

STATE OF
COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

AM 2 Revised Application - for Submission by email - Cross Gold Mine - M-1977- 410

Rmittasch@nedmining.com <Rmittasch@nedmining.com>

Tue, Nov 23, 2021 at 3:32 PM

To: "Eschberger - DNR, Amy" <amy.eschberger@state.co.us>, DPollock@nedmining.com

Amy,

Please find a cover letter (attached), comment resolution table (attached) and a link below to the revised AM2 Application package. Please confirm receipt and access to the document.

https://novametallix-my.sharepoint.com/:b:/g/personal/joe_thomas_novametallix_com1/ERvV7NdyKaZAiRnZE00OMeYB36TAgWX_kKy63iNkAFQOmA?e=WraMuf

A link to a directory containing all shape files used in the preparation of this document will follow this email.

Kind Regards,

Richard Mittasch, Vice President

Nerland Mining consultants, Inc.

Grand Island Resources, LLC

Phone: 720-893-3749

Mobile: 516 582-0833

Email: Rmittasch@nedmining.com

4415 Caribou Rd, PO Box 3395, Nederland, CO 80466

2 attachments **M-1977-410 AM2 Permit Application Letter 11-23-2021.pdf**
276K **DRMS Comment Resolution 11-23.pdf**
310K

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 1 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
1	1	<p>Please clarify whether the revised application submitted on May 27, 2021 is intended to fully replace the original submittal, to be reviewed as a stand-alone document. In other words, does the operator intend for the Division to still consider portions of the original submittal in its review? If the operator would like for portions of the original submittal (not included in the revised submittal) to be part of the approved permit, these portions must be resubmitted with the adequacy response or the operator must differentiate the revised portions of the new submittal. This is typically done by putting any revised text in italics or in a differently colored font so that revised portions of the application can be easily identified. Since the operator resubmitted the entire application without any differentiation of revised portions, the Division reviewed this submittal as a replacement, stand-alone document.</p>	<p>This revised permit application replaces the January 2021 permit application submittal.</p>
2	1	<p>Application Form On page 3 of the application form, under Item #12, the operator selected “Forestry” as the primary postmining land use. However, throughout the application, the operator refers to an “Industrial” post-mining land use for the site. If the operator is proposing in this amendment to change the post-mining land use from forestry to industrial/commercial, please check the appropriate box in this section.</p>	<p>The post mining land use is Forestry in accordance with the BOCO land use regulations. See Exhibit D, Section 1.</p>
3	1	<p>Application Form On page 4 of the application form, under Item #15, the description narrative includes “an increase in the approved disturbance zone from 8.96 acres to 8.99 acres”. Firstly, please change the phrase “disturbance zone” to “permit area” which is more accurate. Secondly, please change “8.96 acres” to “8.95 acres”, which is the current approved permit area. Thirdly, please change “8.99 acres” to “9.99 acres”, as this is the acreage proposed throughout the application (a total increase of 1.04 acres). Finally, if the operator is proposing in this amendment to</p>	<p>This change was made on Page 4 of the application form and throughout the exhibits, attachments, and appendices as necessary.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 2 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		change the post-mining land use from forestry to industrial/commercial, this proposal should be added to the description.	
4	2	<p>Exhibit A – Legal Description and Location Map (Rule 6.3.1) On page 4 of this exhibit, the application states the entrance to the Caribou 300 Level Portal is off Boulder County Road 128 (Caribou Road). However, during the pre-operation inspection conducted on June 24, 2021, the Division observed access to this area to be off of a gated U.S. Forest Service Road. Please identify the access road in this exhibit and be sure to label it on all applicable maps.</p>	United States Forest Service maps show this road as USFS Road 505. This was changed on maps and in text.
5	2	<p>Exhibit B – Site Description (Rule 6.3.2) On page 5 of this exhibit, the application provides a list (in Table 1) of all structures (not owned by the operator) located within 200 feet of the affected lands, including County Road 128 owned by Boulder County, a power line owned by Xcel Energy, and a phone line owned by Qwest. However, according to Map 4 submitted in Exhibit E and the Division’s observations during the pre-operation inspection, there are other structures located within 200 feet of the proposed affected lands, including a U.S. Forest Service Road and a snow shed at the Caribou 300 Level Portal site, and historic structures and fencing at the Potosi Shaft site. Please include these structures and their owner(s) in the structure list.</p>	Exhibit B, Table 1 was corrected.
6	2	<p>Exhibit B – Site Description (Rule 6.3.2) On page 14 of this exhibit, the application states “a Jurisdictional Determination was approved by USACE on February 7, 2008” and also that “GIR is in the process of mapping the wetlands around Coon Track Creek, however this will not occur until early summer of 2021”, and that “GIR will provide the new Jurisdictional Determination and the approval letter when completed”. Please explain why additional mapping of the wetlands and a new Jurisdictional Determination is needed. Has the U.S. Army Corps of Engineers (USACE) requested the wetlands be re-mapped?</p>	The information in Exhibit B, Section 1.3.2 was updated to reflect the 2021 Wetland Delineation and JD request. GIR has not yet received a response from the USACE, but will forward when it is available.

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 3 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
7	2	<p>Exhibit C – Mining Plan (Rule 6.3.3) On page 1 of this exhibit, the application states the (Potosi Shaft and Caribou 300 Level Portal) mine openings will be secured “with fencing and hazard sign posting to prepare for future use” and that “the Caribou 300 Portal will be stabilized and the opening secured to prevent entry or approach by the public as we evaluate future use”. During the pre-operation inspection, the Division observed the snow shed at the Caribou 300 Level Portal to be damaged and easily accessible by the public (as evidenced by the trash present inside the shed). Given the distance of this site from the main mine site, and the frequent use of the area by the public, please describe how this mine opening will be stabilized and secured during operations.</p>	<p>Text was added to Exhibit C, Section 1.1 that describes security for the Potosi Shaft and Caribou 300 Level Portal areas.</p>
8	2-3	<p>Exhibit C – Mining Plan (Rule 6.3.3) - 12 items The Division has the following comments regarding Table 1 – Disturbance Table:</p> <p>a. Please provide an additional column to this table which includes approximate dimensions of each structure/feature.</p> <p>b. The disturbance given for the “New Roadway” is 26,550 square feet and 0.609 acres, which is based on the dimensions of 885 feet L x 30 feet W. However, the application states an additional 5 feet of disturbance on both sides of the road will be required, which would give a total width of 40 feet, and therefore, a total disturbance of 35,400 square feet and 0.8127 acres. Please correct the disturbance values for this feature.</p> <p>c. The disturbance given for the “Ventilation Shaft & Escapeway”, the “Cross Mine Portal” and the “Idaho Tunnel Portal” is 64 square feet and 0.0014 acre (for each feature). However, the Division calculated an acreage of 0.0015 acre for each of these features (64 square feet = 0.00146924 acres). For the sake of accuracy (and because this table must be revised anyway), please correct the acreage values for these features.</p> <p>d. Please add a row for the disturbed hillside around the Idaho Tunnel Portal (which will require reclamation). The Division estimates this disturbance to cover approximately 0.1 acre.</p>	<p>a. A new column for dimensions was added to Table 1.</p> <p>b. and c. Dimensions, acreage, and square feet were recalculated and Table 1 was corrected. GIR provided, under a separate cover, the shape files used in this permit application so that DRMS and GIR are working from the same data set.</p> <p>We caution DRMS at using scaling from Google Earth or other aerial photography that has not been ground truthed. The results will be inaccurate. Similar problems exist in Boulder County Parcel map coverage as compared to Google Earth; road overlaps and other incongruities. The mine’s reconciliation of surface feature location is the most accurate of any current information source. All areas and distances herein are determined from the ground truthed files we have provided.</p> <p>d. A new line was added to Exhibit C, Table 1 for the disturbed hillside at the Idaho Tunnel.</p> <p>e., f., g., and h. Dimensions, acreage, and square feet were recalculated and Table 1 was corrected.</p> <p>i. The new Cross Mine Decline will not be built.</p> <p>j., k., and l. Dimensions, acreage, and square feet were recalculated and</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 4 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>e. The disturbance given for the “Waste Rock Storage Area” is 43,124 square feet and 0.2479 acres. Firstly, please correct the acreage value since 43,124 square feet is equal to 0.9900 acres. Secondly, please clarify whether this disturbance amount includes all three existing waste rock storage areas at the site. The Division understands the application is proposing to use the waste rock from the two Cross Mine piles to construct the new road, and only the existing Caribou Mine pile will continue to be used by the operation for waste rock storage. However, the Division must calculate a reclamation bond that includes costs for reclaiming all existing disturbances, and at a minimum, the footprint of the two Cross Mine piles will need to be reclaimed once the material is removed. Therefore, please ensure the disturbance created by all three waste rock storage areas is included in this table, preferably as separate line items.</p> <p>f. The disturbance acreages given for “Pond 1”, “Pond 2”, and “Ponds 3A, 3B, 3C” varies fairly significantly from the disturbance estimated by the Division for these features (based on 10/2020 aerial imagery available in Google Earth). For “Pond 1”, the table has 0.0347 acre while the Division’s estimate is 0.10 acre. For “Pond 2”, the table has 0.1608 acre while the Division’s estimate is 0.21 acre. For “Pond 3A, 3B, 3C”, the table has 0.0497 acre while the Division’s estimate is 0.32 acre. The difference between the operator’s disturbance values and the Division’s disturbance values for these ponds leads to a total difference of 0.3848 acres, which would significantly affect the total disturbance value at the end of the table. Please correct the disturbance values for these features.</p> <p>g. The table includes estimated disturbance values for the “Caribou Storage Container 1 & 2 (in Idaho Tunnel)”, at 320 square feet and 0.0073 acre. Please be informed, the disturbance estimates required in order for the Division to calculate the reclamation bond only need to include surface disturbances. Therefore, this feature may be removed from the table so its disturbance value is not included in the total disturbance value at the end of the table. If the operator proposes removing these containers from the Idaho Tunnel for reclamation, the details of this plan should be provided</p>	<p>Table 1 was corrected. GIR provided, under a separate cover, the shape files used in this permit application so that DRMS and GIR are working from the same data set.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 5 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>in Exhibit D, and costs for completing this task should be included in the reclamation bond estimate.</p> <p>h. The disturbance values given for the “Offices and Dry Room” are 5,825 square feet and 0.1199 acre. However, 5,825 square feet is equal to 0.1337 acre. Please correct the disturbance acreage for this feature.</p> <p>i. Please add a row for the disturbance associated with the New Cross Mine Decline Portal (which will require reclamation). The Division estimates this disturbance to cover approximately 0.1 acre.</p> <p>j. The “Total Disturbed Area” provided at the end of the table is 126,861 square feet and 2.9 acres. The Division believes this estimate is incorrect. Just based on the disturbance values presented in the table, the total disturbance should be 131,411 square feet, which would result in a 0.1 acre difference in the total acreage provided. However, there are changes to the table requested above which will impact the total disturbance value. Therefore, after all necessary changes have been made, please correct the total disturbance values accordingly. (Based on 10/2020 aerial imagery available in Google Earth, the Division has estimated total disturbance at the Cross/Caribou site to cover 5.37 acres, which does not include any proposed additional disturbances associated with the new road or the Potosi Shaft and Caribou 300 Level Portal areas.)</p> <p>k. The “Total Undisturbed Area” provided at the end of the table is 34,8480 square feet and 7.1 acres. Firstly, please correct the erroneous comma placement in the square feet value. Secondly, please ensure the square feet value correlates with the acreage value given. For example, if the value is supposed to be 348,480 square feet, this would be equal to 8.0 acres and not 7.1 acres as provided. If, on the other hand, the acreage value is correct, then 7.1 acres is equal to 309,276 square feet.</p> <p>l. Please ensure the combined disturbed and undisturbed areas do not exceed the 9.9 acre permit area proposed. If the operator proposes a total permit area of more than 9.9 acres, then a conversion application must be submitted to convert this permit</p>	

