

**South Gerber Well Drilling and Reservoir Reconfiguration
Environmental Assessment
#DOI-BLM-OR-L040-2009-0014-EA**

PROJECT TITLE/TYPE

South Gerber Well Drilling and Reservoir Reconfiguration

PROJECT LOCATION

T. 41 S., R. 14½ E., Section 14, SE¼SW¼ (see attached map).

BLM OFFICE

Klamath Falls Resource Area, Lakeview District

LEASE/SERIAL/CASE FILE #: N/A

APPLICANT (if any): N/A

CONFORMANCE WITH APPLICABLE LAND USE PLANS

This Environmental Assessment (EA) is tiered to the Klamath Falls Resource Area Management Plan and Environmental Impact Statement (September 1994). The proposed actions are in conformance with the management direction and guidance in the Klamath Falls Resource Area Record of Decision and Resource Management Plan and Rangeland Program Summary (ROD/RMP), June 1995. The project design and recommendations for implementation are contained in the ROD/RMP and a number of other supporting documents including:

- Vegetation Treatment on BLM Lands in Thirteen Western States FEIS and ROD (1991)
- Northwest Area Noxious Weed Control Program FEIS and ROD (1985) and Supplement (1987)
- Integrated Weed Control Plan (IWCP) 1993
- Lakeview District Fire Management Plan – Phase 1 (1998)
- National Fire Plan (A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy) (2001)
- Wildland and Prescribed Fire Management Policy (1998)
- Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington (1997)
- National Sage-Grouse Habitat Conservation Strategy (2004)
- Greater Sage-Grouse Management Policy
- Applicable state and federal laws pertaining to water use and water right permits.

PURPOSE AND NEED FOR ACTION

Background/Need for Action

The Gerber Block is the largest contiguous block of BLM administered land in the Klamath Falls Resource Area. The southern end of the Gerber Block is in the very southeast corner of the Resource Area. Surface water in the area is limited to small streams and a handful of variably sized reservoirs. The water rights for virtually all of the surface water in the vicinity are held by individuals for private land irrigation. BLM has water rights for two acre feet of surface water at Timber Hill Reservoir and must make application for additional water use permits each year based on projected water needs. This reservoir does not currently accumulate two acre feet of water and is not sufficiently wide or deep enough to accommodate the helicopter buckets used in fire suppression efforts. In recent years, BLM has had to acquire water from other sources which sometimes generates ill will and requires replacement of the water or reimbursement to other water right

holders. Availability of water depends on yearly conditions and may be severely limited in dry years, which is precisely when greater need is expected. BLM has a need to establish a more reliable and accessible source of water for road maintenance, dust abatement, and fire suppression.

Purpose of the Proposed Action

The purpose of the proposed action is to fulfill the need for a more reliable and accessible source of water for multiple uses, including road maintenance, dust abatement, fire suppression, and range operations.

DESCRIPTION OF PROPOSED ACTION

The proposed action is to drill a well up to 500 feet deep adjacent to the Timber Hill Reservoir and reconfigure the reservoir to create a pool deep enough to accommodate the use of a helicopter bucket to dip water. The proposed well site is on the opposite side of the road from the reservoir. This will require construction of a pipeline from the well to the reservoir that would run under the road and construction of approximately 50 feet of road from the well to the reservoir that will have a gradual slope to allow access by water trucks. The desired yield is a minimum of 200 gallons per minute with the intent to pump as necessary to maintain two acre feet in the reconfigured reservoir. If the yield obtained from the well is not sufficient to fill the reservoir, the design would include a storage tank with an overhead fill structure to allow water tenders to be filled without taking water directly from the reservoir. The design will include a well house and a buried power cable from the well to the existing power line to accommodate an electric pump. (Refer to the attached site plan.)

The reservoir would be approximately five feet deep in the center and 125 feet across at the widest point with gradual side slopes to allow access for livestock and wildlife. (See attached cross-section drawing.) The reservoir would be oval, rather than square, to achieve a more natural look. Reservoir reconfiguration would take place during the driest part of the season (late September through November). Spoils from the reservoir excavation would be spread against the existing dam and used to contour side slopes of the original reservoir excavation. If the spoils material is suitable, it could be used in the construction of the road/ramp. Removal of pine and juniper trees on the entire length of the existing dam may be necessary to maintain its structural integrity. The material from the cut trees would be piled away from the construction and burned.

