CHAPTER 2
MITIGATION MONITORING AND REPORTING PROGRAM

Section 15097 of the State CEQA Guidelines requires the Lead Agency adopt a program for monitoring or reporting on the revisions that it has required in the Project and the measures it has imposed to avoid or reduce significant environmental effects to a less than significant level. This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings of the preceding Chapter 1 – Environmental Impacts Evaluation (Initial Study) for the proposed Pixley Groundwater Banking project (proposed Project). The MMRP lists all mitigation measures recommended in Chapter 1 and confirmed in the agreed to MND for the proposed Project and identifies monitoring and reporting requirements to assure the mitigation measures are carried out and achieve their intended purposes.

Table 2-1 below constitutes the required Mitigation Monitoring and Reporting Program for the proposed Project. The first column of **Table 2-1** identifies each of the mitigation measures recommended in Chapter 3 and agreed to by the project proponent SVWBA.

The second column, entitled "When Mitigation is to be Initiated", identifies the time when implementation of the mitigation measure should begin.

The third column, "Frequency and Duration of Mitigation Activity" identifies how often and the duration of time, as necessary, over which the mitigation measure should be monitored to assure that it is effectively in place.

The fourth column, "Agency Ultimately Responsible for all Monitoring Activities and Assuring Mitigation Compliance," names the party ultimately responsible for ensuring that the mitigation measure is implemented and achieves its intended purpose. The responsible agency should retain in its records appropriate documentary evidence of the dates and results of monitoring work performed, and by whom.

The last columns, or something equivalent, shall be used by the Authority to document for the record that individual mitigation measures have been carried out and achieved as specified in the far left-hand column of the MMRP and that said mitigation activity was properly monitored until fully and successfully achieved.

Table 2-1
Mitigation Monitoring Plan

Mitigation Measure/Condition of Approval	When Mitigation is to be Initiated	Frequency and Duration of Mitigation Activity	Agency Ultimately Responsible for all Monitoring Activities and Assuring Mitigation Compliance	Monitoring Method to Verify Compliance with Mitigation	Verification of Compliance				
					Date(s) of Monitoring	Monitoring Results Comments	Name/ Initials of Monitor	Date Mitigation Compliance Achieved	Name(s)/ Initial(s) of Person Verifying Compliance
Air Quality:									
<u>MM AQ-1:</u> Comply with SJVAPCD's Regulation VIII-Fugitive Dust Prohibitions. Construction of the proposed project shall comply with SJVAPCD's *Regulation VIII Fugitive Dust Prohibitions* and implement all applicable control measures. In accordance with SJVAPCD's Regulation VIII, a Dust Control Plan (DCP) shall be prepared for the proposed project. The DCP shall be submitted to and approved by the SJVAPCD prior to issuance of construction/grading permits. Fugitive dust control measures to be included in the DCP shall include, but are not limited to, the following: • All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover. • All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.	On the same day any site preparation or Project construction begins	Daily until all site preparation and Project construction is complete	South Valley Water Bank Authority	Inspection of Contractor's Required Daily Field Records and unannounced spot inspections no less than once per week.					

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<u>MM AQ-1:</u> Comply with SJVAPCD's Regulation VIII-Fugitive Dust Prohibitions. (cont'd) • All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking. • When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained. • All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.) • Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions	On the same day any site preparation or Project construction begins	Daily until all site preparation and Project construction is complete	South Valley Water Bank Authority	Inspection of Contractor's Required Daily Field Records and unannounced spot inspections no less than once per week.					

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MM AQ-1: Comply with SJVAPCD's Regulation VIII-Fugitive Dust Prohibitions. (cont'd) • Utilizing sufficient water or chemical stabilizer/suppressant. • An owner/operator of any site with 150 or more vehicle trips per day, or 20 or more vehicle trips per day by vehicles with three or more axles shall implement measures to prevent carryout and trackout.	On the same day any site preparation or Project construction begins	Daily until all site preparation and Project construction is complete	South Valley Water Bank Authority	Inspection of Contractor's Required Daily Field Records and unannounced spot inspections no less than once per week.					
MM AQ-2: Implement Measures to Reduce Construction Emissions of NOx below threshold levels. The following measures shall be implemented to reduce mobile-source emissions of NOx below threshold levels: • To the extent locally available, alternative fueled, electrically driven, hybrid, or catalyst construction equipment shall be used. • Heavy-duty (50 hp, or greater) off-road construction equipment shall, at a minimum, meet U.S. EPA Tier 3 emission standards. • A minimum of 50% of construction waste materials shall be recycled. • When not in use, idling of on-site construction equipment and vehicles shall be minimized. Idling of on-site diesel-powered equipment and vehicles shall be limited to no more than 5 minutes when not in use.	During Construction	Daily until site preparation and construction is complete	South Valley Water Banking Authority	Inspection of Contractor's Required Daily Field Records and unannounced spot inspections no less than once per week.					

