poisoning shall not be implemented initially due to public and government agency concerns in the project region for such control methods and to prevent putting workers at risk from such control measures. If it is later determined that corvids are having a significant impact on shorebird populations within the project area and direct removal of corvids is a viable alternative, proposed control methods would be presented to the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game for approval prior to implementation of the additional control measures. The corvid management plan includes a yearly written report estimating the lake bed nesting and foraging corvid population size, documenting the results of the corvid management techniques, documenting the observed effectiveness of the techniques in minimizing corvid impacts on shorebirds within the lake bed, and suggesting improvements for corvid management within the lake bed. Effectiveness may be determined based on the corvid population size on the lake bed. Copies of the yearly reports shall be submitted to the Great Basin Unified Air Pollution Control District and the California Department of Fish and Game no later than December 31 of each corvid management year. If after the sixth year of reporting in 2011, the Great Basin Unified Air Pollution Control District determines that the corvid management program is effective and that corvids are not impacting snowy plover populations, then the reporting schedule shall phase out in the same time frame as shown in Table 3.2.5-1. However, the corvid management practices shall be continuously implemented.

Measure Biology-12, Habitat Management Program for Nesting Snowy Plovers

To minimize potential direct and cumulative impacts to nesting western snowy plover from shutdown of all Shallow Flooding panels on June 30, a habitat management program shall be implemented by the City of Los Angeles Department of Water and Power on all Owens Lake bed Shallow Flooding areas to mimic the natural summer drying of seeps and springs in the area. Each year Shallow Flooding shall be slowly turned off from July 1 to July 21 to allow snowy plover broods to complete their nesting cycle. Consult Figure 3.2.5-1, *Conceptual Owens Lake Operational Calendar*, and Figure 3.2.5-2, *Shallow Flooding Management for the Month of July*, for a conceptual picture of Shallow Flooding panel operation. The schedule for decreasing the percentage of wetness in Shallow Flooding areas will follow Table 3.2.5-3, *Biology-12, Schedule of Percent Surface Area Wetted Required to Achieve Level of Control Efficiency after June 30*.

The City of Los Angeles Department of Water and Power has the option of surveying within 0.5 mile of Shallow Flooding areas for snowy plovers, and if active snowy plover nests or young are not present on or within a 0.5-mile radius of Shallow Flooding areas, then the habitat flows described above would not be needed in those areas and those Shallow Flooding panels may be shut down as the City of Los Angeles Department of Water and Power determines necessary. Surveying shall be conducted by a qualified biologist familiar with the natural history and habitat requirements of western snowy plovers within the Owens Lake basin and must be conducted within seven calendar days of planned shut down. The qualifications of the biologist who conducts snowy plover surveys shall be submitted to the California Department of Fish and Game for review. Any changes made to the operations plan related to the drying of Shallow Flooding areas at the end of the dust season must be submitted in writing to the Great Basin Unified Air Pollution Control District for approval one week prior to implementation, and a copy of the changes shall be provided to the California Department of Fish and Game.

TABLE 3.2.5-3
BIOLOGY-12, SCHEDULE OF PERCENT SURFACE AREA WETTED REQUIRED TO ACHIEVE LEVEL OF CONTROL EFFICIENCY AFTER JUNE 30

July 1–7	July 8–14	July 15–21	July 22
~50% wetted area	~20% wetted area	~15% wetted area	Off

Measure Biology-13, Wildlife Movement Gaps

To minimize potential direct impacts to migratory corridors, used by wildlife such as flightless juvenile shorebirds and herpetofauna, from the installation of sand fencing, either atop the rows of Moat & Row areas or as enhancements between Moat & Row elements, or from the moats themselves, the City of Los Angeles Department of Water and Power shall include gaps in sand fencing and appropriate moat design that allow wildlife movement on the lake bed. For purposes of the analysis in the Environmental Impact Report, moats in Moat & Rows were assumed to have sloped sides and not pose a barrier to wildlife movements. If moats or rows are recommended to be formed with vertical sides, additional environmental analysis would be required. Gaps in the fences shall be no more than 0.25

