Montana Department of
ENVIRONMENTAL QUALITY
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March 29, 2011

Broken Hill Mine Reclamation Project
Sanders County, Montana

DEQ Response to Public Comments on the Expanded Engineering Evaluation and Cost Analysis (EEE/CA)

WRITTEN COMMENTS AND ANSWERS:

Comment 1, Mine Adit Openings: Our primary comments pertain to the adits that exist on the upper and lower excavation areas. Within the reclamation proposal document, MDEQ has the 2 existing adits scheduled to be closed during the restoration work. During the public meeting you indicated that the general plan was to place bat gates on the mine openings.

Our intention was to open the adits and utilize the mines for future storage and access on our property during the summer /fall of 2011. Currently, we cannot remove the waste rock from the entrance to the mine shafts until fall of 2011. We are sure MDEQ will agree that the waste rock from the mine entrance should be deposited in the lower repository. It is therefore our proposal that DEQ will provide for the excavation of the mine entrances during the reclamation process to ensure that all mine tailings will be removed from the clean up area. During this time the mine tailings in the adit entrance would be transported to the lower repository along with the other mine tailings.

As landowners, we strongly support the proposed action of placing bat gates onto each of the adit openings. We would of course request a key to the gates for our personal access.

Answer 1: The lower adit portal is located on Forest Service property and is currently open (Attachment 1, Photo 1). The upper adit is located on private lands and appears to be completely collapsed. When a bat survey has not been performed at an abandoned mine project site, it is Department of Environmental Quality Abandoned Mine Section (DEQ AMS) general practice to place bat friendly closures on open mine features that may provide bat habitat. This is done to eliminate human and ecological safety hazards while maintaining bat habitat. A bat friendly closure consists of a culvert with a bat friendly grate placed either in the culvert or on the end of the culvert (Attachment 1, Photo 2).

In the event the property owner wishes to have access to the mine working for future mining related purposes, a removable bar with a lock may be placed across the grate (Attachment 1, Photo 3). This culvert and grate is placed in the mine opening and the area around the culvert is backfilled and graded to match the surrounding topography. Attachment 2 shows a conceptual drawing of a typical bat friendly closure and access culvert. The actual design of the bat friendly closure will be completed during the Engineering Design and Bid Document Preparation phase of the project.

Excavation and grading of the lower adit portal will be limited to removing the waste rock from the environment and providing access for the bat friendly closure placement. The waste rock will be hauled and placed in the repository. Since one of the purposes of DEQ AMS reclamation projects is to reduce safety hazards associated with open mine portals, the lower adit portal will not be excavated, opened, and graded for the purposes of allowing mine rehabilitation and human access. Future property owner access to the mine working would be through the culvert by removing the bar and lock. A key to the lock would be provided to the landowner.

The upper adit portal is currently collapsed, does not provide bat habitat, and poses a limited safety risk. DEQ AMS projects are focused on closing portals to eliminate safety hazards. Since the upper adit portal is already collapsed, DEQ AMS will not open this portal and create a possible safety hazard liability. Waste rock around and near portal will be excavated and transported to the repository. DEQ AMS general practice is to leave the collapsed adits as is or backfill and grade the adits to match the surrounding topography. Per the preferred alternative outlined in the EEE/CA, the upper adit portal is planned to backfilled and graded to match the surrounding topography.

Comment 2, Repository Bench Sites: As landowners and residents of the nearest private property to the proposed repositories, we have major concerns on the placement of mine tailings into repository #2. . From our observations of the attached map, the proposed Bench site #2 is immediately adjacent to the Broken Hill Private properties and will provide risk of human exposure both short and long term to the residents of the private properties. We feel that repository #2 would be a more suitable for the following rationale:

1. Bench site #1 is further than bench site #2 from the private properties and would provide a lesser amount of risk to humans. Bench site #1 provides the best minimal exposure to human contact as it is farther from the private properties.
2. Bench site #1 is larger than bench site #2 and will therefore provide more of a suitable repository.
3. Bench site #1 is estimated to cost $250,078. Bench site #2 is estimated to cost $245,507. We feel that the small amount of cost difference is justified when considering the repository would be located the farthest distance possible from human exposure.

