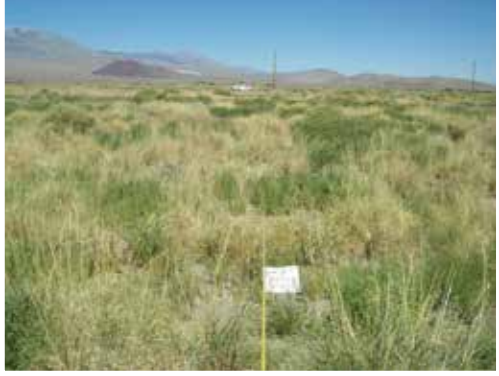

Owens Valley Revegetation Projects

LADWP Aqueduct Section | Bishop, California
Public Report 2021

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LA DWP

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Introduction

The Los Angeles Department of Water and Power (LADWP) is committed to revegetating approximately 1,100 acres in the Owens Valley that were previously impacted by the City's past surface and groundwater diversions. These lands were affected by the cessation of irrigation on abandoned agricultural lands, or from groundwater pumping. Mitigation of these areas is identified in the 1991 Environmental Impact Report, Water from the Owens Valley to Supply the Second Los Angeles Aqueduct 1970-1990, 1990 Onward, Pursuant to a Long -Term Groundwater Management Plan (1991 EIR) (LADWP and County of Inyo 1991) and the 2003 Irrigation Project in the Laws Area (Laws Type E Transfer) (LADWP 2003).

Goals and success criteria for sites identified in these documents are further described in the 1999 Revegetation Plan for Impacts Identified in the LADWP, Inyo County EIR for Groundwater Management (1999 Revegetation Plan) (ICWD 1999) and Revegetation Plans for Lands Removed from Irrigation Laws Parcels 90, 95, and 129 and Abandoned Agricultural Land Parcel 118 (2003 Laws Revegetation Plan) (LADWP and ICWD 2003). The overall goals of these projects are "to restore the vegetation type that previously existed, to establish perennial vegetation comparable to nearby areas, or to revegetate with other native Owens Valley species" (1991 EIR).

Under the 1991 EIR and Type E Transfer, LADWP has 20 revegetation projects in the Laws, Bishop, Big Pine, Tinemaha, Blackrock, and Independence areas with varying goals for percent vegetative cover and species composition. To date, LADWP has fully implemented and made progress on all of these projects. Of these,

- 7 projects have met both percent cover and species composition requirements
- 6 have met either percent cover requirements or species composition requirements (but not yet both)
- 7 are fully implemented but have not yet met goals.

Native revegetation in the harsh, arid conditions of the Owens Valley is understood to require a considerable amount of time, particularly to establish self-sustaining vegetation communities. Abandoned agricultural sites present additional challenges – they are often left with little to no perennial vegetation, lack a sufficient seed bank to naturally promote recovery onsite, have incurred loss and/or modification to soil, and can be largely affected by cultivation history and post-cultivation land use. Recovery of these sites can be dependent on both site-specific characteristics and temporal influences such as precipitation patterns. Precipitation is limited in the Owens Valley, and periods of high precipitation are infrequent which can impede the establishment of seedlings. In a study on the recovery and natural succession of 40 previously cultivated sites abandoned for 29-80 years in the Owens Valley, McLendon et al. concluded that the estimated time required for full recovery (without assistance) averaged 148 years. Further, most cultivated sites would require 100-250 years for full recovery, which is comparable to rates reported for other arid and semiarid shrubland ecosystems (McLendon et al. 2012).

The 1999 Revegetation Plan established success criteria for LADWP' revegetation projects, yet acknowledged that these dryland revegetation goals were expected to take over 15-20 years to achieve, especially if activities were ongoing. Further, it was noted that "short-term irrigation may be necessary for establishing plants, but long-term survival should be independent of supplemental water." Similarly, the parcels to be remediated under the 2003 Laws Revegetation Plan were not intended to be irrigated long term. Success criteria for these parcels was to be sustained two years past any onsite revegetation activities.

Since development of the 1999 Revegetation Plan, LADWP has implemented both passive and active restoration methods at these sites. The sites were first fenced to reduce disturbance (passive restoration) in the late 1990's as the initial plan of action to promote natural recovery. A series of revegetation, irrigation, and soil characterization studies were performed in the early 2000's by Science Applications International Corporation (SAIC) (SAIC 2001, 2002, 2004) and Montgomery Watson Harza (MWH) at several of the sites to narrow the scope of practical and effective methods of revegetation in the Owens Valley. Since then, LADWP has broadcast and drill seeded sites throughout the valley with a variety of native seed mixes, incorporated soil amendments to improve soil conditions, applied mulch to retain moisture and prevent wind erosion, and has also experimented with various irrigation methods. Success from these efforts has been mixed and largely based on individual site characteristics, soil conditions, seed availability, and precipitation.

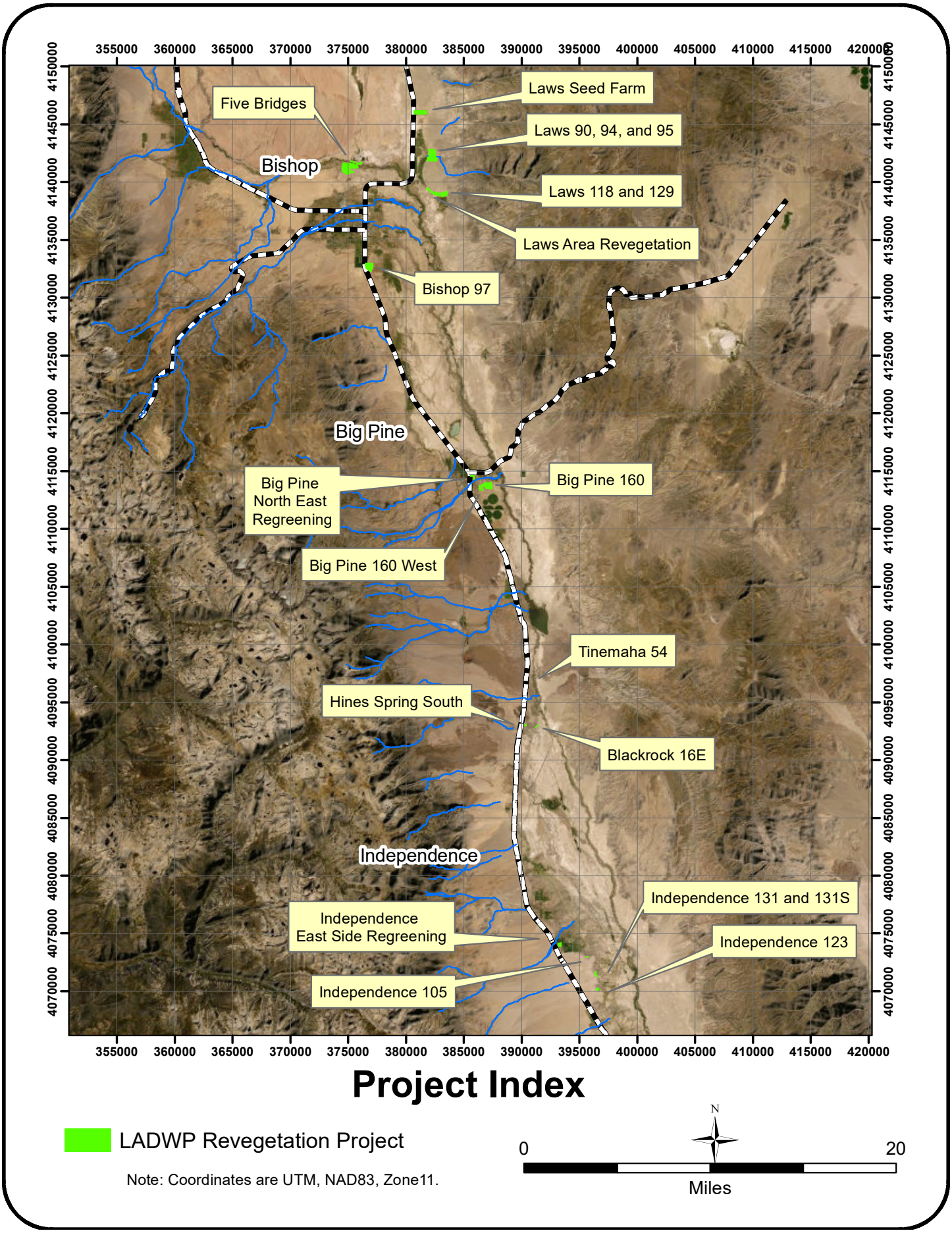
Since the mid 2000's, LADWP has shifted its efforts toward more aggressive active revegetation efforts, transplanting a large volume of native containerized plants grown in LADWP greenhouses across the projects to more expeditiously meet revegetation commitments. LADWP has prioritized revegetation efforts in approximately 400 acres of abandoned agriculture parcels in the Laws area over the past several years and has made considerable progress toward revegetation goals at those sites.

Presently, LADWP operates two commercial greenhouses at their Bishop, California location and produces up to 36,000 native plants annually for the City's revegetation

Introduction

commitments in the Owens Valley. LADWP Watershed Resources and Construction staff (with assistance from Calfire) implement two large-scale planting efforts annually (each spring and fall) to meet mitigation goals. Once planted, LADWP surrounds all native seedlings with protective biodegradable cages to guard against rodent herbivory and wind shear. In addition to employing the methods described in the 1999 Revegetation Plan and the studies conducted in the early 2000's, LADWP has also integrated newer innovative revegetation methods such as the Cocoon Planting System in some locations; this technology allows for shrubs to grow in arid environments with a temporary reservoir and does not require additional irrigation post planting.

Achieving the desired vegetation cover and species composition at these sites has proven to be extremely challenging in some areas, as is common in dryland revegetation (particularly on abandoned agricultural lands as discussed above). However, LADWP's diligence and efforts are promising. LADWP is committed to working toward the prescribed revegetation goals until the City's environmental commitments in the Owens Valley are met. The following pages illustrate actions taken and progress made at each of LADWP's 20 revegetation sites in the Owens Valley.



Project Index

LADWP Revegetation Project

Note: Coordinates are UTM, NAD83, Zone11.

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1 Big Pine Area Revegetation Project

Legal Reference: 1991 EIR Impact 10-19	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-19: Water management practices in a portion of the Big Pine Well Field have resulted in a significant adverse change and decrease of plant cover.	A revegetation program will be implemented for approximately 160 acres within the Big Pine area, which have lost all or part of its vegetation cover due to increased groundwater pumping or to abandonment of irrigation as part of operations to supply the second aqueduct.

Success Criteria	Met goal?	
Cover	16% live perennial cover	No (10%)
Composition	**8 native perennial species**	✓

Degraded conditions at the 160-acre Big Pine Area Revegetation Project resulted from abandoned agriculture and the cessation of irrigation. To reduce disturbance and promote natural vegetation recovery of this site, LADWP fenced the perimeter of this site 1998. This site was repeatedly vandalized during initial efforts with fence cutting and off-highway vehicle use within the project area. These events impaired early reclamation.

Permanent vegetation transects were established in 1999. Mulch was applied to the site in 1999 and soil microbial studies were conducted in 1999, 2003, 2004, and 2005 by Montgomery Watson Harza (MWH). LADWP drill seeded the site in Spring 2011, Winter 2014, and most recently in Fall/ Winter 2015/2016 (see photo). These seeding efforts were timed to optimize benefit from precipitation events. Seed germination from the 2015/2016 seeding efforts was largely successful at this site. Additionally, some natural recruitment is occurring along the perimeter of the site. LADWP also planted 100 greasewood shrubs utilizing the Cocoon Planting System (see photo) in Fall 2018. This technology allows for shrubs to grow in arid environments with a temporary reservoir and does not require additional irrigation post planting.

Revegetation monitoring transects were most recently run in 2019. At that time, the parcel contained 10% native perennial vegetation cover with 11 native species. Perennial species currently on site include rubber rabbitbrush, Torrey's saltbush, fourwing saltbush, shadscale, winterfat, greasewood, cattle saltbush, big sagebrush, white bursage, and black locust. The project has obtained its species composition goal. There has been a significant upward trend in vegetation cover following the 2017 and 2019 precipitation years. This project has been fully implemented and has attained its composition goal but has not yet attained its cover goal.

Big Pine Area Revegetation Project, Transect 4.7 (October 4, 1999) – pre-project conditions.

Big Pine Area Revegetation Project, Transect 4.7 (August 6, 2019).

Greasewood seedling in Cocoon Planting System used at Big Pine Area Revegetation Project (April 19, 2019).

Drill seeding of the Big Pine Area Revegetation Project (January 22, 2016); note tractor in photo for project size reference.