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 6 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		from a 110 operation (less than 10 acres) to a 112 operation (10 acres or more).	
9	4	<p>Exhibit C – Mining Plan (Rule 6.3.3) On page 4 of this exhibit, the application provides dimensions of 885 feet L x 30 feet W for the proposed new road to be constructed at the Cross/Caribou site. The application then states “the total area of the road and disturbance equals 0.609 acres”. However, as mentioned above, the total road disturbance, based on an additional 5 feet of disturbance proposed for both sides of the road, would actually equal 0.813 acres (885 feet L x 40 feet total W). Please correct this error.</p> <p>Additionally, please provide the dimensions of the new road proposed for the Caribou 300 Level Portal site. During the pre-operation inspection, the operator mentioned the existing snow shed at this site would be removed prior to the operation’s use of the portal. Does this mean a road will need to be constructed from the access road to the portal? [Based on aerial imagery available in Google Earth, the Division estimates the distance between the access road and the portal (southern end of snow shed) to be approximately 80 feet.]</p>	The acreage and dimensions of the new roads have been corrected in Exhibit C, Section 1.8.
10	4	<p>Exhibit C – Mining Plan (Rule 6.3.3) On page 5 of this exhibit, the application states that a Substitute Water Supply Plan (SWSP) was recently filed with the Division of Water Resources for the site. Please commit to providing the Division with a copy of the approved SWSP once obtained.</p>	Exhibit C, Section 1.9.1 was changed to indicate that GIR would provide the approved SWSP when available as suggested by DRMS.
11	4-5	<p>Exhibit C – Mining Plan (Rule 6.3.3) – 2 Items On page 5 of this exhibit, the application states that waste rock materials from the site are “benign and have been analyzed for leachability and acid production by DRMS-approved methods”, and “the results of the analyses demonstrated the materials are non-acid producing and non-metals leaching”. Firstly, please provide a copy of the analyses referred to in this section or specify where they can be found in the permit file (if previously submitted). Secondly, were the analyses conducted on waste rock from both the Cross Mine and</p>	Information regarding sample collection and analyses with reference to DRMS Records have been added to Section on Operational Groundwater Impacts.

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 7 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>Caribou Mine? It is the Division’s understanding the rock geochemistry and mineralization varies between the two mines. This is indicated by the fact that water from the Cross Mine must be treated with lime and mixed with water from the Caribou Mine in order to meet discharge standards.</p> <p>Please be advised, the Division is continuing to evaluate whether this operation will be considered a Designated Mining Operation (DMO), as described by Rule 1.1(20). Additional information may be required (through this amendment and/or outside of this amendment) in order for the Division to make this determination. If the Division does determine this mining operation is, or has a reasonable potential to be, a DMO, you will be provided notice of such a determination in accordance with Rule 7.2.2(2), which states the notice shall be accompanied by factual statements including a review of the permit application, approved permit application, proposed or existing metallurgical process, known site geology or geochemistry, and the most recent site inspection.</p>	
12	5	<p>Exhibit C – Mining Plan (Rule 6.3.3) On page 6 of this exhibit, the application states “the permit boundary will be clearly marked to ensure all disturbances are within the approved permit area”. However, during the pre-operation inspection, the Division did not observe any boundary markers for the proposed Potosi Shaft and Caribou 300 Level Portal areas. Please describe how these new permit boundaries will be delineated in accordance with Rule 3.1.12(2). Additionally, please commit to posting a permit identification sign at each of these two sites in accordance with Rule 3.1.12(1), which states the sign shall be posted at the entrance to the area, which is clearly visible from the access road, with a minimum size equaling 187 square inches, such as 11 inches x 17 inches, with appropriate font size, and including the name of the operator, the operation name, a statement that a reclamation permit for the operation has been issued by the Colorado Mined Land Reclamation Board, and the permit number.</p>	<p>Text was added to Exhibit C, Section 1.1 that states that boundary markers along with signs will be placed at the proposed Potosi Shaft and Caribou 300 Level Portal permit boundaries</p> <p>Additionally, permit identification signs at the Potosi Shaft and Caribou 300 Level Portal will be posted in accordance with Rule 3.2.12 (1) when the permit is granted.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 8 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
13	5	<p>Exhibit C – Mining Plan (Rule 6.3.3) On pages 6 and 7 of this exhibit, the application states that a water monitoring program including proposed numeric protection levels for unclassified groundwater uses and points of compliance will be submitted in a subsequent permit revision. The Division has been in discussion with the operator for some years now regarding the need for an approved groundwater and surface water monitoring program for the site prior to recommencing with mining activities. In the last amendment application (AM-01; approved in 2012), the operator committed to proposing such a program in a subsequent permit revision. However, the operator has not yet submitted this program for the Division’s review. Therefore, please provide an estimated timeline for submitting the required surface water and groundwater monitoring program for this site.</p>	<p>The text was changed to indicate that a water quality monitoring plan would be submitted to DRMS by December 31, 2021.</p>
14	5-6	<p>Exhibit C – Mining Plan (Rule 6.3.3) In the original submittal, the application had mentioned a secondary commodity of construction aggregate resulting from waste rock. In its preliminary adequacy review letter, the Division asked (in Item #9) that additional details be provided on this activity, including whether the waste rock would be processed on site in any way (e.g., screening, crushing), and if so, where this activity will take place. However, this information was not provided in the revised submittal. The application only states the waste rock will be used on site as well as transported off site. During the pre-operation inspection, the Division observed the operation excavating material from the Caribou waste rock pile and screening it on site. Therefore, it would appear this material will at least be screened on site. Please specify whether the waste rock will be also be crushed on site and whether the processing activities are expected to occur in any other areas besides on top of the Caribou Mine waste rock pile. Since the application is proposing to use the waste rock material currently stored at the Cross Mine to construct the new road, it would seem this material would require screening and crushing for use in this project.</p>	<p>Text was changed to reflect where waste rock would be screened, but not crushed in Exhibit C, Section 1.6.</p> <p>Volume estimates are shown in Appendix III.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 9 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
15	6	<p>Exhibit C – Mining Plan (Rule 6.3.3) As previously requested (in Item #4), please describe how the Potosi Shaft and Caribou 300 Level Portal are currently secured. Additionally, please describe any work that must be done to rehabilitate/improve these mine openings for use by the operation. Please describe these activities in this exhibit, including any new structures to be constructed at these sites in support of the operation (e.g., new snow shed, fencing, gates).</p>	<p>More information on current and proposed uses and security was added to Exhibit C, Section 1.1 to describe the conditions, use, and fencing plans for the Caribou 300 Level Portal and Potosi Shaft.</p>
16	6	<p>Exhibit C – Mining Plan (Rule 6.3.3) As previously requested (in Item #5), please describe how the proposed new permit areas will be used by the operation, including any surface disturbances anticipated to occur in these areas. In this application, the operator stated the Potosi Shaft may be used as an airway or secondary escape route. However, no information was provided on how the Caribou 300 Level Portal will be used by the operation.</p>	<p>Information on current and proposed uses and security was added to Exhibit C, Section 1.1.</p>
17	6	<p>Exhibit C – Mining Plan (Rule 6.3.3) As previously requested (in Item # 8), please clarify in this exhibit whether the operator is proposing to recommence with mining activities in the Caribou Mine. The operator only mentioned in the cover letter submitted with the revised application that “there are to be no mining operations at the Caribou Mine” and that “opening of the Idaho Tunnel is only to support the exploratory drill program to take place July 2021”. Please provide this information in this exhibit (and not just in the cover letter), including a description of the operation’s current plans for the Caribou Mine. Will the exploratory drilling program result in any materials derived from the mine (other than core samples) being placed at the surface? If so, where will these materials be stored? Will this program result in any change to the quantity or quality of water discharging from the mine?</p>	<p>This information was added to Exhibit C, Section 1.1. Potential waste rock from the exploratory drilling at the Idaho Tunnel was estimated and added to Exhibit C, Section 1.2.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 10 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
18	6	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 1 of this exhibit, the application provides a list of site components to be reclaimed including mine openings, waste rock storage areas, ponds, roads, and structures. Please provide a description of all structures proposed to be demolished/removed for reclamation, including their approximate dimensions and the approximate thickness of any foundations. This information is needed in order for the Division to calculate the reclamation bond.</p>	<p>This list was reviewed and revised and dimensions were added. More information on the new road dimensions and construction components are shown in Exhibit C, Section 1.8. Information on other structures is shown in Table 1, Disturbance Table.</p>
19	6	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 2 of this exhibit, the application states there are currently 2 ventilation shafts, 3 shafts, and 2 portals that will require closure for reclamation. This would mean a total of 7 mine openings exist at the site which will require closure. However, Table 1 – Shafts and Portals includes only 5 mine openings. Please explain and/or correct this discrepancy between the text and the table.</p>	<p>Table 2 in Exhibit D was reviewed and revised.</p>
20	6	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 2 of this exhibit, Table 1 – Shafts and Portals includes the “Potosi Shaft”, “Cross Shaft”, “Caribou Shaft”, “Caribou Level 300 Portal”, and “Idaho Tunnel Portal”. The Division understands the Potosi Shaft and Caribou 300 Level Portal are the two mine openings proposed in this amendment, and the Idaho Tunnel Portal is the existing mine opening at the Caribou Mine. However, the Division was not sure whether the Cross Shaft refers to the existing portal at the Cross Mine, and also did not recognize the Caribou Shaft. Please provide clarification on the location of these two mine openings.</p>	<p>The table (now Exhibit D, Table 2) was corrected and the closures for each shaft/portal was described in Exhibit D, Section 1.2. The Cross Decline will not be built.</p>
21	7	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 2 of this exhibit, the application states that all shafts and portals will be plugged with concrete (examples shown in Figure 1) except for the Potosi Shaft, which will be closed with a bat grate (examples shown in Figure 2). The application states that ventilation and escape way shafts will be closed with one of the methods shown on Figure 3 (which shows precast concrete panel closure designs). The figures provided show more than one</p>	<p>The text on types of closures was revised and is shown in Exhibit D, Section 1.2.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 11 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>potential design. For the purposes of calculating the reclamation bond, the operator must commit to a specific design for each closure and provide details of the proposed closure in this exhibit (in addition to any figures provided). Therefore, please specify the closure plan to be implemented for each mine opening located within the affected lands. Please also provide additional details for the proposed gate and fencing to be installed at each mine opening, including the approximate dimensions anticipated at each location.</p>	
22	7	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 2 of this exhibit, the application states “we do not anticipate mine drainage or the necessity of a hydraulic plug to prevent mine drainage”. However, the operator proposes sealing the two draining mine openings (Cross Mine portal and Idaho Tunnel portal) with 40 feet of concrete. Please provide demonstration the proposed closure design for the draining mine openings will be adequate to withstand the maximum hydrostatic pressure anticipated for these two mines. Please describe the effects that sealing these two portals with concrete is expected to have on the hydrologic balance and stability of these areas. Could sealing these mine openings create a new discharge point for the mine pools? If the operator is not able to provide sufficient information in this amendment to demonstrate the proposed concrete seals are adequate for the draining mine openings at the site, then a plan must be submitted to secure these openings from public access (maintaining drainage for now). In this case, the operator must commit to submitting a final closure plan that adequately addresses the draining mine openings in a subsequent revision. Until such time, the reclamation bond estimate will need to include costs for securing these portals as well as for continuing treatment of the mine drainage (for a 5 year period) to meet the water quality standards for the CDPHE discharge permit.</p>	<p>The text in Exhibit D, Section 1.2 was revised.</p>
23	7	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 2 of this exhibit, the application states “areas adjacent to mine shafts and portals...may be steeper than 2:1”. Please specify</p>	<p>Site topography was reviewed and the acreage of area that will be steeper than 2H:1V at site closure is in Exhibit D, Table 6 (Exhibit D, Section 1.12).</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 12 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>which areas the operator is proposing to leave steeper than 2H:1V. Have these areas been disturbed or are they expected to be disturbed by the operation?</p>	
24	7	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 6 of this exhibit, the application estimates the waste rock footprints will not exceed 0.99 acre. Please clarify whether this estimated acreage includes all three existing waste rock piles (two at Cross mine and one at Caribou Mine), or only the Caribou Mine location which is the one proposed for continued use by the operation. Because the Division must calculate a bond for reclaiming all existing disturbance, please provide the estimate acreage for the footprint of each of the two Cross Mine waste rock piles (which will require reclamation once the material is used to construct the new road).</p>	<p>The waste rock that was shown in the south western portion of the site was moved to the main waste rock pile. The ore pile next to the warehouse was renamed as ore pile because that is what it is.</p>
25	7-8	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 6 of this exhibit, the application states all five ponds on site will be reclaimed, including removing the pond liners and disposing of this material off site, backfilling the ponds to two feet below the surface, regrading the areas for positive drainage, and retopsoiling and revegetating these areas. The operator states that pond slopes will be less than 2H:1V, and estimates the pond areas to cover 0.245 acres. Some additional details are needed in order for the Division to calculate the reclamation bond. Firstly, please provide the approximate dimensions of the liners to be removed from Pond 1, Pond 2, and a combined total to be removed from Ponds 3A-C. Secondly, please provide the approximate dimensions and depth of each pond, the estimated volume of material required to backfill each pond to two feet below the surface, and the anticipated source for the backfill material. Additionally, please provide the approximate depth of topsoil replacement in these areas. Finally, (based on 10/2020 aerial imagery available in Google Earth) the Division estimates the total pond disturbance to cover 0.63 acre (Pond 1 = 0.10 acre; Pond 2 = 0.21 acre; Ponds 3A-C = 0.32 acre), which is more than the operator’s estimate of 0.245 acre. Please ensure the total</p>	<p>Liners are estimated at: Pond 1- 2,004ft²; Pond 2 - 8,285 ft²; Pond 3A - 1,555 ft²; Pond 3B - 1,750 ft²; and Pond 3C - 13,835 ft². Liners are larger than pond footprints because liner is buried below pond edges and berms.</p> <p>As stated in Exhibit D, Section 1.5, the ponds will be filled in with pond berms.</p> <p>The text on depressions was removed from Exhibit D, Section 1.5.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 13 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		disturbance of each pond is accounted for in the disturbance estimate. On a separate note, please explain how leaving two foot deep depressions in the areas of the backfilled ponds will allow for positive drainage of these areas.	
26	8	Exhibit D – Reclamation Plan (Rule 6.3.4) On pages 6 and 7 of this exhibit, the application discusses reclamation that will be needed in the portion of Coon Track Creek to be disturbed by the proposed road crossing. Please provide an estimated acreage which will require regrading, retopsoiling, and/or revegetation in this area. This information is needed in order for the Division to calculate the reclamation bond.	The estimate acreage of the wetland that will require reclamation is 0.2504 acres. This estimate will be revised as road design progresses.
27	8	Exhibit D – Reclamation Plan (Rule 6.3.4) On page 7 of this exhibit, the application mentions the two new roads which will require reclamation, including the new road at the Cross/Caribou site and the new road at the Caribou 300 Level Portal site. Firstly, please correct the estimated disturbance provided for the Cross/Caribou road, which is said to be 0.609 acre, but as mentioned above, would actually cover 0.8127 acre (for 885 feet L x 40 feet total W). Secondly, the application mentions a culvert and other road structures (anchors, riprap, foundations) that will need to be removed for reclamation of the Cross/Caribou road, along with road base and other materials. In order for the Division to calculate a bond for reclaiming the site in accordance with the proposed reclamation plan, some additional details are needed. Please describe all materials to be removed for reclamation of the road, and include estimated volumes of each type of material and dimensions for any structures to be removed. Lastly, please provide the approximate dimensions of the proposed road to be constructed at the Caribou 300 Level Portal site.	Information of reclamation of the new road was determined from the 30% road design specifications and described in Exhibit C, Section 1.8.
28	8	Exhibit D – Reclamation Plan (Rule 6.3.4) On page 7 of this exhibit, the application states “at locations where equipment cannot operate, the seedbed will be prepared by hand, scarifying to a minimum depth of 1 inch”. Because the costs for scarifying by hand vary fairly significantly from costs of using	This text was changed in Exhibit D, Section 1.10.