mile apart and may consist of breaks in the fencing or openings within a fence. Alternatives to gaps may be utilized in place of gaps. Alternatives may include culverts and/or passage holes where wildlife could travel under berms or rows, voids in the fencing mesh, gaps between segments, and open row ends. Moats shall be required to be designed to prevent trapping of wildlife. Potential methods may include, but are not limited to, gentle side slopes and ramps. The size of gaps or alternatives to gaps in the sand fencing and the design of moats shall be submitted to and approved by the California Department of Fish and Game. Proof of compliance with this mitigation measure shall be verified by submitting a written report to the Great Basin Unified Air Pollution District and California Department of Fish and Game detailing the locations, size, and spacing of gaps and moat design for wildlife movement in Moat & Row areas.

Measure Biology–14, Long-Term Habitat Management Plan

To avoid direct and cumulative impacts to native wildlife communities that may result from the proposed project, a Long-term Habitat Management Plan shall be prepared, pursuant to the California Department of Fish and Game requirements, by a qualified biologist familiar with the habitats and species present at Owens Lake and knowledgeable of wildlife management techniques. The qualifications of the biologist shall be submitted to the California Department of Fish and Game for review. The Long-term Habitat Management Plan shall be submitted to both the California Department of Fish and Game and the California State Lands Commission for comment, with final approval by the California Department of Fish and Game. The Long-term Habitat Management Plan shall have final approval and be fully implemented by April 1, 2010. The Long-term Habitat Management Plan area shall encompass all emissive areas subject to dust control measures on lands owned by the California State Lands Commission and lands owned by the City of Los Angeles Department of Water and Power. In recognition of the public trust values related to resident and migratory wildlife resources at Owens dry lake, the California Department of Fish and Game and the California State Lands Commission have acknowledged the benefit of a Long-term Habitat Management Plan as a tool for ensuring compatibility between the construction, maintenance, and operation of the State Implementation Plan and the protection of public trust values. The plan shall include, at a minimum, the following objectives:

- Within the Environmental Impact Report analysis areas for 2008 State Implementation Plan dust controls (Figure 2.1-3), achieve no net loss of riparian or aquatic baseline habitat functions and values or total acres of these habitats (refer to Table 3.2.2-1 for type and amount of plant communities).

- Manage 1,000 acres in perpetuity for shorebirds and snowy plovers in Zone II, in consultation with the California Department of Fish and Game.

- Pursuant to Condition No. 16 of the 2001 Streambed Alteration Agreement (Agreement No. R6-2001-060, Page 5), the project was expected to adversely impact 63 acres of shorebird foraging habitat at Dirty Socks Spring. Therefore, the City of Los Angeles Department of Water and Power was required to create 145 acres of Habitat Shallow Flood suitable for shorebird foraging. The City of Los Angeles Department of Water and Power has currently created 152 acres. If the City of Los Angeles Department of Water and Power proposes to discontinue using the 145 acres or any portion thereof the Habitat Shallow Flood for shorebird foraging habitat, the City of Los Angeles Department of Water and Power shall provide shorebird foraging habitat of equivalent quality at a ratio of 1:1 to 2:1 as determined through coordination between the California Department of Fish and Game and the City of Los Angeles Department of Water and Power.

- In consultation with the California Department of Fish and Game, develop a specification for an appropriate amount of deep-water habitat and then develop and manage that deep-water habitat in perpetuity in order to support focal migratory water birds determined to be present during 1995–1997 baseline surveys in support of the 1998 State Implementation Plan. This shall include a variety of water birds that use Owens Lake as a temporary stopover habitat during spring and autumn migration; water birds that are adapted to saline conditions such as eared grebe (*Podiceps nigricollis*), Wilson's phalarope (*Phalaropus tricolor*), and California gull (*Larus californicus*); and other water birds including waterfowl that can tolerate saline or brackish conditions such as gadwall (*Anas strepera*) and lesser scaup (*Aythya affinis*), among other species.

- Maintain a baseline population of 272 snowy plovers.

