

United States Department of the Interior Bureau of Land Management

Environmental Assessment
DOI-BLM-AZ-C030-2020-0053-EA

Central Muse Supplemental Water

U.S. Department of the Interior
Bureau of Land Management
Colorado River District
Lake Havasu Field Office
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CHAPTER 1 INTRODUCTION

This Environmental Assessment (EA) is a site-specific analysis of potential impacts, which may result by implementing the Proposed Action or an alternative(s). This EA will allow the Authorizing Officer (AO) to determine whether implementing the Proposed Action or an alternative(s) may cause significant impacts to the human environment. If the AO determines no significant impacts would occur, a Finding of No Significant Impact (FONSI) would be prepared and a Decision Record (DR) would be issued. If significant impacts are likely to occur, or a FONSI cannot be reached, an Environmental Impact Statement (EIS) would be prepared with a subsequent Record of Decision (ROD).

1.1 Identifying Information

Title, EA Number and type of Project:

Central Muse Supplemental Water, DOI-BLM-AZ-C030-2020-0053-EA, Range Improvement Project

Location of Proposed Action:

La Paz County, Bouse, Arizona

The overall project would take place in T8N, R16W, and Sections 25-28 (Appendix A, Map 1-2). From the CAP (34° 0'11.63"N, 113°55'53.13"W) to proposed trough (34°00'49.7"N 113°53'08.9"W).

Name and Location of Preparing Office:

Lake Havasu Field Office, 1785 Kiowa Avenue, Lake Havasu City, Arizona 86403

Applicant Name:

Permittee Boyce Andersen, Muse Allotment

1.2 Background

The proposed range improvement project is intended to improve the distribution of livestock grazing and improve the compatibility of both the existing grazing permit and the objectives of the East Cactus Plain Wilderness Management Plan (ECPWMP) (Attachment 1). Livestock use is currently not permitted within the wilderness area as written and described in both the ECPWMP and the Terms and Conditions (T&C) of the current grazing permit.

The ECPWMP (1994), provided specific guidance related to livestock grazing. This guidance stated the wilderness is closed to grazing and grazing adjacent to the wilderness should be managed in such a way to limit livestock from entering the wilderness. The ECPWMP determined that the use of fencing to exclude livestock from the wilderness was an undesirable physical and visual impact to the East Cactus Plain Wilderness, as well as limiting public access.

In 1993, a grazing permit was issued with the T&C that 1) grazing is not authorized within the East Cactus Plain Wilderness. A 2001 transfer and new grazing permit added to the T&C that 2) grazing will be in accordance with the East Cactus Plain Wilderness Management Plan dated September 1994. The current grazing permit also includes the same T&C.

The Muse Allotment permittee approached the Bureau of Land Management (BLM), Lake Havasu Field Office (LHFO), about opportunities to develop additional supplemental waters within the allotment to improve livestock distribution. During a field visit with the permittee in spring of 2019 to discuss options, signs of livestock use were observed within the East Cactus

Plain Wilderness, which led to a discussion on how to limit livestock from entering the wilderness. It became apparent livestock enter the wilderness during seasonal times of the year when precipitation pools becoming available for wildlife and livestock use. The following proposed action and alternatives were developed with the intent to respond to the permittee's request to add an additional water source within the Muse allotment and to address the livestock trespass onto the East Cactus Plain Wilderness without resorting to fencing.

1.3 Purpose and Need for Action

The purpose of the action is to respond to the permittee's application to build a supplemental water source for livestock use northeast of the Central Arizona Project (CAP) in the Muse Allotment. Additionally, this action is proposed to reduce livestock trespass in the East Cactus Plain Wilderness Area consistent with the 1994 ECPWMP.

The BLM's need for the action is established by the BLM's responsibility under the grazing regulations found within Title 43 Code of Federal Regulations (CFR) parts 4120 and 4160 and the management objectives found in the 1994 ECPWMP.

1.4 Decision to be Made

The BLM AO will decide whether to approve the Proposed Action or an alternative, and if so under what terms and conditions.

1.5 Land Use Plan Conformance

Lake Havasu Field Office Resource Management Plan, Approved: May 2007

The proposed action and alternatives presented below are in conformance with the LHFO Resource Management Plan, approved 2007, even though the action is not specifically provided for, it is clearly consistent with the following decisions (objectives, terms, and conditions):

Rangeland Management/Grazing:

GM-1: Provide forage on a sustained yield basis for livestock consistent with meeting Land Health Standards and multiple use objectives. Healthy, sustainable rangeland ecosystems will be maintained or improved to meet Land Health Standards (Arizona's Standards for Rangeland Health [1997a]; and produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, clean water, and functional watersheds.

GM-2: Livestock use, and associated management practices will be conducted in a manner consistent with other multiple use needs and objectives to ensure that the health of rangeland resources is preserved or improved so that they are productive for all rangeland values. Where needed, public rangeland ecosystems will be improved to meet objectives.

Wilderness:

WM-1: To provide for the long-term protection and preservation of the designated area's wilderness character under the principle of non-degradation. The area's natural condition, opportunities for solitude, opportunities for primitive and unconfined types of recreation,

and any ecological, geological, or other features of scientific, educational, scenic, or historical value present will be managed so that they will remain unimpaired.

East Cactus Plain Wilderness Management Plan, Approved September 1994

The proposed action would also meet objectives outlined in the 1994 ECPWMP, as described below:

Pg. 20, Management Actions (5) – “Livestock Management practices on the Muse allotment must prevent livestock from entering the wilderness. New water developments, supplemental feedings, salt blocks, turn-out and gathering points, or other livestock facilities would only be authorized at a distance sufficient to keep livestock out of the wilderness. Any unauthorized use will be reported to the Havasu Resource Area Range Specialist. Immediate actions will be taken to eliminate unauthorized use.”

1.6 Relationships to Statutes, Regulations, Other Plans and Environmental Analysis Documents

The Proposed Action and Alternatives are consistent with Federal laws and regulations, plans, programs and policies of affiliated tribes, other Federal agencies, State and local governments including but not limited to the following:

- Federal Land Policy Management Act of 1976.
- The Taylor Grazing Act of 1934
- Title 43 of the CFR Subpart 4100.
- The Endangered Species Act of 1973, as amended.
- Migratory Bird Act – Executive Order 13806.
- Native American Graves Protection and Repatriation Act, 1990.
- American Indian Religious Freedom Act of 1979.
- National Historic Preservation Act.
- Archaeological Resources Protection Act of 1979, as amended.
- Arizona Desert Wilderness Act of 1990.
- Wilderness Act of 1964.
- The National Environmental Policy Act of 1969.

