

## EXECUTIVE SUMMARY

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The Ely District of the Bureau of Land Management (BLM) has prepared this Final Environmental Impact Statement (EIS) in response to a right-of-way (ROW) application submitted by the Lincoln County Water District (LCWD or Applicant) to construct and operate the Kane Springs Valley Groundwater Development Project (Proposed Action). The Applicant is seeking a ROW from the BLM for the purpose of developing and conveying water rights that have been permitted or may be permitted to the LCWD in Kane Springs Valley for use by Lincoln County customers. As of February 2007, the Nevada State Engineer has granted an appropriation of 1,000 acre-feet per year (AFY) to the LCWD for groundwater withdrawal from the carbonate aquifer within the Kane Springs Valley Hydrographic Basin. The LCWD has submitted four additional water rights applications to the Nevada State Engineer to withdraw additional groundwater from the Kane Springs Valley Hydrographic Basin. These applications are still pending before the Nevada State Engineer.

The LCWD, in cooperation with the Lincoln County Power District No. 1 (LCPD) and Lincoln County Telephone (LCT), intends to construct groundwater facilities and ancillary utility infrastructure designed to pump and convey up to 5,000 AFY of groundwater for delivery to the northern portion of the Coyote Spring Valley. The project facilities would be located in southern Lincoln County, Nevada, within or immediately adjacent to the 2,640-foot wide utility corridor established by the Lincoln County Conservation, Recreation, and Development Act (LCCRDA) of 2004 (Public Law 108-424). **Map ES-1** shows the general location of the project within southern Lincoln County, Nevada. Primary components of the Proposed Action include:

### Water Facilities

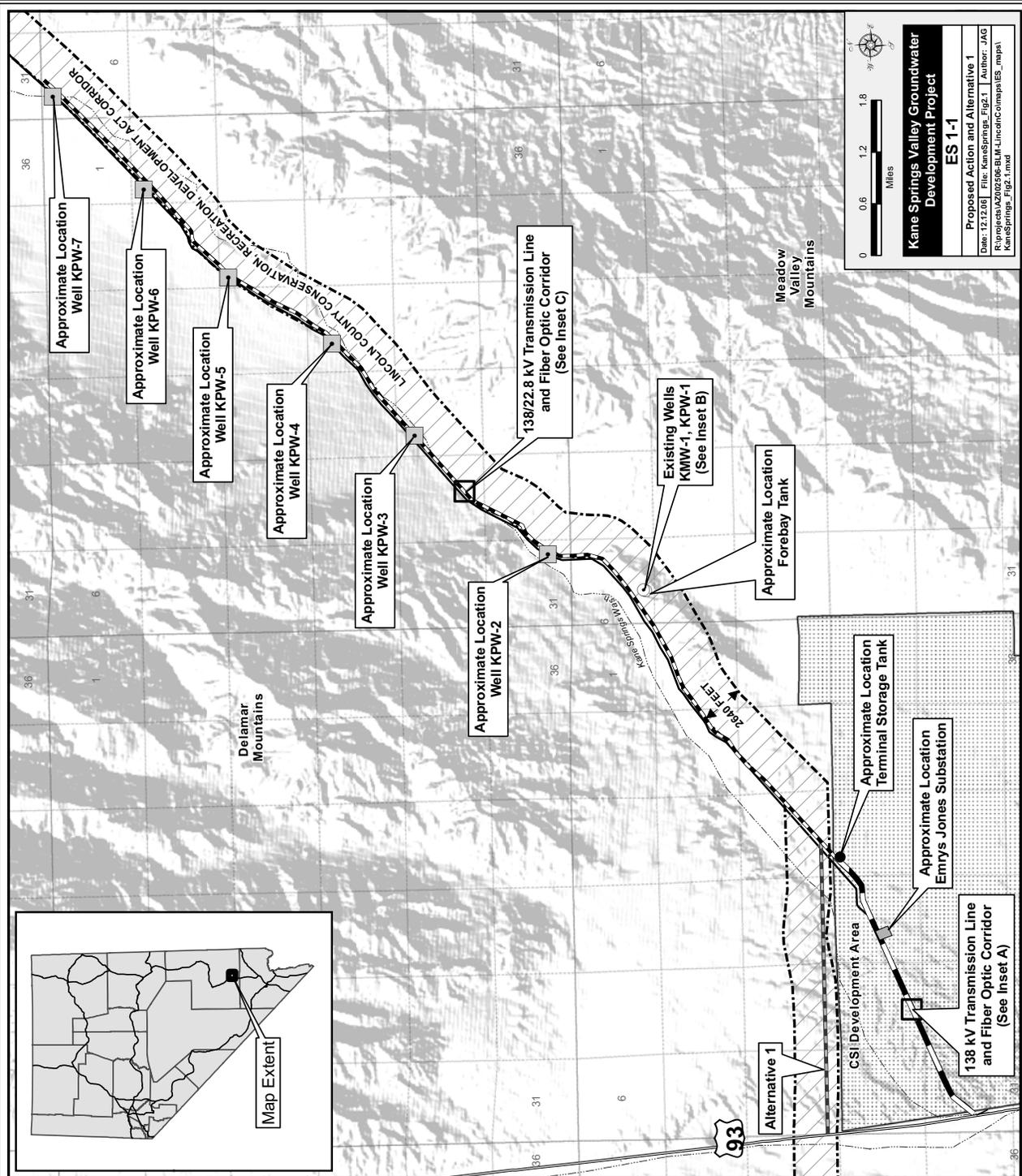
- Up to seven groundwater production wells<sup>1</sup> (well field)
- Monitoring wells<sup>1</sup>
- Water collection pipeline from each well to main transmission pipeline (up to 9.4 miles - actual length and diameter depending on final well location and flow rates)
- Main water transmission pipeline (up to 3.8 miles)
- Forebay water storage tank (up to 50,000 gallons)
- Terminal water storage tank (up to 700,000 gallons, located on private land)

### Electric Utility Facilities

- 138 kilovolt (kV) transmission line (up to 3 miles on private lands; 10.7 miles on federally managed lands).
- Emrys Jones Substation (located on private land)

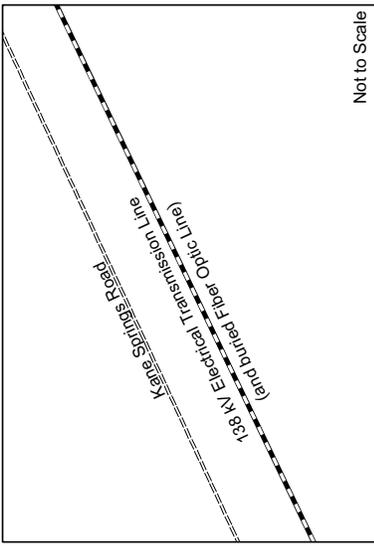
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<sup>1</sup> A monitoring well (referred to as KMW-1) was completed in 2005 to assess the hydrogeology of Kane Springs Valley, obtain data to support the drilling of a water production well and to assist in revising the preliminary production well design. Following the construction and development of KMW-1, a production well (referred to as KPW-1) was constructed in late 2005 immediately adjacent to KMW-1.