- In addition to the 1,000 acres of shorebird and snowy plover habitat in Zone II, the City of Los Angeles Department of Water and Power shall maintain a minimum of 523 acres of habitat specifically for snowy plovers in perpetuity at Owens Lake in consultation with the California Department of Fish and Game. Suitability of Shallow Flooding habitat for western snowy plover consists of a mix of exposed sandy or gravelly substrate suitable for nesting in close proximity to standing water equal to or less than 12 inches in depth.

- Ensure that the approximately 17.5 acres of proposed dust control measures that are within California Department of Fish and Game Cartago Springs Wildlife Area are compatible with the designated land use. The California Department of Fish and Game has determined that Habitat Shallow Flood or habitat restoration would be compatible with the Cartago Springs Wildlife Area's designated use (Figure 3.2.5-3, *Cartago Springs Wildlife Area*).

Components of the plan shall also include, at a minimum, a description of baseline conditions of plant and wildlife resources, effects on biological resources as a result of implementation of dust control measures, descriptions of biological elements targeted for management, and a description of the operations and maintenance tasks required to complete each goal. Preparation of the Long-term Habitat Management Plan shall be subject to the oversight of the California Department of Fish and Game. The California State Lands Commission shall be consulted for comments on the plan. As the landowner, California State Lands Commission shall be provided copies of all monitoring and compliance reports prepared pursuant to the plan. The Long-term Habitat Management Plan shall include yearly monitoring, including a written report documenting the results of the management techniques, recording the observed effectiveness of the techniques, and suggesting improvements for habitat management within the lake bed. Copies of the yearly reports shall be submitted to the California State Lands Commission, Great Basin Unified Air Pollution Control District, and the California Department of Fish and Game no later than December 31 of each calendar year. If after five years of reporting in 2015, the California Department of Fish and Game determines that the Long-term Habitat Management Plan is effective, then the reporting schedule shall phase out in the same time frame as shown in Table 3.2.5-1. However, the habitat management practices shall be continuously implemented.

APPENDIX D

Water Supply Memorandum

CITY OF LOS ANGELES
DEPARTMENT OF WATER AND POWER
INTRADEPARTMENTAL CORRESPONDENCE

Date: May 15, 2009

To: William VanWagoner, Manager of Owens Lake Regulatory Issues and Future Planning

From: David Pettijohn, Manager - Water Resources Development

Subject: Water Availability for Owens Lake Dust Mitigation

Background -
The Los Angeles Department of Water and Power has been delivering water supply through the Los Angeles Aqueduct System (LAA) since 1913, with the completion of the First Los Angeles Aqueduct. The First LAA was built with an original capacity of approximately 311,000 acre-feet per year. Since then, the LAA has experienced two major expansions, which increased its water delivery capacity to Los Angeles. In 1940, the LAA was extended 40 miles north to export water from the Mono Basin. In 1970, the Second Los Angeles Aqueduct was completed to increase the aqueduct system's conveyance capacity to a total of approximately 530,000 acre-feet per year for a growing Los Angeles population.

Subject only to varying levels of snowpack and infrastructure capacity, LADWP had been able to deliver an unrestricted amount of high-quality water from the Eastern Sierra Nevada until the late 1980's, when heightened environmental awareness led to the curtailment of LAA supplies. Prior to the environmental restrictions, the LAA had delivered a maximum of 534,113 acre-feet in runoff year 1983-1984 (April though March), and averaged 459,800 acre-feet per year from April 1970 through March 1989. The current normal-year LAA water delivery projection is approximately 230,000 acre-feet per year.