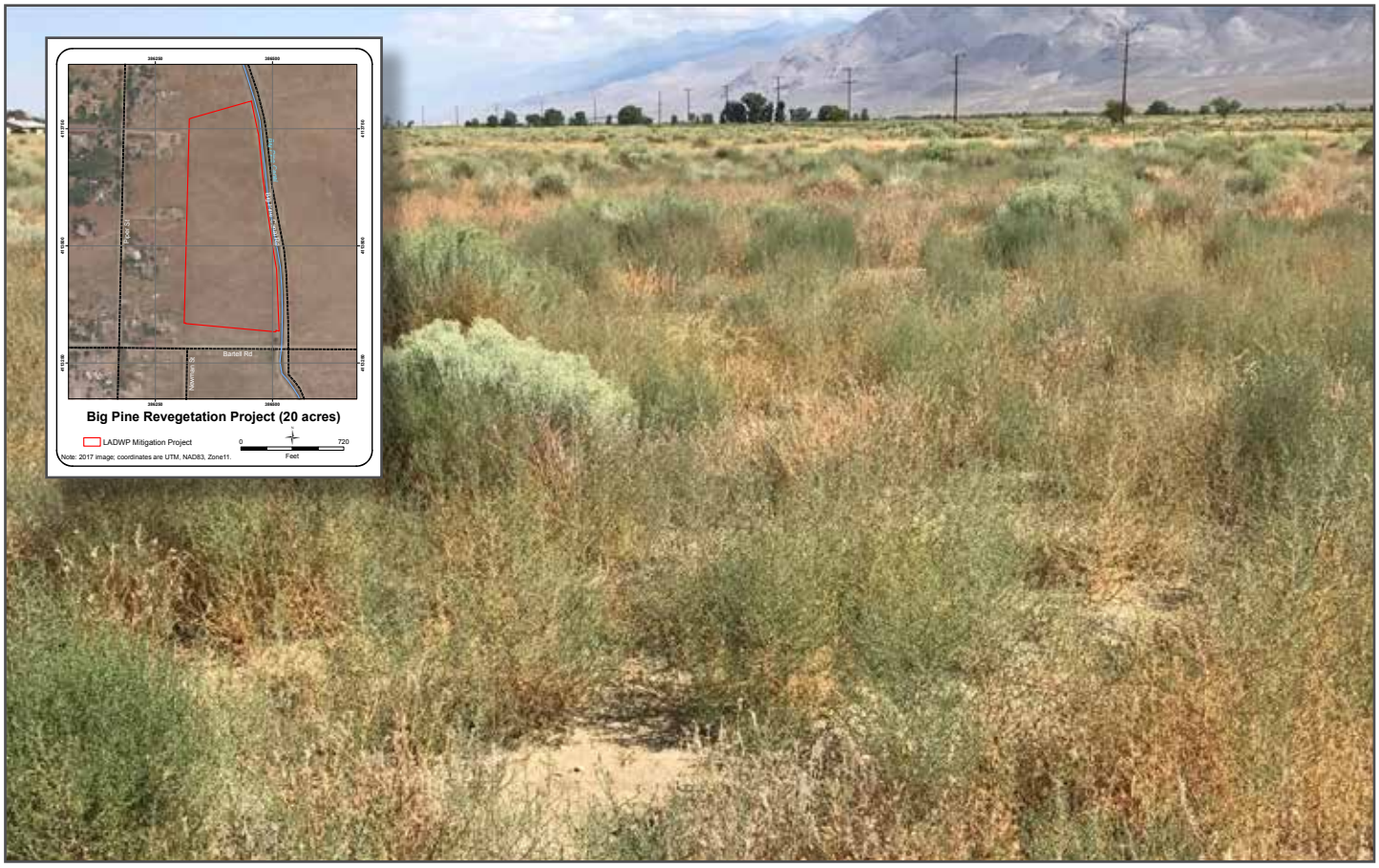
Big Pine Area Revegetation Project, looking east (June 25, 2021).

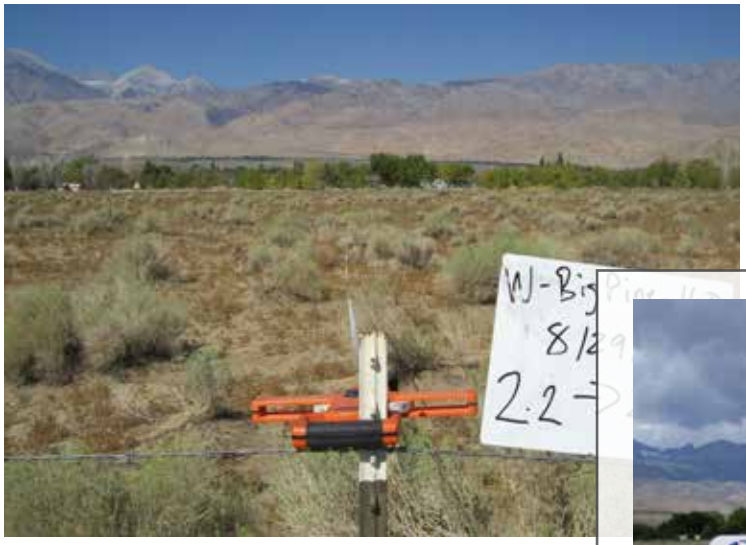
2 East Big Pine Area Revegetation Project

Legal Reference: 1991 EIR Impact 10-19	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-19: Water management practices in a portion of the Big Pine Well Field have resulted in significant adverse change and decrease of plant cover.	An area of approximately 20 acres directly to the east of Big Pine that is poorly vegetated as a result of pre- project activities and activities which are not a part of the project will be evaluated as a potential enhancement/mitigation project. If, in planning this project, it is determined that it is not feasible to permanently irrigate this area, a revegetation program will be implemented.

Success Criteria	Met goal?	
Cover	16% live perennial cover	No (2.4%)
Composition	8 native perennial species	No (3 Species)

Conditions at the 20-acre East Big Pine Area Revegetation Site are also a result of abandoned agriculture. This site was fenced to reduce disturbance and promote reestablishment in 2007. In February 2014, LADWP crews seeded approximately 3 acres of this area with a native seed mix in conjunction with the adjacent 160-acre Big Pine Area parcel. Approximately 18 acres were drill seeded using native shrub seed mix during Winter 2015/2016 (see photo). Seed germination from the 2015/2016 seeding efforts was moderately successful at this site and there is some natural recruitment also occurring. As of 2019, the parcel contained 2.4% native perennial vegetation cover with 3 native species. Perennial species currently on site include rubber rabbitbrush, fourwing saltbush, and cattle saltbush. LADWP reseeded this site again in March 2021. This project is fully implemented but has not yet attained goals.





East Big Pine Area Revegetation Project (20 acre), Transect 2.2 (August 29, 2016).

East Big Pine Area Revegetation Project (20 acre), Transect 2.2 (August 8, 2019).

Drill seeding of the East Big Pine Area Revegetation Parcel (March 10, 2016).

East Big Pine Area Revegetation Project (20 acre) (June 25, 2021).

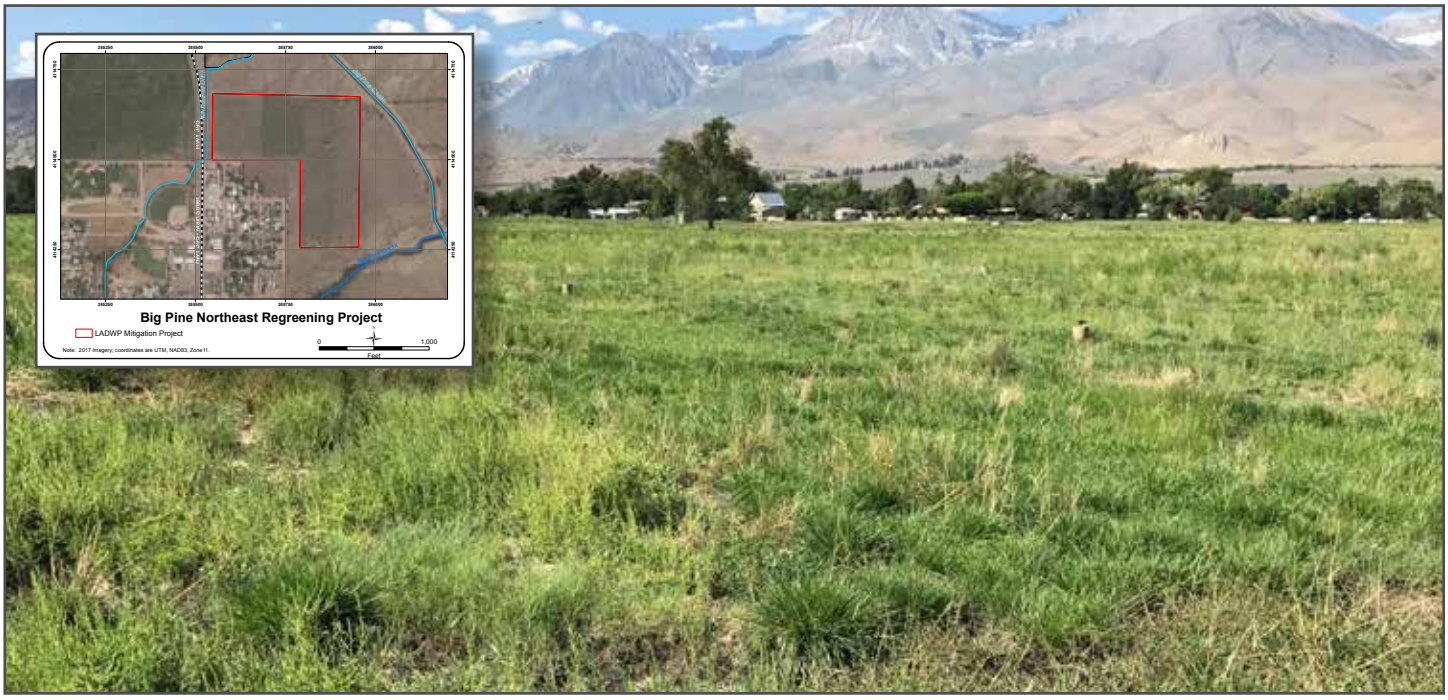
3 Big Pine Northeast Regreening Project

Legal Reference: 1991 EIR Impacts 10-11 and 10-19, EIR Table 5-3	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands. 10-19: Water management practices in a portion of the Big Pine Well Field have resulted in a significant adverse change and decrease of plant cover.	10-11: In the near future, two enhancement/mitigation projects will be initiated to mitigate areas affected by groundwater pumping adjacent to the towns of Independence (east side regreening project) and Big Pine (northeast regreening project). Each project was originally planned to be approximately 30 acres of irrigated pasture. 10-19: LADWP and Inyo County will implement the Big Pine Regreening enhancement/mitigation project by establishing irrigated pasture on approximately 30 acres to the north and east of Big Pine.

*Also evaluated in the Big Pine Northeast Regreening ND (2011).

The Big Pine Northeast Regreening Project was designed to enhance the aesthetics and regreen abandoned agricultural lands adjacent to a residential area in Big Pine. It was originally considered categorically exempt in 1988, however the Inyo/Los Angeles Standing Committee approved a revised scope of work for the project as an Enhancement/ Mitigation Project under the 1991 EIR in November 2010. This revised scope modified the boundaries of the project and amended the water supply source. As revised, the project is supplied with up to 150 AF of water per year through sprinkler or flood irrigation, and surface water supplied to the project will be made up by pumping W375 in an amount equivalent to that supplied to the project on an annual basis. Following approval of LADWP's Initial Study and Negative Declaration for the project in 2012, the Owens Valley Committee and the Big Pine Paiute Tribe brought a lawsuit against LADWP challenging the adequacy of the evaluation based on the use of W375 for makeup water for the project. This suit was settled in November 2012.

Installation of the irrigation system for this project occurred in Winter 2013/2014. The Big Pine Northeast Regreening Project was fully implemented in Spring 2014. The project does not have specified percent cover or species composition requirements but is evaluated as an irrigated pasture. It is managed by LADWP's lessee. The project is implemented, meeting goals, and ongoing with an annual water commitment provided by LADWP as required.



Big Pine NE Regreening Project Site (November 15, 2010) – pre-project conditions.

Big Pine NE Regreening Project Site (June 27, 2014) – post implementation.

Big Pine NE Regreening Project Site looking east (July 8, 1988) – pre-project conditions.

Big Pine NE Regreening Project Site looking east (June 27, 2014) – post implementation showing sprinkler irrigation.

4 Bishop Area Revegetation Project

Legal Reference: 1991 EIR Impact 10-16	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-16: Approximately 1,080 acres of formerly irrigated lands had not successfully revegetated following the abandonment of agriculture. This was a significant adverse impact because these lands had a loss of vegetation and were the source of blowing dust.	120 acres of formerly irrigated land near Bishop with a loss of vegetation cover will be revegetated. The process to successfully revegetate these lands will be determined through studies to be conducted by LADWP and Inyo County. These lands will not be permanently irrigated, but will be revegetated with Owens Valley vegetation not requiring irrigation except perhaps during its initial establishment. Depending on the amount of rainfall and runoff, successful revegetation of these lands could take a decade or longer. The goal will be to achieve as full a vegetation cover as is feasible, but at a minimum, a vegetation cover sufficient to avoid blowing dust.