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 14 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		equipment to complete this task, please provide an estimated acreage that may require scarification by hand.	
29	8	Exhibit D – Reclamation Plan (Rule 6.3.4) On page 7 of this exhibit, the application states that topsoil will be sourced locally from Nederland since there is no available soil on site for reclamation. Please provide an estimated volume of topsoil that will need to be imported from Nederland to complete reclamation of the site. This information is needed in order for the Division to calculate the reclamation bond.	The volume of topsoil is estimated at 155,250 ft ³ and is shown in Exhibit D, Section 1.10.
30	8	Exhibit D – Reclamation Plan (Rule 6.3.4) On page 8 of this exhibit, the application states “soils having been compacted by traffic or other equipment will be tilled (deep chiseled or ripped if necessary) breaking up restrictive or compacted layers”. Please provide an estimated acreage that may require tilling. This information is needed in order for the Division to calculate the reclamation bond.	The estimated acreage of area to be tilled was estimated at approximately 0. 7387 acres and is shown in Exhibit D, Section 1.10.
31	8	Exhibit D – Reclamation Plan (Rule 6.3.4) On page 8 of this exhibit, the application states that 8-12 inches of topsoil will be replaced on some areas and two feet will be replaced on others (waste rock areas for instance). Please provide an estimated acreage to receive 8-12 inches of topsoil and an estimated acreage to receive two feet of topsoil. This information is needed in order for the Division to calculate the reclamation bond.	The 8 to 12” of topsoil replacement is estimated at approximately 0. 178 acres and is shown in Exhibit D, Section 1.2.2.
32	9	On page 8 of this exhibit, the application states “where practical, seed will be drilled” and “where not practical, due to slope steepness, the areas will be broadcast seeded”. Because of the difference in cost for broadcast seeding versus drill seeding, please provide an estimated acreage that will require each of these seeding methods.	Seed will be drilled. This was changed in Exhibit D, Section 1.11.
33	9	Exhibit D – Reclamation Plan (Rule 6.3.4) On pages 9 and 10 of this exhibit, the application provides three seed mixes for the site, one for subalpine revegetation areas (Table 3) which will be used for all areas requiring revegetation, an Upland Tree & Shrub Reclamation Mix (Table 4) to be planted as a supplemental mix on the Idaho Tunnel slope, wetland, and Coon	All reclamation areas will be seeded with the mix shown in Table 3. The number and sizes of plants was added to Tables 4 and 5.

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 15 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>Track Creek bank areas, estimated to cover 4.71 acres, and a Wetland Reclamation Mix (Table 5) to be planted as a supplemental mix in the wetland and Coon Track Creek bank areas. Firstly, please provide an estimated acreage to receive the Table 3 seed mixture. Please also provide an estimated acreage to receive the Table 5 seed mixture.</p> <p>Additionally, for the Table 4 and 5 mixtures, please provide the estimated quantity of species to be planted per acre and the type and size (e.g., tubling, bare root seedling, small potted, container) per species. Finally, please provide an estimated acreage to receive hydromulch versus the hay or straw mulch application. This information is needed in order for the Division to calculate the reclamation bond. (It should be noted, the operator’s estimated disturbance for just the Idaho Tunnel slope, wetland, and Coon Track Creek bank areas to receive tree and shrub plantings is 4.71 acres, which exceeds the estimated total site disturbance of 2.9 acres provided in Table 1 of Exhibit C - this discrepancy further indicates the values provided in Table 1 are inaccurate).</p>	
34	9	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On pages 10 and 11 of this exhibit, the application refers to Technical Revision No. 7 (TR-07) for reclamation of the Idaho Tunnel hillside. However, TR-07 was submitted to provide a geotechnical stability analysis for the slope and did not include an approved reclamation plan for the hillside disturbance. As previously requested (in Item # 10), please provide a detailed reclamation plan for the Idaho Tunnel which addresses the disturbed slope above the portal.</p>	This information has been added to Exhibit D, Section 1.2.2.
35	9	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) Please describe how disturbance associated with the New Cross Mine Decline Portal will be reclaimed. During the pre-operation inspection, there appeared to be significant sloughing of the steep hillside which was excavated for the new decline portal. Per C.R.S. 34-32-116(7)(i), all surface areas of the affected land shall be stabilized and protected so as to effectively control erosion. The new decline portal disturbance area does not appear to be stable at</p>	<p>The New Cross Mine Decline will not be built.</p> <p>Stabilization of this slope is described in Exhibit D, Section 1.12.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 16 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		this time. Please provide a plan for stabilizing this slope during operations and a plan for final reclamation of this disturbance.	
36	9-10	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 11 of this exhibit, the application provides a list of several structures/features proposed to remain after reclamation, including parking areas, water lines, septic tanks and leach fields, the historic Cross cabin, the offices and dry room building, the NOAA shed, the hazardous materials shed, the Cross shop building, the Cross ore building, the Caribou conex storage bay, and the north munitions bunker.</p> <p>It appears the operator is proposing in this amendment a change in post-mining land use from forestry to industrial/commercial (clarification on this matter is requested in this letter). However, until the operator can demonstrate an industrial post-mining land use is compliant with local zoning and land use requirements, the Division must hold a reclamation bond for demolishing/removing any structures located within the affected lands which do not conform to the current post-mining land use of forestry with limited residential use (for the historic Cross cabin). This does not mean a change in post-mining land use cannot be approved in this amendment. However, the approval would include a condition on the change in post-mining land use, requiring the operator to submit a Technical Revision (once the necessary county approvals are obtained) to demonstrate the industrial use is compliant with local zoning and land use requirements, and to revise the reclamation plan and bond estimate accordingly. For this amendment, please provide a description and dimensions of all structures to be demolished/removed from the site for reclamation, and be sure costs for demolishing/removing these structures are included in the reclamation bond estimate.</p>	The post mining land use is Forestry in accordance with the BOCO land use codes. Mining is an accepted use under the Forestry Land Use. See Exhibit D, Section 1 and Attachments III and IIII.
37	10	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) The application does not discuss the existing groundwater wells at the site. Will these wells be used by the mining or reclamation operation in any way? Will the wells be abandoned for reclamation? If so, please include a reclamation plan for</p>	The groundwater wells will remain at the site after reclamation.