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MM AQ-3: ***Minimizing Personnel and Public Exposure.*** To minimize personnel and public exposure to potential Valley Fever–containing dust both on- and off-site, the following additional control measures shall be included in the DCP to be prepared for this project as required by Mitigation Measure AQ-1: • Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved offsite to other work locations. • Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or down-wind of workers on the ground. • The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area. • In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust are to leave the area until a full truck resumes water spraying. • All heavy-duty earth-moving vehicles shall be closed-cab and equipped with a HEP-filtered air system.	During site preparation and construction	Daily until site preparation and construction is complete		Inspection of Contractor's Required Daily Field Records and unannounced spot inspections no less than once per week.					

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MM AQ-3: ***Minimizing Personnel and Public Exposure.*** (cont'd) • Workers shall receive training to recognize the symptoms of Valley Fever, and shall be instructed to promptly report suspected symptoms of work-related Valley Fever to a supervisor. • A Valley Fever informational handout shall be provided to all on-site construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment. • Onsite personnel shall be trained on the proper use of personnel protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health (NIOSH)-approved respirators shall be provided to onsite personal, upon request.									
Biological Resources:									
MM BIO-1: Prior to the construction of the project the applicant will implement the following measure(s) as necessary.									

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MM BIO–1a: (*Avoidance*). In order to avoid impacts to Swainson's hawks from Project construction, construction shall occur between September 1st and January 31st, outside the Swainson's hawk nesting season to the extent feasible.	Prior to any site preparation work or Project Construction	Prior to any site preparation work or Project Construction	South Valley Water Bank Authority	Field Inspection					
MM BIO–1b: (*Pre-construction Surveys*). If construction must occur between February 1st and August 31st, a qualified biologist will conduct a pre-construction survey for Swainson's hawk nests on the project site and on lands within a half-mile from the project site no more than 10 days before the onset of these activities. Survey shall follow the methodology developed by the Swainson's hawk Advisory Committee (SHWA TAC, 2000).	Prior to Construction	Prior to Construction	South Valley Water Bank Authority	Field Inspection by a qualified biologist and report to SVWBA					
MM BIO–1c: (*Establish Buffers*). Should any active nests be discovered in or near proposed construction zones, the biologist will establish a half-mile no disturbance buffer, unless a smaller buffer can adequately protect the nest as determined by the biologist, in coordination with the District, Reclamation, the USFWS and CDFW, pending the nature of disturbance and the presence or absence of disturbance barriers between the nest and construction. This buffer will be identified on the ground with flagging or fencing, and will be maintained until the biologist has determined that the young have fledged.	Prior to Construction	Prior to Construction	South Valley Water Bank Authority	Field Inspection					

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MM BIO-2: Prior to ground disturbance activities, the following measure(s) adapted from the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) will be implemented as necessary.									
MM BIO-2a: ***(Take Avoidance Survey).*** A take avoidance survey for burrowing owls shall be conducted by a qualified biologist who meets the qualifications to perform burrowing owl surveys as set forth in the Staff Report on Burrowing Owl Mitigation (CDFW 2012). The surveys shall be conducted between 14 and 30 days prior to the start of construction. This take avoidance survey shall be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). The survey area shall include all suitable habitats on and within 200 meters of Project impact areas, where accessible.	Between 14 to 30 days prior to the state of construction and any ground disturbance for construction, operation or maintenance, including any ground staking for grading, setting up equipment or materials staging or lay-down areas or any other pre-construction activity or site preparation work	During any ground disturbance for construction, operation, or maintenance that includes any ground staking for grading, setting up equipment or materials staging or lay-down areas, or sit preparation work	South Valley Water Authority	Report to SVWBA from Biologist					