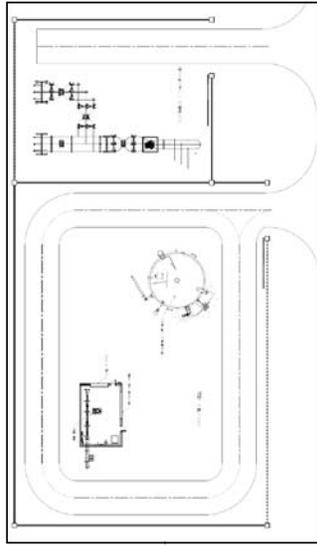


0 0.6 1.2 1.8 Miles

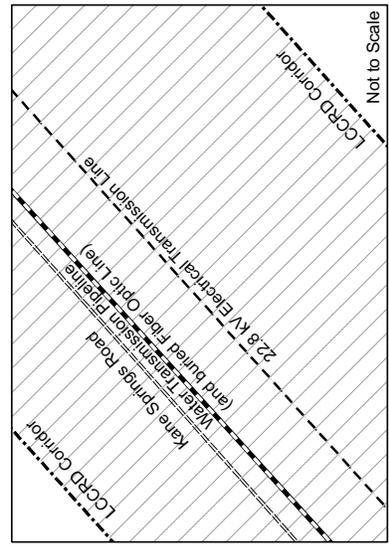
Proposed Action and Alternative 1  
**Kanso Springs Valley Groundwater Development Project**  
**ES 1-1**  
 Date: 12.12.08 | File: KansoSprings\_Fig2.1 | Author: JAG  
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Inset A: Typical Layout Planview



Inset B: KPW-1 Layout



Inset C: Typical Layout Planview

- Up to seven well substations adjacent to each groundwater production well

### **Communication Facilities**

- Telemetry system/fiber optic lines

The BLM may issue multiple ROW grants based on the analysis in this EIS. The LCWD would be responsible for the construction and operation of the groundwater production facilities subject to the terms and conditions of BLM Serial Number N79742. The LCPD and the LCT would be required to apply for, and obtain, separate ROWs for their activities under the terms and conditions of the Federal Land Policy and Management Act (FLPMA). The ROWs for the water production/delivery system, electrical distribution system, and the fiber optic lines within the congressionally designated LCCRDA corridor would be issued in perpetuity pursuant to Title III of the LCCRDA.

Construction activities would occur in three phases, with 1 to 3 years between phases. Construction would begin at the southwest end of the project area (near the intersection of U.S. Highway 93 and Kane Springs Road) and continue to the northeast (generally following Kane Springs Road). Construction of Phase 1 would begin upon acquisition of necessary permits, approval, and grants and would occur over a 90- to 180-day period. Phase 2 and Phase 3 construction would be completed in 30 to 60 days at 1- to 3-year intervals after completion of Phase 1, and would correspond to the demand for water and the issuance of permits for additional water rights.

The Kane Springs Valley Groundwater Development Project EIS evaluates the BLM action (issuance of ROWs across BLM-administered public lands) and the potential environmental effects that would result from implementation of the Proposed Action (construction and operation of the Proposed Action).

## **ES-1.1 PROJECT PURPOSE AND NEED**

In order to convey the groundwater from the point of origin to the Coyote Spring Valley, the LCWD has submitted a ROW application to the BLM for the Proposed Action. The Proposed Action includes construction and operation of groundwater production wells, pipelines, pumping stations, storage facilities, telemetry facilities, telephone service and power facilities, as outlined above, that cross or occupy BLM-administered public lands.

Pursuant to Title III of the LCCRDA, Congress directed the BLM to conduct a National Environmental Policy Act (NEPA) analysis of any ROW application submitted for the construction and operation of utility infrastructure within the designated 2,640-foot LCCRDA utility corridor. This EIS is intended to fulfill the requirements of NEPA by disclosing the potential environmental impacts of granting the requested ROWs for the Proposed Action and of a reasonable range of alternatives to the Proposed Action.

The Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulation [CFR] 1502.13) require the purpose and need of an EIS to “briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.”

The Applicant is seeking a ROW from the BLM for the purpose of developing and conveying water rights that have been permitted or may be permitted to the LCWD in Kane Springs Valley for use by Lincoln County customers. The purpose of the Proposed Action is to provide ROW access for transporting water resources across areas of BLM-administered public land.

The Proposed Action would assist in meeting a portion of the water demands of Lincoln County and is a component of Lincoln County's Water Plan. The three key elements identified in the 1999 Lincoln County Water Plan include:

- Assist and support the needs of local communities in Lincoln County, including Coyote Spring Valley;
- Meet the needs of future economic development within Lincoln County; and
- Produce, purchase, wholesale and transport water from sources inside of Lincoln County to meet customer water needs across the region.

Development is underway in the adjacent Coyote Spring Valley. Currently, 16,304 AFY of groundwater have been permitted within the Coyote Spring Hydrographic Basin for a variety of uses. Groundwater from Kane Springs Valley would supplement these uses which include municipal, agricultural and industrial applications.

The BLM's decision is to grant or deny the LCWD's ROW application. The BLM uses a comprehensive process to determine whether ROWs on BLM-administered public lands should be granted. This process includes compliance with the requirements of the NEPA and CEQ regulations, BLM planning regulations, manuals and handbooks, and applicable policy documents.

## **ES-1.2 AGENCY CONSULTATION AND PUBLIC PARTICIPATION**

### **ES-1.2.1 Public Participation**

A public scoping period was provided by the BLM to allow for an early and open process for determining the scope of issues related to the Proposed Action. A Notice of Intent (NOI) to prepare the Draft EIS was published in the Federal Register (Volume 71, No. 62) on March 31, 2006. The notice encouraged the public and other federal, state, local and Tribal governments to assist the BLM in identifying issues to be considered by the BLM for evaluation in this EIS.