Success Criteria	Met goal?	
Cover	**14% live perennial cover**	✓
Composition	9 native perennial species	No (4 Species)

Conditions at the 120-acre Bishop Area Revegetation Project resulted from abandoned agriculture. To promote initial recovery, the site was fenced to reduce disturbance in 1998. Permanent transects were established in 1999. MWH conducted dryland revegetation studies at this site in 2003 and a soil microbial study at this site in 2005. In 2011, approximately 35 acres were drill seeded with locally collected seeds. In 2012, a buried drip irrigation system was installed across 16 acres of the site and seed was planted at these emitters. Approximately 3,000 containerized plants were planted at this site in Spring 2012. In 2015, approximately 6 acres were hand seeded at emitters with native seed mix and approximately 11.3 acres were drill seeded at the south end of the site. In Spring 2019, LADWP planted 230 shrubs consisting of fourwing saltbush, cattle saltbush, and California buckwheat, utilizing the Cocoon Planting System from the Land Life Company. This technology allows for shrubs to grow in arid environments with a temporary reservoir and does not require additional irrigation post planting. In August 2019, the shrubs had a 48% survivability rate. The shrubs will continue to be monitored for success. Approximately 4 acres on the south end of the site were seeded again in March 2021.

Revegetation transects were monitored in August 2019. At that time, the parcel contained 14% native perennial vegetation cover with 4 native species. The site has met prescribed cover goals. Perennial species currently on site include rubber rabbitbrush, fourwing saltbush, big sagebrush, and California buckwheat. The site is naturally revegetating from the edges and along buried drip lines. Natural recruitment at this site is visually significant compared to others. This project has been fully implemented and has met vegetation cover goals, however has not met species composition goals.

Bishop Area Revegetation Project, Transect 4.1 (November 15, 1999) – pre-project conditions.

Bishop Area Revegetation Project, Transect 4.1 (August 7, 2019).

LADWP Watershed Resources and Construction Staff planting native shrub seedlings using the Cocoon Planting System (May 4, 2019).

Bishop Area Revegetation Site overview, looking southwest (August 17, 2017).

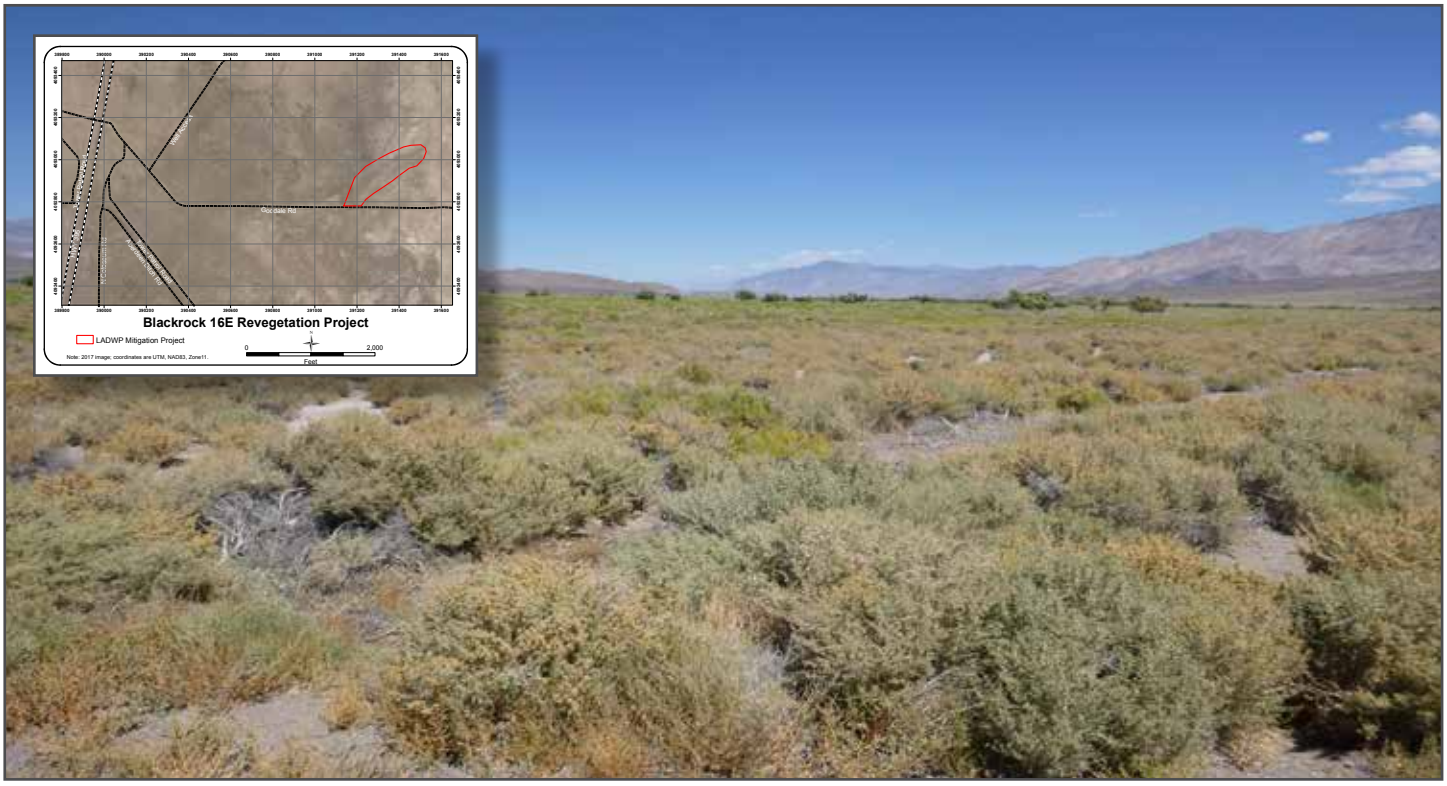
Bishop Area Revegetation Project (September 10, 2019).

5 Blackrock 16E Revegetation Project

Legal Reference: 1991 EIR Impact 10-11	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands.	Approximately 80 acres of land that lost a significant amount of its native vegetation cover as a result of increased groundwater pumping will be revegetated. The techniques that will be employed to revegetate these lands will be determined through studies that will be conducted by LADWP and Inyo County. These lands will not be permanently irrigated, but will be revegetated with native Owens Valley vegetation not requiring irrigation except perhaps during its initial establishment. Depending on the amount of rainfall and runoff, successful revegetation of these lands could take a decade or longer. The goal will be to restore as full a native vegetation cover as is feasible, but at a minimum, vegetation cover sufficient to avoid blowing dust will be achieved in that area.

Success Criteria	Met goal?	
Cover	**31% live perennial cover**	✓
Composition	**11 native perennial species**	✓

Vegetation impacts at the 7.5 acre Blackrock 16E revegetation site resulted from groundwater pumping. To facilitate natural recovery, this site was fenced to reduce disturbance in 1998 and permanent vegetation transects were established. These transects were run in 2010 and the parcel attained cover and composition goals with 36% cover and 11 native perennial species. These species include alkali sacaton, cattle saltbush, fourwing saltbush, rubber rabbitbrush, and Torrey's saltbush. Exclusionary fencing was removed in 2015. This project is complete.



Blackrock 16E Revegetation Project, looking north (August 28, 2002).

Blackrock 16E Revegetation Project, looking north (August 25, 2017).

Blackrock 16E Revegetation Project (June 25, 2021).

6 Five Bridges Area Revegetation Project

Legal Reference: 1991 EIR Impact 10-12	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-12: Vegetation in an area of approximately 300 acres near Five Bridges Road north of Bishop was adversely affected during 1988 because of the operation of the two wells, to supply water to enhancement/mitigation projects.	Water has been spread over the affected area since 1988. By the summer of 1990, revegetation of native species had begun on approximately 80% of the affected area. LADWP and Inyo County are developing a plan to revegetate approximately 60 acres with riparian and meadow vegetation. This plan will be implemented when it has been completed.

Success Criteria – Alkali Meadow	Met goal?	
Cover	**60% live perennial cover**	✓
Composition	**4 native perennial species**	✓

Approximately 300 acres of vegetation in the Five Bridges Area was impacted in the late 1980's from groundwater pumping. A portion of the area was further impacted by an extensive wildfire in 1989, followed by drought. The goal of the Five Bridges Mitigation Project is to restore meadow vegetation that occurred in this area prior to impacts from groundwater pumping. The 1999 Revegetation Plan noted that approximately 80% of the mitigation area (240 acres) had been mitigated by remedial measures at that time, and set forth a plan to recover the remaining 60 acres. The goal for alkali meadows at Five Bridges is 60% live cover composed of 4 perennial species, measured by established vegetation transects in the mitigation area.

Since 1989, LADWP has implemented various efforts to recover native vegetation in the mitigation area through re-irrigating the affected area each growing season, extensive weed treatment to eradicate perennial pepperweed (Lepidium latifolium), and development and implementation of a grazing management plan to compliment these efforts. LADWP also used controlled burns, sprinkler irrigation, seeding banks and outplanting native species to assist in mitigating the original impacts. As of 2017, based on vegetation data, mitigation for the impacts from groundwater pumping was complete. Native perennial species onsite include alkali sacaton, inland saltgrass, beardless wildrye, American licorice, and rubber rabbitbrush.

The area has since been hit with yet another wildfire and perennial pepperweed has continued to invade much of the mitigation area; therefore, LADWP has continued aggressive weed treatment at the site. Mitigation efforts for the original impact from groundwater pumping are complete. Weed treatment efforts at this site are ongoing.

Aerial image of the Five Bridges Mitigation Area following groundwater pumping impacts in 1988 and subsequent wildfire impacts (gray area) in 1989 (photo captured November 22, 1989) (McNally Canals, Chalk Bluff Road, and gravel pond are the north of the Owens River).

Aerial view of the Five Bridges Mitigation Area, looking southeast (August 17, 2017). (Canal Intake to McNally Canals on left, south of Chalk Bluffs Road.)

Five Bridges Multiple Completion Field west of main diversion in mitigation area (July 29, 2017). Note combination of native grasses (bright green band in center) intermixed with nonnative perennial pepperweed (foreground).

Continued pepperweed infestation in the Five Bridges Mitigation Area (June 25, 2021). The project area is being actively managed/treated for this invasive species.

7 Hines Spring South Revegetation Project

Legal Reference: 1991 EIR Impact 10-11	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands.	Approximately 80 acres of land that lost a significant amount of its native vegetation cover as a result of increased groundwater pumping will be revegetated. The techniques that will be employed to revegetate these lands will be determined through studies that will be conducted by LADWP and Inyo County. These lands will not be permanently irrigated, but will be revegetated with native Owens Valley vegetation not requiring irrigation except perhaps during its initial establishment. Depending on the amount of rainfall and runoff, successful revegetation of these lands could take a decade or longer. The goal will be to restore as full a native vegetation cover as is feasible, but at a minimum, vegetation cover sufficient to avoid blowing dust will be achieved in that area.

Success Criteria	Met goal?	
Cover	**32% live perennial cover**	**No (10%)**
Composition	**3 native perennial species**	✓

Degraded conditions at the Hines Spring South Revegetation site resulted from groundwater pumping. It was anticipated that conditions at this site would be dependent on on-site mitigation efforts at Hines Spring, therefore, the timeline for implementing this revegetation project was extended to three years post-implementation of the Hines Spring Well 355 Project. The Hines Spring Well 355 Project was implemented in 2012. The 9-acre revegetation area was fenced in 2015 per this plan. Initial response to exclusion of this area is positive as demonstrated by prolific native grasses in all but the southwestern corner of the site. Permanent vegetation transects were established in 2019. At that time, this site had 10% cover and 5 native perennial species, including alkali sacaton, big sagebrush, fourwing saltbush, rubber rabbitbrush, and Torrey's saltbush. This site has met the species composition goal. Passive restoration efforts appear to be initially effective, therefore, LADWP will continue to monitor this site every 5 years until vegetative cover requirements are met. This project is fully implemented and has met composition goals but has not yet attained cover goal.

Blackrock 16E Revegetation Project, looking north (August 28, 2002).