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MM BIO 2b: ***(Avoidance).*** Burrowing owl surveys of the recharge basins shall be conducted by a biologist who meets the qualifications to perform burrowing owl surveys as set forth in the Staff Report on Burrowing Owl Mitigation (CDFW2012). The surveys shall be conducted prior to the inundation of the recharge basins. The purpose of these surveys is to ensure that burrowing owl have not moved into the area. Surveys shall only occur in years when flooding of the recharge basins shall occur. The need for these surveys shall be reassessed in coordiantion with the USFWS and CDFW after seven years of surveys have been completed. A burrowing owl survey report shall be submitted to CDFW and the USFWS by December 31 of each year in which surveys are conducted.	Prior to Ground Disturbance, including any ground staking for grading, setting up equipment or materials staging or lay-down areas or any other pre-construction activity or site preparation work	Prior to Ground Disturbance, including any ground staking for grading, setting up equipment or materials staging or lay-down areas or any other pre-construction activity or site preparation work	South Valley Water Authority	Field Inspection					

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MM BIO 2c: ***(Avoidance of Active Nests).*** If Project activities are undertaken during the breeding season (February 1-August 31) and active nest burrows are identified within or near Project impact areas, a 200-meter disturbance-free buffer shall be established around these burrows, or alternate avoidance measures implemented by the Authority in consultation with CDFW. The buffers shall be enclosed with temporary fencing or flagging to prevent construction equipment and workers from entering the setback area. Buffers shall remain in place for the duration of the breeding season, unless otherwise arranged with CDFW. After the breeding season (i.e. once all young have left the nest), passive relocation of any remaining owls may take place as described below.	Prior to Ground Disturbance, including any ground staking for grading, setting up equipment or materials staging or lay-down areas or any other pre-construction activity or site preparation work	Prior to Ground Disturbance, including any ground staking for grading, setting up equipment or materials staging or lay-down areas or any other pre-construction activity or site preparation work	South Valley Water Authority	Field Inspection					

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MM BIO-2d: ***(Passive Relocation of Resident Owls).*** During the non-breeding season (September 1-January 31), resident owls occupying burrows in Project impact areas may either be avoided, or passively relocated to alternative habitat. If the Authority chooses to avoid active owl burrows within the impact area during the non-breeding season, a 50-meter disturbance-free buffer shall be established around these burrows, or alternate avoidance measures implemented in consultation with CDFW. The buffers shall be enclosed with temporary fencing, and shall remain in place until a qualified biologist determines that the burrows are no longer active. If the Authority chooses to passively relocate owls during the non-breeding season, this activity shall be conducted in accordance with a relocation plan prepared by a qualified biologist. Passive relocation may include one or more of the following elements: 1) establishing a minimum 50-foot buffer around all active burrowing owl burrows, 2) removing all suitable burrows outside the 50-foot buffer and up to 50 meters outside of the impact areas as necessary, 3) installing one-way doors on all potential owl burrows within the 50-foot buffer, 4) leaving one-way doors in place for 48 hours to ensure owls have vacated the burrows, and 5) removing the doors and excavating the remaining burrows within the 50-foot buffer.	Prior to Ground Disturbance including any ground staking for grading, setting up equipment or materials staging or lay-down areas or any other pre-construction activity or site preparation work	Prior to Ground Disturbance, including any ground staking for grading, setting up equipment or materials staging or lay-down areas or any other pre-construction activity or site preparation work	South Valley Water Authority	Field Inspection; Relocation Plan					

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MM BIO-3: Prior to construction, the following measures adapted from the U.S. Fish and Wildlife Service 2011 *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (Appendix G) will be implemented.									
MM BIO-3a: ***(Pre-construction Surveys).*** A Service-approved biologist shall conduct pre-construction surveys no fewer than 14 days and no more than 30 days prior to the onset of any ground disturbing activity. The primary objective is to identify kit fox habitat features (e.g. potential dens and refugia) on the project site. If San Joaquin kit fox are detected at any time, all activities associated with the project shall be halted immediately. The project shall be placed on hold until consultation with the SERVICE and CDFW is completed.	Between 14 to 30 days prior to the state of construction and any ground disturbance for construction operation or maintenance, including any ground staking for grading, setting up equipment or materials staging or lay-down areas or any other pre-construction activity or site preparation work	During any ground disturbance for construction, operation, or maintenance that includes any ground staking for grading, setting up equipment or materials staging or lay-down areas, or sit preparation work	South Valley Water Bank Authority	Field Inspection					