1.7 Scoping

1.7.1 Internal Scoping

Internal project scoping began with the LHFO Interdisciplinary (ID) team meeting held on August 12, 2019. A second meeting occurred September 16th and a field day occurred on October 10th. Resource concerns and issues were discussed and identified during these meetings.

1.7.2 External Scoping / Public Involvement

External scoping began on August 20, 2019 and consisted of a consultation, cooperation, and coordination letter sent to state, tribal, other federal agencies containing information about the proposed project and its location.

CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Muse Allotment permittee proposes to draw water from the CAP canal and transport the water via a 1-2" surface laid pipeline to the proposed trough location. From the CAP the pipeline would travel for about 3 miles along a vehicle accessible wash to reach the proposed trough location (Appendix A, Map 1 and 2). Travel for access and construction activities would primarily occur on established roads and follow a wash currently utilized by Off-Highway Vehicles (OHV). Overland travel may be required outside of the wash where further material is needed to continue putting down the pipeline and where the storage tank and trough would be placed. The storage tank (up to 10,000 gallons capacity) would be located adjacent to the trough (up to 1,000 gallons). Using a portable pump system and power source, water would be pumped from the CAP to the storage tank, which would then gravity feed into the trough automatically by a float valve. The means to keep enough water in the storage tank would require pumping water out of the CAP 1 to 2 times within a two-week period.

The placement of the trough, approximately 2.3 miles away from the wilderness boundary, was chosen based on a review of available scientific literature that suggests that livestock presence and utilization more than two miles from a water source/feature would be negligible (Holechek et. al.2011). The water source would be close enough to other water range improvements allowing livestock to move between waters, which would help with distribution across the allotment. The water would be placed in an ecological area that has similar forage resources as in the wilderness area.

To complete a project of this scale, construction would require a 2 to 4-man crew, about 2 vehicles with a trailer to haul equipment, and would take approximately 7-14 days to complete the groundwork. Materials for the project would be approved by the AO and would be provided through 8100 funding obtained by the annual billing of grazing permits for the purpose of range improvements. Construction, labor and maintenance, along with above structures not covered through 8100 funds would be provided by the permittee. The approximate cost of materials would be \$20,000.00. If approval is granted, a cooperative agreement would be signed by all participating parties with documentation of shared costs. Any required permissions from the CAP would be obtained by the permittee prior to construction. In areas where the pipeline must intersect roads, the pipeline would be buried. The proposed pipeline route would not cross any county-maintained roads.

2.2 Alternative 1-New Well

Under this alternative, a new well would be developed and located adjacent to the proposed trough location in the Proposed Action as described above (Appendix A, Map 3). The well, storage tank, and trough would be located together in this area. To complete a project of this scale, construction would require a 2-person crew with a drill rig and could take about 7 to 10 days to complete. The well would have a maximum depth of about 200 feet below the water table and would be constructed with a submersible pump. The pump would be powered by either solar power or a generator. Corrals would not be authorized as part of this project. The approximate cost of drilling would be \$50,000.00, while equipment such as the well pump, storage tank, and trough would be about \$20,000.00. This proposed alternative would not require the use of a pipeline to transport the water to the trough. Funding from 8100 would be used up to

a certain amount determined by the AO to assist with the cost of drilling the well. The rest of the funding for any additional drilling depth needed, if any, and the above structures including a submersible pump for the well would come from the permittee.

2.3 Alternative 2-No Action

Under the no action alternative, the proposed action or alternative would not be approved. Current livestock management would stay the same. The compatibility of both the existing grazing management and the ECPWMP would not improve. No supplemental waters would be authorized on the allotment at this time. Furthermore, the no action alternative would not improve distribution to even grazing pressure on vegetation found on the Muse Allotment range.

2.4 Best Management Practices

The following best management practices (BMPs) are included to minimize the impacts to social and natural environmental resources from implementing the proposed action or alternative. The following BMPs would apply to the proposed action or alternative, should they be implemented (as described above):

- At no time would vehicle or equipment fluids (including motor oil and lubricants) be dumped on public lands. All accidental spills would be reported to the authorized officer and be cleaned up immediately, using best available practices and requirements of the law, and disposed of in an authorized disposal site. All spills of federally or state listed hazardous materials which exceed the reportable quantities would be promptly reported to the appropriate agency and the authorized officer.
- At no time would the destruction or removal of sensitive vegetation take place.
- Vehicles and equipment would be power washed off-site before construction activities begin to minimize the risk of spreading noxious weeds. This would include cleaning all equipment before entering the project area.
- Any cultural (historic/prehistoric site or object) or paleontological resource (fossil remains of plants or animals) discovered within the project areas would immediately be reported to the LHFO Manager or his designee. All operations in the immediate area of the discovery shall be suspended until written authorization to proceed is issued. An evaluation of the discovery shall be made by a qualified archaeologist or paleontologist to determine appropriate actions to prevent the loss of significant cultural or scientifically important paleontological values.
- If in connection with this work any human remains, funerary objects, sacred objects, or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (Public Law 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, operations in the immediate area of the discovery would stop, the remains and objects would be protected, and the LHFO Manager (or his designee) would be immediately notified. The immediate area of the discovery would be protected until notified by the LHFO Manager (or his designee) that operations may resume.
- All motorized equipment activity associated with construction and maintenance of the supplemental water will be conducted within the traveled portion of the road and/or predetermined stopping locations. No vehicle travel (including parking, turn-around, detours, etc.) outside of this corridor will be permitted unless authorized in advance by the BLM Authorized Officer.

- The water tank would be the shortest possible height and be painted or colored to blend in with the surrounding environment as to maintain the landscape integrity.
- The water trough would be painted or colored to blend in with the surrounding environment as to maintain the landscape integrity.
- Permittee would actively monitor his herd to prevent livestock trespass into wilderness.

2.5 Alternatives Considered but not Analyzed in Detail

2.5.1 Redevelopment of Powerline Well

This alternative considered the redevelopment of an existing well, Powerline Well, located within the East Cactus Plain Wilderness area (Appendix A, Map 4). The redevelopment of Powerline Well would have consisted of re-equipping the well with a pump to draw water to a storage tank. The storage tank and power source would have been placed on the East side of Swansea Road away from the wilderness boundary. From the storage tank, a 1 to 2” surface laid pipeline would have headed towards the proposed trough location in the proposed action. Where the pipeline would have intersected roads, it would have been buried, requiring coordination with La Paz County.