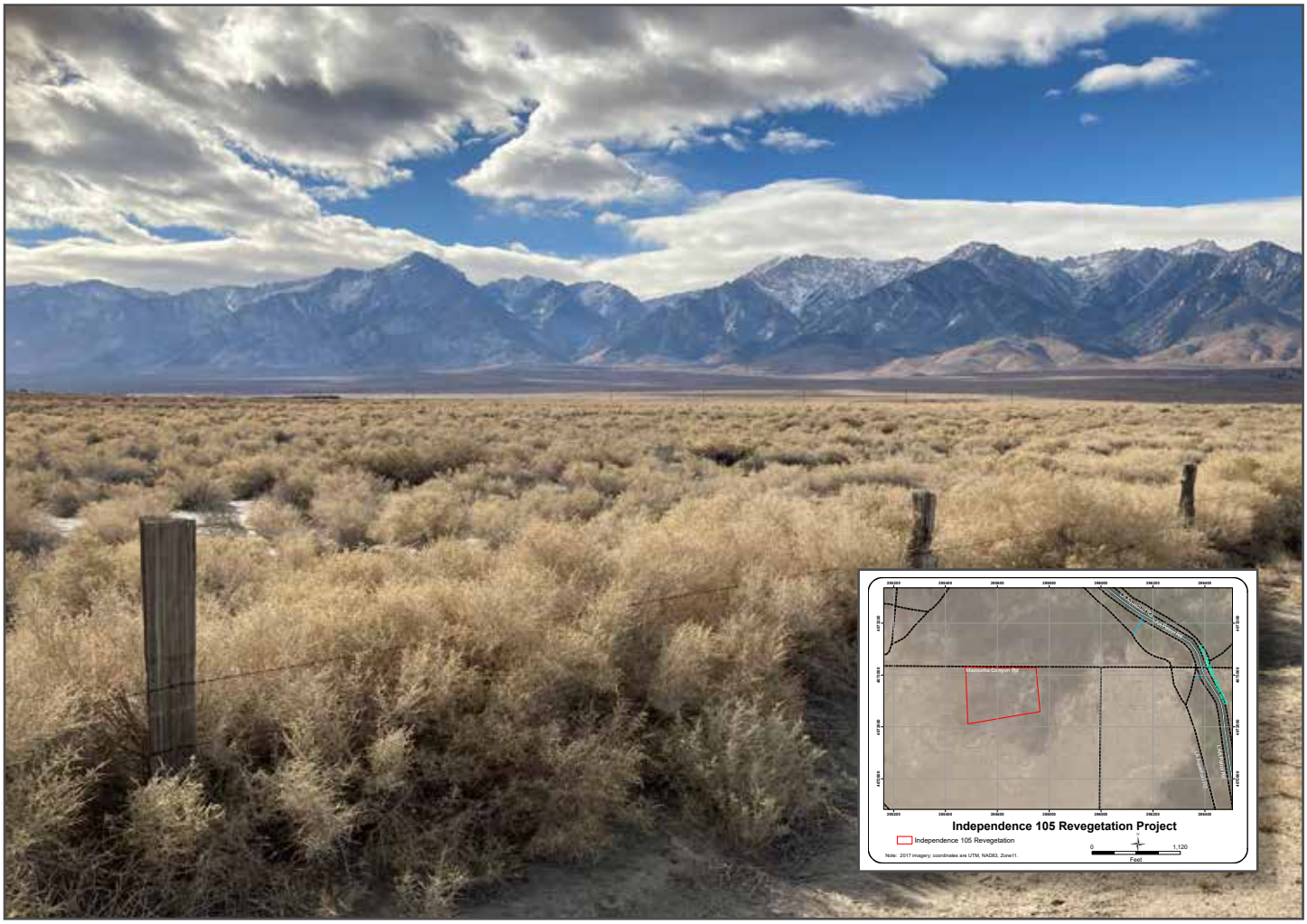
Blackrock 16E Revegetation Project (June 25, 2021).

8 Independence 105 Revegetation Project

Legal Reference: 1991 EIR Impact 10-13	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-13: Increased groundwater pumping has significantly adversely affected approximately 60 acres of vegetation in the Symmes Shepherd well field area.	A revegetation program will be implemented for these effected areas utilizing native vegetation of the type that has died off. Water may be spread as necessary in these areas to accomplish the revegetation.

Success Criteria	Met goal?	
Cover	**15% live perennial cover**	✓
Composition	**3 native perennial species**	✓

This project contains 14 acres of the 60 acres required for revegetation near Independence under the 1991 EIR for impacts from groundwater pumping. In 1999, the site was fenced to reduce disturbance and in 2000, permanent vegetation transects were established. As of 2017, this site had attained the goals for cover and composition with 23% cover with 3 perennial species. Perennial species onsite include fourwing saltbush and Torrey's saltbush. This project is complete.



IND105 Revegetation Project, Transect 4.2 (July 17, 2000) – pre-project conditions.

IND105 Revegetation Project, Transect 4.2 (November 14, 2017).

IND105 Revegetation Project, Transect 4.1 (June 11, 1999) – pre-project conditions.

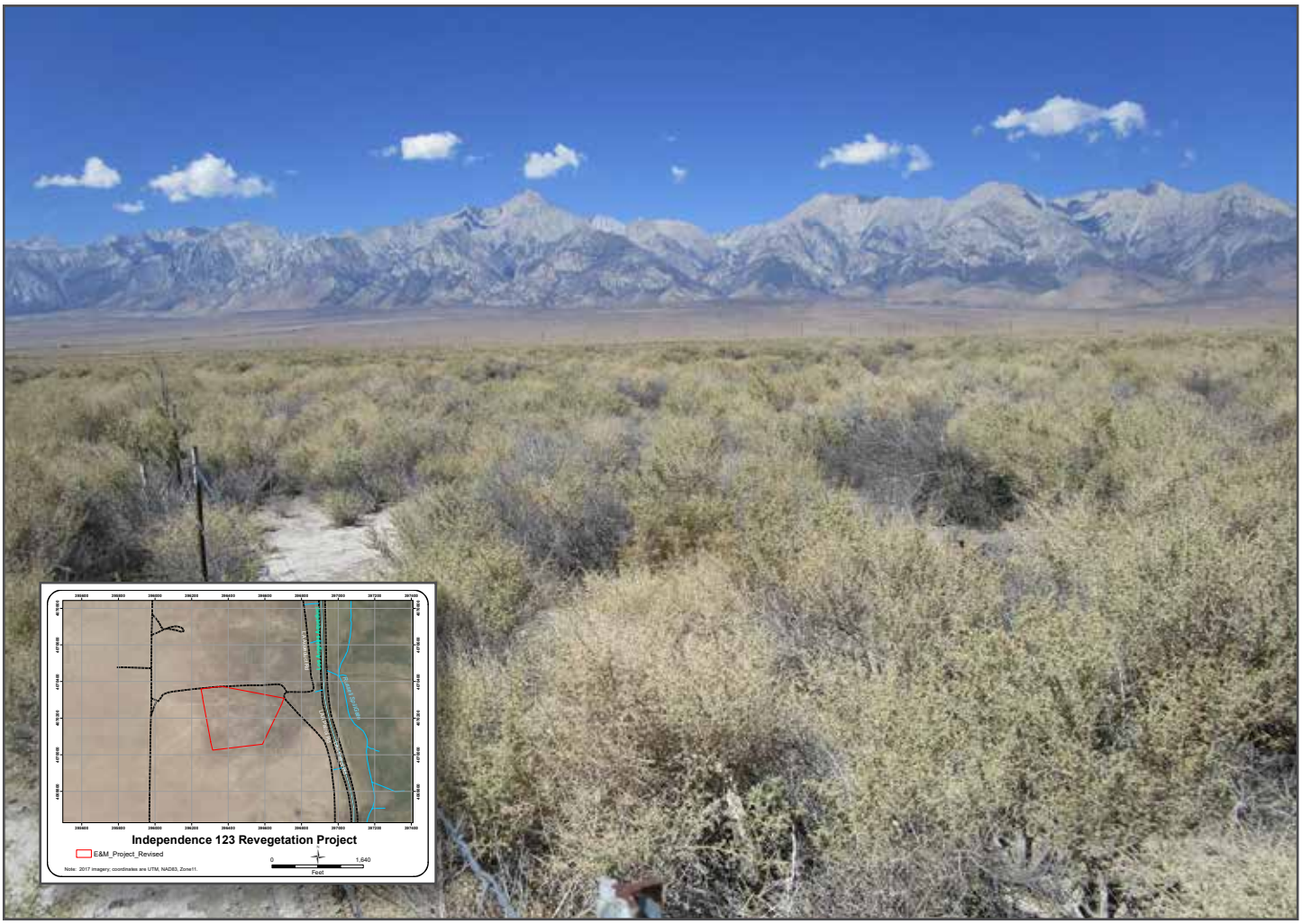
IND105 Revegetation Project, Transect 4.1 (November 14, 2017).

9 Independence 123 Revegetation Project

Legal Reference: 1991 EIR Impact 10-13	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-13: Increased groundwater pumping has significantly adversely affected approximately 60 acres of vegetation in the Symmes Shepherd well field area.	A revegetation program will be implemented for these effected areas utilizing native vegetation of the type that has died off. Water may be spread as necessary in these areas to accomplish the revegetation.

Success Criteria	Met goal?	
Cover	**15% live perennial cover**	✓
Composition	**3 native perennial species**	✓

This project contains 28 acres of the 60 acres required for revegetation near Independence under the 1991 EIR for impacts from groundwater pumping. In 1999, the site was fenced to reduce disturbance and in 2000, permanent vegetation transects were established. As of 2006, this site had attained the goals for cover and composition with 17% cover and 4 native perennial species. Perennial species onsite include cattle saltbush, fourwing saltbush, rubber rabbitbrush, stretchberry, and Torrey's saltbush. This project is complete.



IND 123 Revegetation Project, Transect 4.1 (August 5, 2006).

IND 123 Revegetation Project, Transect 4.1 (November 24, 2020).

IND 123 Revegetation Project, looking southwest (June 25, 2021).

10 Independence 131 Revegetation Project

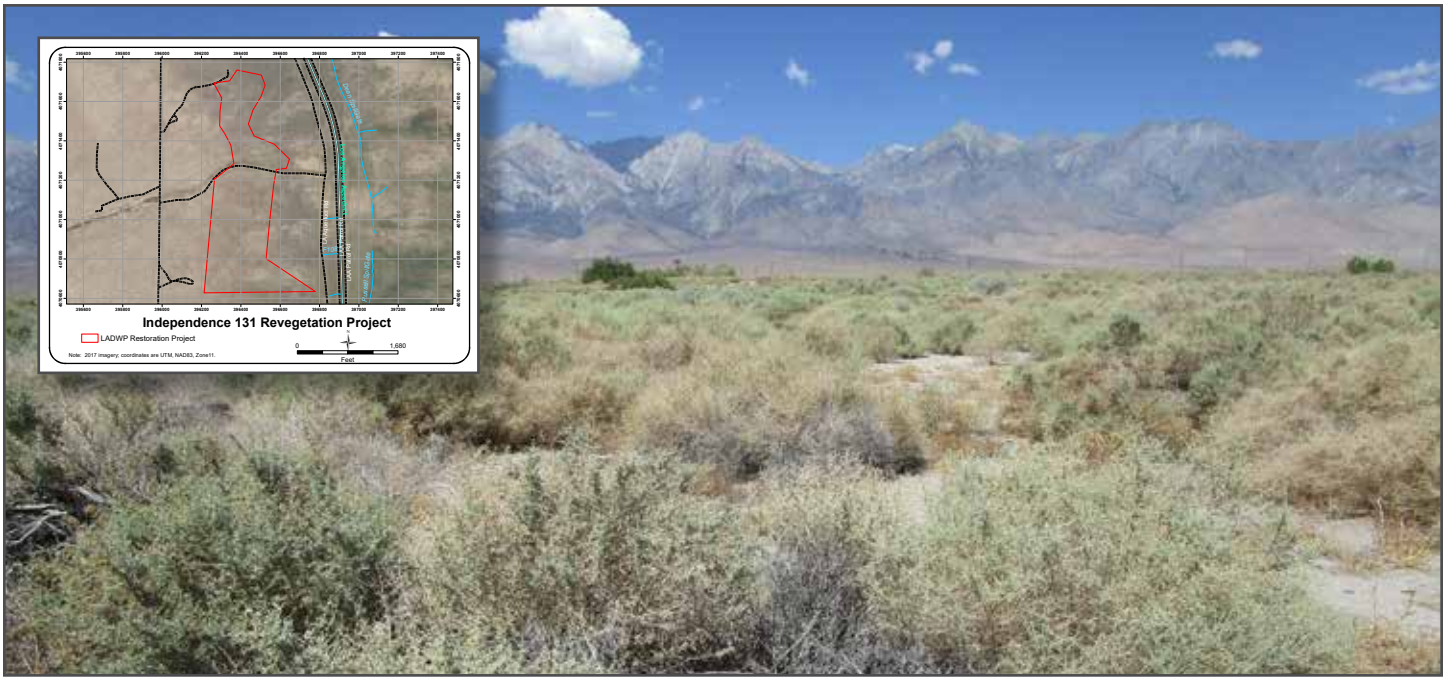
Legal Reference: 1991 EIR Impact 10-13	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-13: Increased groundwater pumping has significantly adversely affected approximately 60 acres of vegetation in the Symmes Shepherd well field area.	A revegetation program will be implemented for these effected areas utilizing native vegetation of the type that has died off. Water may be spread as necessary in these areas to accomplish the revegetation.

Success Criteria	Met goal?	
Cover	15% live perennial cover	No (10%)
Composition	**3 native perennial species**	✓

This project contains a portion of the 60 acres required for revegetation near Independence under the 1991 EIR for impacts from groundwater pumping. Although the 1991 EIR identified only 23 acres in the IND 131 vegetation parcel, the 1999 Revegetation Plan identified 74.6 acres to be revegetated across both the IND 131 and IND 125 vegetation parcels. This revegetation site is divided by Symmes Creek (IND 131 to the north, and IND 125 to the south).