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MM BIO-3b: (*Employee Education Program).* The Authority shall conduct an employee education program prior to the start of construction. The Authority shall retain a Service-approved biologist to conduct one brief presentation on the San Joaquin kit fox to train any and all construction staff that shall be involved with the Project. This training shall include: o A description of the San Joaquin kit fox and its habitat needs; o Information on the San Joaquin kit fox occurrence within the Project vicinity; o An explanation of the status of the species and its protection under the Endangered Species Act; and o A list of the measures being taken to reduce impacts to the species during construction. o A "fact sheet" conveying all of the training information prepared and distributed to all construction personnel in attendance at the initial training and to be used by construction manager to train any additional construction staff that was not in attendance at the first meeting, prior to starting work on the Project.	Prior to Construction	Prior to Construction	South Valley Water Bank Authority	Documented Attendance/Training of Employees					

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MM BIO-3b: (*Employee Education Program).* (cont'd) o The Authority shall provide a summary of the training provided, including a list of personnel attending to Reclamation and the USFWS within 7 days of the training.									
MM BIO-3c: *(Avoidance).* San Joaquin kit fox surveys of the recharge basins shall be conducted by a USFWS approved biologist prior to the inundation of the recharge basins. The purpose of these surveys is to ensure that San Joaquin kit fox have not moved into the area. Surveys shall only occur in years when flooding of the recharge basins shall occur. The need for these surveys shall be reassessed in consultation with the USFWS and coordination with CDFW after seven years of surveys have been completed. A San Joaquin kit fox survey report shall be submitted to CDFW and the USFWS by December 31 of each year in which surveys are conducted.	Prior to Construction	Prior to Construction , and prior to inundation of the recharge basins in years of flooding	South Valley Water Bank Authority	Field Inspection					

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MM BIO-3d: *(Minimization)*. Construction activities shall be carried out in a manner that minimizes adverse effects to kit foxes. Project-related vehicles will observe a daytime speed limit of 15-mph throughout the site in all project areas, except on state and federal highways. Night-time construction should be minimized to the extent possible. However, if construction does occur after dark, the speed limit will be reduced to 10-mph.. o Off-road project-related construction traffic outside of designated Project Areas will be prohibited. o Construction work at night (half hour after sunset to half-hour before sunrise) will not be allowed. o To prevent inadvertent entrapment of San Joaquin kit fox or other animals during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered with plywood or similar materials at the end of each workday. If the trenches cannot be closed, one or more escape ramps constructed of earthen fill or wooden planks will be installed. Before such holes or trenches are filled, they will be inspected for trapped animals.	During Construction	During Construction , Daily	South Valley Water Bank Authority	Field Inspection					

MM BIO-3d: *(Minimization)*. (cont'd) o All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for San Joaquin kit fox before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe will not be moved until the Service has been consulted and CDFW contacted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped. o Before the start of work each day, the work site will be checked for animals under any equipment to be used that day, such as vehicles or stockpiles of items such as pipes. If a San Joaquin kit fox is found it will be allowed to leave on its own volition. Work will be halted and Reclamation contacted. Reclamation will notify the Service and CDFW within 48 hours. o All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers and removed at least once a day from a construction or project site. o No firearms will be permitted on the project site. o No pets will be permitted on the project site. o Use of rodenticide in the project areas will not be allowed. o Upon completion of the project, all areas subject to temporary ground disturbances, including staging areas, temporary roads, and borrow sites will be re-contoured if necessary and revegetated with native seed to promote									

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restoration of the area to pre-project conditions. o Sightings of San Joaquin kit fox will be reported to California Natural Diversity Data Base. o The contractor will be required to keep their equipment in good working condition in order to prevent leaks and spills of petroleum products or other fluids into waters of the U.S. o All equipment will be washed prior to arriving at the Project site to remove soil and seeds and to prevent spread of noxious weeds. o									
MM BIO-4: In order to minimize construction disturbance to maternal roosting bats in onsite riparian trees or structures, the applicant will implement the following measures:									
MM BIO-4a: ***(Temporal Avoidance).*** Riparian tree removal and/or structure demolition will occur after September 30, and before April 1, outside the roosting bat season.	Prior to and During Construction	Prior to and During Construction	South Valley Water Bank Authority	Field Inspection					

