



# **Report on Salton Sea Projects**

**Per requirements of AB 1095 (Garcia)**

**Prepared for the California State Legislature**

**California Natural Resources Agency**

**April 8th, 2016**

# TABLE OF CONTENTS

---

1	Introduction .....	1
1.1	Brief Background.....	1
1.2	Description of Salton Sea Management Program .....	2
1.3	Requirements of Assembly Bill 1095 .....	2
2	Projects .....	3
2.1	Salton Sea Restoration and Renewable Energy Initiative Water Delivery Infrastructure Project (Phase 1)5	
2.1.1	Background .....	5
2.1.2	Project Description .....	9
2.1.3	Project Status.....	9
2.1.4	Development of Cost Projections and Funding Sources.....	10
2.1.5	Schedule.....	10
2.2	Initiative Habitat and Air Quality Mitigation Project (Phase 1) .....	10
2.2.1	Background .....	10
2.2.2	Project Description .....	10
2.2.3	Project Status.....	11
2.2.4	Development of Cost Projections and Funding Sources.....	11
2.2.5	Schedule.....	12
2.3	Species Conservation Habitat Project (Phase 1).....	12
2.3.1	Background .....	12
2.3.2	Project Description .....	12
2.3.3	Project Status.....	12
2.3.4	Development of Cost Projections and Funding Source .....	13
2.3.5	Schedule.....	13
2.4	New River West (Modified Phase 2 Species Conservation Habitat Project) .....	13
2.4.1	Background .....	13
2.4.2	Project Description .....	13
2.4.3	Project Status.....	13
2.4.4	Development of Cost Projections and Funding Source .....	14
2.4.5	Schedule.....	14
2.5	Torres Martinez Wetland Project (Phase 2) .....	14
2.5.1	Background .....	14
2.5.2	Project Description .....	15
2.5.3	Project Status.....	15
2.5.4	Development of Cost Projections and Funding Source .....	15
2.5.5	Schedule.....	15
2.6	Financial Assistance Program Project .....	15
2.6.1	Red Hill Bay Project.....	15
2.6.2	Torres-Martinez/Salton Sea Authority Habitat Project .....	15
2.6.3	Sephton Water Technologies.....	15

# 1 INTRODUCTION

## 1.1 BRIEF BACKGROUND

Formed in 1905 when Colorado River flood waters breached an irrigation diversion structure and caused the river to temporarily flow into the then-dry Salton Sink, today's Salton Sea is only the latest in a long succession of waterbodies to occupy the area. At 350 square miles, California's largest lake is hydrologically connected to the Colorado River system and has been largely maintained since the 1905 event by irrigation water from agricultural production in the Imperial Valley. The historic Quantification Settlement Agreement (2003) provided California the means to implement water transfers and supply programs that allowed the state to live within its 4.4 million acre-foot basic annual apportionment of Colorado River water. Though long plagued by problems associated with its terminality—and resultant accumulation of salts, nutrients, and other impurities—the water transfers contained in the QSA meant a hastening of its ecological decline. Mitigation waters were provided for the Sea in the agreement, but are set to expire in 2017.



Figure 1: Map of Colorado River Basin

In response to growing concern about the impending and current deterioration of conditions at the Salton Sea, California Governor Edmund G. Brown Jr. in May 2015 created the Salton Sea Task Force to rapidly evaluate and take action to bring certainty to the Sea's future and develop a series of findings that would guide further action at the lake. To coordinate and facilitate the actions the Governor also created the position of Assistant Secretary for Salton Sea Policy within the California Natural Resources Agency (CNRA).

The Salton Sea Task Force issued their findings in November 2015, which called for the development of a Salton Sea Management Program that covered three major elements: sustainable habitat; air quality and potential private sector energy development. The Task Force also acknowledged that a successful program depends on the following three principles: 1) strong state, federal, and local partnerships; 2) clear and achievable milestones with state directed plans to achieve them; and 3) committed participation from all stakeholders who share the goals of protecting air quality, reducing habitat impacts, and maintaining a secure Colorado River Water Supply. Task Force

findings also contained a series of actions for implementation by the California Natural Resources Agency (CNRA) that included the development of a Salton Sea Management Plan with short and midterm goals for habitat and dust suppression projects, an improved public awareness and local partnerships program and an accelerated implementation of planning, permitting and construction.

## **1.2 DESCRIPTION OF SALTON SEA MANAGEMENT PROGRAM**

The Salton Sea Management Program has been developed by the CNRA as the mechanism to address the issues identified by the Task Force. The management program was developed as an adaptive program that can implement habitat and air quality projects in an incremental manner as site logistics and funding allow. It also recognizes the importance of preserving the potential for private sector renewable energy development in and around the Salton Sea. The Management Program has been developed to promote federal, state and local partnerships as well as stakeholder and public input as part of the process of developing the various habitat and air quality projects. To that end the State conducted a series of Agency Stakeholder meetings to discuss the development of the management structure for the program. A series of advisory committees were formed based on various aspects of the program, along with a Science Advisory Committee, as recommended by the Task Force. The advisory committees include:

- Science Advisory Committee
- Project Committee
- Environmental Compliance Committee
- Long Range Planning
- Funding Committee
- Air Quality Committee
- Outreach Committee

Each committee meets to discuss topics germane to their particular area of expertise and makes recommendations to the CNRA regarding the proposed projects. The Science Advisory Committee's tasks are to review the various elements of the Salton Sea Management program, evaluate science related issues and make recommendations to address data gaps and scientific issues related to the program. The Science Advisory Committee will interact with each committee as necessary to evaluate science related issues.