Both sides were fenced to reduce disturbance in 1999 and permanent vegetation transects were established in 2000. Dryland revegetation studies using various irrigation methods and planting techniques were performed in 2003 and 2005. With information gained from those studies, revegetation techniques were employed. In the spring of 2011, 25 acres were drill seeded with locally collected seeds. As of 2012, IND131N (north of Symmes Creek) had achieved 15% cover with 5 native perennial species, attaining the goals for cover and composition (15% cover and 3 perennial species). Perennial species onsite include cattle saltbush, fourwing saltbush, rubber rabbitbrush, stretchberry, and Torrey's saltbush.

Vegetation transects in IND131S (south of Symmes Creek, technically IND 125) were monitored in 2017. This portion of the site had 10% cover and 6 perennial species, meeting the composition requirement. Perennial species onsite include cattle saltbush, fourwing saltbush, rubber rabbitbrush, stretchberry, and Torrey's saltbush. This project has been fully implemented but the southern portion has not yet attained cover goals. Composition goal has been met.



IND131 Revegetation Project, Transect 2.0 (north section) (August 5, 2006).

IND 131 Revegetation Project, Transect 2.0 (north section) (August 14, 2012).

Independence 131 Revegetation Project – north of Symmes Creek (June 25, 2021).

IND131S Revegetation Project, Transect 4.0 (south section) (August 6, 2006).

IND131S Revegetation Project, Transect 4.0 (south section) (July 27, 2017).

Independence 131 Revegetation Project (south of Symmes Creek), looking southwest (June 25, 2021).

11 Independence East Side Regreening

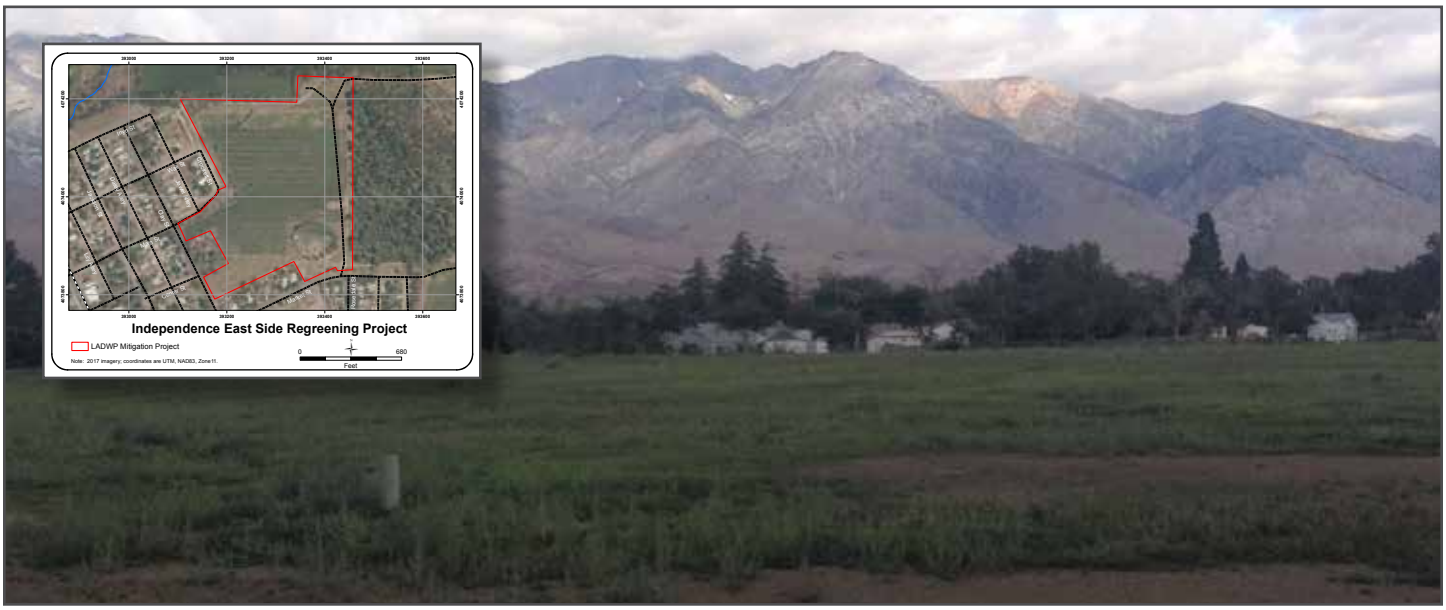
Legal Reference: 1991 EIR Impacts 10-11, 12-1, EIR Table 5-3	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands. 12-1: Significant impacts on air quality resulting from groundwater pumping during the period of 1970 to 1990 have occurred due to vegetation losses.	10-11: In the near future, two enhancement/ mitigation projects will be initiated to mitigate areas affected by groundwater pumping adjacent to the towns of Independence (east side regreening project) and Big Pine (northeast regreening project). Each project was originally planned to be approximately 30 acres of irrigated pasture. 12-1: As part of the Independence Pasturelands and Springfield enhancement/mitigation projects, approximately 730 acres of barren or near barren ground have been revegetated with either native pasture or alfalfa. This area was affected by groundwater pumping and surface diversions of water.

The Independence East Side Regreening Project was designed to enhance the aesthetics and regreen abandoned land adjacent to the residential area east of Independence by establishing an irrigated pasture supplied with pumped groundwater from a new well. This new well also serves as a backup water supply for the town water system.

On September 28, 1988 The Inyo/Los Angeles Standing Committee approved the Independence East Side Regreening Project Final Scoping Document on September 28, 1988. LADWP circulated a Mitigated Negative Declaration (MND) for the project in 2004 which was approved by the LADWP Board of Water and Power Commissioners in May 2005. Following approval, Inyo County requested that three minor modifications to the project be made: (1) the project well to be located approximately 100 yards to the east of the originally proposed location, (2) that sprinkler irrigation be considered in place of flood irrigation, and (3) that a portion of the project area include stables and/or corrals. An amendment to the project scoping document that incorporates these changes was approved by the Standing Committee on April 23, 2009.

The well for this project was drilled in September 2012 and designated as well W423. Construction of the irrigation system for this project occurred during the Winter of 2013-2014. Implementation of this project was complete in Spring 2014.

The project does not have specified percent cover or species composition requirements but is evaluated as an irrigated pasture. It is managed by LADWP's lessee. This project is implemented, meeting goals, and ongoing with an annual water commitment provided by LADWP as required.



Aerial image of the Independence East Side Regreening Site (yellow circle), looking east/northeast. Photo captured September 9, 1988 – pre-project conditions.

Independence East Side Regreening Project (June 25, 2021).

12 Laws Area Revegetation Project

Legal Reference: 1991 EIR Impact 10-18	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-18: Significant adverse vegetation decrease and change have occurred in the Laws area due to a combination of factors, including abandoned agriculture, groundwater pumping, water spreading in wet years, livestock grazing, and drought.	Approximately 140 acres will be revegetated within the Laws area, which has lost all or part of its vegetation cover due to increased groundwater pumping or to abandonment of irrigation operations to supply the second aqueduct.

Success Criteria	Met goal?	
Cover	10% live perennial cover	No (5.5%)
Composition	**8 native perennial species**	✓

Prior to the Type E Transfer, the 1991 EIR identified 140 acres of the Laws 118 vegetation parcel for remediation from impacts incurred by abandoned agriculture. This site was fenced to reduce disturbance in 1998. Permanent transects were established in 1999. Dryland revegetation studies examining various planting and watering techniques were conducted in a portion of LAWS 118 by SAIC and MWH Americas in 2003 and 2004. In 2004, the above ground drip irrigation system was expanded and seed was planted at all emitters. The above-ground irrigation system was moved to a new area in 2005 and seed was planted at the new emitters at that time. In 2005, MWH conducted a soil microbial study at the site.

In Spring 2011, 18 acres were seeded with locally collected seeds. In 2012, a buried drip system was installed at this site over approximately 30 acres. New fencing was installed in 2013 on the west side of the project area along the new boundary with the Cashbaugh Lease established in the Laws Type E transfer. Approximately 46 acres was drill seeded at 10lbs/acre using native shrub seed mix during Winter 2015/2016. During high runoff years (2017 and 2019), LADWP spread excess water from the Upper McNally Canal to the LAW118 parcel west side of Laws Poleta Road to jumpstart germination from the 2015/2016 seeding efforts.

In the fall of 2018, approximately 11,000 plants grown in LADWP greenhouses were outplanted across 30 acres on the east side of the parcel. LADWP injected the remaining 15 acres of this parcel directly east of Laws/Poleta Road with drip irrigation in 2021; this area was previously irrigated above ground and had been seeded multiple times with limited success. LADWP intends to plant approximately 17,000 additional native shrubs in this area in October 2021.

Permanent vegetation transects were read in 2019. The parcel has achieved 5.5% cover with 15 native perennial species. The composition goal has been met. This site will continue to be monitored once every five years until it has met success criteria. This project is implemented but has not yet attained cover goals. This site has reached composition goals.

Laws Area Revegetation Project (East of Laws Poleta Road), Transect 3.1 (August 18, 2000) – pre-project conditions.

Laws Area Revegetation Project (East of Laws Poleta Road), Transect 3.1 (August 1, 2019).

Laws Area Revegetation Project (West of Laws Poleta Road), Transect 7.0 (August 18, 2000) – pre-project conditions.

Laws Area Revegetation Project (West of Laws Poleta Road), Transect 7.0 (July 31, 2019).

Laws Area Revegetation Project, looking southwest (January 8, 2021). This portion of the project area was planted in Fall 2018.

LADWP Watershed Resources Staff planting a seedling at a Laws Revegetation parcel.

13 LAWS 090 Revegetation Project

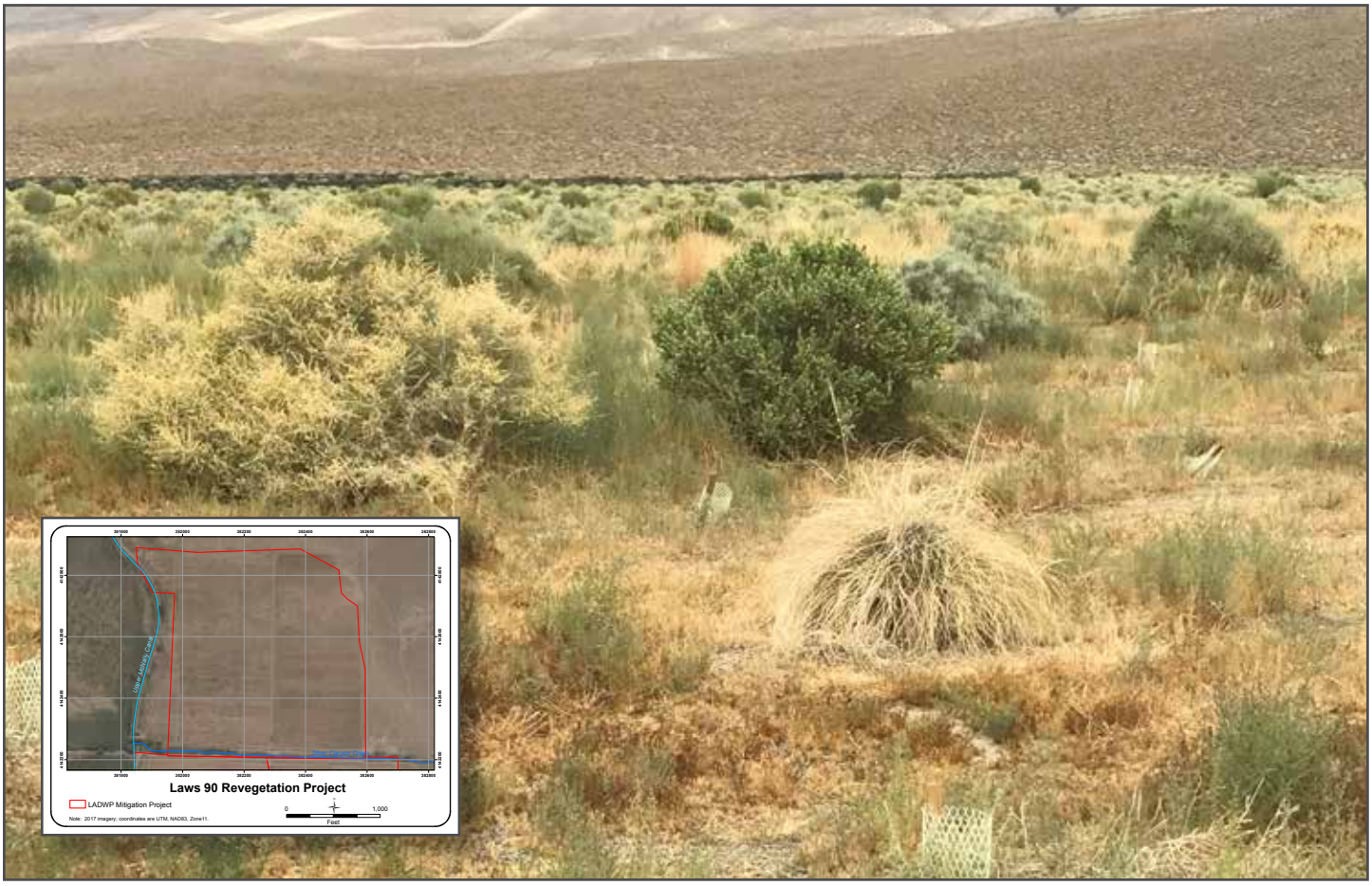
Legal Reference: Irrigation Project in the Laws Area Mitigated Negative Declaration (Laws Type E Transfer), 2003 Laws Revegetation Plan

Success Criteria	Met goal?	
Cover	10% live perennial cover	No (6%)
Composition	10 native perennial species	No (7)

The Laws 090 Revegetation Project is a 101- acre parcel that is required for native revegetation under the Type E Transfer as a result of abandoned agriculture. A drip irrigation system is fully installed at this site and initial planting in this large parcel is 100% complete. Approximately 87,000 plants were planted in this parcel from 2008 to 2020.