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MM BIO-4b: ***(Pre-construction Surveys).*** If removal of riparian trees and/or structure demolition must occur between April 1 and September 30 (general maternity bat roost season), a qualified biologist shall survey affected trees for the presence of bats within 30 days prior to these activities. The biologist shall look for individuals, guano, and staining, and shall listen for bat vocalizations. If necessary, the biologist shall wait for nighttime emergence of bats from roost sites. If no bats are observed to be roosting or breeding, then no further action would be required, and construction would proceed.	Prior to Tree Removal	Prior to Tree Removal	South Valley Water Bank Authority	Field Inspection					
MM BIO-4c: ***(Minimization).*** If a non-breeding bat colony is detected during preconstruction surveys, the individuals will be humanely evicted via partial dismantlement of trees prior to full removal under the direction of a qualified biologist to ensure that no adverse impact to any bats occurs as a result of construction activities.	Prior to Tree Removal	Prior to Tree Removal	South Valley Water Bank Authority	Field Inspection					
MM BIO-4d: ***(Avoidance of Maternity Roosts)***. If a maternity colony is detected during preconstruction surveys, a disturbance-free buffer will be established around the colony and remain in place until a qualified biologist deems that the nursery is no longer active. The disturbance-free buffer will range from 50 to 100 feet as determined by the biologist.	Prior to Tree Removal	Prior to Tree Removal	South Valley Water Bank Authority	Field Inspection					

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MM BIO-4e: ***(Consultation if Maternity Roosts Cannot be Avoided).*** If roosts are determined to be present and must be removed, the bats will be excluded from the roosting site before the tree is removed. A mitigation program addressing compensation, exclusion methods, and roost removal procedures will be developed in consultation with CDFW before construction, operation and maintenance. Exclusion methods may include use of one-way doors at roost entrances or sealing roost entrances when a site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g. during hibernation or while females in maternity colonies are nursing young).									
MM BIO-4f: ***(Compensation for Habitat Loss).*** The loss of each roost will be replaced, in consultation with CDFW, and may include construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site(s). Roost replacement will be implemented before bats are excluded from the original roost site(s). Once the replacement roosts are constructed and it is confirmed that bats are not present in the original roost sites, the tree(s) may be removed.									
MM BIO-5: In order to minimize impacts to riparian habitat, the applicant will implement the following measures:									

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MM BIO-5a: ***(Revegetation of Disturbed Areas).*** After construction, all disturbed areas within Deer Creek will be restored to the original contours. The small area of Deer Creek to be disturbed is anticipated to re-vegetate naturally.	After Construction Completion	After Construction Completion	South Valley Water Bank Authority	Field Inspection					
MM BIO-5b: ***(Replacement Planting).*** Should avoidance of riparian trees not be possible, the SVWBA will provide compensation. Replacement planting will be implemented at a ratio of 3:1 for trees between 4-24 inches in diameter at breast height (DBH), and at a ratio of 10:1 for trees greater than 24 inches in DBH. Species chosen for the plant pallet will include native riparian trees such as valley oaks, Oregon ash and Fremont's cottonwoods. Seed and cuttings will be gathered from its lands fronting the Deer Creek watershed, if possible. These trees will be planted as container plants and cuttings. All planting material will be installed in the late fall or early winter. All plantings will be monitored annually for a minimum of five years. A revegetation plan pursuant to the Lake and Streambed Alteration Agreement with the CDFW will be completed for the project which will detail the maintenance, monitoring, performance criteria and success rate for trees planted within the project site.	After Construction Completion	After Construction Completion; Monitored annually for at least five years	South Valley Water Bank Authority	Field Inspection					
MM BIO-6: In order to minimize construction disturbance to migratory bird nests, the applicant will implement the following measure(s), as necessary:									

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MM BIO-6a: (*Avoidance*). In order to avoid impacts to all nesting migratory birds from grading and construction, these activities will occur outside of the typical avian nesting season, between September 1st and January 31st, to the extent feasible.	Prior to Construction	Prior to Construction	South Valley Water Bank Authority	Field Inspection					
MM BIO-6b:(*Pre-construction Surveys*). If applicable activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and migratory bird nests within no more than 10 daysbefore the start of any ground or vegetation disturbance.. Surveys for raptors will include areas on and within 500 feet, and migratory birds on and within 250 feet of the site, where accessible. If no active nests are found within the survey area, no further mitigation is required.	Prior to Construction	Prior to Construction	South Valley Water Bank Authority	Field Inspection					
MM BIO-6c: (*Establish Buffers*). Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest in coordination with the District, Reclamation, USFWS and/or CDFW. This buffer will be identified on the ground with flagging or fencing, and will be maintained until the biologist has determined that the young have fledged.	Prior to Construction	Prior to Construction	South Valley Water Bank Authority	Field Inspection					