Due to the well’s location inside of the designated wilderness, the redevelopment of Powerline Well would not have been in conformance with the goals and objectives of the ECPWMP nor the Wilderness Act of 1990. In addition, numerous concerns and conflicts were identified regarding cultural resources and sensitive species habitat from the proposed pipeline route. Because of these reasons, this alternative was eliminated from further analysis.

2.5.2 Water Haul

This alternative considered the permittee hauling water to a storage tank and trough. This method would have required the permittee to make frequent trips to provide adequate water for livestock at a continuous year-round basis. Due to the intense summer heat, water would need to be hauled daily to keep up with demand. In a cow calf operation, water requirement during high temperatures for livestock can be about 18 gallons a day per animal. The current permit is set for 74 head of cattle year-round (not including any calves). The total amount of water required can be up to about 1,350 gallons a day. A large enough trough can hold 1,000 gallons. With consideration of wildlife consumption and evaporation, water would need to be hauled at least once a day to this location depending on grazing operations occurring throughout the entire allotment. This would require the constant travel to the trough and increase fuel cost, time, vehicle wear, and require the ability to transport enough water to fill the trough. Due to the increase of limitations for the success and intent of the project, this alternative was no longer considered and removed from further analysis.

2.5.3 New Well Near Wilderness Boundary

This alternative considered the development of a new well placed outside of the wilderness boundary but near the Powerline Well (Appendix A, Map 4). This alternative would have eliminated any wilderness concerns regarding direct impacts caused by the redevelopment of the Powerline Well. The general area would have been a desired well location due to the known ground water resource. From the location of where the new well would have been developed, a pipeline route would have been required to transport water to the proposed trough. Where the pipeline would have intersected roads, it would have been buried, requiring coordination with La

Paz County. Livestock wandering into the wilderness area during seasonal pooling of water would still be expected to occur with this location. Due to the limitations and concerns of all previously proposed pipeline routes from the general area, this alternative was no longer considered and removed from further analysis.

CHAPTER 3 AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

3.1 Issues Identified

The issues for detailed analysis identified during public and agency scoping are summarized in Table 3-1. Impact indicators are used to describe the affected environment for each issue in this chapter, measure change, and to assess the impacts of alternatives.

Table 3-1. Issues Identified for Detailed Analysis

Issue	Issue Statement	Impact Indicator
Issue 1	How would the development of a new water source affect the grazing distribution on the Muse Allotment?	Livestock Management
Issue 2	How would the development of a new water source and above structures in a new area of the allotment affect the availability of native vegetation and the presence of invasive species?	Utilization of key species and invasive species presence
Issue 3	How would the location of a permanent water source effect livestock distribution in the wilderness?	Livestock presence within the wilderness.

Issues evaluated and not discussed in further detail in this EA are described in Table 1-2.

Table 3-2. Issues not Included in Further Detail in the Environmental Assessment

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
ELM-1	How would the construction and placement of above structures affect the air quality of the area?	The use of motorized equipment to transport material would moderately contribute to the Particulate Matter (PM) or particle pollution found in the localized surrounding air. However, it would not be expected to contribute to any exceedance of the National Ambient Air Quality Standards for the area. If a generator is to be used for power to pump/transport water, there would be exhaust emissions contributing to the air pollution during powering times. It is not expected that a generator would exponentially increase the PM in the localized surrounding air in the short or long term nor exceed any thresholds established for air quality in the area.
ELM-2	How would the development of an additional water source affect other water resources including any water rights?	Any water resources from the CAP would be first permitted by the CAP prior to implementation of the project. If there is an approval for a new well, water rights would be first permitted by the Arizona Department of Water Resources prior of implementation. Water drawn via a well is not expected to contribute significant water table drawdown.
ELM-3	How would the development and long-term placement of above structures for the project affect other authorizations or public accessibility?	Other authorizations and land uses occur in the area. There is existing access routes in the vicinity. None of the proposed structures would restrict access to any areas, nor affect other permitted activities in the area.
ELM-4	How would the long-term placement of above structures and development of a new	There are no locatable mineral resources that would be disturbed or obstructed by the proposed action. Saleable minerals are open for disposal in the project area, however there would be no impediment to access to these mineral resources.

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
	water source affect mineral resources?	
ELM-5	How would the establishment of a new range improvement impact recreational opportunities area?	The installation of a new range improvement would not limit recreational access and opportunities. Recreation in this area is primarily OHV use from nearby communities. This project would not limit access by closing any routes to the public. Hunting use may increase with the placement of a permanent water source.
ELM-6	How would the establishment of the proposed action or alternative have an effect on the socio-economics of near communities or visiting public?	The development of an accessible livestock water may benefit the livestock operator; however, any gain would be minimal. Initial costs would be shared by the permittee and through the contribution of 8100 funds which are set aside for this purpose. The new water source would allow for a continuation of livestock grazing in the area, thus contributing to the permittee. None of the alternatives would create additional jobs or taxes to the local community and any financial gains for the permittee would be used in the local community as currently occurs. No increases or decreases in revenues would be expected.
ELM-7	How would the proposed action or alternative affect soil structure and stability of the area?	Soil resources would not have long-term negative effects beyond the soil disturbance that is currently present. Short-term effects from construction activities would temporarily increase soil compaction, however, be limited to material drop off points and the storage tank and trough location. Accessing such areas would be reached by the present unmaintained road that runs within the adjacent wash. Indirectly, the presence of increased livestock in the area due to the available water source would cause increased soil compaction but is expected not to impede ecological services provided by soil resources.
ELM-8	How would the construction and placement of above structures impact potential Mohave Fringed Toed Lizard and/or its designated habitat?	The proposed pipeline and above ground structures would be placed above surface level to minimize destruction of tunnels and be placed around habitat vegetation. No vegetation would be removed. Existing roads would be used to transport equipment and materials. Construction activities would occur during the dormant season of the lizard further reducing potential impacts to the species.
ELM-9	How would the development of a new water source affect surface or ground water quality?	If the proposed action is approved, water would be drawn from the CAP and the quality of such water would not be affected by the proposed action. If the alternative of a new well is approved, the well water would be tested before being used. If the well is found not meeting state standards or drill has tapped into a bad water lens, then the well would be capped with neat cement and bentonite to prevent contamination. All drilling activities would be permitted by the state Department of Water Resources.
ELM-10	How would the development of a new water source and above structures affect desert tortoise and/or habitat?	The proposed locations for all project features are located outside of category I, II, and III determined tortoise habitat.
ELM-11	How would the development of a new water sources and above structures affect cultural and historical resources?	A Class III cultural survey was conducted over the project area. No cultural or historical artifacts were found in the project area. BMPs would be applied to the construction and maintenance of the proposed range improvements to prevent impacts to unknown or inadvertently discovered resources.