In 2014 and 2015, LADWP implemented a series of demonstration projects at Laws 090 including pre-emergent weed control, sand fencing and hay bale placement to protect seedlings from wind shear, exclusionary fencing and protective cages to guard against rodent herbivory, and mulch application for soil moisture retention. Knowledge gained from these demonstration projects have helped guide subsequent revegetation efforts in the Laws area. All of Laws 090 was overplanted in 2016 with approximately 26,400 additional plants filling in all emitter basins with either new or established live plants. LADWP overplanted this site again in Fall 2020 with an additional 16,000 plants. Survivability monitoring of outplantings to date at this site was performed in Fall 2018; at that time, plant survivorship equated to 74%, which is a great success. As of Fall 2019, the site has approximately 6% native vegetative cover and 7 native perennial species onsite. Dominant species include alkali sacaton, Great Basin wildrye, cattle saltbush, fourwing saltbush, rubber rabbitbrush, and Torrey's saltbush.

Initial planting across all 101 acres is 100% complete, but the site has not yet achieved required success criteria. Overplanting in this parcel will continue as necessary until goals are met. This project is fully implemented but has not yet attained goals.



Laws 090 Revegetation Project, looking southwest (November 11, 2002) – pre-project conditions.

Laws 090 Revegetation Project, looking southwest (May 27, 2021).

East side of the Laws 090 Revegetation Project, looking north - prior to one of LADWP's planting efforts (September 2009).

East side of Laws 090 Revegetation Project, looking north, same location as above (September 21, 2021).

LADWP uses protective cages anchored by stakes to protect new plantings from rodent herbivory (Laws 090 Project, April 14, 2014).

Laws 090 Revegetation Project, same area as above, January 2018.

Hay bales were placed at Laws 090 parcel prior to planting to break up wind shear and protect seedlings as a demonstration project (April 14, 2014).

LAW090, same hay bale area (bales removed) (June 25, 2021).

14 LAWS 094 Revegetation Project

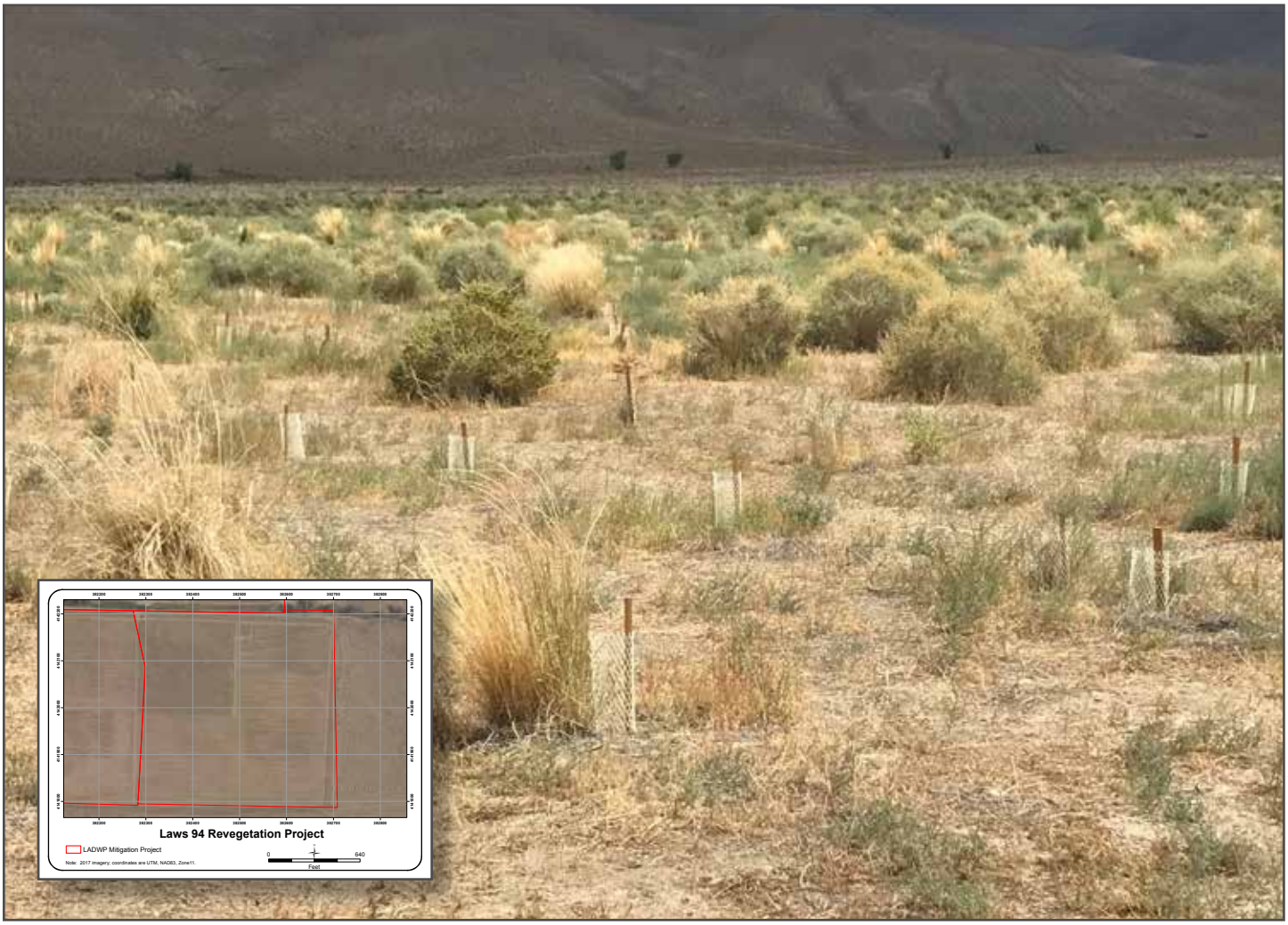
Legal Reference: Irrigation Project in the Laws Area Mitigated Negative Declaration (Laws Type E Transfer), 2003 Laws Revegetation Plan

Success Criteria	Met goal?	
Cover	10% live perennial cover	No (2%)
Composition	10 native perennial species	No (8)

This 40-acre parcel is an abandoned agriculture site required to be revegetated per the Laws Type E Transfer. Initial planting for the entire parcel was complete in Fall 2013. This parcel was formerly a combination of buried and aboveground drip irrigation systems; as of spring 2018, LADWP replaced all remaining above ground drip line with new buried drip irrigation lines.

Approximately 38,000 plants were planted in this parcel from 2008 to 2019. LADWP seeded the (former) above ground drip portion in 2015/2016 but had little success with germination. Survivability monitoring of outplantings to date at this site was performed in Fall 2018; at that time, plant survivorship equated to 71%. In the spring of 2019, approximately 15,000 native plants were overplanted at this site. As of Fall 2019, the site has approximately 2% cover and 8 native perennial species onsite. These species include alkali sacaton, Great Basin wildrye, beardless wildrye, cattle saltbush, fourwing saltbush, rubber rabbitbrush, Torrey's saltbush.

Initial planting across all 40 acres is 100% complete, but the site has not yet achieved success criteria. Overplanting in this parcel will continue as necessary until goals are met. Project is fully implemented but has not yet attained goals.



LADWP Watershed Resources Staff secures a stake and protective cage around the native seedling at the Laws 094 Revegetation Project (October 5, 2019).

Native plants growing in one of LADWP's two commercial greenhouse facilities. LADWP Watershed Resources Staff grows their own native species for revegetation efforts in the Owens Valley.

Aerial image of Laws 094 and Laws 095 Revegetation Parcels, looking east (August 17, 2017). Note rows of native plants planted across these parcels. The Laws 090 parcel is to left (north).

15 LAWS 095 Revegetation Project

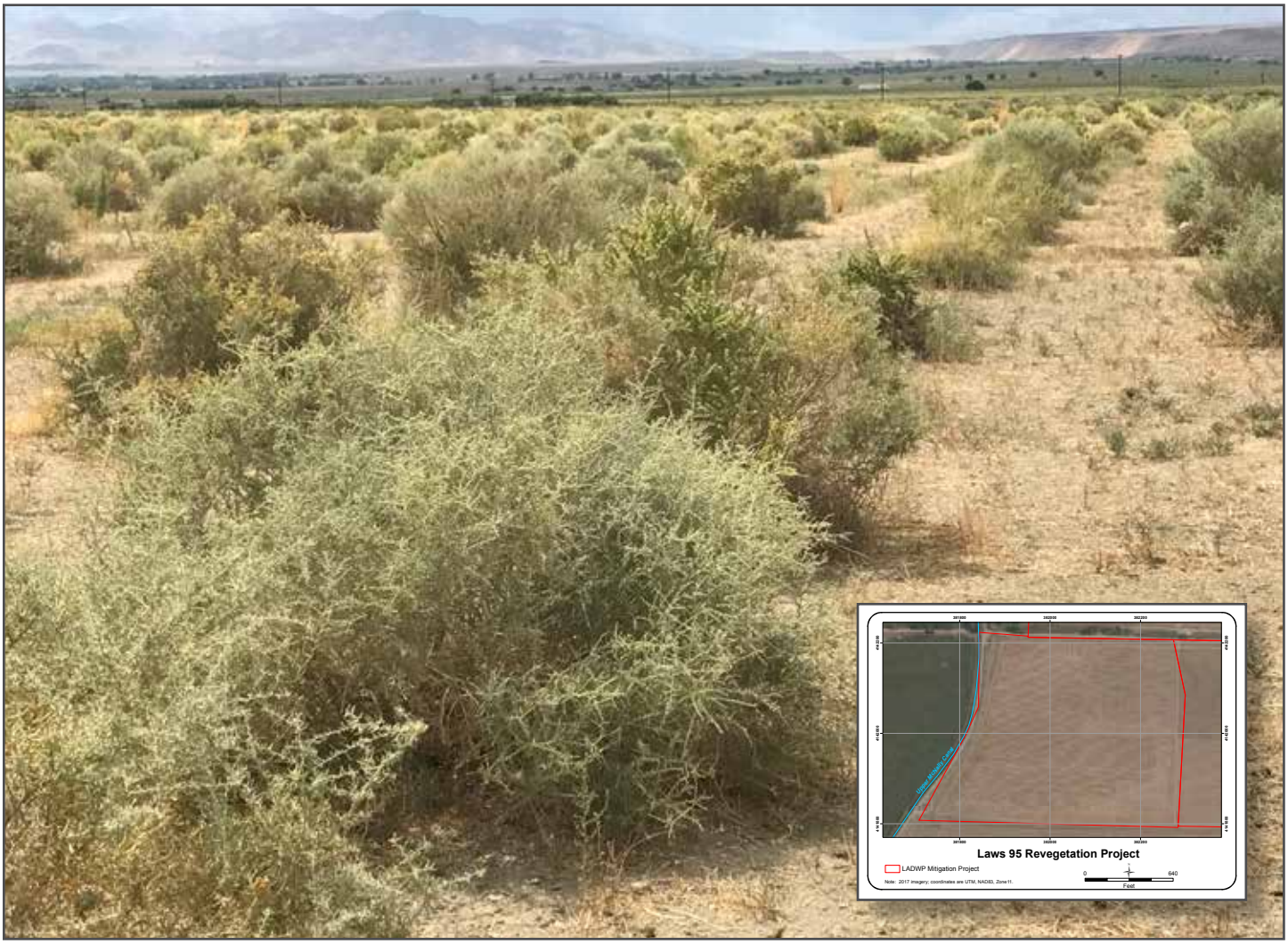
Legal Reference: Irrigation Project in the Laws Area Mitigated Negative Declaration (Laws Type E Transfer), 2003 Laws Revegetation Plan

Success Criteria	Met goal?	
Cover	10% live perennial cover	No (3%)
Composition	10 native perennial species	No (6)

This 46-acre parcel is an abandoned agriculture site required to be revegetated per the Laws Type E Transfer. Initial planting for the entire parcel was complete in Fall 2013. This parcel was formerly a combination of buried and aboveground drip irrigation systems; as of Spring 2018, LADWP replaced all remaining above ground drip line with new buried drip irrigation lines.