The BLM held six open house meetings between April 11, 2006 and April 18, 2006. A summary report of scoping comments received during the scoping period is provided in the Kane Springs Valley Groundwater Development Project Environmental Impact Statement Scoping Report (BLM 2006). A copy of this report is available for download at the BLM Nevada State Office website located at [www.nv.blm.gov](http://www.nv.blm.gov).

Based on comments received during the scoping process, the following general categories of issues were identified as summarized below.

- **NEPA Process** – Eighty-six comments were received specific to the NEPA process; particularly, how closely the EIS would follow the NEPA process.
- **Social Resources** – Fifty-one comments were received specific to concerns about impacts on the human or built environment. Scoping comments were provided on the following resources: 1) Visual Resources; 2) Noise; 3) Land Use (including Transportation, Mineral Resources, and Range Resources); 4) Areas of Critical Environmental Concern, Wilderness, and Other Special Use Areas; 5) Recreation; 6) Socioeconomic Resources; 7) Solid Waste and Hazardous Materials; 8) Environmental Justice; 9) Paleontology; and 10) Archeological Resources and Historic Properties.
- **Physical and Biological Resources** – Ninety comments were received specific to concerns about impacts on components of the physical environment. Scoping comments were provided on the following resources: 1) Air Quality; 2) Biological Resources (including Endangered, Threatened, Proposed and Candidate Species, Fisheries, Migratory Birds, Vegetation, Noxious Weeds, and Wetlands/Riparian Habitat); 3) Geologic Resources; 4) Soil Resources; and 5) Water Resources.

### **ES-1.2.2 Public Controversy**

The BLM acknowledges that areas of controversy exist regarding the extraction of groundwater on public lands. There is a common misconception concerning the jurisdiction of the Nevada State Engineer and the BLM with respect to the appropriation of water rights in Nevada. As the federal land manager, the BLM has the responsibility to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations. Although the BLM has the authority and responsibility to coordinate with agencies and water rights applicants to protect the federal land resources, it is the responsibility of the Nevada State Engineer's Office to approve and control the amount and location of groundwater pumped from basins in Nevada, regardless of ownership.

To develop infrastructure to pump and convey groundwater across the BLM lands, the groundwater developer must obtain ROW approval from the BLM. Because the application process for obtaining a groundwater right from the Nevada State Engineer and approval of a BLM ROW grant may take several years, the process for both normally follows a parallel path. Both agencies must consider the best available information to assist in their decision-making process.

The BLM must rely on the best available data when considering the expected environmental effects associated with granting ROWs across public lands. The data analyzed in this EIS includes regional studies conducted by federal, state, and local agencies and organizations; private developers and their consultants; and more localized studies conducted by the Applicant to support their water rights applications to the Nevada State Engineer. In addition, the BLM conducted project-specific biological and cultural surveys as part of the NEPA process for this EIS. The data analyzed comprises the best available representation of current and predicted conditions at this time. The BLM acknowledges that the Applicant and other entities continue to expand the body of knowledge regarding groundwater development in the project area and regional aquifer system to support future water rights applications. These data will be used by the Nevada State Engineer in the decision to approve or deny future applications. Existing and

permitted water rights will be subject to the terms and conditions directed by the Nevada State Engineer. Construction and operation of infrastructure associated with the Proposed Action on federal lands will be subject to the terms and conditions directed by the BLM as part of the ROW grant.

To date, the Nevada State Engineer has appropriated 1,000 AFY of groundwater, with additional applications pending. The bounded analysis for this EIS is to pump and convey up to 5,000 AFY with a phased construction approach. Actions connected to the Proposed Action but outside the BLM jurisdiction include the location of groundwater diversions and amount of groundwater permitted by the Nevada State Engineer; groundwater monitoring and management agreements between the Applicant and the Nevada State Engineer; and wildlife and groundwater monitoring, management; and mitigation agreements between the Applicant and the U.S. Fish and Wildlife Service (USFWS).

### **ES-1.2.3 Agency Consultation**

Federal and state agencies were contacted individually to gather input for the EIS. Consultation was conducted with other resource management agencies at the federal and state levels to identify common concerns related to the Proposed Action or Alternatives. Cooperating agencies on this EIS include the USFWS, Nevada Department of Wildlife (NDOW), and the Moapa Valley Water District (MVWD). In addition, the U.S. Geological Survey (USGS) has provided technical guidance related to water resources issues. Consultations with federal, state, and local resource management and regulatory agencies, as well as interested Tribal governments, have occurred and are ongoing.

A biological assessment was prepared for the Proposed Action and submitted to the USFWS as required by Section 7 of the Endangered Species Act (ESA) of 1973. A species list was requested from the USFWS at the beginning of the Section 7 process. The species list identified plant and wildlife species listed as threatened, endangered or candidate species within the project area. At the request of the USFWS, rare plant and desert tortoise surveys were conducted within the project area.

To satisfy Section 106 of the National Historic Preservation Act (NHPA) requirements concerning consulting with appropriate Native American Tribes, the BLM consulted with Native American Tribes that claim ancestral ties to, or traditional culture use of, project area lands. In March 2006, the BLM mailed copies of an “interested parties” letter under the NEPA guidance to the following groups:

- Moapa Band of Paiutes
- Paiute Indian Tribe of Utah
- Las Vegas Paiute Tribe
- Kaibab Paiute Tribe (Arizona)
- Yomba Shoshone Tribe
- Ely Shoshone Tribe

- Duckwater Shoshone Tribe
- Shoshone Paiute Business Council

The consultation letter provided a brief description of the Proposed Action and requested 1) Tribal input regarding any concerns about traditional cultural practices or other issues that might be affected by the Proposed Action; 2) information on how they would like to be involved in the planning process; 3) names of other individuals or organizations that should be notified or consulted about the project; and 4) an invitation to the Tribal Coordination Meeting at the BLM Ely District Office, Ely, Nevada, on May 18, 2006. A copy of the NOI, a map of the project area, and a brief description of the preliminary issues to be considered in the plan were enclosed with each of these letters.

On May 18, 2006, representatives from the Ely Shoshone Tribe and the Duckwater Shoshone Tribe attended a Tribal Coordination Meeting at the BLM Ely District Office, Ely, Nevada. Information about the Proposed Action was presented to Tribal representatives. The Ely Shoshone Tribe and the Duckwater Shoshone Tribe expressed their concerns and interest with continued consultation with the Proposed Action.