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 17 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		abandoning these wells and ensure costs for completing this task are included in the reclamation cost estimate.	
38	10	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On Page 11 of this exhibit, the application states “all roads and parking areas will be surfaced with appropriately sized waste rock or purchased crushed rock”. Please provide an estimated acreage requiring surfacing and an approximate depth of rock placement. This information is needed in order for the Division to calculate the reclamation bond.</p>	Under the BOCO Land Use Code for Forestry the parking areas will be retained after reclamation.
39	10-11	<p>Exhibit D – Reclamation Plan (Rule 6.3.4) On page 12 of this exhibit, the application includes a Table 6 – Reclamation Cost Summary and a list of specific assumptions made to produce the estimate. The Division has the following comments regarding the reclamation cost estimate provided:</p> <p>a. Please separate the reclamation tasks/costs by the three separate permit areas (Cross/Caribou site, Potosi Shaft site, and Caribou 300 Level Portal site).</p> <p>b. Please break the cost categories down by disturbance area or feature. For example, the “Earthwork/Recontouring” costs could be broken down as follows:</p> <ul style="list-style-type: none"> i. Caribou waste rock pile – grade approx. X feet slopes to 3H:1V. ii. Cross waste rock piles – rip and/or grade approx. X acres. iii. Idaho Tunnel slope – backfill approx. X cubic yards and grade approx. X feet slopes to 3H:1V. iv. New Cross Mine Decline portal - backfill approx. X cubic yards and grade approx. X feet slopes to 3H:1V. v. Pond 1 - backfill approx. X cubic yards and grade approx. X acres backfill area. vi. Pond 2 - backfill approx. X cubic yards and grade approx. X acres backfill area. vii. Ponds 3A-C - backfill approx. X cubic yards and grade approx. X acres backfill area. viii. New Cross/Caribou road – remove approx. X cubic yards of X material (for each material type), rip approx. X acres, 	<p>The GIR cost estimate has been recalculated for the BOCO Forestry Land Use. Please see Appendix III.</p> <p>a. The cost estimating software cannot be changed, however, GIR has made separate tabs pages that breakout direct costs for the Potosi Shaft and Caribou 300 Level Portal areas. These pages are found after Monitoring costs.</p> <p>b. The cost program could not be reorganized to the extent that DRMS requested. All the DRMS requirements are in individual tabs in the cost estimate. Under the Waste Rock Category in Appendix III, the inputs for physical characteristics (slope, acres) cover, and growth media are on the first page of the Waste Rock page for the Waste Rock Storage and Ore Storage disturbance areas. Page 2, of Waste Rock shows the materials need for reclamation of the Waste Rock Storage and Ore Storage disturbance areas (regrading material, cover material, equipment, mulch, fertilizer, etc.). Page 3 is supporting calculations, while Page 4 shows regrading parameters, equipment, and costs. Page 5 is Cover and Growth Media (volumes, numbers of equipment, number of fleet hours, costs, etc.). Page 6 contains revegetation slopes, area, final slope, equipment, and costs. Each reclamation category has the same basic structure. Reclamation areas along with their square feet, acres, and dimensions are listed in Exhibit C, Table 1. Slopes are listed in Exhibit D, Table 7.</p> <p>c. The structures will not be removed in accordance with the BOCO Forestry Land Use. The culvert and other structures associated with the new Cross/Caribou Road are shown under the Road tab in Appendix III. Groundwater wells will not be removed.</p> <p>d. The cost estimate has been reorganized to the DRMS requested</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 18 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>and/or grade approx. X feet slopes to 3H:1V.</p> <p>ix. New Caribou 300 Level Portal road – rip and grade approx. X acres.</p> <p>x. Cross Mine – grade approx. X acres where structures/features removed.</p> <p>xi. Caribou Mine – grade approx. X acres where structures/features removed.</p> <p>xii. Cross Mine portal – grade approx. X acres of disturbance adjacent to portal.</p> <p>xiii. Caribou Mine portal - grade approx. X acres of disturbance adjacent to portal.</p> <p>xiv. Potosi Shaft - grade approx. X acres of disturbance adjacent to shaft.</p> <p>xv. Caribou 300 Level Portal – grade approx. X acres of disturbance adjacent to portal.</p> <p>xvi. Coon Track Creek/wetland areas – grade approx. X feet slopes to 3H:1V.</p> <p>xvii. Parking areas and roads – place approx. X depth of crushed rock on approx. X acres.</p> <p>c. In the “Structure, Equipment and Facility Removal, and Misc” category, please include costs for removing and disposing of all structures which do not conform to the current approved post-mining land use, and break the costs down by structure. Please be sure costs for removing and disposing of the culvert and other structures associated with the new Cross/Caribou road are included in this category. Also, if any of the existing groundwater wells at the site are proposed to be reclaimed after mining operations are completed, please be sure to include costs for abandoning these wells.</p> <p>d. Please add a separate category including costs for the proposed final closure of each mine opening. As discussed above, the proposed closure design for the two draining mine openings may need to be revised to include securing these portals from public access (allowing the mines to continue draining for now), rather than installing concrete seals in these portals. In this case, the</p>	<p>categories. Please see Appendix III.</p> <p>e. GIR does not anticipate any groundwater or surface water monitoring after reclamation. Vegetation success will be monitored for 5 years.</p> <p>f. Removing the pond liners has been added to Appendix III. These are estimated at: Pond A: Pond B: Pond 3A: 780 ft²; Pond 3B: 1125 ft²; and Pond 3C: 2720 ft².</p> <p>g. These costs are automatically calculated by the software. There are tabs for monthly rental rate, hourly equipment rate, and fuel/lube/wear in Appendix III under individual tabs for reclamation elements. Exhibit D, Section 1.16 was updated to include a separate table for Earthworks/Recontouring.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 19 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>operator will also need to include a separate line item with costs for continuing treatment of the mine drainage (to meet water quality standards of the CDPHE discharge permit) for a 5 year period.</p> <p>e. This table includes a line item (E) for “Monitoring”. Please provide more details on this reclamation task, including the type of monitoring anticipated. Does the operator expect there to be continued groundwater and/or surface water monitoring required after reclamation?</p> <p>f. Please add a line item under the applicable category for removing the pond liners (including approx. liner dimensions) and disposing of this material off site. This item might also be included under the “Structure, Equipment and Facility Removal, and Misc” category.</p> <p>g. Please add a separate category for mobilization/demobilization costs, including the approximate type and number of equipment to be used [e.g., (2) CAT D7 dozers or equivalent, (1) CAT 637G scrapers or equivalent].</p>	
40	11	<p>Exhibit E – Maps (Rule 6.3.5)</p> <p>On Map 1, the locations of a Storage Magazine (#10) and an Old Stone Magazine (#28) are indicated. If these structures will be used by the operation in any way, please be sure to describe their anticipated use in Exhibit C. Additionally, this map shows several pipelines which convey water from the Cross and Caribou Mines to the ponds, from one pond to another, and from the ponds to the discharge location in Coon Track Creek. Please be sure to describe all water infrastructure in Exhibit C and provide a plan for reclaiming this infrastructure in Exhibit D (e.g., removal of above ground portions, removal of any buried portions, disposal). Costs for removing and disposing of any water infrastructure should be included in the reclamation cost estimate provided in Exhibit D.</p>	<p>Historic structures are noted in Exhibit C, Section 1.7.</p> <p>Water structures are described in Exhibit C, Section 1.3 and Exhibit D, Section 1.5. Costs are included in Appendix III.</p>
41	11	<p>Exhibit E – Maps (Rule 6.3.5)</p> <p>On Map 2, please label all roads to the affected lands, including County Road 128/Caribou Road and the U.S. Forest Service Road that accesses the Caribou 300 Level Portal area.</p>	<p>Roads have been labeled on all maps. A separate map of roads has also been prepared (Map 1).</p>
42	11-12	<p>Exhibit E – Maps (Rule 6.3.5)</p>	<p>These structures are now on Maps 2 and 3. Roads have been labeled on</p>

GIR 110(2) Amendment 2 – Revision 1.0
DRMS Comment and Resolution Sheet - Page 20 of 25
Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		On Map 4, please label the access roads and any other structures located on or within 200 feet from the proposed permit area (e.g., snow shed, mine openings, historic structures, fencing), and identify the owner(s) of each structure. Additionally, please show the location of the new road to be constructed at the Caribou 300 Level Portal site. Finally, please label the landowner(s) of the affected lands and of the lands located within 200 feet of the affected lands.	Maps.
43	12	Exhibit E – Maps (Rule 6.3.5) On Maps 1, 2, and 4, the proposed permit area for the Caribou 300 Level Portal site is shown to partially overlap the access road to the north, which the Division believes is a U.S. Forest Service Road. If this is the case, then in Exhibit G, the operator will need to provide documentation of its legal right to enter any affected lands owned by the U.S. Forest Service.	This map has been corrected and is now shown as Map 3.
44	12	Exhibit E – Maps (Rule 6.3.5) Please provide a reclamation plan map for the Potosi Shaft and Caribou 300 Level Portal areas, indicating how these areas and the mine openings located in these areas will be reclaimed. Please ensure this map shows any structures/features proposed to remain in these areas after reclamation (e.g., snow shed, fencing, gates, roads).	Please see Exhibit D, Section 1.2 for text and Map 7 for remaining features.
45	12	Exhibit E – Maps (Rule 6.3.5) On Map 6, please change the map label from “Amendment 1” to “Amendment 2”, as this mining plan map must be updated through the current amendment application. Additionally, please ensure this map shows the proposed new permit boundary for this area. Finally, please ensure all features at this site are labeled, including the explosives storage area(s), all waste rock stockpiles, all buildings and other structures, all ponds (labeled 1, 2, 3A, 3B, and 3C), wells, and any other structures/features that exist on the affected lands or are proposed to be constructed on the affected lands.	These corrections were made.
46	12-13	Exhibit E – Maps (Rule 6.3.5) For Map 7, the Division has the following comments:	a. The waste rock storage area is shown on Map 2 and described in Exhibit

