

Appendix A

BEST MANAGEMENT PRACTICES

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BMPs are management actions that have been developed by an agency, industry, and/or scientific community as methods for reducing environmental impacts to certain resources associated with certain kinds of activities. They have been developed by the Southern Nevada District Office specifically to guide future management of the CTA. Additionally, the revised 1994 edition of the *Handbook of Best Management Practices*, adopted by the Nevada State Environmental Commission, can be used as applicable.

BMPs typically are implemented at the discretion of the BLM Authorized Officer at the activity plan or project-specific level. Depending on the specific project and types of anticipated disturbances, BMPs may not be appropriate to apply in all cases. The BMPs identified here will be used to guide the development of the Conservation Strategy Agreement, revisions to the Las Vegas RMP, and individual land use authorizations to provide for long-term protection of sensitive resources within the CTA.

Soil Resources

- Use specialized low-surface impact equipment (e.g., vehicles with balloon tires) for off-road access, where travel on foot is not feasible, in order to protect fragile soils and other resource values.
- Salvage and reapply topsoil from construction activities as appropriate during reclamation.
- Comply with county, state, and federal standards for implementation of erosion controls. Apply appropriate erosion control practices, such as silt fences and check dams, near disturbed areas where appropriate.
- Identify areas that need to be avoided in the CTA to protect the LVF, sensitive plant habitat, and wash resources.
- Restore human-caused disturbances to soils in order to prevent habitat fragmentation, soil erosion, and loss of nutrients.
- Use native species in restoration to stabilize surfaces.
- Avoid soil disturbance in Las Vegas buckwheat, Las Vegas bearpoppy, and Merriam's bearpoppy habitat in order to manage for sustainable natural populations.

Water Resources

- Design land uses to minimize disturbance to the ULVW.
- Design approved roadways to allow natural floodwaters from the alluvial fan between the Sheep Mountain and Las Vegas ranges and the ULVW to flow in a natural fashion; this could include elevating roads, creating appropriate dissipation structures with outflow phalanges, and installing porous pavement.
- Avoid modifying the ULVW, such as armoring (e.g., riprap), channeling, diversion structures, detention basins, etc., in the design and construction of new projects and land uses.
- Maintain natural ecosystem processes, including surface flows, wind/water erosion and deposition, and nutrient cycling, when designing projects.
- Protect natural drainages when considering land use authorizations. Land use authorizations, including recreational permits, should be designed to minimize impacts to wash resources.

- Develop an In Lieu Fee Mitigation Program under the CWA that defines protection, enhancement, restoration, and monitoring actions for identified jurisdictional waters. Work with non-government groups and the USACE to establish the program.
- Engineer land use authorizations to protect the washes that provide for hydrologic and biological functioning of the system.
 - Design roads to span washes and/or leave wash bottoms undisturbed.
 - Construct gabions, water bars, and other low-impact flood control structures outside the ULVW, or in less sensitive areas within the CTA only if necessary, to reduce human-caused impacts to sensitive resources.
 - Coordinate with CCRFCD to establish an erosion monitoring program in key areas to track changes in erosion patterns that could negatively impact plant and paleontological resources as part of the Conservation Strategy Agreement.

Vegetation

- Develop procedures to reduce or eliminate impacts to special-status plant species. Measures could include relocating project facilities outside plant habitat, collecting seeds, salvaging topsoil, and propagating and planting native material.
- Identify areas that should be avoided for activities or land uses to protect sensitive plant resources.
- Land uses should be designed to the smallest footprint necessary.
- Restore disturbed habitat. Develop and implement habitat restoration protocols to restore and minimize negative impacts of authorized projects to sensitive plant species. Include actions that will identify revegetation, soil stabilization, and erosion reduction measures to ensure successful restoration of temporary construction areas. Require that restoration occur as soon as possible after completion of activities to speed up recovery of natural habitats.
- Control noxious weeds and invasive species. Develop actions that address weed inventory and monitoring, as well as education of personnel on weed identification, the manner in which weeds spread, and methods for treating infestations. Establish and implement weed protocols for reducing weed introductions from construction vehicles and equipment that are arriving from locations with known invasive vegetation problems. Protocols include establishing a controlled inspection and cleaning area, visually inspecting construction equipment arriving at the construction area, and ensuring that invasive propagules and seeds are removed from tires and other equipment surfaces.
- Protect natural ecological processes, such as pollinator movement, natural wind flow patterns, surface water flows, etc., that maintain sustainable populations by providing connectivity between populations in evaluating land uses.
- Maintain open spaces and corridors between populations when considering land uses.
- Establish long-term monitoring studies for the Las Vegas bearpoppy, Merriam's bearpoppy, and Las Vegas buckwheat to track recruitment, population viability, and life history. Establish thresholds to detect declining populations and trigger additional conservation actions to be

implemented when these ecological thresholds are hit as part of the Conservation Strategy Agreement.