Cultural Resources:									
During the course of all ground disturbing activities of construction the following mitigation measure shall be implemented: **MM CUL-1:** In the unlikely event that unanticipated buried archaeological deposits are encountered during construction, work in the immediate vicinity of the discovery must cease until the find can be evaluated by Reclamation and managed pursuant to the requirements of 36 CFR 800.13 and other applicable Federal laws and regulations. If human remains are inadvertently discovered, Reclamation will comply fully with Native American Graves Protection and Repatriation Act of 1990 NAGPRA as outlined at 43 CFR Part 10, and other Federal laws and regulations as appropriate.	During construction	During construction	South Valley Water Bank Authority	Construction monitoring/Field inspection; Resource report					
Geology and Soils:									
MM GEO-1: The District shall complete a Storm Water Pollution Prevention Plan (SWPPP) prior to any ground moving activities. As part of the SWPPP, the Authority would be required to incorporate any of the following Best Management Practices (BMPs), as deemed appropriate for the Project by the SWRCB, to further protect the topsoil:									

MM GEO-1: (cont'd) • **Grading and Preservation of Existing Vegetation** Existing vegetation shall be preserved to the maximum extent practicable. Clearing and grubbing shall only be performed in areas where new foundations, utilities, or internal access drives are planned. • **Soil Compaction** All soil compaction and subgrade preparation specifications will be per the site-specific recommendations of a California-licensed Geotechnical Engineer, and will be based on his field exploration prior to construction. Typically, trench backfill and subgrade compaction consists of either hand-held vibratory, rolled-drum equipment, or tracked equipment. Compaction would be 90 percent of maximum density as calculated by ASTM D1557 Modified Proctor. • **Hydroseeding** Disturbed areas will be seeded upon completion of construction in order to protect exposed soils from erosion by wind and water. Upon completion of an earth disturbance activity, disturbed areas shall be covered with a minimum uniform 70 percent perennial vegetative cover, with a density capable of resisting accelerated erosion and sedimentation. •	During construction	During construction	South Valley Water Bank Authority	Construction monitoring/ Field inspection					

MM GEO-1: (cont'd) • **Straw Mulch** Straw mulch will be used to temporarily stabilize disturbed areas until soil can be prepared for revegetation. Straw mulch will be anchored immediately after application to prevent being windblown. Straw or hay will be "crimped" into the soils by running tracked machinery across the surface. • **Non-Vegetative Stabilization** A non-combustible surface will surround the project site to function as a fire break as well as provide a stabilized surface for post-construction access. Non-vegetative stabilization methods, such as gravel mulch, will be used to provide a stabilized 12-foot wide access. • **Stabilized Construction Entrance/Exit** A stabilized construction entrance/exit will be maintained at each construction site entrance/exit to reduce tracking of sediment as a result of construction traffic. The entrance/exit will be constructed per the detail included with the Erosion and Sediment Control Drawings (ESCDs). • **Entrance/Outlet Tire Wash** Tire wash racks will be installed if soil and/or traffic conditions on-site require washing the construction vehicle wheels prior to exiting the site to avoid excessive tracking of mud onto the roadway.	During construction	During construction	South Valley Water Bank Authority	Construction monitoring/ Field inspection					

MM GEO-1: (cont'd) • **Stabilized Construction Roadway** The construction access route into the site will also be maintained to prevent erosion and to control tracking of mud and soil material onto adjacent roads. The ESCDs will specify the construction access locations. A regular maintenance program will be conducted to replace sediment-clogged stabilization material with new stabilization material as required. • **Street Sweeping and Vacuuming** Road sweeping and vacuuming will occur as necessary during construction to keep street surfaces clear of soil and debris. Washing sediment onto streets will not occur. • **Dust Control** During windy conditions (forecast or actual wind conditions of approximately 25 mph or greater), dust control will be applied to disturbed areas, including construction access roads, to adequately control wind erosion. Water will be applied to disturbed soil areas of the project site using water trucks as required by weather conditions to control dust. Water application rates will be minimized as necessary to prevent runoff and pooling from excess water.	During construction	During construction	South Valley Water Bank Authority	Construction monitoring/ Field inspection					