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 21 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>a. Please explain the waste rock storage area shown at the northern edge of the Caribou Mine, which is not discussed in the mining or reclamation plans or shown on the mining plan map (Map 6).</p> <p>b. Please explain why reclamation of only one of the two waste rock piles currently located at the Cross Mine is shown. All areas requiring reclamation must be shown on this map.</p> <p>c. Please show the proposed slope gradient (e.g., 3H:1V) for all reclaimed slopes (e.g., Idaho Tunnel slope, New Cross Mine Decline Portal slope, reclaimed creek banks, reclaimed road, backfilled pond areas, reclaimed waste rock pile areas). Please be sure any areas proposed to remain steeper than 3H:1V are indicated on this map.</p> <p>d. Please add the type of closure proposed for each mine opening (e.g., bat grate, concrete panel).</p> <p>e. Please show all areas to be retopsoiled and revegetated for reclamation.</p> <p>f. Please show the location(s) from which topsoil will be derived from “the affected hillside area” to reclaim the waste rock storage areas. In the reclamation plan provided in Exhibit D, the operator states no available topsoil exists on site and therefore, any topsoil required for reclamation will need to be imported from Nederland. If at least some of the required topsoil will come from the site, please provide more details on this proposal in Exhibit D, including the proposed location(s) on site from which this topsoil will be derived, the approximate volume of topsoil to be obtained from on site, and the approximate areas to receive this topsoil. If topsoil will not be used from on site, please remove the text from this map indicating as such.</p>	<p>C, Section 1.6.</p> <p>b. There is only one waste rock storage area and it is shown on Map 2.</p> <p>c. These features are shown on Map 5.</p> <p>d. Closure types are described in Exhibit D, Section 1.2.</p> <p>e. Areas to be retopsoiled and revegetated are shown on Map 5.</p> <p>f. No topsoil will be derived from the affected hillside area. All topsoil will come from offsite.</p>
47	13	<p>Exhibit E – Maps (Rule 6.3.5)</p> <p>This exhibit includes a separate reclamation plan map (Map 8) for the Cross/Caribou site which shows facilities proposed to remain for reclamation. Please ensure all structure/features proposed to remain in Exhibit D are shown and labeled on this map, and that all structures/features shown on this map are included in the list</p>	<p>This map is now Map 6 and has all the remaining structures area listed in Exhibit D, Section 1.13. The ‘mill building’ label was removed. This is the Cross Ore Building.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 22 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		provided on page 11 of Exhibit D. Additionally, this map includes a “mill building (unconstructed)” to remain in the Cross Mine area. Please remove this feature as a mill is not part of the approved permit or part of the mining and reclamation plans proposed in this application. Finally, please ensure all wells shown on this map (4 total) are shown on Map 1 and/or Map 7.	
48	13	Exhibit F – List of Other Permits and Licenses Required (Rule 6.3.6) Please add any permits or approvals required from the Division of Water Resources for the operation. (The application mentions a well permit and a Substitute Water Supply Plan.)	Additional permits and applications were added to Exhibit F.
49	13	Exhibit G – Source of Legal Right to Enter (Rule 6.3.7) This exhibit provided a Colorado General Warranty Deed for the sale of “mining claims as described in Exhibit A” from Aardvark Agencies, Inc. to Grand Island Resources, LLC. Please indicate which of the mine claims listed in Exhibit A are associated with the Cross/Caribou permit area, the Potosi Shaft permit area, and the Caribou 300 Level Portal permit area.	A table that lists the mining claims by permit area has been added to Exhibit G and additional information has been added to this Exhibit.
50	13	Exhibit G – Source of Legal Right to Enter (Rule 6.3.7) On Maps 1, 2, and 4 provided in Exhibit E, the proposed permit area for the Caribou 300 Level Portal site is shown to partially overlap the access road to the north, which the Division believes is a U.S. Forest Service Road. If this is the case, then in this exhibit, the operator will need to provide documentation of its legal right to enter any affected lands owned by the U.S. Forest Service.	This map (Map 3) has been corrected.
51	13	Exhibit I – Proof of Filing with County Clerk (Rule 6.3.9) This exhibit provided documentation of the original application having been submitted with the Boulder County Clerk and Recorder back in December of 2020. However, per Rule 1.6.2(1)(c) any changes or additions to the application on file must also be reflected in the public review copy which was placed with the county clerk and recorder. An affidavit or receipt indicating the date this was done must be provided in this exhibit. This means a copy of the revised application (submitted to the Division on May 27, 2021) must be provided to the county clerk and recorder and an affidavit or receipt must be submitted to the Division	GIR did not refile because we are filing with the original Forestry designation. Please reference email from Amy Eschberger, dated September 1, 2021.

GIR 110(2) Amendment 2 – Revision 1.0
DRMS Comment and Resolution Sheet - Page **23** of **25**
Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>indicating the date this was done. Please be informed, any changes made to the May 27, 2021 application submittal as a result of this adequacy review letter will require a separate affidavit showing a copy of the revised application has been placed with the county clerk and recorder.</p>	
52	13-14	<p>Exhibit L – Permanent Man-Made Structures (Rule 6.3.12) This exhibit identifies an Excel power line and an AT&T phone line located within 200 feet of the Cross/Caribou permit area for which the Division could not find updated structure agreements in the permit file for Grand Island Resources, LLC. Additionally, the Division is aware of additional structures located within 200 feet of the proposed permit areas, including a U.S. Forest Service Road and snow shed at the Caribou 300 Level Portal site, and historic structures and fencing at the Potosi Shaft site. Please identify all structures located within 200 feet of the proposed affected lands in this exhibit. For all structures not owned by Grand Island Resources, LLC, the operator must provide a notarized agreement with the person(s) having an interest in the structure that the operator is to provide compensation for any damage to the structure. Where such an agreement cannot be reached, the operator shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation. Where such a structure is a utility, the operator may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have “no negative effect” on their utility.</p>	<p>GIR does not yet have all agreements but will provide these to DRMS under a separate cover by December 8, 2021.</p>
53	14	<p>Additional Items The application includes an Exhibit P called “Rule 1.6.2(1)(d) – Notice to Newspapers and Landowners” which states these notices will be filed after the application is accepted by DRMS. Please be advised, Rule 1.6.2(1)(d) requires that within 10 days after the Division notifies the operator that the application is considered filed (which was February 8, 2021 in this case), the operator must publish a public notice in a newspaper of general circulation in the</p>	<p>These notifications are shown in Exhibit O.</p>

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 24 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		<p>locality of the proposed mining operation. The information to be contained in this notice is outlined in this rule. A sample notice is also provided in the application form. For 110 applications (such as this one), the public notice shall be published once [per Rule 1.6.3(3)]. Proof of publication must be provided to the Division prior to the application decision date, and may consist of either a copy of the last newspaper publication, to include the date published, or a certified or notarized statement from the paper including the date(s) of publication. Please provide proof the required newspaper notice has been published. (It should be noted, if the operator is proposing a change in post-mining land use in this amendment, and the proposed postmining land use was not included in the newspaper publication, a new publication may be required.)</p> <p>Additionally, Rule 1.6.2(1)(e) requires the operator to mail or personally serve a copy of the newspaper notice immediately after the final publication to all owners of record of the surface and mineral rights of the affected land, and the owners of record of all land surface within 200 feet of the boundary of the affected lands (which would include the proposed affected lands at the Cross/Caribou, Potosi Shaft, and Caribou 300 Level Portal sites). Proof of such notice, including return receipts of a certified mailing or proof of personal service, must be submitted to the Division prior to the application decision date. Please provide proof that a copy of the newspaper notice [required by Rule 1.6.2(1)(d)] was sent to all required recipients.</p>	
54		<p>Additional Items</p> <p>The application includes an Exhibit Q called “Rule 1.6.2(1)(e) – List of Surrounding Land Owners”. Please ensure this list includes all landowners which own land within 200 feet of the affected lands (and proposed affected lands). For example, on Figure 1 provided in Exhibit A, there appears to be a private land owner which owns the parcel just south of the proposed Caribou 300 Level Portal site. The Boulder County website shows the parcel located directly</p>	Exhibit P List of Surrounding Land Owners has a list of all surface land owners and mineral owners.

GIR 110(2) Amendment 2 – Revision 1.0
 DRMS Comment and Resolution Sheet - Page 25 of 25
 Grand Island Resources, LLC. Responses

#	Page/ Line	Comment	Where Addressed (Exhibit, Attachment, Appendix)
		south of the proposed permit area at this site to be owned by William D Backman Jr (see enclosed image from Boulder County website), whom is not included in the list provided. If this landowner’s property is located within 200 feet of the proposed affected lands, please add them to this list to receive the newspaper notice required by Rule 1.6.2(1)(e).	
55	15	Additional Items The application includes an Exhibit S called “Rule 6.5 - Geotechnical Stability Exhibit” which includes a copy of Technical Revision No. 9 (TR-09) that was recently submitted to present geotechnical stability analyses for the slopes adjacent to the Idaho Tunnel. Please withdraw this information from the AM- 02 application as it will be reviewed through TR-09. The Division will inform the operator if an engineering stability analysis is required in this application.	This Exhibit was removed.
56*	15	Exhibit I – Proof of Filing with County Clerk (Rule 6.3.9) Please remember that, pursuant to Rule 1.6.2(1)(c), any changes or additions to the application on file in our office must also be reflected in the public review copy which was placed with the local County Clerk and Recorder. Pursuant to Rule 6.4.18, you must provide our office with an affidavit or receipt indicating the date this was done.	GIR did not refile because we are filing with the original Forestry designation. Please reference email from Amy Eschberger, dated September 1, 2021.

Grand Island Resources Cross Mine (M1977-410) Amendment #2

Issue Date:
November 23, 2021

Prepared by:



Global Resource Engineering, Ltd.