The Agency Stakeholder group also requested the development of a more comprehensive long range plan that would include the short and midterm project goals but also outline potential goals for long term management of the Salton Sea. The plan will consist of a series of related projects that can be implemented in an incremental manner over a period of time as dictated by site conditions and funding. It will also evaluate potential water treatment options, water import scenarios and other ideas that might contribute to a stabilized lake. A draft of the long range plan will be completed by the end of 2016. It was also agreed that the projects that would help meet the short and mid-term goals outlined by the Task Force be prioritized ahead of the long range plan to address the immediate habitat and air quality degradation at the Salton Sea.

## **1.3 REQUIREMENTS OF ASSEMBLY BILL 1095**

Assembly Bill 1095 (Garcia 2015) requires that the California Natural Resources Agency submit a series of "shovel ready projects" at the Salton Sea. AB 1095 defined shovel ready projects as projects that are either in final planning, environmental review or permitting phase.

This report outlines the projects that meet the criteria of AB 1095 and includes information regarding preliminary costs and schedule for the implementation of the projects. The project locations are noted on Figure 2, and project schedule matrix can be found on Figure 3. Some of the short and midterm projects that will be included in the Salton Sea Management Program's long range plan that meet the criteria of AB 1095 are presented in this report. Since the nature of the Salton Sea Management Program is incremental and adaptive, many of the projects presented here are the first phase of a multi-phased implementation approach that will change as design and construction methods evolve based on experiences with the first phase.

## 2 PROJECTS



Figure 2: Salton Sea Management Program Projects Locations

Preliminary Schedule AB 1095 Projects																						
Project	Tasks	Year	2016				2017				2018				2019				2020			
			Quarter				Quarter				Quarter				Quarter				Quarter			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SSREI Water Delivery Backbone (Phase 1)	Final Planning																					
	Construction plans and bid package	IID participating																				
	Env. documentation	Using existing documentation																				
SSREI Habitat and Air Quality Mitigation	Final Planning																					
	Construction design and Bid package																					
	Env. Documentation	Using existing documentation																				
SCH Phase I	Final planning	completed																				
	Construction design and bid package	Preliminary site prep. Completed - Powerline under construction																				
	Env. documentation	completed																				
New River West (SCH Phase2)	Final planning																					
	Construction design and bid package																					
	Env. documentation	Using existing documentation																				
Red Hill Bay (FAP project)	Final planning	completed																				
	Construction design and bid package																					
	Env. documentation	completed																				
Torres-Martinez (FAP project)	Construction																					
	Final planning	completed																				
	Construction design and bid package																					
Torres-Martinez Wetland Project Phase 2	Final planning																					
	Construction design and bid package																					
	Env. documentation	completed																				

Figure 3: Project Schedule Matrix

## **2.1 SALTON SEA RESTORATION AND RENEWABLE ENERGY INITIATIVE WATER DELIVERY INFRASTRUCTURE PROJECT (PHASE 1)**

### **2.1.1 Background**

The Salton Sea Restoration and Renewable Energy Initiative concept (Initiative) was developed by Imperial Irrigation District (IID) and Imperial County. The concept plan was completed in July, 2015. The Initiative was developed to provide an incremental approach to Salton Sea management that would better fit into site logistics and the funding and budget realities of the State and other agencies. It also concentrated on providing “no regrets” projects that would provide immediate habitat and air quality benefits and would not conflict with plans for development of renewable energy or with longer range management programs for the lake. Initially, the project concentrates on the south end of the lake because the greatest amount of playa exposure is located in those areas. Development of projects on the north end, described at the end of this report, require coordination with land owners in those areas and will be developed as feasible.

The Initiative was developed to be a multi-phased adaptive project. Development of each phase of the project will coincide with the exposure of additional playa at the lake. Each phase can be a stand-alone project that will function as habitat and air quality mitigation. Each phase is also designed to fit into the larger landscape of the multi-phased Initiative.

Each phase of the Initiative has two major components; a water delivery infrastructure system and habitat and air quality projects that will depend on the water delivery infrastructure. The habitat and air quality mitigation projects will be developed on the exposed playa below the elevation of the water delivery infrastructure. Therefore each phase of the water delivery infrastructure will be completed prior to the development of that phase’s habitat and air quality mitigation component (see Section 2.2).

The water delivery infrastructure will consist of some type of water storage ponds adjacent to the New and Alamo rivers. All of the infrastructure will have a similar utility – to deliver agricultural return flow water-- but may differ in the specifics of the design of each phase. Two potential design scenarios are illustrated in Figure 4 and 5; one depicts a cascading water storage system with each water storage pond at a different elevation and the other depicts a paired facility where the water storage structures are at similar elevations. While the Phase 1 system is similar in each of these two concepts, there are differences that will impact the construction design of Phase 1. It is important to understand the medium and long range potential concepts prior to development of Phase 1 construction plans to assure compatibility and flexibility. Figure 6 depicts the likely location of the conveyance channel and the storage ponds. The development of multiple phases of the water delivery infrastructure will also likely require a check structure in each river channel. The check structure will increase the water elevation in the river channel to accommodate higher water elevations in the water storage ponds. The check structure will also include design elements to pass high flow storm events. The design team is currently evaluating the potential to pump water from the New and Alamo Rivers for Phase 1 while the need and cost of an in-channel check structure is further evaluated.