Approximately 43,500 plants were planted in this parcel from 2008 to 2019. LADWP seeded the (former) above ground drip portion in 2015/2016 but had little success with germination. Survivability monitoring of outplantings to date at this site was performed in Fall 2018; at that time, plant survivorship equated to 63%. In the fall of 2019, approximately 9,000 native plants were overplanted at this site. As of Fall 2019, the site has approximately 3% cover and 6 native perennial species onsite. These species include alkali sacaton, Great Basin wildrye, cattle saltbush, fourwing saltbush, rubber rabbitbrush, Torrey's saltbush.

Initial planting across all 46 acres 100% complete, but has not yet achieved success criteria. Overplanting in this parcel will continue as necessary until goals are met. Project is fully implemented but has not yet attained goals.



Laws 095 Revegetation Project, looking northeast (November 11, 2002) – pre-project conditions.

Laws 095 Revegetation Project, looking northeast (May 27, 2021).

Laws 095 Revegetation Project, looking southwest (August 17, 2017).

Laws 095 Revegetation Project, looking southwest (August 17, 2017).

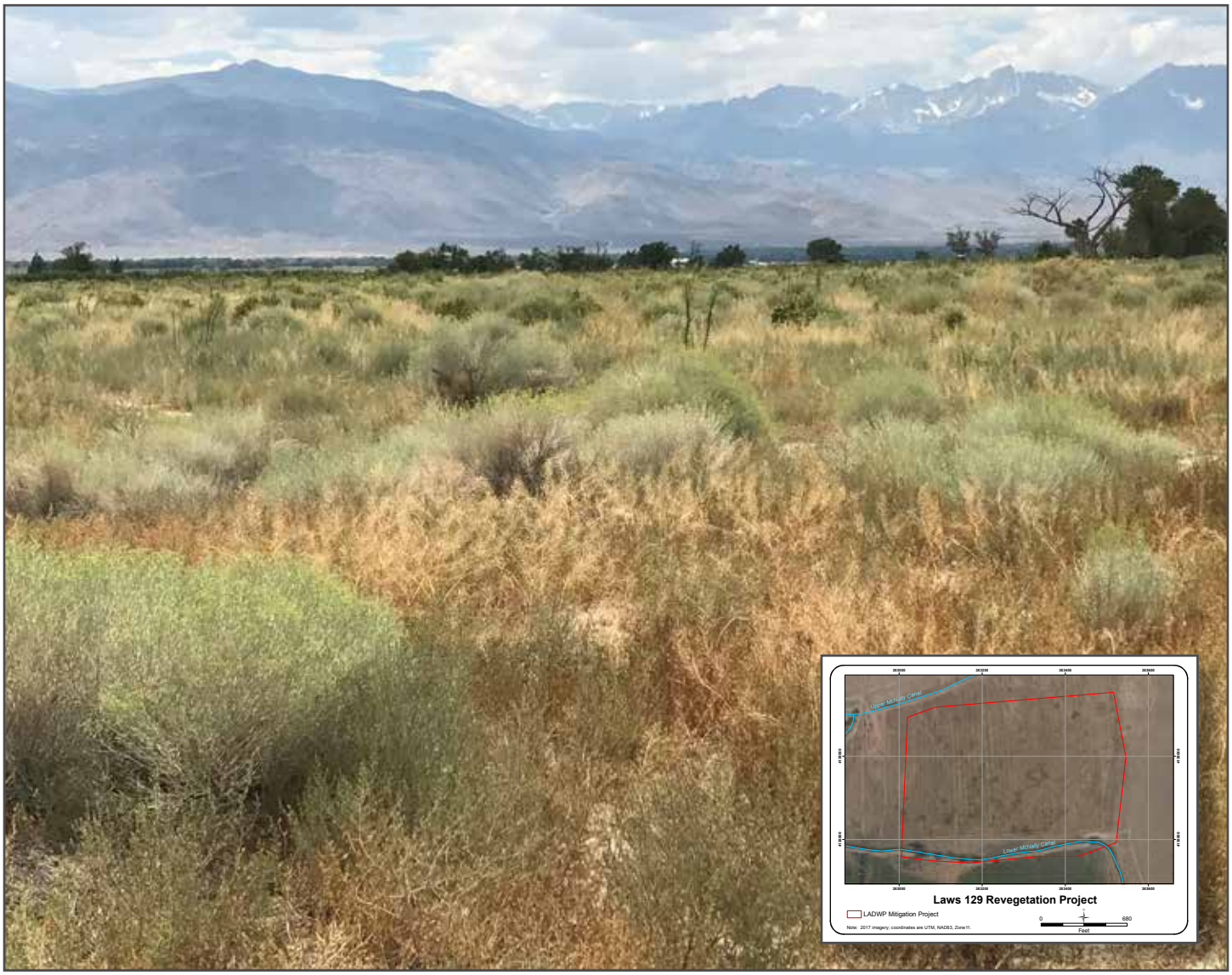
16 LAWS 129 Revegetation Project

Legal Reference: Irrigation Project in the Laws Area Mitigated Negative Declaration (Laws Type E Transfer), 2003 Laws Revegetation Plan

Success Criteria	Met goal?	
Cover	10% live perennial cover	No (6%)
Composition	8 native perennial species	No (6)

This 47-acre site is the result of abandoned agriculture and is required to be revegetated with native species per the Laws Type E Transfer. A drip irrigation system is fully installed at this site and from 2008 to 2018, approximately 26,000 plants grown by Watershed Resources Staff in LADWP greenhouses were planted in this location. Initial planting in this parcel was 100% complete by Fall 2015, and in fall 2018, LADWP overplanted approximately 6,000 native plants to fill in remaining inner spaces.

Growth and persistence at this site are promising, and as of Fall 2019, the site has approximately 6% cover and 6 native perennial species onsite. Species on the site include cattle saltbush, fourwing saltbush, rubber rabbitbrush, and Torrey's saltbush. Overplanting in this parcel will occur as necessary to achieve goals. Initial planting is 100% complete but the area has not yet achieved success criteria. Project is fully implemented but has not yet attained goals.



Laws 129 Revegetation Project looking northwest (November 11, 2002) – pre-project conditions.

Laws 129 Revegetation Project looking northwest (May 27, 2021).

LADWP operates and maintains two commercial greenhouses for Owens Valley revegetation efforts, which are capable of producing up to 18,000 native plants twice per year.

Fourwing saltbush seedling from LADWP greenhouse.

LADWP Watershed Resources and Construction staff planting at the Laws 129 Revegetation Project (October 7, 2015).

Laws 129 Revegetation Project, within the parcel looking toward exclusionary fencing (August 17, 2017).

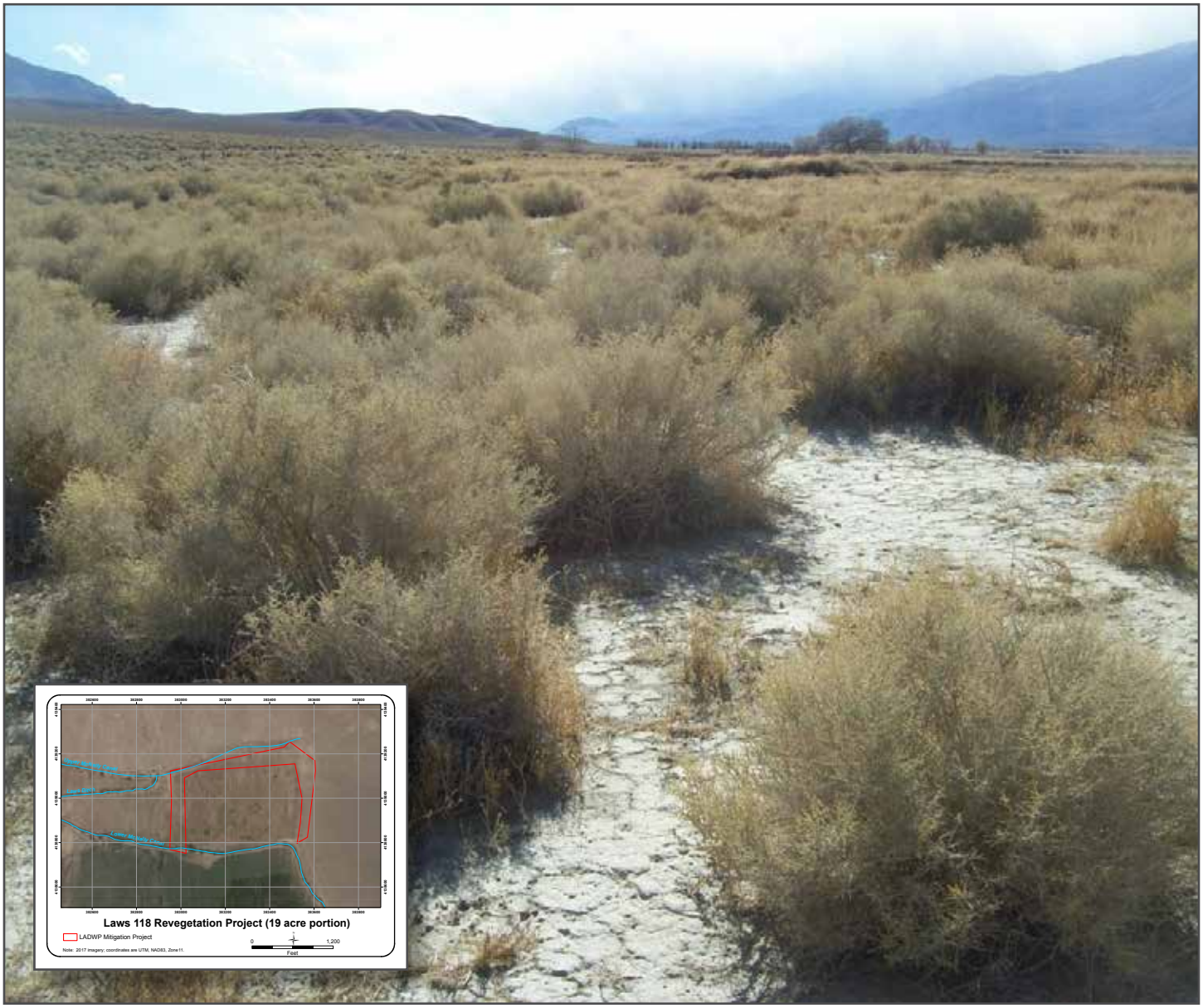
17 LAWS 118 Revegetation Project (19 acres)

Legal Reference: Irrigation Project in the Laws Area Mitigated Negative Declaration (Laws Type E Transfer), 2003 Laws Revegetation Plan

Success Criteria	Met goal?	
Cover	10% live perennial cover	No
Composition	8 native perennial species	No

A 19-acre portion of LAW118 was identified for native revegetation under the Laws Type E Transfer. This area is in addition to the 140 acres identified in the 1991 EIR as a result of abandoned agriculture. This 19-acre portion surrounds vegetation parcel LAW129 on its western, northern, and eastern sides, forming a horseshoe or upside-down u shape.

Approximately 8,000 plants were planted in this parcel from 2008 to 2015. Initial planting is complete but the area has not yet achieved success criteria. Overplanting or seeding in this parcel will continue as necessary until goals are met. Project is fully implemented but has not yet attained goals.



Laws 118 Revegetation Project (19-acre parcel), looking south (June 25, 1999) – pre-project conditions.

Laws 118 Revegetation Project (19-acre parcel) (2017).