In a further effort to elicit Tribal issues and concerns, the Moapa Band of Paiutes and the Las Vegas Paiute Tribe were invited by the BLM to visit the project area in person. On November 30, 2006 the Moapa Band of Paiutes and the Las Vegas Paiute Tribe visited the project area. Representatives from the Moapa Band of Paiutes indicated they would submit written comments to the BLM expressing their concerns and interest with continued consultation with the Proposed Action. As of the writing of this Final EIS, the BLM has received no formal responses from the Moapa Band of Paiutes or Las Vegas Paiute Tribe following the site visit. Currently, there is no known effect on the integrity of resources of concern or interest to the Tribes in the area, or any specific expressions of concern for the proposal.

## **ES-1.3 PROPOSED ACTION AND ALTERNATIVES**

### **ES-1.3.1 Proposed Action**

Construction of the Proposed Action would occur in three phases, with 1 to 3 years between construction phases. Phases and sequence of construction would correspond to demand for water and issuance of permits for additional water rights. The Nevada State Engineer has granted an appropriation of 1,000 AFY to the LCWD for groundwater withdrawal from the carbonate aquifer within the Kane Springs Valley Hydrographic Basin (Ruling 5712). This appropriation granted four points of diversion and constitutes the initial production under Phase 1 of the Proposed Action. If additional appropriations are granted, production from Phase 1 wells could be increased, and Phase 2 and Phase 3 wells could be developed.

Under both the Proposed Action and Alternative 1, the well field pipeline collection system is expected to be located on the south side of Kane Springs Valley Road and would be contained within the BLM-granted ROW, which would be located entirely within the 2,640-foot wide LCCRDA utility corridor. Up to seven well sites would extend from the southwest edge of the well field (beginning at Well KPW-1) to the northeast edge of the well field (Well KPW-7). Wells KPW-2 through KPW-6 would be spaced at 1.3- to 1.8-mile intervals between wells

KPW-1 and KPW-7. These are approximate locations and may be modified based on additional geologic and hydrologic investigations.

The well construction sequence may vary by phase, depending on well output and other factors. Although Phase 1 is proposed to include up to four wells (at this time it is anticipated that KPW-1, KPW-3, KPW-5 and KPW-7 would be constructed), it may be possible to achieve production from two or three wells (KPW-1, KPW-5 and KPW-7, for example). In this case, wells not completed in Phase 1 could be developed in Phase 2 or 3, if needed. The following section outlines anticipated construction sequence by phase.

**PHASE 1:** Construction of Phase 1 would occur over a 90- to 180-day period and would begin upon completion of the NEPA process and acquisition of necessary permits and approvals. The groundwater production facilities, groundwater collection and transmission pipelines, electric transmission and distribution system, and fiber optic line would be constructed at the same time.

#### *Water Facilities*

- Pipelines: 3.8 miles of transmission pipeline (main water line) and approximately 9.4 miles of well field collection pipelines for up to four wells (main collection plus laterals to wells).
- Wells: up to four production wells.
- Storage Tanks: one 50,000-gallon forebay storage tank on public land and one 700,000-gallon terminal storage tank on private land.

#### *Power Facilities*

- Power Lines: 138 kV transmission line (up to 3 miles on private lands; 10.7 miles on BLM-administered public lands).
- Electrical Substations: Emrys Jones Substation (located on private land). Four step-down substations, one associated with each well (on BLM-administered public lands).
- Ancillary Facilities: access roads and temporary workspaces on private and BLM-administered public lands, and a storage yard located on private land.

#### *Ancillary Project Components*

- Fiber optic line
- Monitoring Wells: nine existing monitoring wells are currently being used to monitor groundwater conditions in the area. Additionally, up to two new monitoring wells would be constructed per the Stipulation Agreement between the USFWS and the LCWD.
- Extra Work Space: up to 50 acres total; each work space would occupy approximately 2 acres and would be spaced approximately 0.5 mile apart.
- Fire hydrant: to be sited adjacent to the forebay tank

**PHASE 2:** Construction would occur over a 30- to 60-day period and would begin 1 to 3 years after the completion of Phase 1.

*Water Facilities*

- Pipelines: one to two lateral pipelines from Phase 2 wells to the main collection pipeline (combined length of the two lateral pipelines is expected to be less than 1 mile).
- Wells: one to two production wells.

*Power Facilities*

- As part of Phase II, the LCPD proposes to construct two additional step-down substations at the additional well facilities. In addition, the associated interconnection to the transmission line constructed in Phase I would be built at each well site.

**PHASE 3:** Construction would occur over a 30- to 60-day period and would begin 1 to 3 years after the completion of Phase 2. Phase 3 would only be developed if production from Phase 1 and Phase 2 were insufficient to meet anticipated demand or if production from previous wells was lower than estimated or designed.

*Water Facilities*

- Pipelines: one to two lateral pipelines from Phase 3 wells to the main collection pipeline (combined length of the two lateral pipelines is expected to be less than 1 mile).
- Wells: one to two production wells.

*Power Facilities*

- As part of Phase III, the LCPD proposes to construct the final two step-down substations at the additional well facilities. In addition, the associated interconnection to the transmission line constructed in Phase I would be built at each well site.

**ES-1.3.1.1 Well Field Pipeline Collection System / Fiber Optic Line**

The well field pipeline collection system would consist of individual branch pipelines from each well to a single collection pipeline terminating at the forebay storage tank. The length and diameter of the pipeline would be based on well locations and established flow rates at each well. However, the pipeline is expected to be between 12 inches and 24 inches in diameter and constructed of ductile iron. A fiber optic telemetry cable would be located in the same trench with the buried pipeline.

A 50,000-gallon forebay storage tank would be installed adjacent to KPW-1 and would serve as the termination point for the collection system. A terminal water storage tank, to be located on private property, would ultimately be located at the southern end of the water transmission pipeline to receive the imported water and would be sized to satisfy anticipated water demands in Coyote Spring Valley.

The temporary pipeline construction easement would be between 100 to 150 feet wide based on pipeline size, land use, and topographic constraints. In general, the pipeline would parallel Kane Springs Road within a 60-foot wide construction easement and a 30-foot wide permanent easement. If cross-country construction is required, the temporary construction easement for the pipeline would be 75 feet, with a permanent easement of 60 feet.