The IID and Department of Water Resources – Division of Engineering (DOE) design team will also evaluate the potential to combine water storage and delivery with the other state funded projects at the Salton Sea. Red Hill Bay may be suitable for use as water storage for the water delivery infrastructure on the southwest side of the Alamo River. In that case, water will be pumped from the Alamo River into Red Hill Bay and discharged into a channel constructed along the top of the existing Salton Sea containment berm. The increased elevation of the water conveyance channel will provide additional hydraulic pressure that will enable more of the playa to be served by that channel. A similar situation of utilizing some of the infrastructure at the Species Conservation

Habitat project may also be practical. In both cases the designs must be developed in a manner that does not significantly delay the completion of the Red Hill Bay or Species Conservation projects.

The state will continue to coordinate with IID and other stakeholders on the development of the later phases of the Initiative water delivery infrastructure.

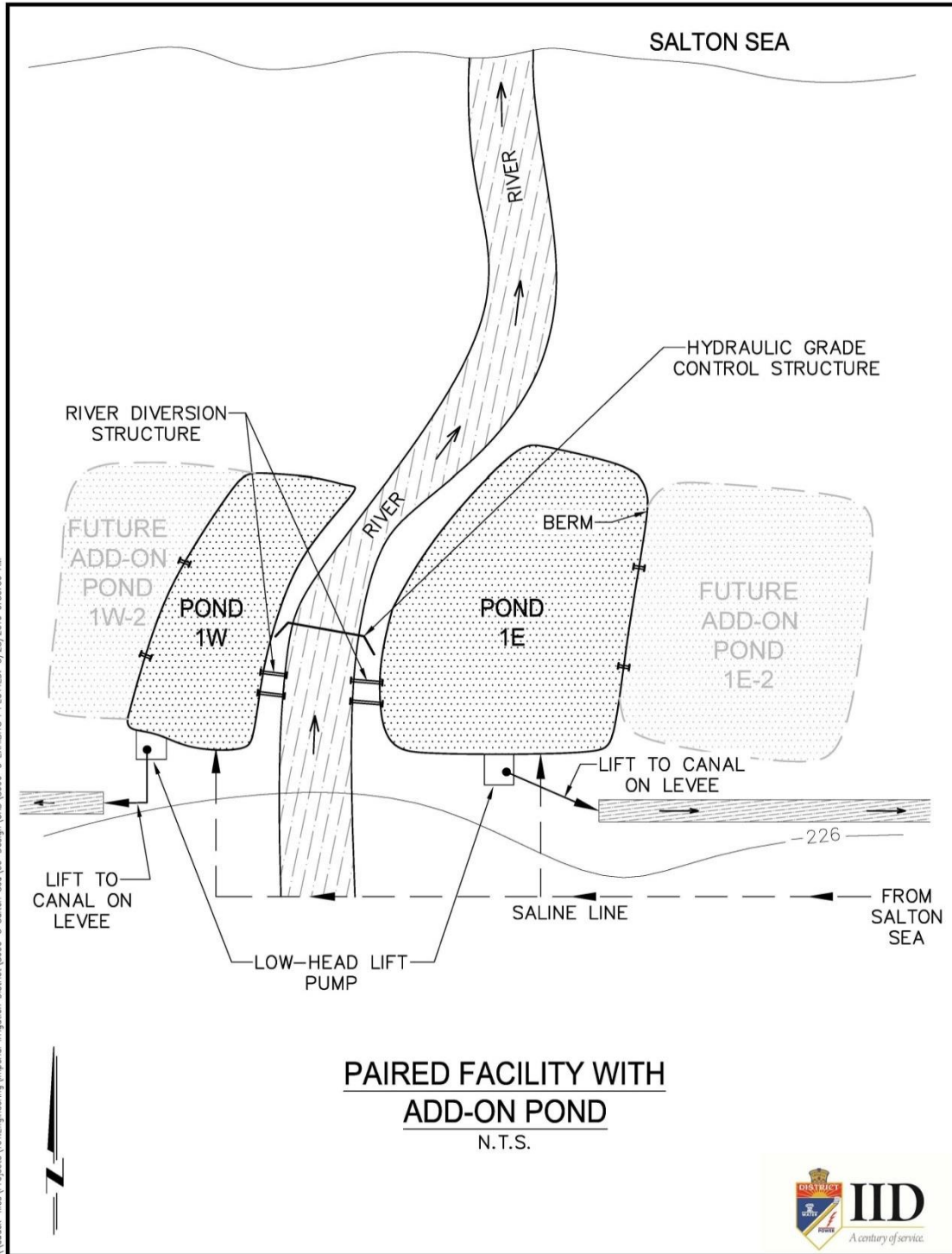


Figure 4: Paired Facility with Add-on Pond



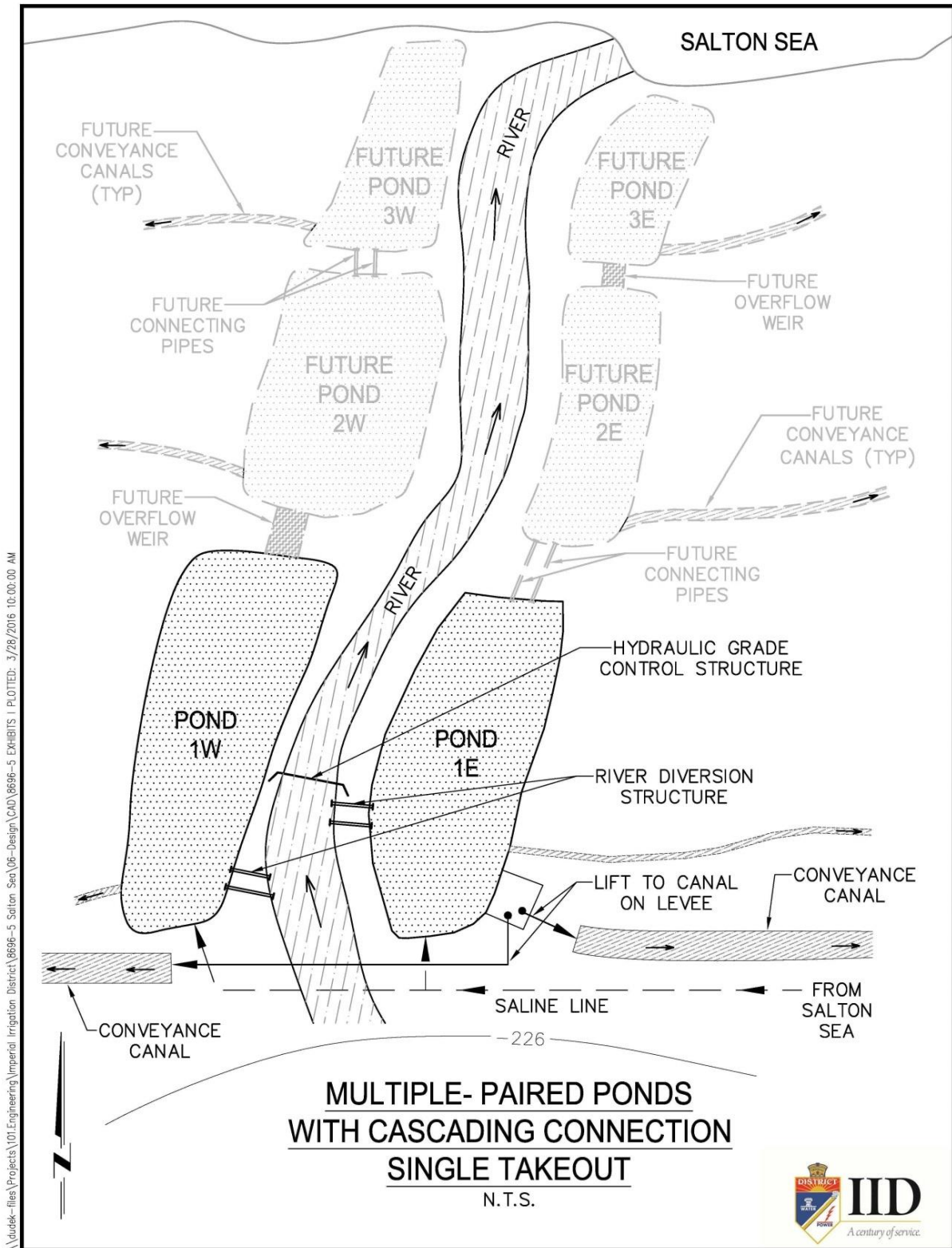


Figure 5: Multiple-Paired Ponds with Cascading Connection Single Takeout

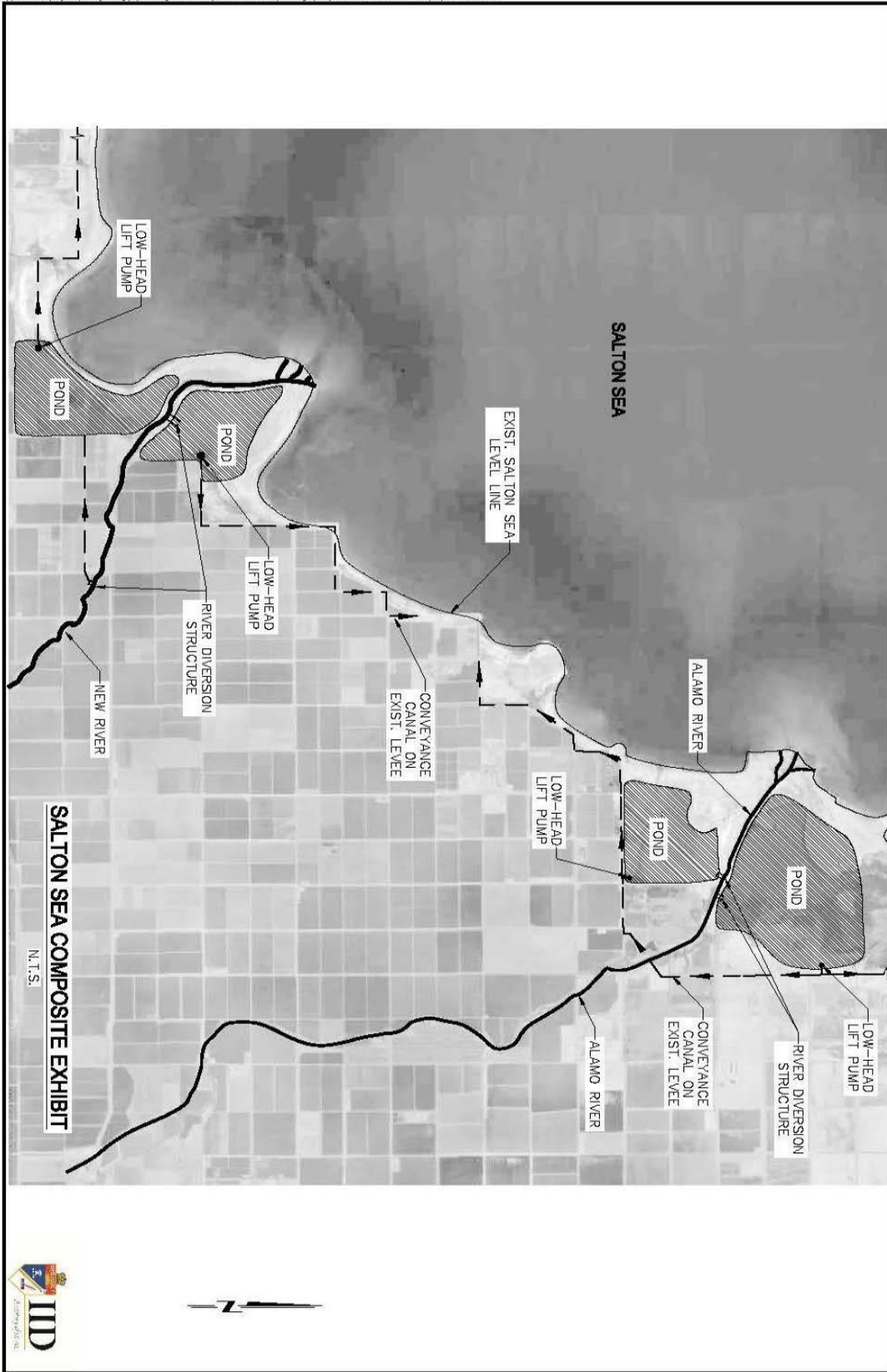


Figure 6: Composite Exhibit

### 2.1.2 Project Description

The Phase 1 infrastructure plan includes the construction of water storage ponds, water elevation management structures and a water delivery system (See Figure 6). Water storage ponds will be approximately 640 acres and store approximately 2,500 acre feet of agricultural return flow water from the river. The ponds will be located at the highest elevation practical because the function of the water storage facilities is less for actual storage of water and more as a means to provide a sufficient elevation difference to provide hydraulic pressure to facilitate gravity flow. The size and shape of the ponds will vary depending on site specifics. The water storage ponds will either have separate adjacent silt collection basins or will have a sediment basin incorporated into the pond itself.