ELM = Eliminated

3.2 Issues Brought Forward for Detailed Analysis

This section describes the existing conditions relevant to the issues presented in Table 3-1 and discloses the potential direct, indirect, and cumulative impacts of the Proposed Action and Alternatives. The description of the Affected Environment for all alternatives would be the same as that for the Proposed Action.

Other actions that overlap geographically and temporally with the proposed project will be considered in the impact analysis. Past, present, and reasonably foreseeable future actions (RFFA) are analyzed to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the Proposed Action and/or Alternatives may have an additive and significant relationship to those effects.

3.2.1 Livestock Grazing Management

Issue 1: How would the development of a new water source affect the grazing distribution on the Muse Allotment?

Affected Environment

The Muse Allotment has 106,488 acres of public lands with 883 Animal Unit Months (AUMs) available. The AUMs have been set to account for the available forage throughout the entire allotment year-round. The available AUMs support up to the permitted use of 74 head of livestock for year-round grazing. Part of the T&C for livestock management in Muse includes 1) grazing is not authorized within the East Cactus Plain Wilderness area, and 2) grazing will be in accordance with the ECPWMP, approved September 1994.

The majority of livestock presence is currently concentrated in the southwest portion of the allotment as many of the available waters are located along the CAP with the base water located at the western edge of the allotment. The CAP splits about 1/3 of the allotment with livestock being able to cross through overpasses. The northern portion of the allotment currently has no year-round waters available, and the central portion of the allotment (east of the CAP) has a dirt tank that can hold seasonal water during high precipitation. Most of the available feed provided by the ecological ranges of the allotment is concentrated in and near natural drainages and washes. The sand dunes found in the allotment also provide adequate soils for producing perennial grasses. During cooler months, livestock travel at larger distances away from the southern areas of the allotment to seek available forage located further north. Where the sand dunes are located, in the central portion of the Muse allotment including the East Cactus Plains Wilderness area, it allows for such areas to pool with water during wet seasons. These pools of water temporarily provide livestock the ability to travel up to the central areas of the allotment and into the East Cactus Plains Wilderness area. With no available year-round waters in this central portion of the allotment, livestock tend to drift during seasonal times in continuous search for both water and forage.

Environmental Impacts

Proposed Action

The placement of a year-round supplemental water in the central portion of the allotment would support the grazing management by providing a water source in an area of the allotment that currently has no permanent source of water. Doing so would provide access to areas that can

further support the needs of livestock on public lands. The AUMs permitted would not increase nor would the head of livestock for the allotment. The permitted amount of head authorized to graze reflects the AUMs available for the whole allotment, however, livestock are mainly limited to areas with available water. The spread of herds or distribution of herds within the allotment would reduce grazing impacts to the southern portion of the allotment where livestock concentrate due to the present available waters. A more uniform distribution of grazing pressure would benefit the overall ecological ranges of the allotment to increase overall rangeland health.

The placement of a supplemental water in such area would also assist with meeting the T&C of the grazing permit to comply with the ECPWMP by attempting to abate livestock from entering the wilderness area. Although it would not physically prevent livestock from drifting into the wilderness, it is possible that the accessible forage and water source in the new area may have the potential to reduce livestock presence in the East Cactus Plains Wilderness area. Livestock would be enticed to stay within a reasonable distance from the water and not need to travel longer distances to find both forage and water. In Holechek, Pieper, and Herbel (2011), the average percentage of utilization of forage by livestock distance from water is 50% from 0-0.5 miles, to 12% from 2-2.5 miles. Depending on environmental factors, percent utilization distance from water will vary, however, as distance from water exceeds 2 miles, forage utilization becomes reduced to negligible amounts.

Alternative 1-New Well

The development of a new well near the proposed trough would have the same environmental impacts on grazing management practices and livestock distribution within the Muse Allotment as described in the Proposed Action.

Alternative 2-No Action

The No Action alternative would not make changes to current grazing management practices within the allotment. Grazing distribution would not likely be changed and efforts to abate or reduce livestock from the East Cactus Plains Wilderness area would not occur without additional efforts. Livestock would not have permanent waters enticing them to additional available forage within the allotment that would be beneficial to the management of livestock distribution and the overall health of the range.

Recommended Mitigation and Monitoring

Continue compliance inspections and conduct them during cooler months to monitor livestock presence in the East Cactus Plains Wilderness area.

3.2.2 Vegetation Resources

Issue 2: How would the development of a new water source and above structures in a new area of the allotment affect the availability of native vegetation and the presence of invasive species?

Affected Environment

The Muse allotment exhibits various communities of upland shrub, grass, and cacti species dependent of the soil makeup and topographical layout of the area. Mountainous ranges produce sparse vegetation that consist of cacti and shrub such as saguaro (*Carnegieia gigantea*), ocotillo

(*Fouquieria splendens*), cholla species (*Cylindropuntia sp.*), creosote (*Larrea tridentata*), and white bursage (*Ambrosia dumosa*). Lower elevation ranges described as washes, desert pavement, and sand dunes of Muse consist of trees species like palo verde (*Parkinsonia sp.*), iron wood (*Olneya tesota*), mesquite (*Prosopis sp.*), and wolfberry (*Lycium sp.*). Shrub species like white ratany (*Krameria grayi*), white bursage (*Ambrosia dumosa*), and creosote (*Larrea tridentata*). And grass species like big galleta grass (*Pleuraphis rigida*) whose presence is predominant among the sandy soils of the allotment's sand dunes.

The Muse allotment is vastly invaded by Sahara/African mustard (*Brassica tournefortii*), an annual species that is palatable to livestock during its rosette stage. The seed bank for this mustard is well established and will germinate during appropriate conditions to have a dominant presence throughout the lower sandy areas of the allotment. Annual native flora is also present during the spring. Their presence is highly dependent on climate conditions of the year.