Hydrology / Water									
MM WAT-1: Project recovery wells will be designed to meet water quality criteria by the Bureau of Reclamation. Zone sampling will be performed at prospective well locations and observation wells will be used to evaluate water quality characteristics of aquifer units underlying the Project site.	During design and construction phase of recovery wells	Initially during construction phase and thereafter when replacing a recovery well.	South Valley Water Bank Authority	Water quality testing of recovery water at point of compliance. Technical Oversight Committee will recommend reporting protocol to the Authority and acceptable to Bureau of Reclamation.					
MM WAT-2: Well water returned to the FKC will be commingled in the 48-inch to 60-inch turnout before being discharged into the FKC. Based on the water quality characteristics of individual wells, a protocol will be developed to ensure that blending and mixing through the 4.5-mile long, 48 to 60-inch diameter conveyance to the FKC meets Reclamation's then-current water quality requirements. Ongoing sampling in accordance with Bureau of Reclamation's then-current water quality requirements will also be performed to ensure compliance.	Blending and control protocols will be developed after construction and testing of recovery well network.	During recovery operations in which banked water is returned to the Friant Kern Canal.	South Valley Water Bank Authority	Authority shall implement protocol recommended by the Technical Oversight committee and acceptable to Bureau of Reclamation for discharges to the Friant Kern Canal.					

MM WAT-3: Before Project recharge operations begin, a groundwater level monitoring program will be funded, designed and implemented by the Authority to establish a baseline to continue to evaluate potential well interference effects during recovery pumping operations. The program shall be designed by a certified hydrogeologist registered with the State of California and shall include a monitoring well layout and location plan based on stratigraphic conditions in the area of Project's recovery wells, consistent with the California Department of Water Resource's Sustainable Groundwater Management Program (December 2016) -- Best Management Practices (BMPs) for the Sustainable Management of Groundwater: Monitoring Protocols, Standards and Sites for monitoring well programs implemented under the Sustainable Groundwater Management Act (SGMA), which BMPs are found at: http://www.water.ca.gov/groundwater/sgm/pdfs/BMP_Monitoring_Protocols_Final_2016-12-23.pdf (as may be updated or amended). The program also shall integrate continuous data collection from manual readings and pressure transducers with data loggers for selected wells in the monitoring well network to identify possible well interference effects from Project recovery well pumping consistent with California Water Code sections 10726.4 and 10727.2. Further, monitoring wells at targeted aquifer depths shall be installed as part of the program to identify and avoid potentially significant well interference impacts from recovery pumping to any nearby well completed to within similar depth ranges. Monitoring wells shall be installed consistent with Department of Water Resources Bulletin 74-90, which supplements Bulletin 74-81. The monitoring program designed by the certified hydrogeologist shall require:	At initial design and construction of facilities to establish baseline conditions.	During recovery operations.	South Valley Water Bank Authority	Monitoring program to be implemented prior to initiation of recovery operations and continued throughout recharge and pumping phases.					

• Recordation of water levels in selected monitoring wells on a one (1) hour frequency to provide an accurate determination of Project area water levels before recovery pumping operations begin and by which to detect influences of other nearby operating wells. Transducer data from monitoring wells will be downloaded weekly for a one (1) month period before the start of recovery pumping operations to establish water levels in the area. • Recordation of water levels in selected monitoring wells on a fifteen (15) minute frequency during Project recovery pumping to provide an accurate determination of the Project's drawdown effects. Transducer data from monitoring wells will be downloaded weekly during Project recovery pumping operations. • Timely preparation of reports by the Authority that shall contain (1) water level hydrographs and tabulated water level data for each monitoring well both in the one (1) month before Project recovery pumping, and during Project recovery pumping operations, (2) tabulated groundwater recovery volumes from each recovery well during Project recovery pumping, and (3) documentation of drawdown effects on groundwater levels at each monitoring well. During recovery pumping, reports shall be prepared by the Authority									