Water storage pond berms will be constructed from onsite material to the extent practical. The berms will be armored or otherwise protected to reduce erosion. Each berm will have a vehicular access road along the top to facilitate maintenance. Final construction methods will be identified as part of the construction design; but, will likely be onsite fill material placed by excavators, bulldozers and/or scrapers and will be compacted to design specifications. Inflow and outflow gates will be specific to each reservoir.

As noted in the previous section, water delivery channels will also be located at the highest practical elevation. In the case of the Phase 1 infrastructure, water from the storage facilities may be pumped upslope slightly to the water delivery channel. A higher elevation channel will facilitate gravity feed of the habitat and air quality mitigation cells. It will also provide a ready water supply for incremental completion of cells as the playa is exposed. The channel may also have a series of check gates to allow for management of water elevations within the channel. Currently the design team is evaluating the potential losses in the channel from infiltration to determine if the channels will require lining.

The habitat project will require a source of saline water to maintain target salinity in the cells. The saline water delivery system will consist of a reverse slope channel from the Salton Sea to a collection basin located on exposed playa. A pipeline will be routed from the salt water collection pond to the water storage pond and saline water will be pumped into the water storage facility and mixed with the agricultural return flow water.

### 2.1.3 Project Status

IID is providing design assistance on the development of the water delivery system for the Initiative. California Department of Water Resources Division of Engineering (DOE) is coordinating with IID on the development of construction drawings for the water infrastructure delivery system for Phase 1 of the project. The design team is determining reservoir location and size and working on the details of the design requirements for the water delivery channel. The development of the construction level plans for Phase 1 will also include additional development of the concepts for the later phases of the Initiative.

DOE is working with IID to assure that the construction plans are developed to engineering standards compatible with IID's existing system and to a level satisfactory to the project operator/owner.