Answer 2: Road Bench Site #2 is located approximately 0.5 mile, via Forest Service (FS) 2290, closer to the BHMS than Road Bench Site #1. Both potential repository sites are located United States Forest Service (USFS) property. With increasing fuel costs, every extra bit of haul distance will make a difference in cost. Below is a general breakdown of hauling distance for Road Bench Site #2 vs. Road Bench Site #1. (Note: All distances were approximated using GIS software.)

Road Bench Site #2
4,100 cubic yards waste (cy) x 10 cy/truck trip to repository = 410 truck trips to repository

Broken Hill Mine to Road Bench Site #2 via FS 2290 = 0.9 miles/round trip

410 truck trips to repository x 0.9 miles/round trip = 377 miles

Road Bench Site #1
4,100 cubic yards waste (cy) x 10 cy/truck trip to repository = 410 truck trips to repository

Broken Hill Mine to Road Bench Site #2 via FS 2290 = 1.7 miles/round trip

410 truck trips to repository x 1.7 miles/round trip = 713 miles

Hauling to Road Bench Site #1 would be an additional 336 miles of haul distance throughout the duration of the project. Since Road Bench Site #1 is twice the roundtrip haul distance of Road Bench Site #2, assuming the same number of haul trucks are used, hauling the waste material to Road Bench Site #1 would take approximately twice as long as hauling to Road Bench Site #2. Hauling to Road Bench Site #1 would also require more roadwork and more switchbacks to navigate and upgrade which would add additional time to complete the project.

Additionally, a survey would need to be completed at the Road Bench #1 Site before an engineering design could be completed. We currently have survey data for Road Bench Site #2. This project is scheduled to be completed this summer while funding is available. DEQ AMS would not have sufficient time to complete a survey at the Road Bench #1 Site (which would cost additional money), complete an engineering design, complete the public bidding process, and complete construction of the project in summer 2011. Also, there is no guarantee that DEQ AMS funding will be available next year to complete this project. Funding is available this year. Since the preference (weather permitting) is to complete the project by September 1, 2011, Road Bench Site #2 is more economical and would allow the project to be completed this year in a much shorter time frame.

The results of the Repository Investigation that was performed in May 2010, concluded that "Each site has sufficient area for repository construction (at least ¾ acres)…" and that "Because no one site has an advantage over another based on geotechnical consideration, the choice of preferred repository site is based on factors which affect cost (haul distance), environmental concerns, visual impact, and other." Based on these findings, the difference in area between the different repository sites is not a factor for choosing the preferred repository location.

The purpose of placing the waste material in a lined, capped, engineered repository is to isolate the waste material from human contact and the environment thus eliminating short and long term exposure risks. The repository will consist of excavating a hole in the ground, placing the waste material in the hole, capping the repository with an approximate three foot thick multilayer cap, revegetating the repository with a native grass mix, and placing woody debris along the edge and on top of the repository. This will help discourage people from walking on the repository and help the vegetation become established more quickly. The basic design of the repository would be the same regardless of chosen repository location.

With proper repository design and construction, there should be no short or long term exposure risk. To ensure the repository is properly designed to encapsulate and isolate the waste material from human exposure and the environment, the design will be completed by a licensed professional engineer. To ensure the repository is constructed properly, DEQ AMS will contract with the design engineering firm to provide full time project oversight. Also, the waste material will be located under an approximate three foot multilayer cap, so there should be no short or long term exposure risk to the public or private property owners regardless of the repository location.

Public access to both repository locations is very limited as FS 2290 is closed to motorized vehicles above the Forest Service gate for grizzly bear habitat. This gate will remain closed to the public throughout the duration of the project. The privately owned cabin which is used for seasonal recreational use is the closest human recreational residence to the Road Bench Site #2 and is located approximately 0.5 miles away from Road Bench Site #2 via FS 2290.

After taking this comment into consideration, Road Bench Site #2 is still the preferred repository location based on reduced projects costs, ability to complete the project this year with the goal of finishing construction by September 1, 2011 (weather permitting), current funding availability, remoteness of the repository location, and repository site ability to meet project reclamation goals and objectives.