Environmental Impacts

Proposed Action

The placement of a water pipeline to the trough should not present the opportunity to have any long-term negative impacts to plant communities in their ability to go through their life cycle as permitted by their immediate environment. Additionally, the placement of a new water source in the area itself would also not have direct impacts on vegetation resources, however, it would have indirect impacts by an increased amount of plants being grazed by wildlife and livestock due to the presence of a permanent year-round water source in the area. Indirect impacts to other species may occur as well by becoming trampled by the increased presence of livestock and wildlife. In many instances, a sacrifice zone is common among areas where there is water because livestock tend to linger and utilize vegetation closest to a water source. However, as a tradeoff, vegetation currently grazed upon in the southern areas of Muse Allotment would experience less grazing pressure, and vegetation resources currently impacted by livestock in the East Cactus Plains Wilderness area may be reduced. Improving grazing distribution increases the ability to manage current permitted stocking rates in a way that is more sustainable for rangeland resources within the allotment. Evenly grazing the allotment or implementing rotation periods balances impacts to maintain and meet desired rangeland health conditions throughout the entire allotment.

The construction phase of the pipeline and above structures should not proliferate the spread of the already existent mustard species into the area as its presence is currently established throughout the project area. The introduction of new invasive species by the use of equipment and material is not any more a significant vector than the OHV used in the surrounding area on a year-round basis by recreating visitors, CAP employees, or the permittee. However, BMPs, as described in Section 2.4 of this EA would help to mitigate the chances of introducing a new species during construction phases.

Alternative 1-New Well

Activities required to drill a well could temporarily have greater impacts to the immediate area due to increased vehicle use, equipment and material concentration, and material waste produced by drilling into the earth. Vegetation resources would possibly be trampled or destroyed in some areas where structures are constructed. The construction of the well should consist of about 7 to

10 days on site. The spread of noxious weeds would be reduced by following BMPs described in Section 2.4 of this EA. Livestock grazing impacts on vegetation resources in the area would be similar to those described in the proposed action.

Alternative 2-No Action

The No Action alternative would leave the area as is without additional surface disturbance or vehicular traffic than what currently occurs. There would be no new impacts to vegetation resources surrounding the project area or serviceable area by the placement of a water source. Vegetation resources located in southern areas of the allotment would continue to receive current grazing impacts. Livestock would not be abated or reduced from drifting into the East Cactus Plains Wilderness area and continue to have grazing impacts on vegetation resources within the wilderness area.

Recommended Mitigation and Monitoring

1. Wash equipment before entering project site to limit the potential for new invasive species.
2. Establish key area to monitor for grazing impacts on vegetative resources that would be utilized by livestock.

3.2.3 Wilderness

Issue 3: How would the location of a permanent water source effect livestock distribution in the wilderness?

Affected Environment

The East Cactus Plain Wilderness area was designated as wilderness by the Arizona Desert Wilderness Act of 1990. The wilderness includes 14,630 acres of land in the desert of La Paz County, Arizona. The wilderness contains an extensive area of unique sand dunes, consisting of Barchan (crescent-shaped) dunes. This occurrence of Barchan dunes within the Sonoran Desert Scrub bajada is unique in Arizona and may be unique in North America. The closed basins formed by the dunes provide a number of soils, vegetation, and wildlife habitat features. Vegetation consists of the Lower Colorado subdivision of the Sonoran Desert Scrub. On the dunes, the dominant vegetation community is the big galleta grass-mixed shrub dune scrub, which has been identified as a unique plant assemblage by the Arizona Natural Heritage Program (1987). The East Cactus Plain Wilderness offers outstanding opportunities for solitude and naturalness due to the unique Barchan dunes landscape. Primitive and unconfined recreation opportunities within the wilderness include hiking, exploring, and nature observation.

Environmental Impacts

Proposed Action

The establishment of a new permanent water source outside the wilderness boundary, would not directly impact the wilderness nor physically prevent the livestock from entering the wilderness. However, this new permanent water source may reduce the number of livestock seasonally trespassing into the wilderness. Livestock appear to be entering the wilderness in search of seasonal pools of water. The introduction of the new water source would reduce the need for livestock to search for seasonal water. Livestock tend to remain and forage within the immediate area of a reliable water source, such as this new range improvement would provide (Holechek et

al., 2011). Modifying animal behavior through the use of water developments can increase uniformity of grazing to protect sensitive rangelands, such as a wilderness areas, riparian areas, or sensitive species habitats (Bailey 2004). The development of a permanent water source would have the potential to reduce livestock trespass during seasonal times, when water is more readily available in the wilderness. The introduction of a water development has been shown to alter the behavior of livestock that were previously utilizing a natural source of water in favor of the new development. A new water source has also been shown to reduce the amount of time spent and the amount of livestock at the previous natural water source (Miner, Buckhouse, and Moore 1992).

The location of the proposed water is intended to improve livestock distribution allowing them to travel to other water sources, without utilizing seasonal water in the wilderness. An additional factor could be the availability of the perennial big galleta grass (*Pleuraphis rigida*) and other desirable forage species. The Big galleta primarily grows in the wilderness and near the new proposed permanent water source, and not by the existing developments in the Muse allotment. The placement of a year-round water source at the new location would provide access to the same desired plant communities without the need for herds to travel into the wilderness.

The proposed permanent water source would encourage livestock to stay within the immediate area of the range improvement. This in turn, could be expected to decrease the distribution of livestock within the wilderness.

Alternative 1-New Well

The development of a new well at the same location as the proposed trough and storage tank would have the same impacts as the proposed action for wilderness trespass by livestock.

Alternative 2-No Action

If no new water source is established, livestock would continue to utilize existing water sources, such as the seasonal pools in the wilderness. The livestock trespasses would continue to occur at the same rate, and the rancher would need to remove them on a more regular basis.

Recommended Mitigation and Monitoring

Continue compliance inspections and monitoring for livestock presence in the ECPW. If livestock are observed, actions would be taken to remove them.