The portion of the allotment boundary fence that currently goes through one corner of the reservoir and along the inside of the dam will be moved to follow the east edge of the reservoir and along the outside face of the dam to facilitate construction and eliminate a potential hazard for helicopter bucket use. The fence would be built to BLM specifications to allow for wildlife passage. Livestock would have access to water on the west side of the fence. If determined necessary in the future, a water gap could be put into the fence to allow cattle access to the water from the east side. The gate on the road will be replaced with a cattleguard to keep livestock in the appropriate allotment while facilitating water truck/engine traffic.

ALTERNATIVES

Alternative 1 – No Action

Although the actions listed above would not be implemented, periodic maintenance of the reservoir (dredging a small portion with a backhoe) would likely continue.

Alternative 2 – Drilling the Well Only

Implementation of this alternative would consist of drilling the well and construction of the road, buried power cable, and well structures. Reconfiguration of the reservoir, construction of the pipeline and access ramp, removal of trees from the dam, fence relocation, and cattleguard installation would not be implemented.

ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Selection of an Alternate Well Site

There are an infinite number of potential locations for a well in the South Gerber area. The proposed site was chosen for its proximity to an existing power line, good road access, and proximity to a reservoir for which BLM has an existing water right. No other sites with all these attributes were identified.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

Direct effects of the proposed action or alternatives are expected to be localized in nature. Indirect effects could occur over a larger area, but are not expected to extend beyond the southern-most portion of the Gerber Block in the Klamath Falls Resource Area. Effects at the watershed scale would be negligible, so there is no need to analyze at that scale. The potential environmental impacts resulting from the alternatives relative to the following critical resource values were evaluated and summarized in Table 1.

Table 1 – Critical Elements Evaluation Summary

Critical Element/ Resource Value	Affected		Critical Element/ Resource Value	Affected	
	Yes	No		Yes	No
Air Quality		X	T & E Species		X
ACEC/RNAs		X	Wilderness		X
Cultural Resources		X	Wild & Scenic Rivers		X
Farmlands, Prime/Unique		X	Hazardous Wastes		X
Floodplains		X	Water Quality		X
Native American Cultural/ Religious Concerns		X	Wetlands/Riparian Zones	X	
Environmental Justice		X	Noxious Weeds		X

Resource values that are not present in the project area or are not expected to be affected by any of the proposed alternatives are: wilderness study areas (WSAs), areas of critical environmental concern (ACECs), research natural areas (RNAs), paleontological resources, prime or unique farmlands, floodplains, wild and scenic rivers, mineral resources, noxious weeds, and hazardous waste sites. No direct or indirect disproportionately high or adverse human health or environmental effects to minority or low income populations are expected to result from implementation of the proposed action or the alternatives. Other resources and potential effects are discussed below.

Vegetation – Affected Environment

Riparian Vegetation – Timber Hill Reservoir is located on the south end of a meadow. When the reservoir was originally constructed, the riparian vegetation in the footprint was completely disturbed. Grasses, sedges, and riparian/aquatic plants cover most of the previously disturbed area outside of the recently maintained dugout in the center, but are more sparse than in the undisturbed meadow.

Upland Vegetation – The vegetation surrounding the meadow and the reservoir consists of shrubs, grasses, and juniper as well as commercial stands of ponderosa pine. The road adjacent to the reservoir is a unit boundary for the proposed Brady Boot Timber Sale and the proposed well site is within the unit. The trees on the dam appear to be at least 30-40 years old.

Special Status Species – The project area was surveyed for special status species in 2003. No known special status species plants were located during the survey.

Weeds – The project area was surveyed for noxious weeds in 2003. No known noxious weeds were located during the survey.

Vegetation – Environmental Effects

Riparian Vegetation – Reconfiguration of Timber Hill Reservoir as part of the Proposed Action will re-disturb grasses, sedges, and riparian/aquatic species within the footprint of the original reservoir. Riparian vegetation is expected to repopulate the edges of the reconfigured reservoir as before. Under Alternative 1 or Alternative 2, reconfiguration of the reservoir would not occur. However, a portion of the riparian vegetation within the original reservoir footprint would continue to be disturbed approximately every ten years as the reservoir is maintained.