### **ES-1.3.1.2 Electrical Distribution System**

In order to provide reliable electric service to the well fields, the LCPD proposes to construct the power facilities necessary to support the development of the Kane Springs wells. The LCPD proposes to construct and operate approximately 3 miles of 138 kV transmission line on tubular steel poles from Highway 93 east, along Kane Springs Road to the proposed Emrys Jones Substation. This portion of the 138 kV transmission line would tie into the LCPD's existing transmission line, located west of Highway 93. The poles would be approximately 80 to 100 feet tall with span lengths varying from 400 to 700 feet. The alignment centerline would be located within the permitted ROW south of Kane Springs Road.

The LCPD proposes to construct the proposed Emrys Jones Substation approximately 2.5 miles east of Highway 93 and south of Kane Springs Road. This new facility would transform voltage from 138 kV initially to 25 kV class distribution voltage. From the Emrys Jones substation, the LCPD proposes to construct a 138 kV transmission line on wood poles along Kane Springs Road to each of the proposed well sites. This line would initially be energized at 25 kV class distribution providing service to each of the proposed well sites through individual step-down substations provided at each well site to serve the pump motor and ancillary equipment. The poles would be approximately 65 to 80 feet tall with span lengths varying from 300 to 400 feet. The alignment centerline would be located within the permitted ROW, south of Kane Springs Road.

The electric transmission lines would typically parallel the water transmission pipeline and share the pipeline's temporary construction easement. In areas of cross-country travel, the electric transmission lines would be constructed within a 100-foot wide construction easement. Additional temporary work areas may be required in areas of rough or steep terrain, wash crossings, and any areas identified as containing sensitive environmental resources. The fiber optic line would be buried in the same trench as the pipeline on public lands and adjacent to the 138 kV transmission line on private lands. After construction, the electric transmission lines would require a 100-foot wide permanent easement.

**Table 2-1** lists estimated temporary and permanent disturbance acreage required for construction and operation of the Proposed Action. The exact location of each project component (e.g., well yard, access road, electric pole structure) cannot be determined until final design is complete. Therefore, assumptions were made to determine impacts of the Proposed Action within a study corridor. For this analysis, the temporary construction corridor is considered to be up to 150 feet wide by 14 miles long (from Highway 93 to the northernmost well). The disturbance acreage is likely to change based on refinement of the project layout and design; however, all construction and operations activities would occur within the permitted ROW. Final ground disturbance would be recalculated for the BLM Plan of Development when final design is complete and the exact location of structures and roads are known.

| <b>Table ES-1<br/>                     Estimated Surface Disturbance By Land Ownership<br/>                     (At Full Build Out Of The Proposed Action)</b>   |  |  |
|--|--|--|
|  | <b>Temporary<br/>                     (acres)*</b> | <b>Permanent<br/>                     (acres)*</b> |
| Public (BLM)   | 167.0  | 17.0   |
| Private  | 28.0   | 8.0  |
| Total  | 195.0  | 25.0   |
| * Temporarily disturbed areas are those that would be reclaimed and revegetated following construction. Permanently disturbed areas are those that would be impacted for the life of the project by a facility footprint (e.g., well house, substation, access road).<br>BLM – Bureau of Land Management |  |  |

**ES-1.3.2 Alternative 1 – 138 kV Power Line Alignment**

Alternative 1 would include the same groundwater and electric utility facilities identified for the Proposed Action. However, the 138 kV transmission line and fiber optic /communication lines that extend from the proposed terminal water storage tank to Highway 93 would be located entirely within the designated LCCRDA utility corridor. This portion of the line is approximately 3 miles long. The design and construction of the line would be the same as that described for the 138 kV line in the Proposed Action.

Cross-country access would be required under Alternative 1. Preconstruction clearances would be required prior to any ground-disturbing activities. At a minimum, access would require completion of cultural resource surveys and biological surveys along with appropriate State Historic Preservation Office and USFWS consultation and approvals. Construction activities would be the same as those described under the Proposed Action.

**ES-1.3.3 No Action Alternative**

The No Action Alternative represents the status quo — not approving or implementing the Proposed Action or Alternative 1. Analysis of the No Action Alternative is required by the NEPA guidelines. Under the No Action Alternative, the BLM would not approve the ROW application as submitted, and the groundwater development project would not be constructed on the BLM-administered public lands. As a result, impacts associated with construction and operation of the Proposed Action on public land would not occur. Nothing in this alternative would prevent the LCWD from making the beneficial uses of their Kane Springs Valley water right in accordance with any water rights permitted by the Nevada State Engineer.

**ES-1.3.4 Other Alternatives Considered But Not Evaluated in Detail**

An interdisciplinary (ID) Team of resource specialists from various BLM offices, representatives from cooperating agencies, the Applicant’s consultants, and the EIS consultant team were assembled to assist in evaluating the environmental issues to be addressed in the EIS. The ID Team analyzed the Proposed Action, Alternatives to the Proposed Action, and the No Action Alternative.

The following criteria were used to establish a threshold for developing potential alternatives that respond to the purpose of and need for the Proposed Action and meet the BLM policy and direction.

- The alternative should be consistent with management guidance contained in the approved Caliente Management Framework Plan and other applicable BLM policy and direction.
- The alternative must meet the purpose of and need for action.
- The alternative must be feasible from technical and economic standpoints while remaining environmentally responsible.
- The alternative must be capable of implementation in a timely manner.

In addition to the Proposed Action and No Action Alternative, one other alternative (Alternative 1) was identified for detailed study. Several other alternatives were considered during initial project planning. They included locating the proposed terminal storage tank on public lands, burying the electrical lines, and installing aboveground pipelines instead of burying the pipelines. These alternatives were eliminated from detailed analysis because they provided no environmental advantage or benefit over the Proposed Action.

#### **ES-1.3.4.1 Terminal Storage Tank on Public Lands**

This alternative would include constructing the terminal storage tank on public lands instead of private lands, as proposed under the Proposed Action. This alternative was eliminated from further analysis in the EIS because it provides no advantage over the Proposed Action. Private lands are available for the construction of the tank.

#### **ES-1.3.4.2 Underground Electrical Transmission and Distribution Lines**

Selection of this alternative would require the transmission line and distribution lines to be buried parallel to the water transmission and collection pipelines and fiber optic line from the production wells to the terminal storage tank. The transmission line would also be buried from the terminal storage tank to Highway 93. This alternative was eliminated from further analysis in the EIS because, while it is technically feasible to bury transmission lines, it is not cost-effective for construction and maintenance.

The cost of burying transmission lines is estimated to be 7.5 to 12 times higher than traditional overhead construction for a given project (Johnson 2003). Also, it is standard operational procedure for transmission lines within road ROWs to be constructed aboveground to minimize infrastructure constraints within public easements (e.g., installation of public works such as water pipeline and sewer).