18 LAWS 027 (Native Seed Farm)

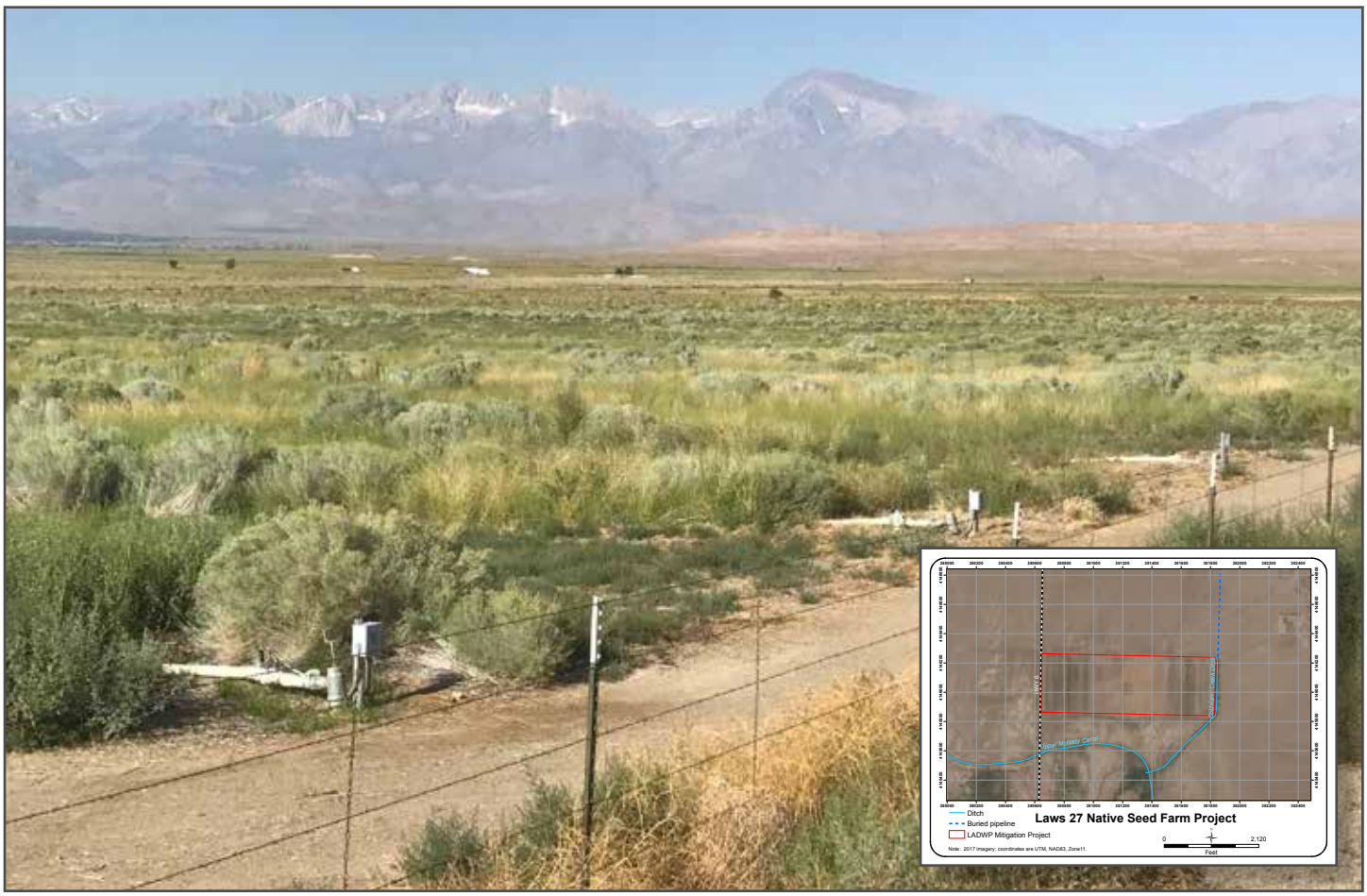
Legal Reference: Irrigation Project in the Laws Area Mitigated Negative Declaration (Laws Type E Transfer), 2003 Laws Revegetation Plan

The Laws Type E Transfer and 2003 Revegetation Plan require that LADWP initiate a native seed farm for use on Owens Valley revegetation projects at the Laws 027 parcel. The seed farm was initiated in 2004 and is irrigated through sprinkler and drip irrigation systems. Additionally, LADWP operates two greenhouses near their Bishop Office to grow approximately 18,000 native plants biannually for the seed farm and other revegetation efforts.

Portions of the Seed Farm are currently well established and are producing viable seed from native grasses and shrubs. Approximately 40 acres of drip irrigation was hand seeded with rubber rabbitbrush and 2 acres of land without irrigation was drill seeded with a native upland scrub mix in winter of 2015. LADWP completed initial planting of the Laws Native Seed Farm in Spring 2017 by outplanting approximately 10,500 native plants at the site. LADWP overplanted an additional 6,000 plants at the site in Fall 2017. Survivability monitoring of outplantings to date at this site was performed in Fall 2018; at that time, plant survivorship was 64%.

In the spring of 2018, 15 acres of the sprinkler irrigated area were drill seeded with Indian ricegrass. Success was low, possibly due to timing of the seeding and competition from existing weedy growth. In the spring of 2019, the area was mowed and disked to prepare a clean seed bed for seeding. When temperatures were appropriate, the area was again drill seeded at 30lbs/acre and irrigation commenced. The Indian ricegrass germinated quickly and began to grow, putting on seed early in the season. However, the area became very weedy and the ricegrass was outcompeted by nonnative species. A trial application of herbicide was applied but was largely unsuccessful. In Fall 2019, LADWP applied additional herbicide to this site, which was largely successful at controlling weedy species. The Indian ricegrass thrived in 2020.

This site will be overseeded/planted until the parcel has adequate cover to supply native seed and mitigate blowing dust. There is no specific cover and composition criteria for this site.Project is fully implemented but has not yet achieved goals.



Overview of Laws Native Seed Farm (Laws 027), looking southwest from Rudolph Ranch Road from east of project site (May 10, 2010).

Laws Native Seed Farm (Laws 027), looking southwest (August 24, 2017).

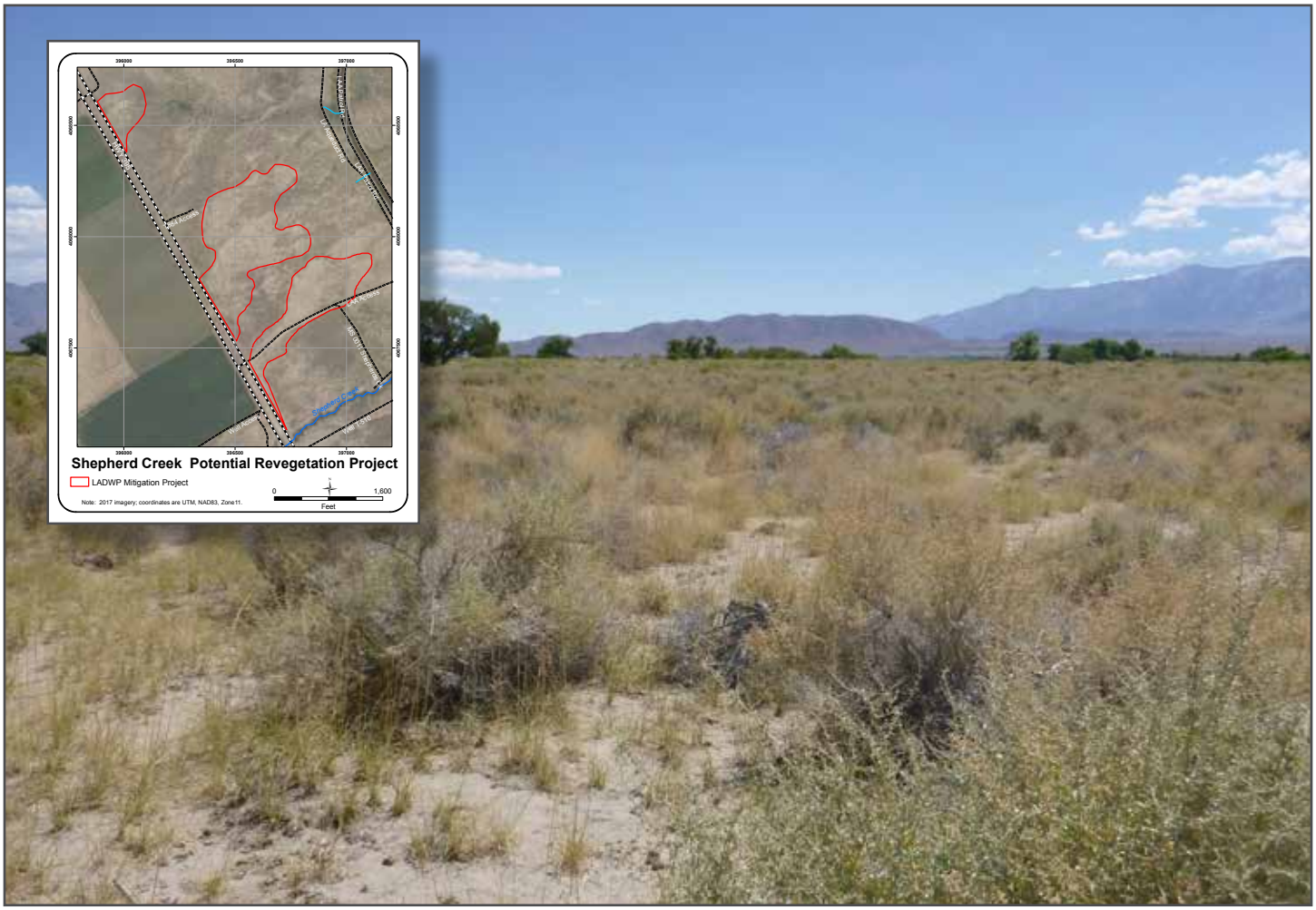
Grass portion of Laws Native Seed Farm (August 24, 2017).

19 Shepherd Creek Potential Revegetation Project

Legal Reference: 1991 EIR Impacts 10-11 and 12-1	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands. 12-1: Significant impacts on air quality resulting from groundwater pumping during the period of 1970 to 1990 have occurred due to vegetation losses.	10-11: Under the Shepherd Creek enhancement/mitigation project, approximately 198 acres of poorly vegetated land has been converted to alfalfa. This area was affected by groundwater pumping and abandonment of irrigation. In addition, an area of approximately 60 acres to the east of the existing project area on the opposite side of U.S. Highway 395 is poorly vegetated. If the density of the native cover in this area does not naturally increase, the existing enhancement/mitigation project may be expanded to include this additional area.

*Also noted in EIR Table 5-3.

The Shepherd Creek Potential Project was identified in the 1991 EIR for revegetation and to mitigate blowing dust due to groundwater pumping impacts. The project was evaluated and natural increases in the density of native cover have occurred making the site comparable to baseline conditions in adjacent undisturbed parcels. Therefore, the goals for this potential project, as stated in the EIR, have been met. This project is complete.



Aerial Photo of Shepherd Creek Potential Revegetation Project area captured September 9, 1988 (looking west/northwest). Project area is the white cast area in the foreground east of the Shepherd Creek Alfalfa Field.

Shepherd Creek Potential Revegetation Project, looking west (August 25, 2017).

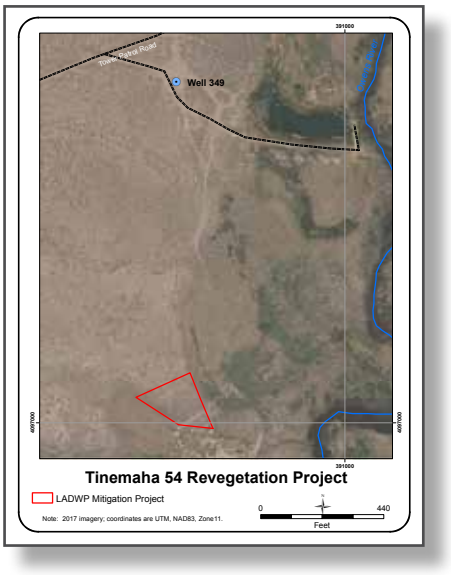
20 Tinemaha 054 Revegetation Project

Legal Reference: 1991 EIR Impact 10-11	
1991 EIR Impact:	**Mitigation Measure/Provision:**
10-11: Fluctuations in water tables due to groundwater pumping have caused approximately 655 acres of groundwater dependent vegetation to die off. Loss of vegetation cover has occurred on these lands.	Approximately 80 acres of land that lost a significant amount of its native vegetation cover as a result of increased groundwater pumping will be revegetated. The techniques that will be employed to revegetate these lands will be determined through studies that will be conducted by LADWP and Inyo County. These lands will not be permanently irrigated, but will be revegetated with native Owens Valley vegetation not requiring irrigation except perhaps during its initial establishment. Depending on the amount of rainfall and runoff, successful revegetation of these lands could take a decade or longer. The goal will be to restore as full a native vegetation cover as is feasible, but at a minimum, vegetation cover sufficient to avoid blowing dust will be achieved in that area.

Success Criteria	Met goal?	
Cover	30% live perennial cover	No (5%)
Composition	**3 native perennial species**	✓

The 0.4 acre Tinemaha 054 revegetation site was originally impacted from groundwater pumping. The 0.4 acre area was fenced and planted with 108 grass plants and drip irrigated between 1999 and 2004 to encourage plant establishment. In 2016-2017, LADWP planted approximately 125 native plants consisting of Torrey's saltbush, fourwing saltbush, cattle saltbush, and winterfat using the Land Life Cocoon planting method. This technology allows for shrubs to grow in arid environments with a temporary reservoir and does not require additional irrigation post planting. The road through the middle of the site was removed and reclaimed as well during this planting process.

Survivorship of the 2016 plantings was 80%. Transects were run by LADWP in August of 2017. The parcel has achieved 5% total perennial cover with 4 native perennial species. The project has attained the composition goals. Plantings will be monitored every five years until cover goals are achieved. Project is fully implemented but has not attained cover goals. Composition goals have been met.



Alkali sacaton planted at Tinemaha 054 Revegetation Project (May 30, 2002).

Watershed Resources Staff planting shrubs at TIN054 using Land Life Cocoon planting system (September 6, 2016).

Tinemaha 054 Revegetation Project (April 2017).

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Owens Valley Revegetation Projects

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