Table of Contents

Introduction Letter to DRMS

110(2) Application Package

Exhibit A	Legal Description and Location Maps
Exhibit B	Site Description
Exhibit C	Mining Plan
Exhibit D	Reclamation Plan and Standards
Exhibit E	Maps
Exhibit F	Other Permits and Licenses
Exhibit G	Source of Legal Right to Enter
Exhibit H	Municipalities Within a Two Mile Radius
Exhibit I	Proof of Filing with County Clerk
Exhibit J	Proof of Notices to BCBC and BCSCD
Exhibit K	Reserved
Exhibit L	Permanent Man-Made Structures
Exhibit M Rule 1.6.2(1)(a)	Notice of Filing to BOCO Conservation District
Exhibit N Rule 1.6.2(1)(b)	Post Notice Sign(s) at Mine Site
Exhibit O Rule 1.6.2(1)(d)	Notice to Newspapers and Landowners
Exhibit P Rule 1.6.2(1)(e)	List of Surrounding Land Owners
Exhibit Q Rule 1.6.2(1)(g)	Proof of Publication Return Receipts
Appendix I	Weed Control Program
Appendix II	Colorado Division of Parks and Wildlife Statement
Appendix III	Reclamation Costs
Attachment I	U. S. Corp of Engineers Correspondence
Attachment II	Humidity Cell Test
Attachment III	2012 Email from Boulder County Re: Retaining Buildings
Attachment IV	Boulder County Land Use Code Article 4

STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY

Department of Natural Resources

1313 Sherman St., Room 215

Denver, Colorado 80203

Phone: (303) 866-3567

FAX: (303) 832-8106



LIMITED IMPACT OPERATION (110(2))

RECLAMATION PERMIT

APPLICATION FORM

CHECK ONE: New Application (Rule 1.4) Conversion Application (Rule 1.11)

Permit # M-1977 - 410 (provide for conversions of existing permits)

The application for a Limited Impact Designated Mining Operation Reclamation Permit contains three major parts: (1) the application form; (2) Exhibits A-J, any required sections of Exhibit S and Geotechnical Stability Exhibit, as required by the Office, and outlined in Rules 6.1, 6.2, 6.3, 6.4.19 and 6.5; and (3) the application fee. When you submit your application, be sure to include one (1) signed and notarized original and one (1) copy of the application form, two (2) copies of Exhibits A-J, appropriate sections of 6.4.19 Exhibit S and 6.5 (Geotechnical Stability Exhibit), as required, and a check for the application fee described under (4) below. Exhibits should not be bound or in a 3-ring binder; maps should be folded to 8 1/2" X 11" or 8 1/2" X 14" size. To expedite processing, please provide the information in the format and order described in this form.

GENERAL OPERATION INFORMATION

Type or print clearly, in the space provided, all information described below

1. **Applicant/operator or company name (name to be used on the permit):** Grand Island Resources, LLC (GIR)
 - 1.1 Type of organization (corporation, partnership, etc.): Partnership
2. **Operation name (pit, mine or site name):** Cross Gold Mine
3. **Permitted acreage (new or existing site):** 9.99 permitted acres
4. **Fees:**
 - 4.1 New Application \$1,006.00 application fee
 - 4.2 Amendment Application (from 1.10(2))
 - 4.3 Conversion Fee (from 110d to 110(2), (Rule 1.11.2(2))) \$1,725.00 conversion fee
5. **Primary commodity(ies) to be mined:** Gold and Silver
6. **Name of owner to the surface of affected land:** Grand Island Resources, LLC
7. **Name of owner to the subsurface rights of affected land:** Grand Island Resources, LLC
8. **Type of mining operation:** Surface Underground In-situ

9. **Correspondence Information:**

APPLICANT/OPERATOR (name, address, and phone of name to be used on permit):

Contact's Name: Alfred F. Gerriets II Title: CEO
 Company Name: Grand Island Resources, LLC
 Street: 65 Arikaree Cir. P.O. Box: 3395
 City: Nederland
 State: CO Zip Code: 80466
 Telephone Number: (212) - 920-1941
 Fax Number: () -

PERMITTING CONTACT (if different from applicant/operator above):

Contact's Name: Richard Mittasch Title: VP of Operations
 Company Name: Grand Island Resources, LLC
 Street: 34 Mitchell Ave P.O. Box:
 City: Plainview
 State: NY Zip Code: 11803
 Telephone Number: (516) - 582-0833
 Fax Number: () -

INSPECTION CONTACT:

Contact's Name: Daniel V. Pollock Title: Director of Regulations and Permitting
 Company Name: Grand Island Resources, LLC
 Street: 300 Spruce Way P.O. Box: 0441
 City: Nederland
 State: CO Zip Code: 80466
 Telephone Number: (720) - 207-5154
 Fax Number: () -

CC: STATE OR FEDERAL LANDOWNER (if any):

Agency: _____
 Street: _____
 City: _____
 State: _____ Zip Code: _____
 Telephone Number: () -

CC: STATE OR FEDERAL LANDOWNER (if any):

Agency: _____
 Street: _____
 City: _____
 State: _____ Zip Code: _____
 Telephone Number: () -

10. **Location information:** The center of the area where the majority of mining will occur lies in:

COUNTY: Boulder

PRINCIPAL MERIDIAN (check one): 6th (Colorado) 10th (New Mexico) Ute

SECTION (write number): S 9

TOWNSHIP (write number and check direction): T 1 North South

RANGE (write number and check direction): R 73 East West

QUARTER SECTION (check one): NE NW SE SW

QUARTER/QUARTER SECTION (check one): NE NW SE SW

GENERAL DESCRIPTION (miles and direction from nearest town and approximate elevation): _____

The mine is located 4.5 miles from the town of Nederland, Co the portal is located at an elevation of 9800 feet

11. **Primary Mine Entrance Location** (report in either Latitude/Longitude OR UTM):

Latitude/Longitude:

Example: (N) 39° 44' 12.98"
(W) 104° 59' 3.87"

Latitude (N): deg 39 min 58 sec 41 1168 (2 decimal places)

Longitude (W): deg 105 min 34 sec 31 572353 (2 decimal places)

OR

Example: (N) 39.73691°
(W) -104.98449°

Latitude (N) 39 978088 (5 decimal places)

Longitude (W) -105 572353 (5 decimal places)

OR

Universal Transverse Mercator (UTM)

Example: 201336.3 E NAD27 Zone 13
4398351.2 N

UTM Datum (specify NAD27, NAD83 or WGS 84) WGS 84 Zone 13

Easting 451128.356716 M

Northing 376390.124416 M

12. **Primary future (Post-mining) land use (check one):**

- | | | |
|--|--|--|
| <input type="checkbox"/> Cropland(CR) | <input type="checkbox"/> Pastureland(PL) | <input type="checkbox"/> General Agriculture(GA) |
| <input type="checkbox"/> Rangeland(RL) | <input checked="" type="checkbox"/> Forestry(FR) | <input type="checkbox"/> Wildlife Habitat(WL) |
| <input type="checkbox"/> Residential(RS) | <input type="checkbox"/> Recreation(RC) | <input type="checkbox"/> Industrial/Commercial(IC) |
| <input type="checkbox"/> Developed Water Resources(WR) | | <input type="checkbox"/> Solid Waste Disposal(WD) |

13. **Primary present land use (check one):**

- | | | |
|--|--|--|
| <input type="checkbox"/> Cropland(CR) | <input type="checkbox"/> Pastureland(PL) | <input type="checkbox"/> General Agriculture(GA) |
| <input type="checkbox"/> Rangeland(RL) | <input type="checkbox"/> Forestry(FR) | <input type="checkbox"/> Wildlife Habitat(WL) |
| <input type="checkbox"/> Residential(RS) | <input type="checkbox"/> Recreation(RC) | <input type="checkbox"/> Industrial/Commercial(IC) |
| <input type="checkbox"/> Developed Water Resources(WR) | | <input checked="" type="checkbox"/> Mining(MN) |

14. If this operation will use designated chemicals, or will result, or presently has acid mine drainage - you cannot use this application form. You must submit a either a 110d or 112d application form for Designated Mining Operations. In either case, you must list any acidic or toxic-forming materials, exposed or disturbed as a result of the mining operation, and whether the operation will result in or presently has acid mine drainage:

N/A

15. **Description of Conversion:** If you are converting an existing operation, provide a brief narrative describing the proposed change(s):

The changes incurred in this Amendment encompass the following:
An increase in the approved permit area from 8.95 acres to 9.99 acres
addition of a road between the Cross Mine and the Cambou mine.
Updated ground support and reclamation plan for the Idaho Tunnel Portal at the Cambou mine site.

16. **Maps & Exhibits:** Submit **two (2) complete, unbound copies** of the following application exhibits:

- 6.3.1 EXHIBIT A - Legal Description and Location Map
- 6.3.2 EXHIBIT B - Site Description
- 6.3.3 EXHIBIT C - Mining Plan
- 6.3.4 EXHIBIT D - Reclamation Plan
- 6.3.5 EXHIBIT E - Map
- 6.3.6 EXHIBIT F - List of Other Permits and Licenses Required
- 6.3.7 EXHIBIT G - Source of Legal Right-to-Enter
- 6.3.8 EXHIBIT H - Municipalities Within a Two-mile Radius
- 6.3.9 EXHIBIT I - Proof of Filing with County Clerk
- 6.3.10 EXHIBIT J - Proof of Mailing Notices of Permit Application
- 6.3.12 EXHIBIT L - Permanent Man-Made Structures
- 6.4.19 EXHIBIT S - (as required)
- 6.5 Geotechnical Stability Exhibit (as required)

Responsibilities as a Permittee:

Upon application approval and permit issuance, this application becomes a legally binding document. Therefore, there are a number of important requirements which you, as a permittee, should fully understand. These requirements are listed below. Please read and initial each requirement, in the space provided, to acknowledge that you understand your obligations. If you do not understand these obligations then please contact this Office for a full explanation.

- DT 1. Your obligation to reclaim the site is not limited to the amount of the financial warranty. You assume legal liability for all reasonable expenses which the Board or the Office may incur to reclaim the affected lands associated with your mining operation in the event your permit is revoked and financial warranty is forfeited;
- DT 2. The Board may suspend or revoke this permit, or assess a civil penalty, upon a finding that the permittee violated the terms or conditions of this permit, the Act, the Mineral Rules and Regulations, or that information contained in the application or your permit misrepresent important material facts;
- DT 3. If your mining and reclamation operations affect areas beyond the boundaries of an approved permit boundary, substantial civil penalties, to you as permittee can result;
- DT 4. Any modification to the approved mining and reclamation plan from those described in your approved application requires you to submit a permit modification and obtain approval from the Board or Office;
- DT 5. It is your responsibility to notify the Office of any changes in your address or phone number;
- DT 6. Upon permit issuance and prior to beginning on-site mining activity, you must post a sign at the entrance of the mine site, which shall be clearly visible from the access road, with the following information (Rule 3.1.12):
 - a. the name of the operator;
 - b. a statement that a reclamation permit for the operation has been issued by the Colorado Mined Land Reclamation Board; and,
 - c. the permit number.
- DT 7. The boundaries of the permit boundary area must be marked by monuments or other markers that are clearly visible and adequate to delineate such boundaries prior to site disturbance;
- DT 8. It is a provision of this permit that the operations will be conducted in accordance with the terms and conditions listed in your application, as well as with the provisions of the Act and the Mineral Rules and Regulations in effect at the time the permit is issued.