The City of Los Angeles' LAA supplies have been significantly reduced over the last two decades in order to provide water for environmental mitigation in the Eastern Sierra Nevada including the Owen Lake Dust Mitigation Program. Historically, the Owens River was the main source of water feeding Owens Lake. Diversion of water from the river, first by farmers in the Owens Valley and then by the City, resulted in the lake drying up completely by the late 1920s. The exposed lakebed became a major source of windblown dust and in 1987, the U.S. Environmental Protection Agency (EPA) designated the Owens Lake Planning Area as non-attainment for the National Ambient Air Quality Standards (NAAQS) for fugitive dust (PM10). The Great Basin Unified Air Pollution Control District (GBUAPCD) is the agency designated by the EPA and the State of California to develop, implement, and enforce a plan that addresses the problem. As a result, GBUAPCD was required to prepare a State Implementation Plan (SIP) that demonstrates how the NAAQS for PM10 would be attained. GBUAPCD adopted SIPs for the Owens Lake Planning Area in 1997 and 1998. EPA approved the 1998 SIP. The 1998 SIP and its associated environmental document evaluated and approved the implementation of a variety of dust control measures (DCMs) on 19.4 square miles of the lake bed. The SIP also specified that GBUAPCD would continue to study the lake bed and would revise the SIP to address changing conditions within the lake bed, as well as implement newer or more efficient DCMs developed over time. After monitoring the lake bed and assessing the effectiveness of dust control strategies already in place, GPUAPCD revised the SIP in 2003 to expand the area where DCMs would be implemented by 10.4 square miles and required that LADWP implement all new DCMs by December 31, 2006. With approval of the 2003 Revised SIP, which was also approved by the California Air Resources Board, a total of 29.8 square miles of DCMs were implemented on Owens Lake by the end of 2006. Both the 1998 SIP and 2003 Revised SIP underwent comprehensive environmental review in compliance with CEQA.

Environmental restoration combined with water required for Owens Lake dust mitigation (required by the 1998 and 2003 SIPs) has effectively reduced current LAA deliveries to Los Angeles by approximately 50 percent (City of Los Angeles 2008a). All reductions in LAA flow to the City translate directly into increased water purchases from the City’s wholesale water provider the Metropolitan Water District of Southern California (MWD). In fiscal year 2009-10 approximately 87,000 acre-feet of the estimated 400,000 acre-feet of water supply purchased from MWD will be used to replace water allocated for the Owens Lake Dust Mitigation Project.

The Metropolitan Water District of Southern California (MWD) –
MWD imports water into Southern California from two sources, the Colorado River and the State Water Project (SWP). MWD’s service area covers about 5,200 square miles in Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura counties. In geographic terms, that's nearly as large as the states of Connecticut and Rhode Island combined. The City is one of MWD’s 26 member agencies who collectively serve over 20 million customers in Southern California.

All of the City’s needs for supplemental water (i.e., water that is not pumped from underlying groundwater or delivered by the LAA) is met through purchases from MWD. Supplies purchased include the water needed to replace water used for dust control on Owens Lake (see requirements for dust control mitigation above). Of the water purchased from MWD, 100 percent of the Owens Lake dust mitigation replacement water originates from MWD’s SWP supplies through the City’s LA-35 interconnection with MWD. The SWP brings supplies south from the Sacramento-San Joaquin River Delta.

The Sacramento-San Joaquin River Delta –
As the largest river delta on the West Coast, the Sacramento-San Joaquin Delta spans a watershed that captures more than half of California's surface water. It is where the rivers of the Sierra Nevada meet the tidal influences of San Francisco Bay. Two of every three Californians depend on the Delta as a key water source, from Solano County to the north of the Delta to hundreds of miles southward in San Diego (Office of the Governor 2007). Millions of acres of farmland in the Central Valley depend on the Delta as well. So do millions of birds that use the estuary for migration patterns, and numerous fish species including salmon and steelhead.

Significant changes have occurred in the Delta – including sea level rise, climate change effects, levee deterioration, seismic risk, urbanization, ecosystem degradation, and court decisions reducing exports of Delta water to central and southern California– all of which have adversely affected the sustainability and reliability of Delta water supplies.

The Delta is as key to the California economy as it is to the environment. But today the Delta struggles to fulfill these vital missions. The Delta environment is struggling under numerous stressors. Non-native species such as Asian clams have taken residency and consume much of a key food supply for other fish. Islands that have been transformed from marshlands to farmlands produce less food for Delta fish as well. Pesticide runoff and effluent from waste water treatment plants harm the fisheries. And operations of water pumps can alter flows in the Delta as well.

The pumps of the Central Valley Project and SWP (the source of water for MWD via the California Aqueduct) are in the southern part of the Delta, while most of the water originates from the north, on the Sacramento River. Moving these water supplies through the Delta can create conflicts with natural flow patterns. When the the pumps are operating, reversal of water flows in streams and rivers in the Delta occurs (e.g., Old River and Middle River).