Upland Vegetation – Implementation of the Proposed Action would result in removal of upland vegetation, including juniper and small pine trees, during construction of the proposed well site and related features (road, ramp, pipeline, and buried power cable). Relocation of the fence could be accomplished with a minimal amount of disturbance to vegetation, including pruning or removal of individual shrubs or juniper trees. All juniper and ponderosa pine trees on the dam would be removed. Under Alternative 1, there would be no disturbance to upland vegetation in the foreseeable future. Under Alternative 2, disturbance of upland vegetation would be limited to the well site, access road, and buried power cable.

Special Status Species – No known populations of special status plant species occur in the project area. No adverse effects are anticipated from this project.

Weeds – No known populations of noxious weeds occur in the project area. Any ground disturbance in the project area has the potential to introduce noxious weed seeds and propagules. Vehicles and heavy machinery traveling in project area will also cause soil disturbance. This could result in colonization of noxious weeds in the project areas. However, seeding and planting native species would provide competition against noxious weed invasion. Project design features for the prevention of the introduction of noxious weed seeds and plant parts would also reduce the potential for the dispersal of these species into the project area (See Appendix A.). In addition, if new populations of noxious weeds are noted prior to the implementation of the project, these populations should be flagged for avoidance or treated to remove the possibility of spread. Soil excavated for the reservoir expansion should be surveyed and treated for noxious weeds wherever it is located.

Wildlife – Affected Environment

This section focuses on the wildlife species that are considered special status species and would potentially be affected by management activities. Included are those species listed under the Endangered Species Act (ESA - listed, proposed and candidate species), those listed under the BLM special status species policy and considered to be Bureau Sensitive, and land birds listed on the U.S. Fish and Wildlife Service's "Birds of Conservation Concern 2002". All of these species will be considered in this EA process.

Threatened and Endangered Species – There are no Federally Proposed, Listed or Candidate (under the Endangered Species, act as amended 1973) terrestrial wildlife species or Designated Critical Habitat for terrestrial species that occur within the project area.

Special Status Species (Bureau Sensitive and Migratory Landbirds) – The reservoir area proposed for improvement is a water source for bats. Since 2005, the BLM has conducted annual bat monitoring at the reservoir. The monitoring has documented use of the reservoir by eleven species of bats (little brown bat, Yuma bat, long-eared bat, small-footed bat, long-legged bat, silver-haired bat, hoary bat, California bat, big brown bat, pallid bat and Brazilian free-tailed bat). The pallid bat is considered a BLM Sensitive species. No other special status species have been documented or are suspected in the project area.

Wildlife – Environmental Effects

Threatened and Endangered Species – There are no Federally Listed, Proposed, or Candidate (under the Endangered Species, act as amended 1973) terrestrial wildlife species that occur within project area or that would be affected by the project. Therefore, the Proposed Action, Alternative 1 or 2 would not affect any of these species.

Special Status Species (Bureau Sensitive) –Short-term impacts would include those associated with loss of water during the reconfiguration of the reservoir area. Water is limited in the area and the nearest suitable water source is approximately eight tenths of a mile away. The proposed reconfiguration of the reservoir would happen in the fall (late September –November) when the majority of the bats have migrated out of the area. This would minimize those impacts associated with water loss. The implementation of Alternative 1 or Alternative 2 would not affect the availability of water for bats over the long-term and therefore have no long-term impacts to bats.

Hydrology and Soils – Affected Environment

Ground water – The total quantity of water pumped is expected to be approximately two acre-feet annually assuming sufficient well capacity is realized. Accounting for evaporation and seepage, this is the estimate of the amount of water that would need to be pumped to maintain the pond to a sufficient depth for the intended uses including draft pumping and helicopter dipping. There is a recently installed well within one mile of the proposed well. The driller’s well log for that well indicated that the static water level is 370 feet; total drill depth is 427 feet deep and produces approximately 10 gallons per minute. Geologic mapping of the region (DOGAMI 2003) indicates that the south Gerber Block area is a groundwater recharge area with aquifers tending to be very deep and sloping downhill and westerly towards Langell Valley. Water yields are expected to be low in the area.

Surface Water – BLM has an existing water right certificate for the storage of two acre-feet of surface water in Timber Hill Reservoir. The total area of the catchment above the dam is 151 acres. There is no well defined stream channel, however there is a nine acre meadow area immediately upstream of the dam. The total storage capacity of the reservoir would not be modified by the proposed project. Rather, the objective is to reconfigure the existing deepened portion of the reservoir to accommodate draft pumping by water trucks and be able to accommodate the dipping of helicopter buckets. The well would be used to maintain sufficient water quantities to achieve water storage for these purposes. There are no indications that surface water ever flows over the existing dam spillway structure due to the permeability of the soils and the small size of the watershed area above the dam structure. Ground water would be pumped into the reservoir as needed to maintain water levels sufficient for fire suppression, road watering and livestock.