DT 9. Annually, on the anniversary date of permit issuance, you must submit an annual fee (\$259), and an annual report which includes a map describing the acreage affected and the acreage reclaimed to date (if there are changes from the previous year), any monitoring required by the Reclamation or Environmental Protection Plans to be submitted annually on the anniversary date of the permit approval. Annual fees are for the previous year a permit is held. For example, a permit with the anniversary date of July 1, 1995, the annual fee is for the period of July 1, 1994 through June 30, 1995. Failure to submit your annual fee and report by the permit anniversary date may result in a civil penalty, revocation of your permit, and forfeiture of your financial warranty. It is your responsibility, as an operator, to continue to pay your annual fee to the Office until the Board releases you from your total reclamation responsibility.

DT 10. For joint venture/partnership operators: the signing representative is authorized to sign this document and a power of attorney (provided by the partner(s)) authorizing the signature of the representative is attached to this application.

NOTE TO COMMENTORS/OBJECTORS:

It is likely there will be additions, changes, and deletions to this document prior to final decision by the Office. Therefore, if you have any comments or concerns you must contact the applicant or the Office prior to the decision date so that you will know what changes may have been made to the application document.

The Office is not allowed to consider comments, unless they are written, and received prior to the end of the public comment period. You should contact the applicant for the final date of the public comment period.

If you have questions about the Mined Land Reclamation Board and Office review and decision or appeals process, you may contact the Office at (303) 866-3567.

Certification:

As an authorized representative of the applicant, I hereby certify that the operation described has met the minimum requirements of the following terms and conditions:

1. All necessary approvals from local government have been applied for (Rule 1.6.2(1) and (2));
2. This entire mining operation will not extract more than 70,000 tons of mineral, overburden, or combination thereof in any calendar year (defined in **C.R.S. 34-32-110(2)(a)**);
3. This mining operation will not adversely affect the stability of any significant, valuable and permanent man-made structure(s) located within two hundred (200) feet of the affected lands. (However, where there is an agreement between the applicant/operator and the persons having an interest in the structure that damage to the structure is to be compensated for by the applicant/operator (Section 34-32-115(4)(d), C.R.S. 1984, as amended), then mining may occur within 200 feet. Proof of an agreement must be submitted to the Office prior to the decision date.)
4. No mining operation will be located on lands where such operations are prohibited by law (Section 34-32-115(4)(f), C.R.S. 1984, as amended);
5. As the applicant/operator, I do not have any mining/prospecting operations in this state of Colorado currently in violation of the provisions of the Mined Land Reclamation Act (Section 34-32-120, C.R.S. 1984, as amended) as determined through a Board finding.
6. I understand that statements in the application are being made under penalty of perjury and that false statements made herein are punishable as a Class 1 misdemeanor pursuant to Section 18-8-503, C.R.S 1984, as amended.

This form has been approved by the Mined Land Reclamation Board pursuant to section 34-32-110, C.R.S., of the Mined Land Reclamation Act. Any alteration or modification of this form shall result in voiding any permit issued on the altered or modified form and subject the operator to cease and desist orders and civil penalties for operating without a permit pursuant to section 34-32-123, C.R.S.

Signed and dated this 9 day of December, 2020

Grand Island Resources, LLC (GIR)

Applicant/Operator

By: [Signature]

Title: Executive V.P.

If Corporation Attest (Seal)

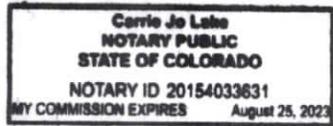
By: _____
Corporate Secretary or Equivalent
Town/City/County Clerk

State of Colorado

County of Boulder) ss.

The foregoing instrument was acknowledged before me this 9th day of December, 2020
by Daniel Takami as Executive V.P. of Grand Island Resources, LLC

[Signature]
Notary Public
My Commission expires: 8/25/2023



SIGNATURES MUST BE IN BLUE INK

Exhibit A

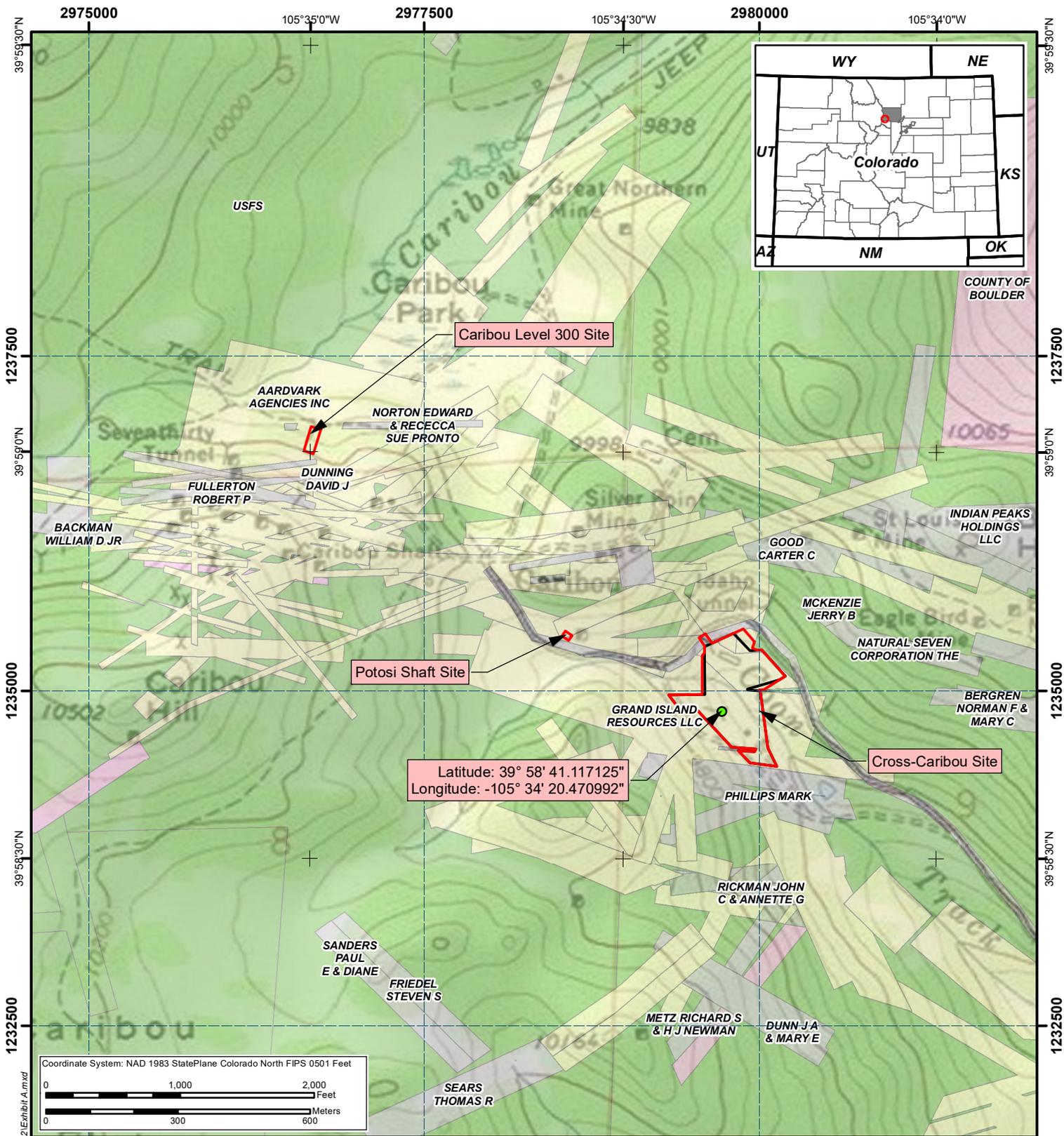
1 Legal Description and Location Map (Rule 6.3.1)

1.1 Cross-Caribou Coordinates

The location is a parcel of land in Sections 8 and 9, Township 1S, Range 73 W of the 6th Principal Meridian, Boulder County, State of Colorado, more particularly described as follows and shown on Map 2:

Starting at the Point of Bearing:

Cross-Caribou			
Line No.		Length	Direction
L1	POB	204.414	N 82° 18' 56.87" W
L2	Thence	126.268	N 43° 00' 52.78" W
L3	Thence	121.461	S 85° 35' 51.79" E
L4	Thence	22.479	N 20° 31' 56.22" E
L5	Thence	177.625	N 85° 47' 58.79" W
L6	Thence	383.792	N 42° 47' 11.84" W
L7	Thence	126.053	S 89° 40' 40.12" W
L8	Thence	139.869	N 37° 45' 56.90 W
L9	Thence	251.135	N 89° 40' 40.11" E
L10	Thence	291.427	N 00° 19' 19.88" W
L11	Thence	26.840	N 44° 40' 40.12" E
L12	Thence	55.221	N 00° 19' 19.88" W
L13	Thence	69.704	N 34° 50' 24.47" W
L14	Thence	56.697	N 55° 09' 35.53" E
L15	Thence	88.561	S 34° 50' 24.46" E
L16	Thence	254.498	N 65° 15' 13.12" E
L17	Thence	126.268	S 41° 46' 28.81" E
L18	Thence	48.527	S 18° 59' 37.69" W
L19	Thence	43.650	S 65° 26' 48.35" E
L20	Thence	31.020	N 85° 04' 40.17" E
L21	Thence	262.951	S 41° 46' 28.81" E
L22	Thence	188.212	S 57° 55' 06.21" W
L23	Thence	36.387	S 86° 49' 33.08" W
L24	Thence	8.319	S 10° 01' 04.02" W
L25	Thence	11.830	S 85° 30' 30.81" E
L26	Thence	430.712	S 07° 39' 42.79" E
L27	Thence	152.299	S 25° 58' 47.74" E



Legend

- Permit Boundary - Modified (9.99 ac)
- Permit Boundary - Current (8.95 ac)

Assessor Data

- Grand Island Resources
- Private Land Owners
- Boulder County
- US Forest Service



Project: DRMS Amendment 2

Proposed Permit Boundary Modifications

Project No. 0801			File No.	
GIS:	JST	01/25/21	Scale As Shown	Rev 0
Check:	JST	01/25/21		
Review:	DP	01/25/21		

Exhibit A, Figure 1

Back to Point of Beginning (POB) totaling approximately 9.60 acres.

The average elevation of the mine site is 9,700' MSL.

1.2 Potosi Shaft Area Coordinates

1.2.1 Potosi Shaft

The location is a parcel of land in Sections 8 and 9, Township 1S, Range 73 W of the 6th Principal Meridian, Boulder County, State of Colorado, more particularly described as follows and shown on Map 3:

Starting at the Point of Bearing:

Entrance: Access is from Boulder County Road 128 (Caribou Road) at one location:

UTM Future access for Potosi Shaft. Entrance: Access is Boulder County Road 128 (Caribou Road) at one location via a footpath: UTM N 4,425,652.14 meters; 450,775.35 meters, Zone 13, NAD 83

Potosi Shaft			
Line No.		Length	Direction
L1	POB	60.000	N 56° 16' 17.96" W
L2	Thence	45.000	N 33° 43' 42.04" E
L3	Thence	60.000	S 56° 16' 17.96" E
L4	Thence	45.000	S 33° 43' 42.04" W

Back to Point of Beginning (POB) totaling approximately 0.06 acres.