The State will to the extent practical, utilize the existing environmental documentation as part of the State's Salton Sea Management Program including the *Salton Sea Ecosystem Restoration Program Final Programmatic Environmental Impact Report* (SCH #2004021120 2007) and the *Final Environmental Impact Statement/Environmental Impact Report Species Conservation Habitat* (SCH #2010061062 July 2013).

The state is currently evaluating the existing permits and applicable environmental documentation and will determine any documentation gaps and the appropriate level of environmental permitting remaining. While we anticipate that some permitting will still be required, a significant portion of the analysis and required CEQA/NEPA documentation has been completed as part of the state's comprehensive evaluation of the

Ecosystem Restoration Program. Additionally, mitigation measures developed as part of the early evaluations and permit applications can likely be used as the basis for permits on the new project.

#### **2.1.4 Development of Cost Projections and Funding Sources**

IID and DOE are working toward the final stages of planning and are conducting feasibility analysis for Phase 1 of the water delivery system. Construction cost estimates will be prepared as part of the completion of the final construction plans. Funding for this project will be from the Proposition 1 funds currently proposed in the 2016 state budget.

#### **2.1.5 Schedule**

Construction level plans and specifications are anticipated in second quarter 2018 and final permitting should be completed in the same timeframe. Construction is anticipated for fourth quarter 2018.

## **2.2 INITIATIVE HABITAT AND AIR QUALITY MITIGATION PROJECT (PHASE 1)**

### **2.2.1 Background**

The Initiative also includes a habitat and air quality project component that will be designed and implemented by the State of California. As was noted in the Infrastructure backbone project description the habitat and air quality project will be developed to allow for utility corridors, well pads and other necessary access points; so as to not preclude the development of renewable energy resources by others. To the extent practical, the access points will be defined so that the habitat areas can be located with the necessary buffers and landscape compatibility. The first portions of the habitat and air quality mitigation program are likely to be located in the area between and/or adjacent to the New and Alamo rivers given that this area has the most exposed playa.