Comment 3, Water Off Cap Onto FS 2290: Is there a plan to place a culvert under FS 2290 after the waste repository is constructed? We feel that there may be a significant risk of erosion and wash out of FS 2290 if the synthetic liner is placed onto the waste

rock directly above FS 2290 as proposed. It seems that the water would was onto the road and provide a risk of wash out. Is it feasible for a ditch or catch basin to be constructed around the cap and possibly funneling into a culvert that would go under FS 2290? It appears that bench site #2 is directly above FS 2290. Is Bench Site #1 Directly above FS 2290 as well? This may be additional rationale for using bench site #1 vs. Bench site #2.

Answer 3: Because of the vegetative cap, final grades, and small disturbed acreage, future runoff from the cap and associated reclaimed acreage should be minimal. During construction, sediment control best management practices (BMPs, examples include drain dips, silt fence, straw wattles, other erosion control technologies) would be installed. These BMPs would remain in place until all disturbed areas are fully revegetated and stable. In additional, all disturbed areas will be revegetated with a native seed mixture. Site grading will be designed and constructed to minimize runon/runoff.

Road Bench Site #1 is generally located on the southern end of a FS 2290 switchback and Road Bench Site #2 is nestled in between the upper and lower ends of a switchback on FS 2290 (see Appendix D of the Repository Investigation Report for the Broken Hill Mine Site, Sanders County, Montana, September 2010, for maps showing the exact location of repository test pits and perimeter boundaries). A repository typically has a channel around the repository that serves to capture surface water and route and disperse the water around the repository. The actual repository design and runon/runoff control locations will be designed during the Engineering Design and Bid Document phase of the project.

With proper repository cap design and installation of BMPs, it is not anticipated that there will be an increase in stormwater water runoff above what is currently being delivered via snowmelt and precipitation runoff. Therefore, it is not anticipated that stormwater will need to be directed under the roadway. If during the Engineering Design and Bid Document Preparation phase of the project USFS hydrologic personnel determine that a culvert is necessary, the culvert would be sized and installed per USFS specifications.

Comment 4, Forest Road 2290 Road Preparation: Significant improvements will need to be made to FS 2290. We did not see a budget for this in the Analysis Report. Could you describe in more detail what will be done and what the expected cost will be? There are 2 locations on the road that may require the installation of culverts where small annual streams cross over the road. This would reduce erosion and ensure future use of the road after the BHMS restoration is complete.

Answer 4: Because of the small size of the job, limited construction equipment anticipated to complete the job, and limited heavy equipment and truck traffic on FS

2290, there will not be significant improvements to FS 2290. Minor road improvements anticipated include clearing downed trees, minor brushing to allow the passage of heavy equipment, and installing standard BMPs to reduce erosion and sediment. Limited quantities of road-base gravel may be placed in high traffic areas (i.e. the working pad for repository construction). Major earthmoving equipment will be mobilized to the jobsite (most likely unloaded toward the bottom of FS 2290 and walked in), remain at the jobsite during the duration of the project, and demobilized when the project is complete. Two to four light vehicle trips per work day are anticipated to be the only daily traffic up and down FS 2290. The FS gate on FS2290 will remain locked and closed to the public during the duration of the project. If during the Engineering Design and Bid Document Preparation phase of the project USFS hydrologic personnel determine that a culvert is necessary, the culvert would be sized and installed per USFS specifications.

At the BHMS, road improvements will need to be made to connect access from an old mining road at the lower waste rock dump to FR 2290 (see Attachment 3). Anticipated improvements include clearing trees and other obstacles on the old mining road to allow equipment access and minor excavation and grading to connect the two roads. At the repository site, a realignment of FR 2290 will also be required to provide access to the repository location and a working area for construction.

Comment 5, Retain possession of Ore Bin, Load Out, and any other structures indentified during Clean Up: We would like to retain the ore bin, and any other artifacts of cultural significance that are identified during the clean up process. Also pertaining to any artifacts / tools etc. that are identified in the mine shafts. We would like any cabins / load outs left intact if possible (possibly waste material can be removed around these structures?)