weekly. Any interested party may request the reports and raw data in hardcopy and/or electronic format and the Authority shall comply within ten (10) business days. In addition to the monitoring data collected as described above, the Authority shall assess and integrate as applicable basin-wide monitoring data from the California Statewide Groundwater Elevation Monitoring Program (CASGEM) for the Tule Subbasin. A Technical Committee shall be formed by the Authority upon completion of Project construction and prior to initial recharge operations and shall be comprised of one (1) staff representative each from PID and DEID, and five (5) representative landowners within the Project sphere of influence appointed by the Authority's Board of Directors. The Technical Committee shall adhere to these protocols to (1) insure reasonable and sound data acquisition, (2) the timely review of claims, and (3) further minimization of identified significant well interference effects. The Technical Committee and Authority shall implement the following procedure for assessing and processing any claim received: • All such claims shall be submitted in writing to the Authority's Project Manager on behalf of the Technical Committee. At a minimum, a claim submitted to the Technical Committee shall comply with the Government Claims Act and shall provide information about the condition of the well and its casing and pumping equipment, and other information relevant to the claim.									

• The Technical Committee shall timely meet to review any submitted claim(s) for the further minimization of identified significant well interference effects. In no event shall the Technical Committee meet more than ten (10) business days after such claim has been received for further minimization to compensate for added lift, or more than three (3) business days after a claim has been submitted for further minimization of any identified inadequate suction head for operation of a well pump. • The Technical Committee shall evaluate any claim in conjunction with recorded and reported data under the groundwater monitoring program described above, as well as any necessary field verification efforts. • The Technical Committee shall make recommendations to the Authority Board regarding resolution of such claim and the recommendations to the Authority shall be made in writing no later than five (5) business days after the Technical Committee meets to consider such claim. • The Authority Board shall meet timely and as soon as reasonably practicable to review the Technical Committee's recommendations for such claim. The Authority Board also can meet and act in a special meeting									

(upon 24 hours public notice) to provide solutions to further minimize any identified significant well interference effects, if needed to address an exigent claim under the circumstances (such as a claim relating to alleged Project drawdown effects that result in inadequate suction head to operate a nearby well pump), before any Technical Committee recommendation is made for a significant well interference claim. Thresholds of significance requiring mitigation have been quantified with measures that shall be employed and implemented by the Authority, including through recommendations by the Technical Committee: < 10 feet induced drawdown. This degree of influence is considered reliably detectable, but generally not a significant impact for the Project setting. No action. Continue monitoring to determine whether Project influences may induce drawdown to next threshold level. >10 feet induced drawdown. This degree of influence may cause significant added cost in operating high capacity wells over an irrigation season. Added Lift:Authority shall timely compensate well owner for added lift no later than thirty (30) days after a claim is approved by the Authority Board. A written protocol for reasonable documentation and review of significant well interference claims will be developed and managed by the Technical Committee and approved by the Authority.									

>20 feet induced drawdown. This degree of influence may pose operational problems by reducing the margin between pumping levels and pump setting depths. Added Lift or Other Solutions:Authority shall timely compensate for added lift no later than thirty (30) days after a claim is approved by the Authority Board. Authority shall timely compensate well owner to lower a pump if induced drawdown by Project recovery wells results in inadequate suction head to operate well pump, or shall timely provide other solutions as identified below to reduce any significant well interference effects to a less than significant level. The Authority shall employ other measures to further minimize a significant adverse well interference impact resulting in inadequate suction head to operate well pump attributed to the Project recovery pumping to a less than significant level. Such measures, at the Authority's discretion, shall include, but are not limited to the following: 1. Reduce recovery pumping volumes or the rate of groundwater withdrawal, or shut off Project recovery wells to reduce well interference impacts to nearby wells, including reducing Project recovery pumping volumes as needed to avoid an impact resulting in inadequate suction head to operate a well pump, and extending the Project's recovery pumping operations beyond the target eight (8) month pumping period. 2. Supply well owner's parcel with a different source of equivalent quantity and quality water at no greater cost to an affected well owner, including from Project recovery pumping wells connected via above-ground pipes to the owner's parcel;									

3. Lower or replace a well pump; and/or 4. Replace a well.									

MM WAT-4: Special engineering techniques will be incorporated into the design of the recharge basin berms as would be recommended by the geo-technical report prepared prior to design to protect the recharge basins from 100-year flood related failure. Techniques may include shallower outside slopes with rock rip-rap, higher level compaction of berms, deeper key-ways at the outside toe of slope or other appropriate equivalent measures.	At initial design and construction of facilities	During Flood Events	South Valley Water Bank Authority						