Soils – Soils in the area of the reservoir area and most of the catchment area are part of the Grohs-Carrbutte complex, 2 to 20 percent slopes. These soils have relatively high clay content and are moderately well drained. The soils in the meadow are alluvially deposited and are derived from the parent soils upstream. These meadow soils are likely higher in clay content and finer textured than the parent soils. Within the recently maintained reservoir area, there is a visible claypan layer that was partially excavated. This claypan layer is likely responsible for the formation of the dry and wet meadow characteristics of the area. Complete penetration of the claypan layer during reservoir or dam construction could result in increased seepage and loss of water holding capacity.

Hydrology and Soils – Environmental Effects

Ground water – Construction of a well with a capacity to discharge a maximum of 200 gallons per minute (Proposed Action or Alternative 2) is not expected to impact the groundwater supply at the regional or local scale. It is also not expected to affect surface waters in nearby streams, lakes or reservoirs. Under the no action alternative, there would be no changes in ground water conditions.

Surface Water – For the Proposed Action, the reservoir shape would be reconfigured in the area previously deepened to provide season-long livestock water. This reconfiguration to accommodate helicopter dipping is not expected to significantly alter the storage and capture of surface water since the reservoir does not appear to fill to the point of spilling in the current configuration. Water storage would be supplemented by the well such that the area seasonally inundated may be slightly larger. It is not expected that there would be any additional discharge of water over the spillway since the watershed area is small and does not spill. The proposal would not result in the storage of water in excess of the two acre-feet under the existing BLM water right certificate. Surface water would not be affected under Alternative 1 or Alternative 2, as neither would result in changes to the reservoir.

Soils – Implementing the Proposed Action or Alternative 2, would result in localized temporary and permanent impacts to soils in the immediate vicinity of the well pad, spur road, and buried power cable. These impacts include displacement and compaction. Care should be taken to avoid penetrating the water resistant claypan layer during the deepening of the reservoir. If the reservoir seeps excessively following excavation, the application of bentonite may be required to maintain water levels. This would result in no soil disturbance beyond that expected from the excavation. Total permanent impacts to soil resources resulting from well drilling activities are expected to be less than 1/10th acre. Implementation of the reservoir reconfiguration activities as part of the Proposed Action, including construction of the truck access ramp to the reservoir, would result in localized disturbance and compaction of riparian soils within the old reservoir footprint. Under the no action alternative, there would be no changes in soil conditions.

Fire and Fire Suppression – Affected Environment

The project is located within the California Montane Jeffrey Pine-Ponderosa Pine Woodland Biophysical Setting (BpS 0710310), which is a Fire Regime I. This fire dependant ecosystem historically experienced primarily short-interval (3-38 yr) surface fires with occasional mixed severity-fires (120-130 yr intervals), (Hann *et al.* 2008). The southeast portion of the Gerber Block has been underburned with planned ignitions several times in the past 30 years, with no significant wildfires occurring in the past 100 years. Consequently, the project area is currently in Condition Class I. In the timber stands, the fuels are primarily grass understory and needle litter (Fuel Model 2). Outside of the timber stands, the fuels are primarily sparse grass with sagebrush (Fuel Model GR1), in areas where the western juniper has been removed, the grass is generally much denser and taller (Fuel Model GR4).

Fire and Fire Suppression – Environmental Effects

Implementation of the Proposed Action is expected to increase fire suppression effectiveness due to decreased turnaround time for helicopters and fire engines drafting water from either the reservoir or an overhead fill structure if constructed. Alternative 2 would increase fire suppression effectiveness somewhat less than the preferred alternative, because helicopters would be unable to utilize the water source. Depending on the well's yield, the flow-rate might not be sufficient to support engines or water tenders without the reservoir's water storage capacity. Alternative 1 would have no effect on fire suppression activities.

Livestock Management – Affected Environment

The proposed well site and associated reservoir are mainly within the Notch Corral pasture of the Willow Valley grazing allotment. Currently, the allotment boundary fence cuts through a portion of the reservoir allowing livestock from the adjacent Timber Hill allotment to access the water in the reservoir.