Answer 5: It is anticipated that waste material can reasonably be removed around these types of mining related structures without damaging their integrity. All historic artifacts found during site cleanup will be left at the site. In DEQ AMS construction contracts, there is a provision related to the protection of historical findings. The purpose of this provision is to protect historical findings and prevent their removal from the project site. This provision requires the construction contractor to stop operations and immediately report the discovery of historic artifacts, structures, remain, etc. to the project engineer. This provision also imposes a $500.00 per artifact penalty levied against the Contractor for disturbing or removing artifacts from the site without DEQ AMS approval.

Comment 6, Post Analysis of water in lower creek beneath BHMS: To our knowledge, there was no analysis done on the water in the creek that is located directly below the lower Mine Shaft. During the clean up process could MDEQ do an analysis on this spring to identify if we can use this water as a viable water source?

Answer 6: Based on the spring location on the map provided related to this comment, no analysis of this spring water was conducted during the Reclamation Investigation (RI). During the RI, the only water sample that was collected was from the discharging adit at the lower waste rock dump. This water exceeds the human health drinking water standard for arsenic and lead and exceeded aquatic life standards for cadmium, lead, and zinc. Sampling of surface waters outside of the BHMS project area is outside of the scope of this project. Costs associated with such sampling cannot be justified by DEQ AMS since determining a viable drinking water sources is not within the scope of this project.

Comment 7, Post Mine reclamation of the mine site: Could you describe how / what nutrients will be added to the mine site after the waste rock has been removed and what / if there is a plan to place native seeds / forage at the site for the rehabilitation?

Answer 7: All disturbed areas at the BHMS and the repository will be revegetated, fertilized, and mulched upon completion of construction activities. These areas will include waste rock removal areas, areas around excavation that have been disturbed by heavy equipment, haul roads, and all other areas where heavy equipment operation has disturbed the native ground. These areas will be revegetated using a native seed mix. This seed mix will likely include the following: tufted hairgrass (10 pure live seed (PLS)/acre), rough bentgrass (10 PLS/acre), Idaho fescue (10 PLS/acre), bluebunch wheatgrass (10 PLS/acre), and annual rye (20 PLS/acre). Depending on the application method used (hydroseed, broadcast, etc), these application rates may be required to be doubled. This is the seed mix and application rate that was approved and used by the USFS on the Scotchman Mine Reclamation Project which was completed in the Blue Creek drainage in 2010. Once the disturbed areas have been graded, and covered with topsoil, if necessary, native seed will be placed on all disturbed areas. Fertilizer will then be applied followed by mulch and other appropriate BMPs for erosion control. Based on laboratory analysis of soil in the vicinity of the BHMS, the following fertilizer rate was recommended: nitrogen (25 pounds (lbs)/acre), phosphorus (20 lbs/acre), potassium (30 lbs/acre), and zinc (2 lbs/acre). The actual seed mix, application rate, and fertilizer application rate will be determined during the Engineering Design and Bid Document preparation phase of this project.

Comment 8, Work Schedule: We are hoping that all work will be completed by August 15 and at the latest September 1. We will be hunting on the property during the month of September.

Answer 8: DEQ AMS anticipates that the project could reasonably be completed by September 1, 2011. However, the start of construction activities is very weather dependent as access to the site is required to begin the bidding process. At this time, DEQ AMS cannot predict when access to the site will be available, so an exact construction schedule cannot yet be determined. Since a September 1, 2011, completion date was requested by the BHMS landowner and by the Montana Fish Wildlife and Parks, DEQ AMS will make every reasonable attempt to complete this project by this date. Due to grizzly bear habitat, the project cannot begin before June 17, 2011. A 45 to 60 day construction contract is anticipated for this project. The exact number of contract days will be determined during the Engineering Design and Bid Document phase of this project.

Comment 9, Post Construction Weed Control on Forest Service Road 2290, Private Road and BHMS: We did not see any analysis to address significant disturbances to FS 2290 that will take place during the heavy use of the road and subsequent weed problems that will occur after the disturbances. We would like to request that MDEQ perform spraying / weed control as part of the post project work. Could you send us a plan that would address these issues?