The landscape of the Delta today is a highly-altered human invention – a complex maze of 57 major “islands” carved by dredges for the purpose of land reclamation more than 100 years ago. Today, the Delta’s land surface is as much as 30 feet below sea level, intersected by a network of shallow channels and sloughs. Since 1900, levee failures have flooded Delta islands 166 times; some of these flooded islands have never been recovered, while others have flooded multiple times (Zito 2009). No Delta levee has failed as a result of a major earthquake; nonetheless, damage from a major earthquake in the future could be severe. A 6.5 magnitude earthquake could cause multiple levee failures and the simultaneous flooding of several islands.

The Delta is also on borrowed time because of its levee system. Hundreds of miles of substandard levees protect islands that have receded to below the Delta water level (MWD 2008). Were the levees to fail, Delta islands would quickly find themselves submerged. Seismologists have grown increasingly concerned about the potential for an earthquake to collapse numerous levees and cause salty water from San Francisco Bay to take hold in the Delta. Were this to happen, the Delta would no longer be a potable water supply. Seismologists predict that there is a 75 percent chance that a large earthquake (6.5 magnitude or greater) could result in such a scenario.

Climate change is altering the Delta and is expected to continue to do so in the future. The sea level rise rates of several inches over the past 100 years is expected to accelerate in the next few decades and scientists predict that sea level will rise by 55 inches by 2100 (Weiser 2008). This benchmark is being used by many jurisdictions in making major policy and infrastructure decisions. The potential for more variable precipitation and extreme weather as a result of Global Climate Change will challenge the stability of Delta levees (i.e., increased periodic to frequent severe flows resulting in overtopping or failure of the levee system) and increase the difficulty of achieving a reliable water supply.

The Delta is rapidly becoming more urban. Despite the recent downturn in the housing market, millions more people are expected to inhabit the five Delta counties by the middle of this century (Delta Vision Committee 2008). Wise land use decisions that preserve public safety, promote ecosystem restoration, and permit long-term climate change adaptation are essential.

In addition, the Delta ecosystem is becoming severely degraded. Court decisions (i.e., Delta Smelt Biological Opinion), closure of the salmon fishery in 2008, and a procession of listings of species as threatened or endangered (winter-run Chinook salmon, Delta smelt, Central Valley spring-run Chinook salmon, and long fin smelt) are evidence of this degradation.

The problems in the Delta are not related to drought. The problems in the Delta are systemic long-term issues relating to the stressors mentioned above, and the inability of water purveyors to convey water through the Delta in a way that does not negatively affect the ecosystem that the in-Delta fish species rely upon. As a result, the problems cannot be fully resolved until a long-term solution is agreed upon and implemented by water purveyors, the State, and the environmental community.

Efforts are under way to address the many problems of the Delta. In 2006, Governor Arnold Schwarzenegger signed an executive order to establish a “Delta Vision” Blue Ribbon Task Force that would provide comprehensive recommendations for management of the Delta. He states, “We must address the health of the delta because our current practices are not sustainable.” Wildlife agencies responsible for regulating the Delta, meanwhile, are at work on a Bay-Delta Conservation Plan (BDCP). With the participation of water districts and interested stakeholders, the BDCP will present is new and better ways to move water supplies through and around the Delta. The goal is to implement new habitat and water delivery improvements that would create a more resilient ecosystem and provide a source of more reliable water supplies.

MWD is looking to local sources and conservation as major new sources of water supply for the future. MWD’s stated goal in its long-term water plan is to maintain **-** not increase **-** outside supplies from Northern California. With regard to the Delta, MWD is collaboratively working with government agencies and stakeholders on a plan to create a healthy, durable estuary as the key to a reliable water supply. To protect the Delta, MWD strongly supports facility improvements that will physically isolate the effects of water pumping. Metropolitan sees a “conveyance fix” in the Delta as the single most important element of a comprehensive package.

Current projections of the time required to implement a long-term permanent solution in the Delta is estimated at a minimum of 10 to 15 years. There is also the possibility that there would be no long-term Delta solution and that decreases in exports to water purveyors from the Delta would continue indefinitely.