The Notch Corral pasture is utilized by livestock in a rest rotation grazing system with the pasture being grazed for three years and rested for one year. The season of use for the pasture is from mid May through the end of June with between 490 and 600 Animal Unit Months (AUMs) of grazing use made by cattle.

The Timber Hill allotment is a single pasture allotment that is grazed every year from June 21 through July 31 with 270 AUMs of cattle use.

Livestock Management – Environmental Effects

Implementation of the Proposed Action, Alternative 1, or Alternative 2 would have minimal effects on the livestock grazing in the Notch Corral pasture of the Willow Valley Allotment. During most years, there is sufficient water in the existing reservoir to provide a water source for livestock during the season of use for the pasture. The drilling of the well in the Proposed Action and Alternative 2 and the deepening of the reservoir in the Proposed Action would have the positive effect of providing water in the reservoir for livestock during extreme drought periods or to accommodate a change in season of use if determined necessary in the future. Installation of a cattleguard in the Proposed Action will positively affect livestock management by eliminating the potential for livestock drift that would occur if the gate is left open during water filling operations for fire or road maintenance activities.

Under the Proposed Action, the reservoir would be fenced in a manner that would not allow access by livestock in the Timber Hill allotment. This would have minimal effects to livestock grazing as there are other nearby water sources in the allotment. If determined necessary in the future, a water gap could be put in the fence to allow access to the reservoir by livestock in the Timber Hill Allotment. Under Alternatives 1 and 2, there would be no effects to livestock grazing in the Timber Hill allotment.

Transportation Management – Affected Environment

The transportation network in the southern part of the Gerber Block consists of roads with natural, gravel, or cinder surfaces. Road maintenance and log hauling activities during dry periods create a need for water for dust abatement. Adequate water sources to fulfill this need are lacking. Obtaining water from private sources has proved costly and difficult.

Transportation Management – Environmental Affects

Implementation of either the Proposed Action or Alternative 2 would be instrumental in fulfilling the need for water to perform road maintenance and dust abatement. Alternative 1 would not provide additional water for this function.

Cultural Resources – Affected Environment

Native American use of the area spans many millennia. The region was most likely used by the Modoc and/or Klamath peoples. On a map showing the Modoc territory, Ray (1963) shows the Modoc encompassing the project area. Ray (1963) notes that the Modoc territory was divided into three geographic areas that were named after those who lived in those areas. Of these three areas, the Kokiwas' (people of the far out country) lived within the project area.

Historic contact between the Native American tribes and Euro-Americans began around the 1820s and culminated with the Klamath Lake Treaty of 1864 in which the lands around the project area were ceded to the United States by the Klamath Tribes (Minor et al. 1979). The Klamath Tribes consists of the closely related Klamath, Modoc, and Yahooskin peoples.

Euro-American exploration within the analysis area began in 1843 when a band of "free trappers", led by Old Bill Williams, explored the Lost River region. Euro-American settlement did not occur until 1875. Homesteaders pursued sheep and cattle ranching. The Gerber family was the first to establish a ranch at the northern end of the Gerber Block in 1880, hence the name of the area.

The Civilian Conservation Corp (CCC) improved the landscape within the analysis area for grazing in the 1930s. The CCC built roads, spring developments, stock ponds, corrals and even a telephone line. In 1935, the Gerber block became the first grazing district in Oregon and the United States (Bonanza Grazing District No. 1) under the 1933 Taylor Grazing Act. In 1946, the General Land Office was merged with the Grazing Service to create the Bureau of Land Management (Beckham 2000). The BLM has managed the area ever since.

Cultural Resources – Environmental Effects

The project area has been previously inventoried and no known sites are located within the proposed project boundary, therefore this project should have no effect on historic properties under any alternative.

Recreation and Visual Resources – Affected Environment

Recreational use of the proposed treatment/project area generally consists of dispersed motorized and non-motorized uses such as camping, hiking, hunting, fishing, and wildlife viewing. The project area is located in Visual Resource Management (VRM) class IV areas. Class IV objectives allow major modifications of the existing character of the landscape.

Recreation and Visual Resources – Environmental Effects

Short term disturbances to recreationists from noise and dust associated with implementation of the Proposed Action or Alternative 2 in the project area can be expected. Improved conditions for bird and wildlife viewing may occur after reservoir maintenance and improvements are completed. VRM class IV objectives for the treatment area will be met.