#### **ES-1.3.4.3 Aboveground Water Transmission Pipeline**

This alternative would involve constructing the water transmission pipeline aboveground (over a distance of approximately 3.8 miles). This alternative was eliminated from further analysis in the EIS because it provides no environmental advantage over the Proposed Action. While it is technically feasible to construct the water transmission pipeline aboveground, this would result in greater visual impacts and may act as a barrier to wildlife. The potential for vandalism and road safety issues would also be greater. Also, it is standard operational procedure for water transmission pipelines to be buried within road ROWs to minimize infrastructure constraints within a public easement.

### **ES-1.4 AGENCY PREFERRED ALTERNATIVE**

The Agency Preferred Alternative is the Proposed Action.

**Table ES-1**

**Summary of Impacts by Resource for the Kane Springs Valley Groundwater Development Project Proposed Action, Alternative 1, and No Action Alternative**

| <b>Proposed Action</b>   | <b>Alternative 1</b>  | <b>No Action Alternative</b>   |
|--|---|--|
| <b>Geological Resources – Sections 3.1 and 4.1</b>   |   |  |
| <p>The Proposed Action would not result in impacts to geologic resources. However, seismic activity in the region could potentially impact the structures and facilities constructed under the Proposed Action. All project components would be constructed in accordance with applicable regulations, engineering protocols and safety standards to minimize any potential impacts to structures from seismic activity.</p>   | <p>Impacts to geological resources under Alternative 1 would be same as those described under the Proposed Action.</p>  | <p>No project-related impacts to geological resources would occur on public lands.</p> |
| <b>Soil Resources – Sections 3.2 and 4.2</b>   |   |  |
| <p>Approximately 195 acres of surface disturbance from construction of project facilities, of which 167 acres are BLM-administered public lands. Approximately 25 acres would remain permanently impacted by project components (well yards, access roads, and overhead poles); of these approximately 17 acres would be on BLM-administered public lands and approximately 8 acres on private land. Construction of Phases 2 and 3 would result in less than 2.2 acres of additional temporary disturbance, with less than 1.1 acres remaining under additional facilities.</p> <p>Potential impacts to soil resources include increased soil compaction and erosion from wind and water, and chemical changes resulting from mixing surface soils with subsoil during salvage activities. These impacts are expected to be minimized, to the extent possible, following reclamation.</p> | <p>The 138 kV transmission line and buried fiber optic line would be constructed within a 100-foot wide construction easement between Highway 93 and the Emrys Jones Substation - a distance of approximately 2.7 miles. The disturbance corridor would be located entirely within the designated LCCRDA utility corridor. Approximately 32 acres of previously undisturbed desert land would be temporarily disturbed during construction. Following construction, disturbed acres would be reclaimed to pre-construction conditions, except for the access road (up to 16 feet wide) and pole footprints.</p> | <p>No project-related impacts to soil resources would occur on public lands.</p>       |
| <b>Water Resources – Sections 3.3 and 4.3</b>  |   |  |
| <p>Potential impacts to surface water may include increased erosion and sedimentation from surface disturbance related to construction activities and hydrostatic testing water discharges and impacts to water quality from accidental spills. Potential direct impacts to groundwater include impacts to groundwater quantity as a result of drawdown (lowering of the water table) within the well head and potential indirect impacts may be related to lowered yields at regional springs.</p>  | <p>Impacts to water resources under Alternative 1 would be same as those described under the Proposed Action.</p>   | <p>No project-related impacts to water resources would occur on public lands.</p>      |

Table ES-1

**Summary of Impacts by Resource for the Kane Springs Valley Groundwater Development Project Proposed Action, Alternative 1, and No Action Alternative**

| <b>Proposed Action</b>   | <b>Alternative 1</b>   | <b>No Action Alternative</b>   |
|--|--|--|
| <p>Groundwater pumping associated with the Proposed Action will be subject to terms and conditions imposed by the Nevada State Engineer, and the Monitoring, Management, and Mitigation Plan included in the Stipulation Agreement between the USFWS and LCWD. The Stipulation Agreement outlines “trigger points” that serve to minimize adverse impacts including reduction or cessation of pumping if specified spring flow trigger levels at Muddy River Springs are reached.</p> <p><b>Vegetation Resources – Sections 3.4 and 4.4</b></p> <p>Potential direct impacts to vegetation resources associated with construction activities could include crushing and/or removal of native vegetation and introduction of invasive and noxious weeds. Temporary disturbance would be 195 acres, and permanent disturbance would be 25 acres. There would be no direct or indirect impacts to vegetation resources associated with operation and maintenance of the Proposed Action.</p> <p>No potential habitats for federally listed Threatened, Endangered, and Sensitive Plant Species occur within the Proposed Action ROW. Cacti species protected by Nevada law would be salvaged and restored as a part of the Proposed Action’s Reclamation Plan.</p> | <p>Approximately 32 acres of additional previously undisturbed Mojave Creosote Bush Scrub and Mojave Desert Wash Scrub vegetation communities would be temporarily disturbed during construction. Following construction, disturbed acres would be reclaimed to pre-construction conditions, except for the access road (up to 16 feet wide) and pole footprints.</p>  | <p>No project-related impacts to vegetation resources would occur on public lands.</p> |
| <p><b>Wildlife Resources – Sections 3.5 and 4.5</b></p> <p>Direct effects on wildlife resources can result from ground disturbance caused by construction-related activities, which can impact wildlife habitat by removing vegetation, altering plant composition or structure, and/or by altering soil characteristics. Potential indirect effects during construction activities include degradation of soil due to fuel contamination, harassment from human presence, and increased levels of noise and vibration due to construction, equipment movement, or blasting.</p>   | <p>Approximately 32 acres of additional previously undisturbed wildlife habitat would be temporarily disturbed during construction. Following construction, disturbed acres would be reclaimed to pre-construction conditions, except for the access road (up to 16 feet wide) and pole footprints.</p> <p>Disturbance to desert tortoise habitat under Alternative 1 would be slightly greater than that under the Proposed Action. Approximately 28.2 acres (5.2 acres more than the Proposed Action) of desert tortoise</p> | <p>No project-related impacts to wildlife resources would occur on public lands.</p>   |