The Delta Smelt Biological Opinion –
In May 2007, a federal court invalidated the Biological Opinion issued by the U.S. Fish & Wildlife Service (USFWS) for operations for the SWP and Central Valley Project with regard to Delta Smelt, a federally and state listed threatened fish species that inhabits the estuaries of the Bay-Delta region. In response, the USFWS issued a new Delta Smelt Biological Opinion on December 15, 2008. The new Delta Smelt Biological Opinion reduces SWP water exports from the Delta to 1.5 million acre-feet per year (mafy) (a reduction of 46 percent or 0.7 mafy). As a result, MWD’s SWP deliveries would also be reduced by 46 percent.

This represents a substantial change in the reliability of the SWP. As recently as 2005, the DWR’s estimates of SWP deliveries to MWD (May 25, 2005 *Notice to State Water Contractors*, Number 05-08) stated that the SWP would deliver 3.1 mafy on average, about half of which would come to MWD (i.e., 1.55 mafy). This estimate was revised substantially downward in the *DWR’s 2007 State Water Project Delivery Reliability Repor*t, released in August 2008. This 2008 report projected that total annual SWP deliveries would decrease in 93% of the years when compared to the estimates in the 2005 report. Updated estimates for 2007 showed total annual deliveries decreased over 20% in over one-quarter (28%) of the years analyzed and greater than 30% in one-sixth

(16%) of the years, when compared to the estimates in the 2005 report. Water deliveries estimated for 20 years into the future show even greater decreases in a majority of years when compared to the estimates in the 2005 report.

Under these Delta operating conditions, on average under normal water years, MWD would receive 750,000 acre-feet far less than the 1.5 million acre-feet it historically received from the SWP (a roughly 50 percent reduction). MWD's supply during wet years would be reduced by approximately 800,000 acre-feet. The overall reduction in supplies would have a major impact on MWD's supply outlook. The impact comes from two major areas. First, the decrease in SWP supplies over all year types would put increased, sustained demands on MWD's dry-year storage programs, including all groundwater banking, conjunctive-use, and surface storage programs. Second, the decrease in SWP supplies available in normal and wet years would severely reduce the opportunities to refill those storage programs. In other words, storage reserves would likely reach increasing rates of depletion, with little chance for refill or recharge.

In addition to the Delta Smelt Biological Opinion's impact on SWP deliveries, the National Marine Fishery Service is scheduled to issue the Biological Opinion for protection of salmon and steelhead within the Delta by June 2, 2009. While staff has not had the opportunity to review this opinion, based on what is known on the current state of affairs with regard to salmon and steelhead fisheries, staff anticipates that the salmon biological opinion may impose additional water supply restrictions over and above the restrictions imposed by the Delta Smelt Biological Opinion.

Prior to the Delta Smelt Biological Opinion, MWD projected in its November 2006 review of dry-year water supply capability that it would be able to meet its dry-year demands under severe. single dry-year conditions and under multiple dry-year conditions. Additionally, MWD stated that its mix of supplies was also capable, with a high probability of occurrence, of providing water in normal and wet years to refill surface and groundwater storage programs. This analysis however, was completed before the Federal court invalidated the Biological Opinion for the Delta Smelt in May 2007, and is no longer valid.

Statewide Water Shortage Emergency –
On February 27, 2009 to combat California's water crisis, Governor Arnold Schwarzenegger proclaimed a state of emergency and ordered immediate action to manage the crisis. As part of his statement, the Governor stated that one of the causes for the water crisis was that "a biological opinion issued by the United States Fish and Wildlife Service on December 15, 2008, imposed a 30 percent restriction on water deliveries from the State Water Project and the Central Valley Project to protect Delta Smelt". The Governor stated that he expected that the SWP and Central Valley Project

water delivery reductions would cause more than 80,000 lost jobs; and that the lack of water has forced local communities to draw water from their emergency water reserves, putting communities at risk of further catastrophe if emergency reserves are depleted or cut off. The Governor further directed that all urban water users immediately increase their water conservation activities in an effort to reduce their individual water use by 20 percent.