CHAPTER 4 CONSULTATION AND COORDINATION

Table 4-1: Persons, Groups, or Agencies Consulted

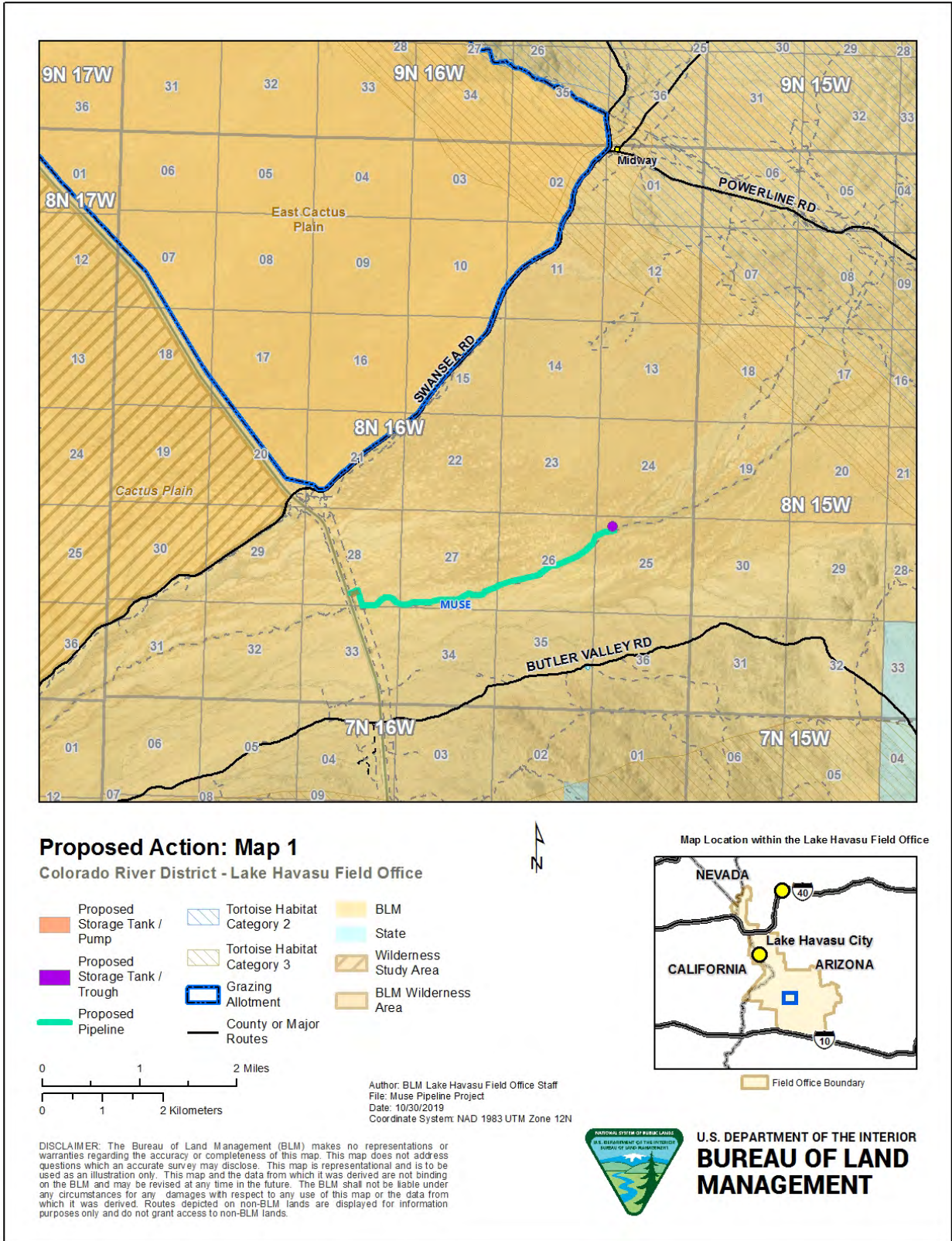
AGENCY/GROUP	PERSON(S) CONTACTED
Arizona Game and Fish Department-Kingman	Mr. Larry Phoenix
Boyce and Connie Anderson	Mr. Boyce Anderson and Ms. Connie Anderson
Chemehuevi Tribe	Chairman Charles F. Wood
Colorado River Indian Tribes	Chairman Dennis Patch
	Mr. Bryan Etsitty
Fort McDowell	President Bernadine Burnette
	Mr. Mark Frank
Fort Mojave Indian Tribe	Chairman Timothy Williams
	Ms. Linda Otero
	Mr. Christopher Harper
Hopi Tribe	Preservation Officer Stewart Koyiyumptewa
La Paz County Public Works	Mr. Thomas Simmons
	Ms. Rhonda Bennett
Quechan Tribe	President Jordan Joaquin
	Mr. Manfred Scott
	Ms. Jill McCormick
Salt River Pima-Maricopa Indian Community	President Martin Harvier
U.S. Fish and Wildlife Service Southwest Region	Ms. Amy Leuders
Western Watersheds Project	Office personnel
Yavapai-Apache Nation	Mr. Chris Coder, Tribal Archaeologist
Yavapai-Prescott Indian Tribe	Vice President Robert Ogo
Zuni Tribe	Governor Val R. Panteah
	Director Kurt Dongoske