Implementation of Alternative 1 would have no effect on recreation or visual resources or the public. The proposed project should have no measurable cumulative impacts upon recreation or visual resources.

DESCRIPTION OF MITIGATION MEASURES

Soils - Several measures would be taken to mitigate for soil disturbance from construction activities. These include re-grading displaced soil to match existing land contours and mulching/seeding bare soil areas in the fall after construction.

Visual Resources - To reduce visual impacts and to avoid drawing the public's attention to the well building and other associated structures, it is recommended that the choices for the structure's colors blend into the existing landscape when possible. Reconfiguration of the reservoir into an oval shape will be less visually intrusive than a square shape.

DESCRIPTION OF PROJECT DESIGN FEATURES

Noxious Weeds

- Require cleaning of all equipment and vehicles prior to moving on-site to prevent spread of noxious weeds.
- If the job site includes a noxious weed infestation, require cleaning of all logging and construction equipment and vehicles prior to leaving the job site.
- Removal of all dirt, grease, and plant parts that may carry noxious weed seeds or vegetative parts could be accomplished by using a pressure hose to clean the equipment.
- Mow noxious weeds in the immediate area of yarding operations to ground level prior to seed development. If unable to mow, flag all noxious weed populations and these populations should be avoided.
- Conduct monitoring activities related to proposed treatments as described in the Klamath Falls ROD.
- Road graders used for road construction or maintenance would grade towards any known noxious weed infestations.
- If no good turn around area exists within one half mile that would allow the operator to grade towards the noxious weed infestation, then the operator would leave the material that is being moved within the boundaries of the noxious weed infestation.

Fence Specifications

Fence will be built to BLM specifications to allow for wildlife movement. This includes using smooth wire for the bottom wire, a bottom wire height from the ground of 16", top wire height at a maximum of 40", and a spacing of 12" between the top two wires.

CITATIONS

Hann et al. 2008. Interagency and The Nature Conservancy Fire Regime Condition Class website. USDA Forest Service, US Department of the Interior, The Nature Conservancy, and Systems for Environmental Management [www.frcc.gov].

PERSONS/AGENCIES CONSULTED

Les Anderson, Cultural Protection Specialist, The Klamath Tribes, May 27, 2009

PREPARER(S)

Kathy Lindsey
Brian McCarty
James Elvin
Andy Hamilton
Dana Eckard
Don Hoffheins
Brooke Brown
Molly Boyter
Rob Roninger
Scott Senter
Steve Hayner
Eric Johnson

Writer-Editor
Engineering Technician
Engineer
Hydrologist
Rangeland Management Specialist
Planner
Archaeologist
Natural Resource Specialist - Plants
Fisheries Biologist
Recreation Specialist
Wildlife Biologist
Fire/Fuels Specialist