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| Proposed Action  | Alternative 1   | No Action Alternative |
|--|---|-----------------------|
| <p>Long-term direct impacts can occur from loss of vegetation and wildlife habitat resulting from continued disturbance from operation and maintenance. Additionally, wildlife species could be temporarily displaced from areas of human activity during operation and maintenance activities. Indirect long term impacts can result from increased public access and project maintenance. The Proposed Action would also have long-term beneficial effects to wildlife in the project area with the development of a local water supply.</p> <p>The desert tortoise is the only federally listed species that may occur within the Proposed Action ROW. Approximately 23 acres of desert tortoise habitat would be permanently disturbed and 195 would be temporarily disturbed by construction of the Proposed Action. A remuneration fee would be paid for each acre disturbed to Lincoln County’s Land Disturbance Fee Fund for compensation of desert tortoise habitat loss.</p> <p>There is no habitat for Moapa dace within the project area; however, there is habitat for this species in the Muddy River system approximately 28 miles south of the project area. Groundwater pumping associated with the Proposed Action could have the potential to impact flow rates in the Muddy River system, potentially decreasing pool and riffle habitat. The Monitoring, Management and Mitigation Plan included in the Stipulation Agreement outlines “trigger points” that serve to minimize adverse impacts to the Moapa dace (and consequently, other riparian habitat) including reduction or cessation of pumping if specified spring flow trigger levels at Muddy River Springs are reached.</p> <p>Potential impacts to Nevada BLM Sensitive and/or State protected species including gila monster, chuckwalla, and Western Burrowing Owl would be mitigated by specific protection measures described in the Standard Construction and Operation Procedures in Appendix C for the EIS.</p> | <p>habitat would be permanently disturbed by construction of Alternative 1. Approximately 195 acres would be temporarily disturbed. Of these totals, 19.6 acres (federal and private lands) of permanent disturbance would occur in the Mormon Mesa Critical Habitat Unit. Approximately 157.6 acres of temporary disturbance would occur in the Mormon Mesa Critical Habitat Unit. Permanent and temporary disturbance make up 0.005 and 0.04 percent of the Mormon Mesa Critical Habitat Unit, respectively. Most of the critical habitat disturbance would be on land that is within the Kane Springs Road ROW. Approximately 147.2 acres of critical habitat on federal land would be disturbed. As described for the Proposed Action, the environmental protection measures that would be implemented as part of this alternative would reduce potential direct impacts to fish and wildlife species.</p> <p>Impacts to Moapa dace would be the same as the Proposed Action.</p> |                       |

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| <b>Proposed Action</b>   | <b>Alternative 1</b>  | <b>No Action Alternative</b>  |
|--|---|---|
| <p>Direct impacts to birds in the vicinity of the project area include direct mortality from increased human traffic during operation and maintenance activities, direct disturbance of nests, and nest abandonment as a result of increase human presence and/or operation noise.</p> <p><b>Land Use – Sections 3.6 and 4.6</b></p> <p>Approximately 195 acres of surface disturbance from construction of project facilities, of which 167 acres are BLM-administered public lands. Following construction 25 acres (17 acres public, 8 acres private) would be maintained as permanent ROW and aboveground facilities. While land ownership would remain unchanged, grazing and public use of the area may experience short-term disruption during construction. Following reclamation, temporary disturbance areas would be returned to pre-construction conditions.</p> <p>The Proposed Action would not affect access to, nor availability or development of, oil and gas or any locatable/saleable mineral resources in the project area, nor would it reduce forage levels that would lead to grazing impacts in either the Delamar or Grapevine allotments.</p> <p>Implementation of Proposed Action would have short-term impacts on traffic flows and volumes and also may contribute to roadway deterioration of Kane Springs Road during construction. The LCWD has prepared an Access Road Plan which describes environmental protection measures and standard operating procedures for transportation-related activities.</p> | <p>Alternative 1 would be located entirely within the designated LCCRDA utility corridor. Up to 32 acres of previously undisturbed desert would be temporarily disturbed by construction of the 138 kV transmission line and buried fiber optic line. After construction, project components would impact approximately 5 acres (16-foot wide maintenance road and pole footprint).</p> | <p>Land use would not change on federal lands. However, land use changes would continue on adjacent private lands including construction of the Emrys Jones Substation and associated transmission lines.</p> |
| <p><b>Areas of Critical Environmental Concern, Wilderness, and Other Special Use Areas</b></p> <p>Indirect impacts may affect the Delamar Mountains and Meadow Valley Range Wilderness as a result of increased noise, dust, odors and increased traffic from construction activities. However, these impacts would be temporary and localized. After construction, all areas not permanently impacted by a project facility would be reclaimed and revegetated to pre-construction conditions.</p>  | <p>Up to 32 acres of previously undisturbed lands within the Kane Springs ACEC would be temporarily disturbed during construction. Following construction, disturbed acres would be reclaimed to pre-construction conditions, except for the access road (up to 16 feet wide) and pole footprints.</p>  | <p>There would be no project-related impacts to ACECs, Wildernesses, or other special use area under the No Action Alternative.</p>   |

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| <b>Proposed Action</b>  | <b>Alternative 1</b>   | <b>No Action Alternative</b>  |
|---|--|---|
| <b>Recreation – Sections 3.8 and 4.8</b>  |  |   |
| <p>Construction activities along portions of Kane Springs Road may temporarily restrict access into surrounding Delamar Mountain and Meadow Valley Range Wildemesses. The Proposed Action would not preclude the use of these areas, but rather would require recreational users to temporarily relocate to surrounding recreation areas if access roads are restricted due to construction. Operation and maintenance of the project facilities would not limit public access to recreation opportunities in the surrounding area.</p>   | <p>Impacts to recreation under Alternative 1 would be the same as those described under the Proposed Action.</p> | <p>No project-related impacts to recreational use of public lands would occur under the No Action Alternative.</p>  |
| <b>Air Quality – Sections 3.9 and 4.9</b>   |  |   |
| <p>Construction activities would result in temporary emissions of fugitive dust (particulate matter). These emissions would dissipate following completion of construction and would not be expected to travel great distances from the generation site. Temporary gaseous emissions would be generated during construction from diesel-powered well-drilling and other construction equipment. Emissions would be limited by state and federal regulations, and would be minimized through proper operation and maintenance.</p>   | <p>Impacts to air quality under Alternative 1 would be same as those described under the Proposed Action.</p>    | <p>Under the No Action Alternative, there would be no short-term construction-related exhaust or fugitive dust impacts. No impacts to air quality would occur under the No Action Alternative.</p>  |
| <b>Noise – Sections 3.10 and 4.10</b>   |  |   |
| <p>Major sources of noise associated with the Proposed Action would be from construction-related equipment and are predicted to be below levels of concern. Equipment used during construction activities would include standard construction and earth moving equipment and well development equipment such as drill rigs. Construction noise levels would be short-term, brief and intermittent. Long-term noise levels associated with wellhead, pump station and pipeline operations would generally be steady and continuous, and are predicted to be at lower levels than construction noise.</p> | <p>Impacts to noise under Alternative 1 would be same as those described under the Proposed Action.</p>          | <p>Under the No Action Alternative, the Proposed Action would not be built on public lands. Therefore, there would be no short-term construction noise impacts nor any long-term operation impacts associated with the Proposed Action.</p> |