The project is designed to be implemented in an incremental manner as playa is exposed. Waiting until the habitat area is drier will reduce the construction challenges in some areas. However the project will also have flexibility to construct in wet areas if necessary using specific techniques. These techniques include low ground pressure equipment, ground matting and/or staging berm construction for equipment access. The construction process may also include the construction of an outer berm in wet areas and then dewatering the enclosed area to allow for access by more standard equipment.

Based on previous experience with similar projects (Wister Wildlife Management Unit, USGS salt pond project, an IID managed marsh project) the engineering standards for this project may be less than the standards for the Initiative Water Delivery Infrastructure project. The state will work with the other stakeholders and the project operators to evaluate the advantages of reducing the design standards (which reduces design and construction costs) against the level of project reliability necessary, human and property risk, sustainable wildlife habitat and operation and maintenance costs.

As was previously noted this project is also designed to be a “no regrets” project and would accommodate other longer range plans moving forward. Additionally this is the first of multiple phases of the Initiative that will be implemented – this initial implementation has been designed to be compatible with those future phases.

### **2.2.2 Project Description**

The habitat and air quality mitigation project will consist of a series of cells that will be flooded for wildlife habitat or managed for dust suppression. The habitat cells will be shallow water impoundments designed to provide habitat for shore and wading birds. The impoundments will consist of a series of short berms (1 to 4 feet high) that will form the perimeter of each cell. The cells will generally be rectangular in shape with the long axis of the cell parallel to the lake shore. The size of the cell will vary from approximately 30 to 100 acres with lengths of up to approximately 2500 feet and widths of 300 -1000 feet. The length and width will be dictated by

site conditions and the ability to effectively manage water elevations within the cells. The size of the habitat cells may be changed based on the effectiveness of the initially constructed areas.

In an effort to reduce earthmoving requirements each cell within a row will share common side berms with the cell to the right and left. Each subsequent row of cells will share a common berm with the cell immediately upslope. There will be areas where an access corridor is necessary (utility corridor, geothermal access, and discharge or inflow structures) that will require interrupting the rows of cells. The state is coordinating with IID, Imperial County and others to identify these areas and include them in the construction plans. However, it is likely that the location or number of access corridors may change and the project will also recognize that access corridors may become necessary in areas not previously identified which may require modification to constructed habitat cells.

Each habitat cell will have at least one water inlet and one water outlet. The initial row of cells (those closest to the original lake shoreline) will receive water directly from the infrastructure backbone (see Section 2.1). Subsequent rows of habitat cells will receive water from the upslope habitat cell, although additional water channels may be constructed to provide water directly from the Initiative Water Delivery Infrastructure to the downslope cells. Water elevation in the cells will be controlled by the adjustable outlet weir and the flow through volume will be controlled by the adjustable inlet weir. Generally the cells will be managed with approximately 6 inches of water at the shallow end (the shoreward end) and approximately 2 to 3 foot of water on the downslope side. Some cells may have deeper areas in some places as a result of excavation within the cell for berm fill material.

The cells will be managed with a salinity of approximately 20 parts-per-thousand (ppt) to reduce vegetation growth thus reducing the potential for selenium bioaccumulation. This will require a saline water inlet from the lake (See Section 2.1.2). To the extent practical the construction of saline inlets will be coordinated to allow multiple use of each inlet system.

Areas not designated for habitat cells will be evaluated for potential particulate matter emissions and if deemed emissive will be treated with a particulate matter suppression methodology. The evaluation process for determining additional procedures for evaluating emissive soils and the process for evaluating Best Available Control Measures is currently under development with the Imperial Air Pollution Control District and IID.

### **2.2.3 Project Status**

The project is in the final planning stage and analysis for construction level planning has been started. The State is coordinating with IID on the development of Phase 1 of the Initiative and will continue with the development of the Habitat and Air Quality Mitigation Project construction plans as the final decisions are made on the water delivery system.

The State is currently evaluating the existing permits and applicable environmental documentation (See Section 2.1.3) and will determine the appropriate level of environmental permitting remaining. While we anticipate that some permitting will still be required, a significant portion of the analysis and required CEQA/NEPA documentation has been completed as part of the state's comprehensive evaluation of the Ecosystem Restoration Program. Additionally, mitigation measures developed as part of the early evaluations and permit applications can likely be used as the basis for permits on the new project.

### **2.2.4 Development of Cost Projections and Funding Sources**

As the construction plans are finalized a project cost will be developed. Funding for this project will be from the Proposition 1 funds currently proposed in the 2016 state budget.

### **2.2.5 Schedule**

Construction level plans and specifications are anticipated in fourth quarter 2018 and final permitting should be completed in the same timeframe. Construction is anticipated for first quarter 2019.

## **2.3 SPECIES CONSERVATION HABITAT PROJECT (PHASE 1)**

### **2.3.1 Background**

The Species Conservation Habitat (SCH) project is designed as a proof-of-concept project in which several project features, characteristics, and operations will be tested under an adaptive management framework for approximately 10 years after completion of construction. The purpose of the project is to restore 640 acres of habitat for fish eating birds through the creation of ponds using a blend of New River water and Salton Sea water. The habitat area can be maintained past the 10 year proof of concept phase.