MWD's current water demands are approximately 2.23 mafy. MWD's Colorado River supplies provide approximately 1.05 mafy; therefore, MWD's SWP supplies combined with existing system storage make up the remaining 1.18 maf each year. The new Delta Smelt biological opinion will severely affect MWD's ability to deliver reliable water supplies that meet current and future water demands. Demands for MWD's SWP water (i.e., 1.05 mafy) would exceed available supplies (i.e., 750,000 afy under normal years) by approximately 430,000 afy. MWD staff has now reported that it will be forced to remove water from existing storage reserves to meet demands in 8 out of 10 years (discussed in MWD member agency meetings held in 2009). For MWD, the challenges in the Delta mean that in a normal water year, the district can no longer replenish groundwater supplies and/or set aside stored reserves for dry years.

It is important to understand that MWD's demands are also subject to regional growth in demand over time. With shrinking imported supplies from the Delta, MWD will face not only a reduction in water supply over time, but an increased level of demand for those reduced supplies. Over the past three years MWD has withdrawn water from storage every year; at the beginning of 2009 MWD had only 1.0 maf left in its storage accounts with plans to draw 0.35 maf from storage in 2009 (MWD 2009d). Storage in MWD system is now at critically low levels (i.e., 1 maf of supply is available in MWD's 5 maf capacity system and MWD intends to draw approximately 350,000 afy). Based on storage levels and reduced deliveries from the SWP due to the Delta Smelt Biological Opinion, the MWD Board took action on April 14, 2009 to ration water to its member agencies including Los Angeles for the first time since 1991. MWD's allocation calls for a 10% cut in deliveries to all member agencies including Los Angeles.

To address the increased costs of importing water and purchasing water from others, the MWD Board has approved significant increases in wholesale water rates increasing water rates 14.5% in 2009, 19.7% in 2010, and 20% in 2011. Cumulatively, this represents an increase of over 60% increase in 3 years. For example in an average year, the City's costs for purchased water will increased from $190 million in 2008 to over $300 million in 2011. In an average year, the City purchases 420,000 acre-feet of water from MWD.

With regards to Owens Lake, in fiscal year 2009-10 the City projects it will use over 87,000 acre feet of water on Owen Lake. Upon completion of the Phase 7 dust control measures on Owens Lake, the annual water use for dust control is estimated to be 95,000 afy. In order to meet existing municipal and industrial demands within its service area, LADWP must replace this water with additional purchases from MWD costing the City $46 million for dust control on Owens Lake. For fiscal year 2009-10, MWD projects it will provide the City with only 90 percent of the water requested by the City, a shortfall of approximately 30,000 acre-feet.

The City of Los Angeles Response to the Water Crisis and MWD Cutbacks –
This shortfall has prompted the LADWP to recommend water rationing by imposing shortage year water rates and implementing water conservation measures outlined in Phase III of the City's water conservation ordinance. Phase III water conservation restrictions are inclusive of all Phase I and Phase II conservation restrictions (e.g., drinking water, landscape irrigation, washing, leaks, aesthetic uses) with the addition of prohibiting landscape irrigation on days other than Monday or Thursday.

The City approved the adoption of 15% shortage year rates on April 17, 2009. These rates impose a higher Tier 2 water rate on homeowners who exceed 85% of their water allocation (a 15% cutback) for their specific lot (based on lot size, occupancy, and temperature zone). The City has also implemented Phase III of its water conservation ordinance by expanding the list of prohibited water use restrictions within the City, including mandatory restrictions on outdoor watering limited to two days per week.

As a long-term response to what City planners have come to understand will be a permanent decrease in available imported water supplies, the City has adopted a plan by Mayor Antonio Villaraigosa entitled, "*Securing L.A.'s Water Supply*," (May 2008) which is a blueprint for creating sustainable sources of water for the future of Los Angeles. This plan is an aggressive multi-pronged approach to water conservation that includes: investments in state-of-the-art water conservation technology; issuance of a combination of rebates and incentives; installation of smart irrigation controllers (e.g., controllers sense when adequate moisture is present), efficient commercial and residential washers and urinals; and development of long-term measures including expansion of water recycling and investment in cleaning up the local groundwater supply.