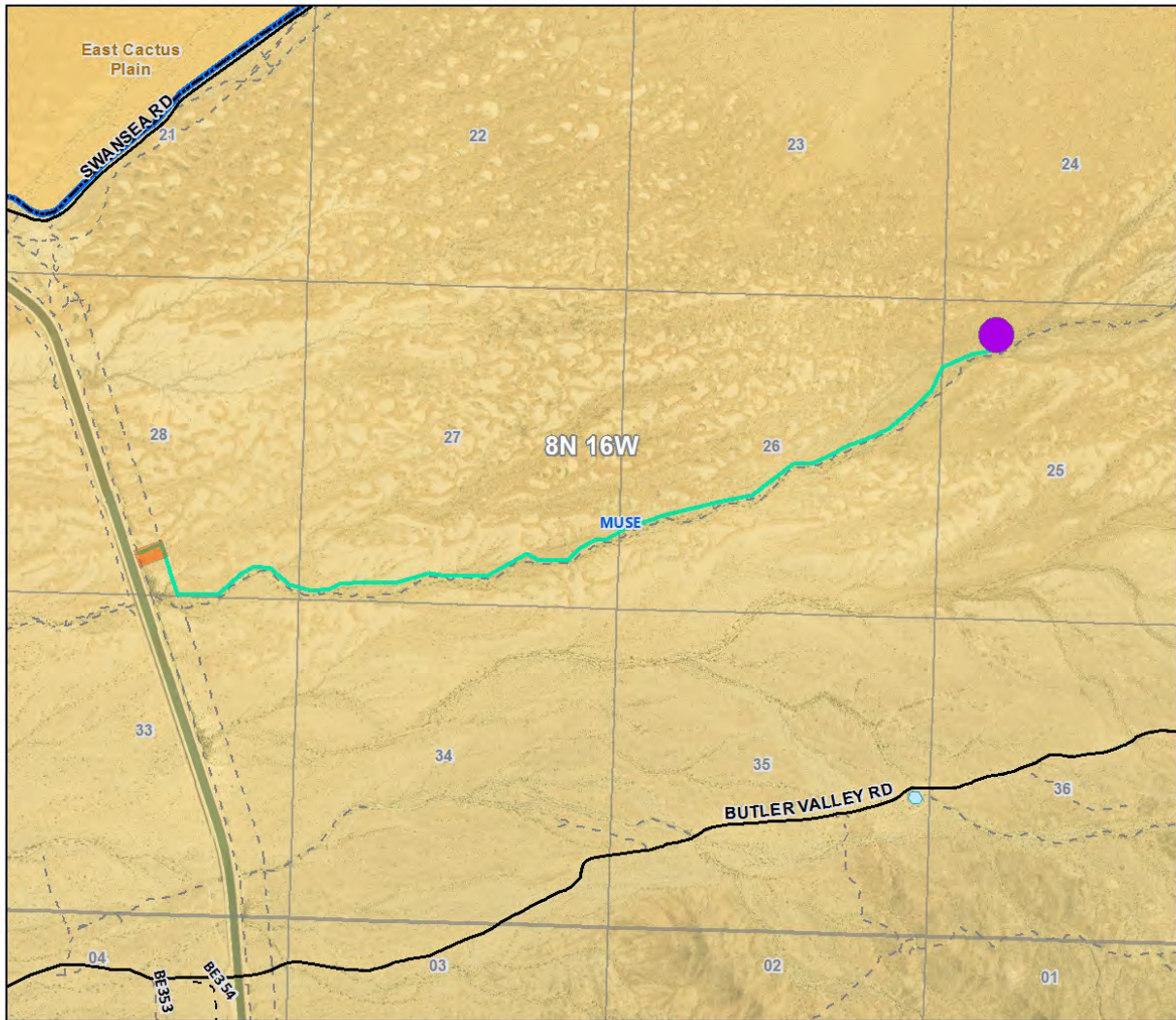
CHAPTER 5 LIST OF PREPARERS

Table 5-1: BLM Resource Specialists








NAME	TITLE
Eric Duarte	Rangeland Management Specialist
Ford Mauney	Wildlife Biologist
Caroline Kilbane	Outdoor Recreation Planner
Angelica Rose	Planning and Environmental Coordinator
Tanner Brown	GIS Specialist
Adam Cochran	Assistant Field Manager
Jason West	Field Manager

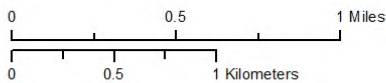
APPENDIX A – MAPS





Proposed Action: Map 2
 Colorado River District - Lake Havasu Field Office

- | | | | |
|---|--------------------------------|---|---------------------|
|  | Proposed Storage Tank / Pump |  | BLM |
|  | Proposed Storage Tank / Trough |  | BLM Wilderness Area |
|  | Proposed Pipeline | | |
|  | Grazing | | |
|  | County or Major Routes | | |



Author: BLM Lake Havasu Field Office Staff
 File: Muse Pipeline Project
 Date: 10/30/2019
 Coordinate System: NAD 1983 UTM Zone 12N



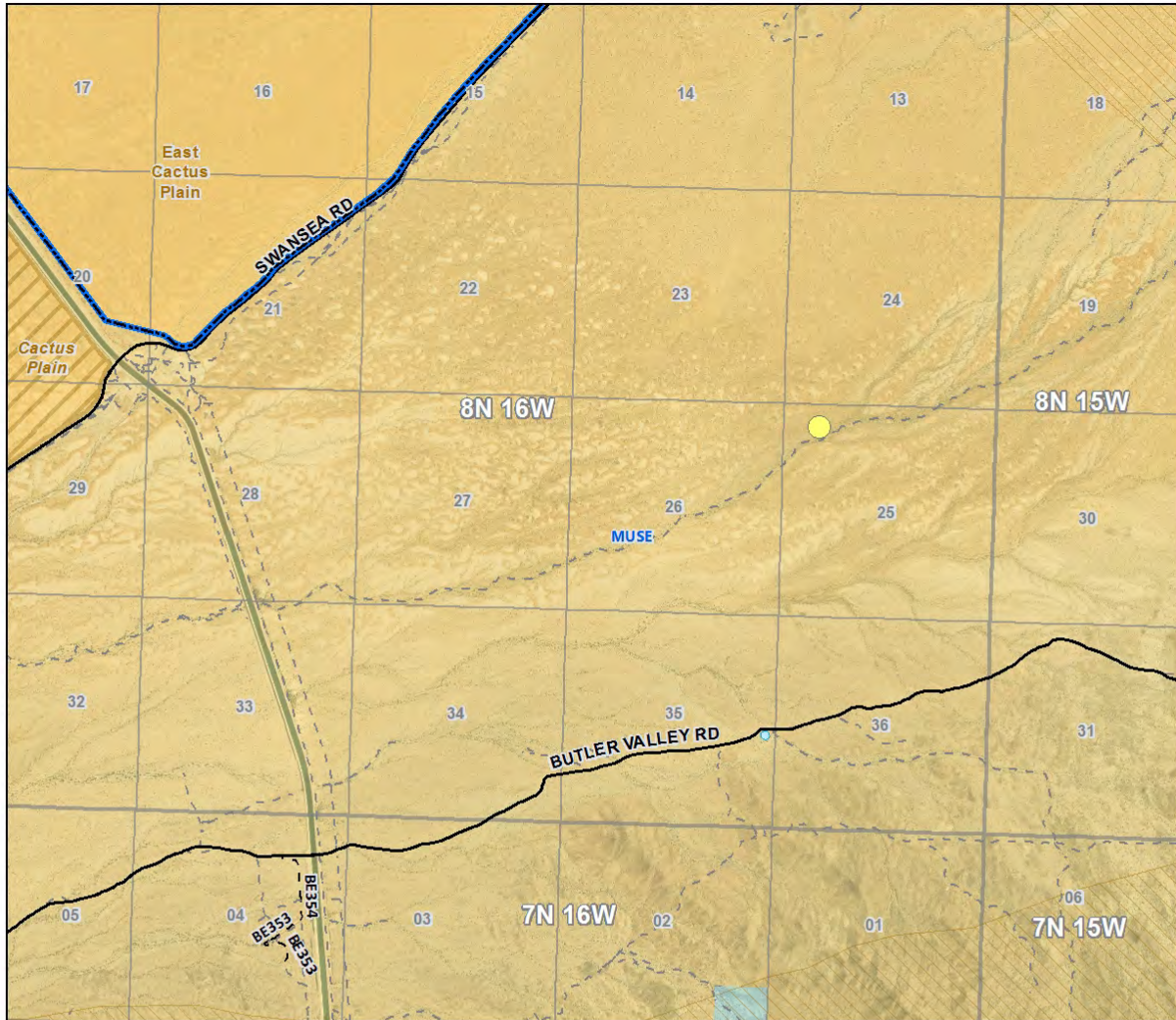
Map Location within the Lake Havasu Field Office