Figure 1: Proposed South Gerber Well Site Plan

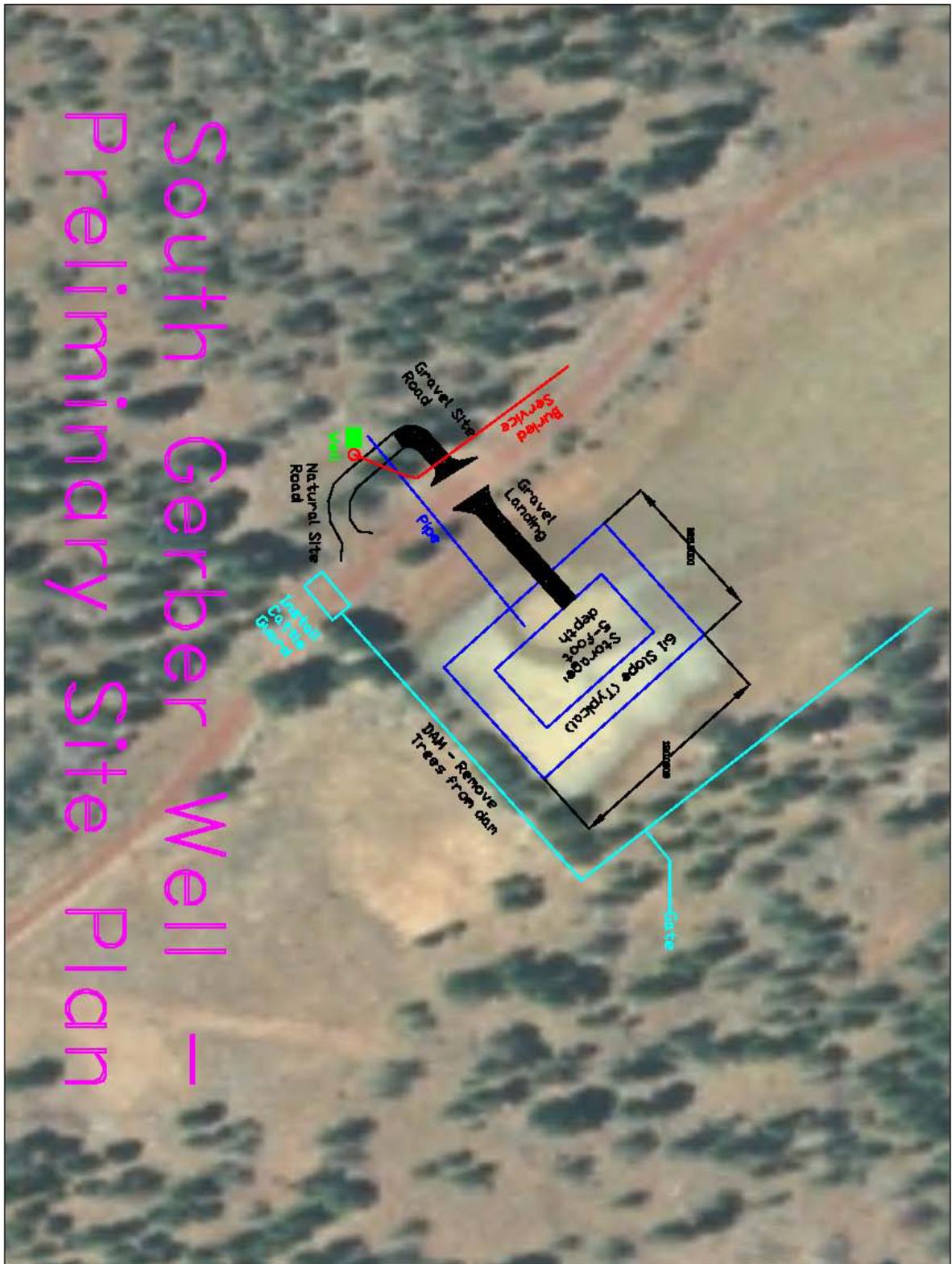
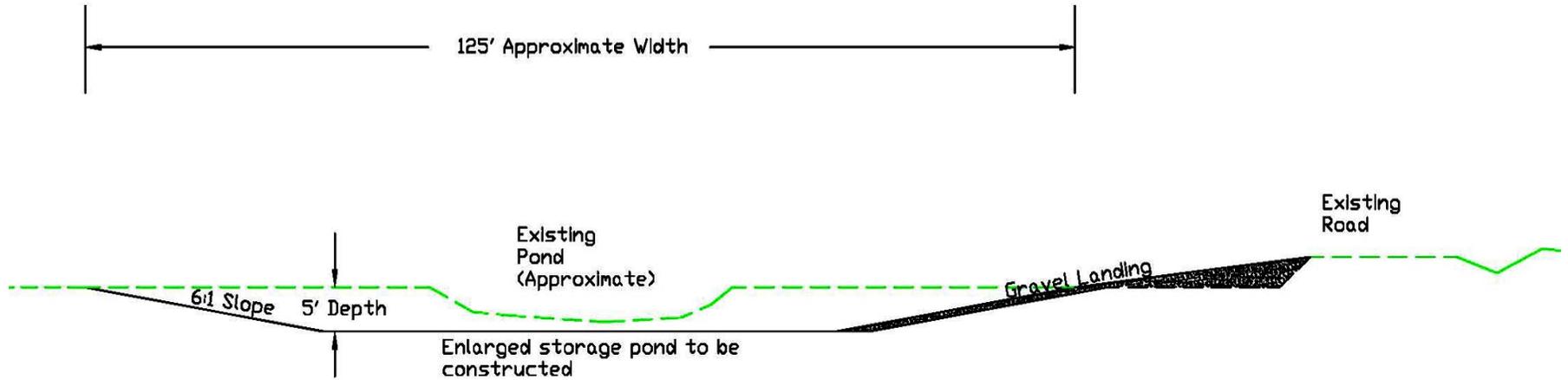


Figure 2: Cross Section Drawing of Proposed Reservoir Reconfiguration



Proposed cross section, at the access landing