The City's groundwater supply has been contaminated with trichloroethylene (TCE) and perchloroethylene (PCE) as a result of historical industrial activities that dumped pollutants on the ground which eventually leaked and/or seeped into the San Fernando groundwater basin. LADWP has water rights to 87,000 afy in the San Fernando groundwater basin and currently pumps approximately 67,000 afy (Jorat, pers. comm., 2009). Clean up of groundwater in the San Fernando basin could provide an additional source of water supply during below average water years.

The premise of this plan is that the City will meet all new demand for water over the next 20 years—about 100,000 afy—through a combination of water conservation and water recycling. In total, the City will conserve or recycle 32.6 billion gallons of water—enough to fill one foot of water across the entire San Fernando Valley each year, and enough to supply water to 200,000 homes for one year. By the year 2019, half of all new demand will be met by a six-fold increase in recycled water supplies and by 2030 the other half will be met through ramped-up conservation efforts.

The City's water supply reliability will be met first by demand side management through an expansion of water conservation and water recycling efforts. Local water resources available to the City include groundwater supplies and LAA supplies. To meet demands for supplemental water (i.e., water demands that cannot be met by the City's supplies) the City purchases water from MWD. A blend of Colorado River and SWP water is purchased to meet the City's demand for supplemental treated water in East Los Angeles and in the Los Angeles Harbor area. The City's demand for treated water is fairly constant at approximately 58,000 acre-feet per year.

To meet the City's incremental need for supplemental water in excess of those outlined above, untreated SWP water is purchased from MWD and treated at the City's Los Angeles Aqueduct Filtration Plant in Sylmar California. The City's average incremental demand for untreated water is approximately 335,000 acre-feet. The majority of this incremental water is delivered through an interconnection (LA-35) with MWD, which delivers SWP water from the Delta.

With regard to increasing water-intensive dust control measures on Owens Lake, supplies are not available to meet increased demands (i.e., demands greater than the 85,000 afy projected for the 2009-10 fiscal year). All conservation and recycled water gains have been committed to meeting the City's future municipal and industrial growth over the next 20 years. If additional water supplies are needed to increase water-intensive environmental mitigation efforts in the Owens Valley, including Owens Lake dust mitigation, additional purchases of imported water from MWD (originating from the Delta) will be required.

Conclusion -
It was on the basis of repeated assurances of reliability from its supplemental water provider MWD that the City entered into a Memorandum of Agreement with Great Basin Unified Air Pollution Control District (District) in July 1998. The Memorandum of Agreement was incorporated into a formal air quality control plan by the District. This

plan was approved by the US EPA on October 4, 1999. In November 2003, the District adopted a revised plan that defines the complete boundary on the lakebed that must be controlled at 29.8 square miles. The Memorandum of Agreement delineated the dust producing areas on the lakebed that needed to be controlled, specified what measures must be used to control the dust, and outlined a timetable for implementation of the control measures.

Article X, Section II of the Constitution of the State of California states that the right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be **reasonably required** for the **beneficial use** to be served, and such right does not and shall not extend to the waste or unreasonable method of use or unreasonable method of diversion of water. The City's water rights to appropriate water from the Owens River are subject to the same constitutional mandates and limitations as all other water rights within the State.

All water used for dust mitigation on Owens Lake must be replaced with water purchased from MWD to meet existing water demands within LADWP's service area. MWD receives these supplies from the Delta. Based on recent changes with regard to recent litigation (e.g., Delta Smelt), climate variability, and newly imposed pumping restrictions, the Delta is no longer a reliable water source for MWD and LADWP must investigate supply alternatives to meet its projected demands.

Based on the changed conditions in the Delta since the MOU was signed between LADWP and the District, use of additional water supplies for dust control on Owens Lake is not recommended because of the uncertainty of supplies from MWD and the Delta.

It is recommended that dust control on Owen Lake be accomplished through mitigation options that do not require the use of limited water supplies. Water used on the Owens Lake for dust control cannot be fully replaced and has the net effect of increasing the severity of water shortages and associated water rationing within the City of Los Angeles.

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