- Ensure that developments and land uses are compatible with the long-term protection of the sensitive plant species, including avoidance of habitat or application of meaningful mitigation.
- Restore existing and new land disturbances in sensitive plant habitat.
 - Use stockpiled native soils and salvaged native plant material.
 - Use native species in approved developments within the CTA.
- Provide protection to sensitive plant habitat from activities such as illegal motorized use, dumping, trespassing, and other invasive uses through fencing, cleanups, or education.
- Provide ecological connectivity between Eglington Preserve and the CTA to the extent possible.

Educational and Recreational Opportunities

- Provide compatible educational, recreational, and interpretive opportunities in order for the public to enjoy and appreciate the unique resources of the CTA.
- Design uses, including recreational permits, to minimize impacts to sensitive resources.
- Appropriately interpret the Tule Springs site while protecting the historical and paleontological resources.
- Support studies and interpretation of the fossil resources in the CTA.
- Develop environmental education and interpretive programs for paleontological, cultural, and rare plant resources when such actions are consistent with the protection of the ULVW.
 - Locate uses in areas that reduce impacts to sensitive resources.
 - Develop ongoing public information and interpretation of the Las Vegas bearpoppy, Las Vegas buckwheat, cultural, and paleontological resources.
- Establish a non-motorized trail system, compatible with the protection of sensitive resources, for the enjoyment of the public. Provide interpretation to recreational users.
 - Locate trails and structures (kiosks, staging areas, restrooms, parking facilities, etc.) such that they do not conflict with the management of sensitive resources.
 - Uses, including recreational permits that are compatible with sensitive resource management goals, should be designed to minimize impacts.

Cultural Resources

- Consult with Indian Tribal Governments early in the process to identify issues regarding any proposed developments, including issues related to the presence of cultural properties, access rights, disruption to traditional cultural practices, and impacts to visual resources important to the tribe.
- Address the education of workers and the public to make them aware of the consequences of unauthorized collection of artifacts and destruction of property on public land.
- Protect the LVF, including the paleontological, geological, and cultural resources.
- Protect cultural resource sites and paleontological areas so that they are kept undisturbed and unfragmented.

- Provide mitigation and treatment for all paleontological and cultural resource sites that cannot be preserved in situ.
- Protect the 1,125-acre Tule Springs site as defined in the NRHP nomination form.¹ The Tule Springs site has national significance in our country's history and should be protected from destruction or impairment. Ensure that actions on BLM land do not conflict with the preservation of historic resources within Tule Springs.
- Cooperate with the Nevada Division of State Parks on the Tule Springs State lands, an inholding within the 1,125-acre Tule Springs site, to ensure consistency with management actions on BLM lands through a cooperative management agreement.
- Provide mitigation and treatment for all paleontological sites, cultural resource sites, and rare plants that cannot be preserved in situ.
- Protect Native American traditional use areas.
- Evaluate and, if significant, nominate a TCP for the ULVW, working closely with the tribes.
- Appropriately manage areas that have been identified as being sensitive to the Southern Paiute tribes, including the Las Vegas Paiute Tribe.
- If cultural resources are present at the site, or if areas with a high potential to contain cultural material have been identified, a cultural resources management plan shall be developed. The plan shall
 - Establish a cultural resources monitoring program; and
 - Identify measures to prevent potential looting/vandalism or erosion impacts.

Paleontological Resources

- Require a Discovery Plan for any authorized action that would cause disturbance in the LVF; a qualified paleontologist would be on-site during construction activities in case fossils are found.
- Protect the LVF, including the paleontological and geological resources.
- Manage the paleontological assemblages within the LVF.
 - Protect the CTA boundary and in situ fossil localities.
 - Work within BLM's statutes to protect the LVF within all approved R&PP Act leases.
- Establish appropriate in situ preservation areas for paleontological areas that are kept undisturbed and unfragmented for future research and interpretation.
- Maintain appropriate in situ key paleontological localities that are essential to understanding paleoecology within the LVF.
- Provide mitigation and treatment for all paleontological localities sites that cannot be preserved in situ.
- Conduct regular paleontological prospecting to ensure that new surface fossil sites eroding from the LVF are identified and protected.
- Establish a paleontological stewardship program to educate and train volunteers to monitor and assist in protecting the CTA.

¹ The NRHP lists the site as 980 acres. There has been no change to the boundary; rather, modern technology has allowed the acreage to be calculated with greater accuracy.