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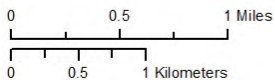
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New Well-Near Proposed Trough: Map 3
 Colorado River District - Lake Havasu Field Office



- | | | |
|-------------------------------|-----------------------------|-----------------------|
| Proposed Well / Tank / Trough | Tortoise Habitat Category 3 | BLM |
| Grazing Allotment | County or Major Routes | State |
| | | Wilderness Study Area |
| | | BLM Wilderness Area |



Author: BLM Lake Havasu Field Office Staff
 File: Muse Pipeline Project
 Date: 10/30/2019
 Coordinate System: NAD 1983 UTM Zone 12N

Map Location within the Lake Havasu Field Office

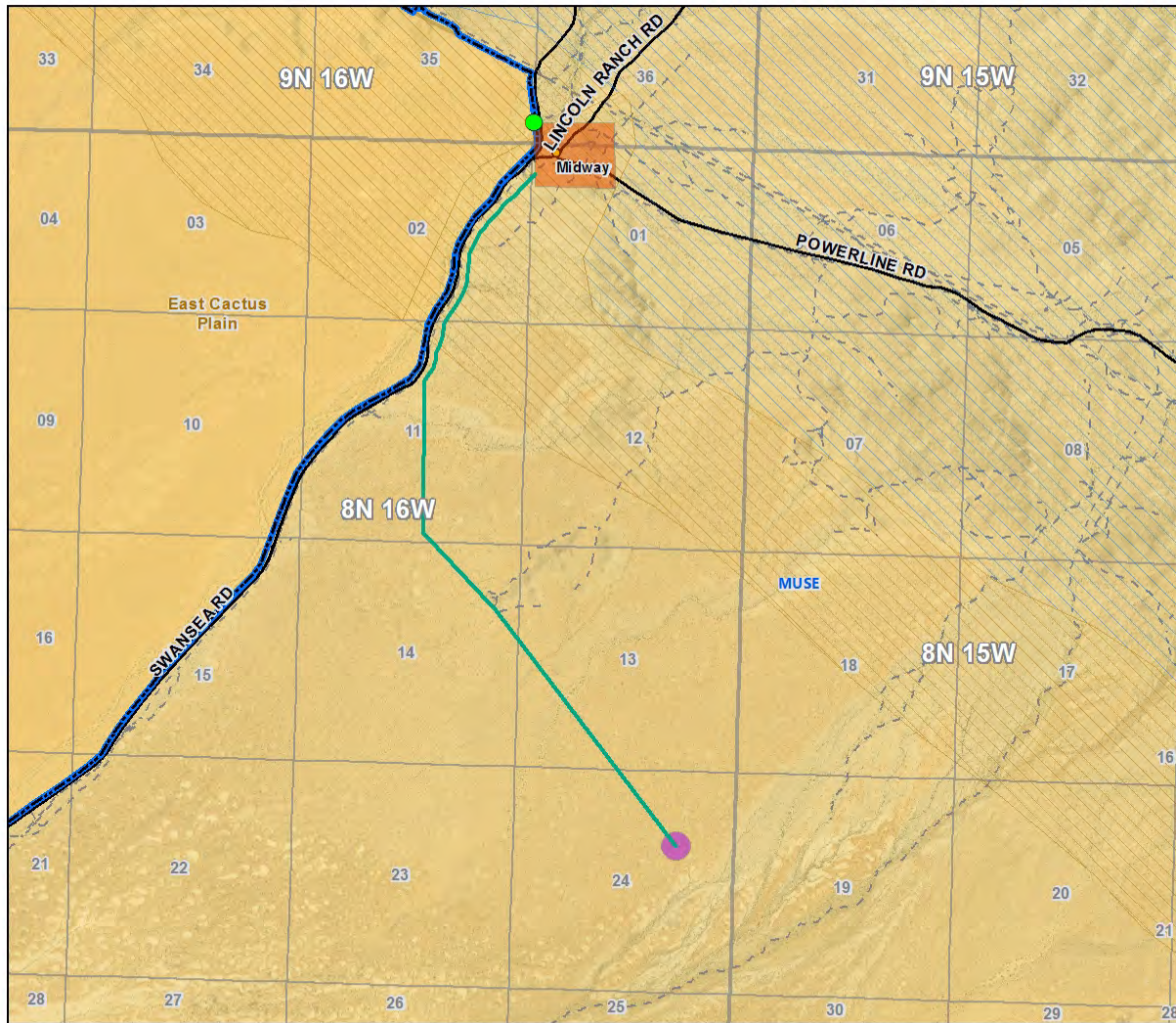


Field Office Boundary

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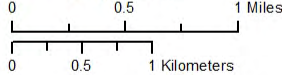
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Original Proposed Action: Map 4

Colorado River District - Lake Havasu Field Office

- Midway CAP Well
- Proposed Pipeline
- Proposed Storage Tank and Pump (Area)
- Proposed Water Trough (Area)
- Tortoise Habitat Category 2
- Tortoise Habitat Category 3
- Grazing Allotment
- County or Major Routes
- BLM
- BLM Wilderness Area

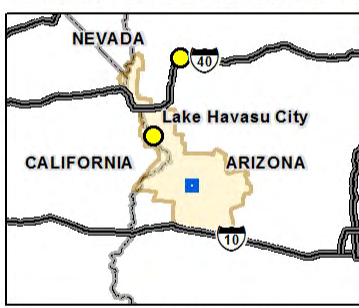


Author: BLM Lake Havasu Field Office Staff
 File: Muse Pipeline Project
 Date: 10/30/2019
 Coordinate System: NAD 1983 UTM Zone 12N

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Map Location within the Lake Havasu Field Office



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APPENDIX B - LIST OF REFERENCES

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APPENDIX C – ACRONYMS AND ABBREVIATIONS

AO	Authorizing/Authorized Officer
AUM	Animal Unit Month
BLM	Bureau of Land Management
BMP	Best Management Practice
CAP	Central Arizona Project
CFR	Code of Federal Regulations
DR	Decision Record
EA	Environmental Assessment
ECPWMP	East Cactus Plain Wilderness Management Plan
EIS	Environmental Impact Statement
FONSI	Finding of No Significant Impact
ID Team	Interdisciplinary Team
LHFO	Lake Havasu Field Office, Bureau of Land Management
OHV	Off-Highway Vehicle
PM	Particulate Matter
RFFA	Reasonably Foreseeable Future Action
ROD	Record of Decision
T&C	Terms and Conditions