This project is the first of its kind to be constructed on the receding bed of the Salton Sea. The site presents numerous challenges that require innovative engineering approaches. Foundation soils beneath the proposed berms are weak, saturated and unpredictable. The material used to construct the water retention berms is sourced locally (to reduce costs) and is less than ideal. Water seepage potential through and under the berms is unknown. Water quality management has significant challenges. Riprap is essential to protect the berms from wind-driven waves but the source of that material is distant. For all of these reasons Phase 1 SCH is an expensive project for the number of acres of habitat created. The design team expects that costs per acre should fall once we determine how the project performs and then are able to fine tune the construction methodology.

The construction plans and specifications were prepared by Cardno Inc., Ducks Unlimited, Hultgren-Tillis, O'Day Consultants, and Dexter Wilson Engineering (Consultants). DWR's Division of Engineering (DOE) will implement the project. DOE will review the design information, finalize the contract documents, issue the contract, and manage the construction of the SCH Project and the Consultants will remain the Engineers of Record for the project. IID will also participate in the construction management process.

### **2.3.2 Project Description**

The SCH project consists of the construction of berms and levee improvements to impound a 640-acre pond with islands and deep water channels for habitat features. The cost associated with building water retention berms is closely dependent on performance level to which they are designed. The State agrees to accept a level of performance risk in order to keep construction costs "reasonable." Structural failure, while not a desirable outcome, would not result in impact to life and property. Therefore, water retention berms will be constructed using local material adjacent to the berm footprint. The berms will be wide and flat, providing better long term stability and habitat values. Water depths are expected to range from a few inches to six feet deep. Additional facilities include river and saline water pumping facilities and force main pipelines, agriculture drainage pump improvements, water control structures, boat ramps, access gates, and predator gates and fencing. The project will be operated at a salinity that is intended to support tilapia populations while limiting selenium bioavailability and mosquito production. Lessons learned from this project are intended to be applied on a larger scale as the State implements the Salton Sea Management Plan.

### **2.3.3 Project Status**

DOE is currently reviewing the Consultants' plans and specifications. Provided there are no further changes to the project scope, construction notice to proceed is anticipated for January 2017.

### **2.3.4 Development of Cost Projections and Funding Source**

The construction contract is estimated at approximately \$27 million. Proposition 84 and Proposition 50 are the primary funding sources for this project.

### **2.3.5 Schedule**

The project is estimated to be advertised in early October 2016, awarded in January, 2017, and Notice to Proceed is anticipated in mid to late January. This is contingent on the project proceeding without scope changes.

## **2.4 NEW RIVER WEST (MODIFIED PHASE 2 SPECIES CONSERVATION HABITAT PROJECT)**

### **2.4.1 Background**

On August 5, 2013 the Secretary for Resources signed the Notice of Determination for the Species Conservation Project EIR/EIS. The EIR/EIS identified a 3,770 acre preferred alternative for developing aquatic habitat on the exposed playa at the mouth of the New River. The project, proposed in phases, has two goals:

- a. Develop a range of aquatic habitats that will support fish and wildlife species dependent on the Salton Sea.
- b. Develop and refine information needed to successfully manage the SCH Project habitat through an adaptive management process.

The first 640 acres of SCH habitat is expected to begin construction in early 2017 with funds from Proposition 84. The details of Phase 1 SCH are described above. Because the larger 3,770 acre preferred alternative is CEQA/NEPA certified and permitted, additional funding resources can be translated into additional on-the-ground aquatic habitat acreage relatively quickly thereby providing dust control and wildlife habitat.

### **2.4.2 Project Description**

The New River West project includes the construction of impounded aquatic habitat on the west side of the New River largely within the footprint of the SCH preferred alternative. The technique of impounding water with earthen berms will be replicated from the Phase 1 SCH; however the water depth within the ponds may be shallower to maximize playa coverage with less water. As with Phase 1 SCH, the water will be a blend of New River water with salt water supplied from the existing saline pump station either directly through pipeline delivery or via Phase 1 infrastructure. This will minimize plant growth in and around the ponds thereby limiting selenium uptake into the food web. The salinity will also work to directly sequester selenium in the pond sediments and reduce mosquito reproduction. The footprint of Phase 2 will extend beyond the boundaries of the SCH preferred alternative footprint and farther toward the receding Sea's edge. The project will be built on the drying playa.

As with the above projects, the New River West project is designed to be integrated with the State's Salton Sea Management Program and the long range planning effort. The New River West project can be used as the first phase of the Perimeter Lake project. The project may also include a series of demonstration berms that will evaluate various berm construction techniques in specific site conditions (similar to Phase 1 SCH except in wet conditions). These berms will be located so they can be utilized as part of the overall impoundment system for future cells or ponds.

### **2.4.3 Project Status**

Phase 1 of the SCH Project has been fully engineered with plans and specifications. The entire 3,770 acre preferred alternative has also been through the CEQA/NEPA review process and has obtained its necessary

permits. Because New River West is largely encompassed within the footprint of the preferred alternative, the State is able to move this project into the design phase quickly. DWR's Division of Engineering will collaborate and coordinate with the Salton Sea Authority who has been developing similar concepts associated with the Salton Sea Perimeter Lake Concept. DWR engineers have begun the collaborative process through a series of technical project briefings from TetraTech Engineers, the consulting engineers to the Salton Sea Authority. These concepts can be adapted and integrated with the SCH Phase 1 design elements to create the Phase 2 ponds in the future.