Answer 9: As was stated in the response to Comment 4, significant disturbance to FS 2290 is not anticipated. DEQ AMS construction contracts and the USFS require the construction contractor to clean all equipment with a high-pressure washer prior to being mobilized to the project site to ensure no weeds are imported to the work area. This equipment is also inspected by the project engineer to ensure it has been cleaned prior to mobilization. The construction contractor is also required to submit a Weed Control Plan to DEQ AMS for review prior to beginning the project. DEQ AMS construction contracts also state that "If there is an abnormal growth of noxious weeds on the Project site after construction as determined by Engineer or local weed control authority, Contractor shall be responsible for weed control under Contractor's General Warranty and Guarantee, General Conditions, Paragraph 6.19.C."

During previous site visits, DEQ AMS observed a significant amount of knapweed on FS 2290. These observations show that noxious weeds are already present in proposed work areas. DEQ AMS conducts annual monitoring of reclaimed areas (this will include public and private lands involved with the project) for a period of three years following completion of construction activities. After this three year maintenance period, it is the private landowner's responsibility to maintain weed control on the private land, and the USFS's responsibility to maintain weed control USFS land. DEQ AMS annual monitoring generally includes spraying for weeds if a weed problem is

determined to be present. The USFS monitors forest service roads for weeds every two to three years and treats accordingly. For the BHMS project, the USFS plans to conduct annual monitoring for a few years to monitor for new populations of weeds on forest service land and treat accordingly.

Comment 10, Passing of Contact Info to Contractors: Feel free to pass on our contact info to Contractors who may be performing the work. We have a cabin located on the property that could be utilized for the contracting work and this reduction in travel expenses / lodging could result in a lower bid price to MDEQ for the project.

Answer 10: The BHMS and repository location are both located within Bear Management Unit 4 of the Cabinet-Yaak Grizzly Bear Recovery Zone. DEQ AMS is required to consult with wildlife officials on threatened or endangered species as part of the approval process to begin reclamation projects. During this consultation, comments were received from local wildlife officials that required that there be no camping at the jobsite and that all food and garbage be stored in a bear resistant manner.

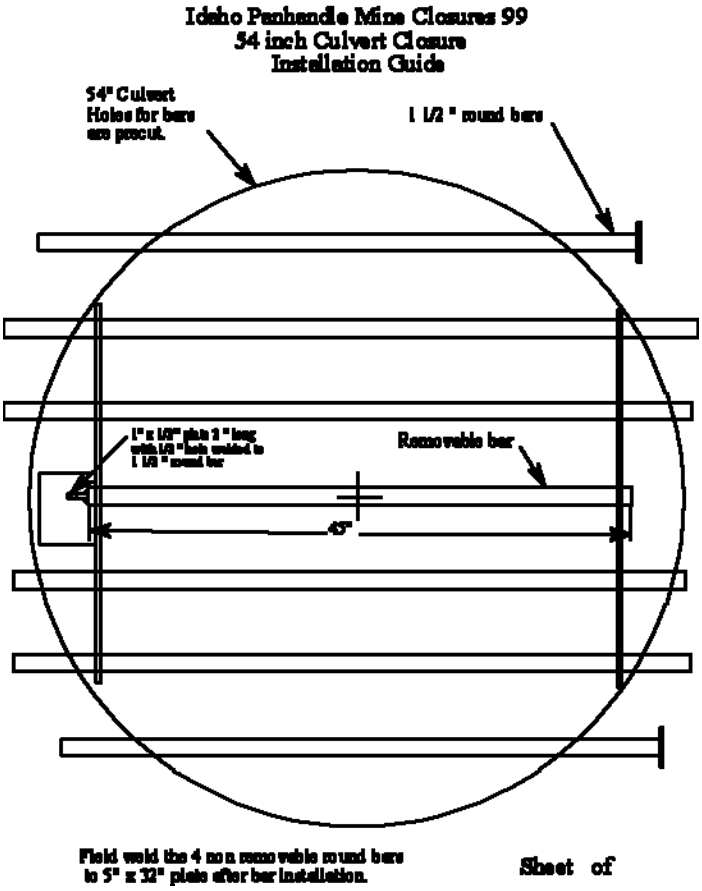
DEQ AMS requires a mandatory pre-bid walk through for all contractors wishing to bid on the project and any interested public. During this walk through the project areas are visited and the scope of work is discussed. This ensures that all bidders have actually seen the project site. As the landowner, you are welcome to attend this walk through and make your contact information available to bidding contractors. Any other member of the public is also welcome to attend the walk through to provide lodging information.