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| <b>Proposed Action</b>  | <b>Alternative 1</b>   | <b>No Action Alternative</b>  |
|---|--|---|
| <b>Visual Resources – Sections 3.11 and 4.11</b>  |  |   |
| <p>Short-term visual impacts would occur during construction as views of construction equipment, increased traffic and construction activities are introduced into the local viewshed. Clearing and excavation activities associated with the installation of project components would remove vegetation communities within the pipeline alignment. Immediately following installation, these areas would be reclaimed and revegetated to pre-construction levels. The visual impact of vegetation removal would be minimal because of low color contrast associated with the characteristic vegetation and the underlying soils.</p> <p>The proposed overhead transmission line would be within the foreground distance zone of sensitive viewing areas, which is limited to Highway 93. No other proposed facilities would be visible from sensitive viewing areas, as they are isolated from views by distance or intervening terrain. The Proposed Action would meet the BLM VRM Class IV objectives because they provide for a high level of change to the characteristic landscape.</p> | <p>Impacts to visual resources under Alternative 1 would be similar to those described for the Proposed Action. However, under Alternative 1, the overhead power line would stay entirely within the LCCRDA corridor between Highway 93 and the Emrys Jones Substation. The only sensitive viewing area for this alternative would be along Highway 93. The proposed power lines would be partially screened from view by existing topography along the highway.</p> | <p>The No Action Alternative would result in no project-related impacts to visual resources because no new facilities would be constructed or operated on public lands.</p> |
| <b>Socioeconomic Resources – Sections 3.12 and 4.12</b>   |  |   |
| <p>Implementation of the Proposed Action would have a minimal affect on the social and economic resources from the associated increase in the level of economic activity. Increased economic activity would result from increased payroll earnings during project construction, which would be spent on items such as housing, food, goods and services.</p> <p>The Proposed Action would not have any direct growth-inducing effects because it is estimated to take from 90 to 180 days to complete and requires a construction work force of no more than 160 workers. Indirect effects may result from continuing planned developments in Clark and Lincoln Counties.</p>   | <p>Impacts to socioeconomic resources under Alternative 1 would be same as those described under the Proposed Action.</p>  | <p>No project-related impacts to socioeconomic resources would occur.</p>   |

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| <b>Proposed Action</b>   | <b>Alternative 1</b>  | <b>No Action Alternative</b>  |
|--|---|---|
| <b>Environmental Justice – Sections 3.13 and 4.13</b>  |   |   |
| <p>Potential direct and indirect impacts associated with the Proposed Action would not have a disproportionate effect on low-income or minority populations, because these populations are not present in the vicinity of the project area. Therefore, implementation of the Proposed Action would have no impact on environmental justice issues.</p>   | <p>Impacts to environmental justice under Alternative 1 would be same as those described under the Proposed Action.</p>                 | <p>The No Action Alternative would result in no project-related impacts to environmental justice.</p>                 |
| <b>Hazardous Materials and Solid Waste – Sections 3.14 and 4.14</b>  |   |   |
| <p>Potential for accidental release of hazardous and toxic materials would be minimized through the implementation of Environmental Management Plan and SPCCC Plan prepared by the LCWD as part of their POD.</p> <p>The amount of solid wastes generated from construction and operation would not affect the life expectancy of the municipal solid waste facilities currently operating in regional area. Any hazardous materials would be disposed at an EPA-approved hazardous waste facility. Therefore, there would be no impact from the Proposed Action on existing waste facilities in the region.</p> | <p>Impacts from hazardous materials and solid waste under Alternative 1 would be same as those described under the Proposed Action.</p> | <p>There would be no project-related hazardous materials or solid waste produced under the No Action Alternative.</p> |
| <b>Paleontological Resources – Sections 3.15 and 4.15</b>  |   |   |
| <p>No known fossil paleontological resources have been identified in the vicinity of the project area; therefore, no impacts resulting from construction, operation and maintenance of the Proposed Action are anticipated. However, construction activities may result in unanticipated exposure of Holocene and late Pleistocene vertebrates or pack rat middens.</p> <p>If these items are discovered during construction, the BLM would be contacted, according to the SOPs in Appendix C, to determine steps necessary to evaluate the need to preserve the paleontological resources.</p>                  | <p>Impacts to paleontological resources under Alternative 1 would be the same as those described under the Proposed Action.</p>         | <p>Under the No Action Alternative, no project-related impacts would occur to paleontological resources.</p>          |

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|---|--|--|
| <p><b>Archaeological Resources and Historic Properties – Sections 3.16 and 4.16</b></p>   |  |  |
| <p>The Proposed Action would result in the damage or displacement of 59 isolated occurrences (primarily chipped stone artifacts) as a direct consequence of project construction. Three non-eligible NRHP properties (old Highway 93 and two diffuse prehistoric lithic scatters) could be impacted by construction. Impacts along a segment of old Highway 93 would occur only where the highway crosses the APE. There would not be any indirect effects from construction or any direct or indirect affects from operation and maintenance impacting any historic landscape or known rock art site, geoglyph or toolstone quarry eligible under Criteria a, b or c (State Protocol Agreement VII C. 2), as these sites have not been identified in the project area.</p> | <p>Impacts to archaeological resources and historic properties under Alternative 1 would be same as those described under the Proposed Action.</p> | <p>No archaeological resources or historic properties would be affected by project-related activities under the No Action Alternative.</p> |

APE – Area of Potential Effect      BLM – Bureau of Land Management      DEIS – Draft Environmental Impact Statement      EPA – U.S. Environmental Protection Agency  
 LCWD – Lincoln County Water District      NRHP – National Register of Historic Places      POD – Plan of Development      ROW – right-of-way  
 SOP – Standard Operating Procedure      SPCCC – Spill Prevention, Containment, Countermeasure, and Control      VRM – Visual Resource Management

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