#### **2.4.4 Development of Cost Projections and Funding Source**

Construction cost estimates will be developed during the final design phase. Benchmark costs for berm construction, water supply pipelines, and pumps have already been developed for Phase 1 SCH. Because the berms are expected to impound shallower water in Phase II, berm construction cost should be less. Water supply costs may be reduced by using existing supply infrastructure built for Phase 1 SCH. Details have not yet been developed.

#### **2.4.5 Schedule**

Construction plans and specifications are anticipated at the end of 2018. Environmental clearance and permitting should be completed by the same time. Construction is expected for 2019 or 2020.

## **2.5 TORRES MARTINEZ WETLAND PROJECT (PHASE 2)**

### **2.5.1 Background**

The Torres Martinez Wetlands Project was originally constructed in the 2005 timeframe. The project, funded by the USEPA, involved permitting with the USACOE, the EPA, and the Coachella Valley Water District, design, construction, well drilling, and the development of a detailed operation and management plan. After the initial construction of seven 1-acre sedimentation cells and two habitat cells (Ponds 1 and 2), two additional cells were developed for habitat for wading shorebirds (Ponds 3 and 4) for a total wetland area of about 55 acres (See Figure 2). Water for the project was pumped from the Coachella Valley Stormwater Channel (which serves as an extension of the Whitewater River into the Salton Sea), and distributed throughout the project with pipes and valves. Construction was in shoreline and playa sediments, in conditions that ranged from dry to almost saturated.

Ponds 1 and 2 were functioning wetlands for several years and hosted a wide range of bird species. Pond 3 was wetted briefly and Pond 4 was never functional. Water was supplied from a trailer mounted pump with a flex head that was moved in and out of the Stormwater Channel. After several years of operation, a storm washed away the pump and the wetlands fell into disrepair for several years.

The California State Financial Assistance Program (FAP) and a grant from USEPA provided funding to refurbish the wetlands. The Phase 1 Project, which is nearing completion, includes clearing brush from Ponds 1 and 2, developing a new source of water by refurbishing an existing well and installing a new pump and installing a small photovoltaic solar array to power the pump. Environmental documentation was prepared to cover a larger project that included a solar array of up to 10 acres. Environmental documents included an Initial Study and Mitigated Negative Declaration, a Biological Study, and permits. The CEQA documents were filed and a Notice of Determination was received. The project was scaled back because of funding limitations and updated documents were prepared to cover the limited scope.

The Phase 1 Project was accomplished by the Salton Sea Authority and their consultants Tetra Tech and AMEC-FW, in partnership with the Tribe. This same team will be responsible for implementing Phase 2.



### **2.5.2 Project Description**

The TM Wetland Project Phase 2 will pick up where the FAP project ends. The new pump and existing well have capacity to maintain Ponds 1 and 2 on a year-round basis, but only supply water to Ponds 3 and 4 on an ephemeral basis. Under the Phase 2 Project, a second source of water will be developed to fully irrigate the system on a year-round basis. The new water source will either be from installation of a new shallow well with additional solar arrays to power the pump or will utilize water from the Stormwater Channel under an existing encroachment permit that allows the Tribe to withdraw 200 AFY. In addition, Ponds 3 and 4 will be re-contoured to provide nesting islands and nesting and roosting platforms will be installed. Additional improvements will include repairs to the berms around Ponds 2, 3, and 4 and possible habitat rehabilitation in adjacent areas by using either groundwater or discharged water from the wetland ponds to support the establishment of the desert trees and bushes.

### **2.5.3 Project Status**

The environmental documentation and permitting of the amended project is complete; any required environmental document updates and bid packages could be accomplished in 2016 with construction in 2017.

### **2.5.4 Development of Cost Projections and Funding Source**

The construction contract is estimated at approximately \$1.5-2 million. Proposition 84 is the primary funding source for this project. In addition, this State funding could fully qualify for a Federal match through the USACOE funding under the Tribal Partnership Program.

### **2.5.5 Schedule**

Final design and permitting amendments can be completed in 2016 and construction is planned for 2017.

## **2.6 FINANCIAL ASSISTANCE PROGRAM PROJECT**

On September 2013, DWR executed three grant agreements with the Salton Sea Authority, the US Fish and Wildlife Service, and the Imperial Irrigation District for a total of \$3 million of awarded funds. Two of the projects are under construction and one is in its final phase of planning.

### **2.6.1 Red Hill Bay Project**

The US Fish and Wildlife Service was awarded a grant for the Red Hill Bay project. The Service has completed all of its permits and environmental documents. A playa ground breaking ceremony was held in November 2015. The final design is not completed for all parts of the project, but construction has started on some of the berms necessary to embank water onto the playa to create habitat.

### **2.6.2 Torres-Martinez/Salton Sea Authority Habitat Project**

The Salton Sea Authority was awarded a grant to rehabilitate 50 acres of wetland on tribal land at the north end of the Sea and to test GeoTube® embankment technology for the creation of 20 acres of habitat. The GeoTube® portion of the project was abandoned and all awarded funds will be used for the rehabilitation of the 50 acres of wetland. The permits and environmental documents for the wetland rehabilitation have been completed. A ground water pump has been installed and clearing of the project site is underway. This project is the based for the Phase 2 project noted above (See Section 2.5 Torres-Martinez Project Phase 2)

### **2.6.3 Sephton Water Technologies**

IID was awarded a grant for the "Salton Sea Water Habitat Pilot Project." The CEQA documentation has been finalized, but needs to be executed and filed. This project aims to create habitat at the Salton Sea through desalination using the combined energy from "waste" steam generated by geothermal facilities and constructed solar ponds. Construction of the ponds has not yet begun.