Attachment 1

Photo 1: Lower Adit Portal

Attachment 1 Cont.

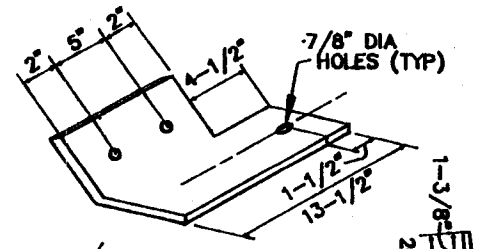
Photo 2: Example Bat Friendly Adit Closure with Access

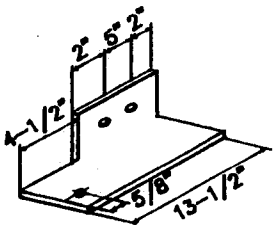


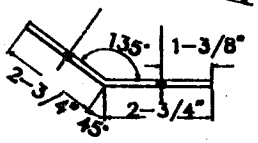
Attachement 1 Cont.

Photo 3: Example Bat Friendly Adit Closure with Access

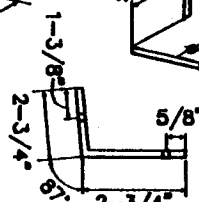
NOTE: BRACKET AND GRATE DIM. VARY WITH CULVERT DIA. (DRAWING DIA. = 48") DIM. SHALL BE DETERMINED BY SUPPLIER AND INDICATED ON SUBMITTALS.



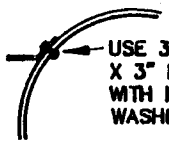




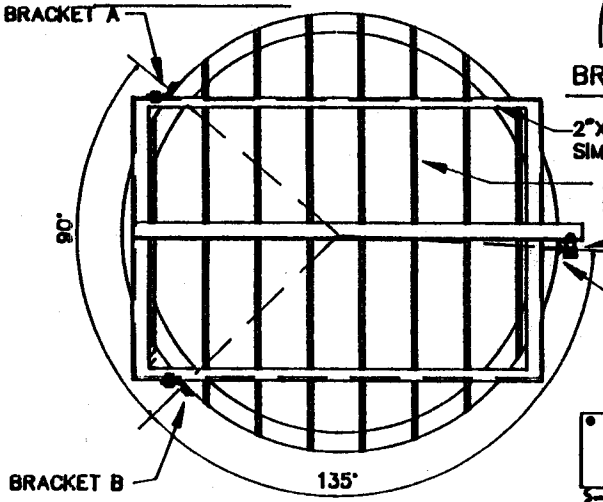
BRACKET A&B



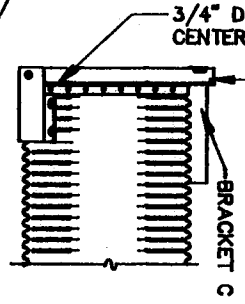
BRACKET C

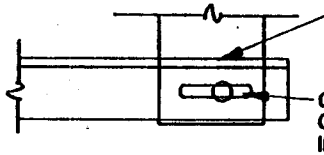


BRACKET & HINGE DETAIL



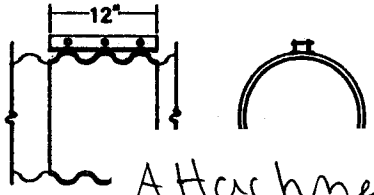
GATE FRAME DETAIL



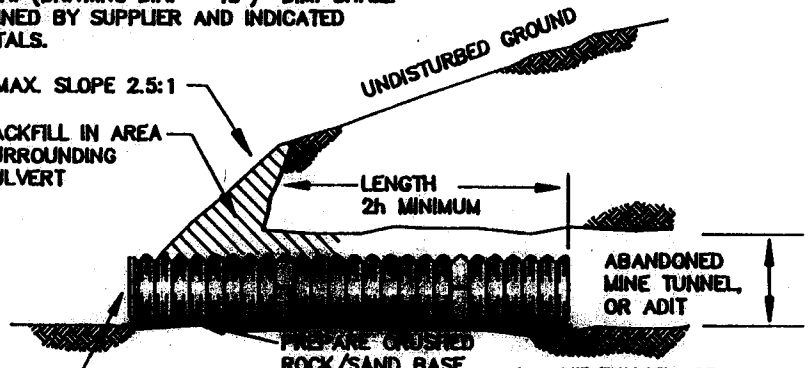


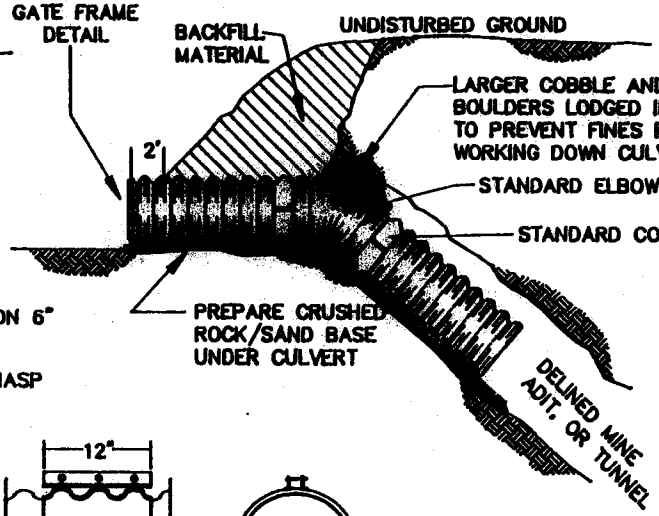
LOCK ASSEMBLY DETAIL

GATE FRAME–PLAN VIEW



PIPE





GENERAL NOTES

AFTER PIPE SECTIONS ARE PLACED THE SURROUNDING VOID WILL BE BACKFILLED.

SUFFICIENT BACKFILL MATERIAL IS NEEDED TO SECURE THE PIPE AND CLOSE THE ORIGINAL ADIT ENTRANCE.

UNLESS OTHERWISE SHOWN, ALL JOINTS OR CONNECTIONS ARE TO BE WELDED.

Attachment 2

NO SCALE

STATE OF MONTANA
DEPARTMENT OF STATE LANDS

ACCESS CULVERT INSTALLATION

DRAWING No. 413.01

Lower Waste Rock Pile

To upper Waste Rock Dump

ROAD 2

ROAD 3

ROAD 1

KOOTENAI NATIONAL FOREST

DJA BPC 5

DJA BPC 14

DJA BPC 13

DJA ALUM. CAP 21

BRASS CAP 10

BRASS CAP 11

N71°30'13"E 85.36'

LEGEND

- SET 5/8" X 18" REBAR WITH 2" ALUMINUM CAP, MK'D. DJ&A CP
- SET NAIL
- SET 3/8" X 18" REBAR WITH 3/4" BLUE PLASTIC CAP (BPC), MK'D DJ&A CP
- FOUND 3 1/2" BRASS CAP MK'D AS SHOWN
- SOIL TEST
- MINE ADIT
- DECIDUOUS TREE
- EVERGREEN TREE
- 3575 MAJOR CONTOUR
- MINOR CONTOUR
- PROPERTY LINE
- EDGE OF ROAD
- TOP OF BANK
- TOE OF BANK

BROKEN HILL
MS 10572

Road improvements required to connect Lower Waste Rock Dump access road with FS 8290.

BOBBY
MS 10572

KOOTENAI NATIONAL FOREST

FS 8290

ROAD 1

To repository

N

0 40 80

SCALE IN FEET

SEE SHEET 3

Attachment 3

BY	DATE	REVISION DESCRIPTION

Nov 04, 2010 – 11:36am F:\5759.29 – Broken Hill Repository-COPY\dwg\575929-BASE.dwg

DESIGN ____ PROJ. NO. 5759.29
DRAWN ML DATE 10/2010
CHECKED KL SURVEYED DJA

DJ&A, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS
3203 Russell Street, Missoula, Montana 59801-8591
Phone 406/721-4325 Fax 406/549-6371

MONTANA
DEPT OF ENVIROMENTAL QUALITY
HERON, MONTANA

SITE & TOPOGRAPHIC MAP

SHEET 2 OF 8