The average elevation of the mine site is 9,700' MSL.

Entry Coordinates

Entrance: Access is from Boulder County Road 128 (Caribou Road) at one location:

UTM Future access for Potosi Shaft. Entrance: Access is Boulder County Road 128 (Caribou Road) at one location via a footpath: UTM N 4,425,652.14 meters; 450,775.35 meters, Zone 13, NAD 83

1.2.2 Caribou 300 Level Portal

The location is a parcel of land in Sections 8 and 9, Township 1S, Range 73 W of the 6th Principal Meridian, Boulder County, State of Colorado, more particularly described as follows and shown on Map 3:

Starting at the Point of Bearing:

Caribou 300 Level Portal			
Line No.		Length	Direction
L1	POB	75.000	N 72° 40' 24.50" W
L2	Thence	190.000	N 17° 19' 35.50" E
L3	Thence	75.000	S 72° 40' 24.50 E
L4	Thence	190.000	S 17° 19' 35.50 W

Back to Point of Beginning (POB) totaling approximately 0.33 acres.

The average elevation of the mine site is 9,700' MSL.

Entry Coordinates

Entrance: Access is from United States Forest Service (USFS) Road 505 at one location:

UTM Future access for the Caribou 300 Level. Entrance: Access is US Forest Service Road 505 at one location via a footpath: UTM N 4,426,099.82 meters; 450,206.16 meters, Zone 13, NAD 83.

Exhibit B

1 Site Description (Rule 6.3.2)

The site is an active gold and silver mine (Colorado Division of Reclamation, Mining, and Safety 110(2) Permit M1977-410, issued 11/3/1980), located 4.5 miles west of Nederland, Colorado on lands adjacent to the Roosevelt National Forest, at an elevation of 9700 feet, Mean Sea Level (MSL). The site is bisected by Coon Track Creek, a tributary of Beaver Creek which flows into Middle Boulder Creek before delivering flows to Barker Reservoir. The proposed expanded permit boundary will be on private property owned or controlled by GIR. Please see Exhibit E, Maps 2 and 3.

1.1 Vegetation and Soil Characteristics

1.2 Vegetation

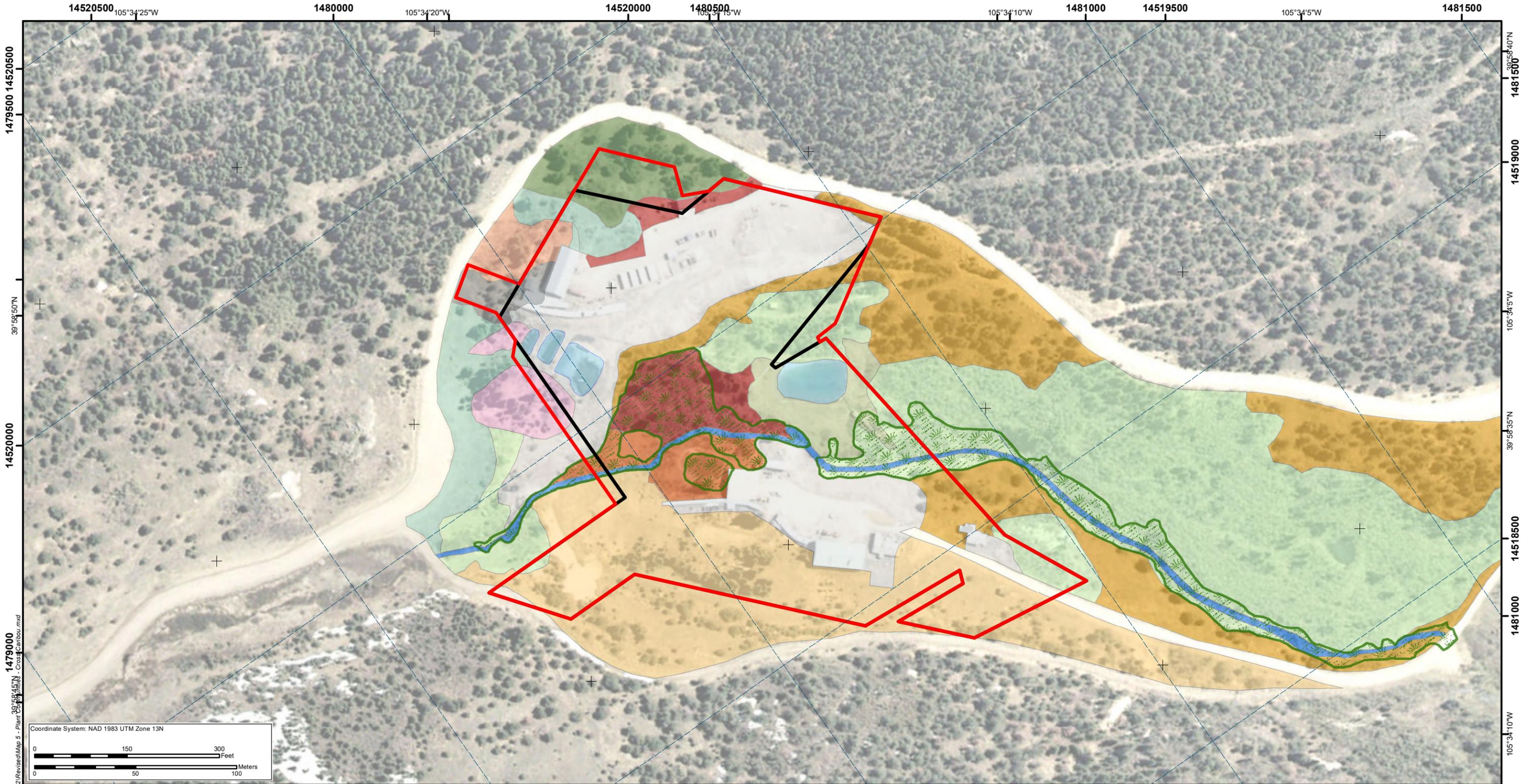
The following vegetation information is taken from the "Cross Mine Vegetation Ecological Site Survey and Assessment" prepared by Walsh Environmental Scientists and Engineers, LLC, March 12, 2008 (Walsh 2008a). This study was conducted to identify, delineate, and describe the plant communities at the Cross Mine, Boulder County, Colorado.

Methods

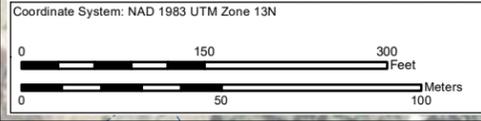
"Walsh ecologists were familiarized with the project site at a kick-off meeting on May 24, 2006. Additional site visits were conducted on June 12 and October 5, 2006."

"Initial plant community identifications were made from a recent aerial photograph of the site. The site was traversed on foot and these identifications were confirmed or modified with additional observations and information. Confirmed community boundaries were drawn over the aerial photo image and digitized. A brief description of each community was composed, including a list of dominant plant species."

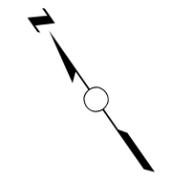
Thirteen plant communities (comprising 25.1 acres; the AOC was larger than the proposed permit area) were described and mapped and include 11 upland and two wetland communities. Each community is described below and illustrated in Figure 1.



Path: G:\Projects\Nederland\AcMap\DRMS\Amendment 2\Revisions\Map 5 - Plant Communities - Cross-Caribou.mxd



- Legend**
- Permit Boundary - Modified (9.60 ac)
 - Permit Boundary - Current (8.95 ac)
 - Wetland
- Vegetation**
- Coon Track Creek
 - Aspen Woodland
 - Planted Grasses
 - Disturbed Upland Meadow
 - Limber/Lodgepole Pine Parkland
 - Willow Woodland
 - Willow/Spruce/Fir Woodland
 - Pond (Open Water)
 - Rock Outcrop
 - Spruce/Fir Woodland
 - Upland Meadow
 - Lodgepole Pine Parkland



Project	DRMS Amendment 2			
Title	EXHIBIT B			
	Plant Communities			
	Cross-Caribou Site			
GRAND ISLAND RESOURCES	Project No.	CO-0801		File No.
	GIS:	JST	05/17/21	Scale As Shown
	Check:	BG	05/17/21	Rev 0
Review:	BG	05/17/21	Figure 1	

“Upland Plant Communities

Aspen Woodland

Aspen woodland is the most widespread plant community on the site, comprising three individual polygons. This community is dominated by a relatively closed quaking aspen (*Populus tremuloides*) canopy. A few scattered limber coniferous species contribute a minor component to this canopy and include limber pine (*Pinus flexilis*) and lodgepole pine (*Pinus contorta*) as well as subalpine fir (*Abies bifolia*), Engelmann spruce (*Picea engelmannii*) and blue spruce (*Picea glauca*). A lush understory is dominated by graminoids including mountain brome (*Bromus marginatus*), Timothy (*Phleum pratense*), and bluegrasses (*Poa spp.*) Wood's rose (*Rosa woodsii*) and shrubby cinquefoil (*Pentaphylloides floribunda*) represent a limited shrub stratum. A diverse forb component is dominated by Alsike clover (*Trifolium hybridum*), yarrow (*Achillea lanulosa*), wild strawberry (*Fragaria vesca*), silver lupine (*Lupinus argenteus*), and black-eyed Susan (*Rudbeckia hirta*).

Limber/Lodgepole Pine Parkland

The limber/lodgepole pine parkland includes three polygons. Parklands refer to areas of scattered trees with canopy cover of 50 percent or less. In these areas, limber and lodgepole pine trees are scattered amidst meadows comprising the same species found in the upland meadow community.

Aspen/Lodgepole Pine Parkland

Aspen/lodgepole pine parkland includes aspen and lodgepole pine trees that are scattered throughout open meadows with an herbaceous component comprising essentially the same species as found in the upland meadows.

This portion of the site represents areas not having vegetation due to on-going mining activities.

Disturbed Upland Meadow

The second-most extensive community of the project site. It appears that this community more closely resembles the upland meadow areas. However, the plant community has been modified in response to surface disturbances caused by human activities such as livestock grazing and construction. Fewer native species occur in these areas, which are notably dominated by planted pasture or reclamation grasses such as smooth brome, Timothy, and Kentucky bluegrass (*Poa pratensis*).

Lodgepole Pine Parkland

The lodgepole pine parkland community is named for the lodgepole pine scattered throughout a generally upland meadow herbaceous community dominated by Timothy and smooth brome, intermixed with yarrow and wild strawberry. Common juniper, shrubby cinquefoil, and mountain snowberry (*Symphoricarpos oreophilus*) represent a scattered shrub story.

Planted Grasses

The Planted Grasses appear to be locations where the native plant community has been completely removed during human activities and replaced by planted pasture and reclamation grasses such as smooth brome, mountain brome, Timothy, and Kentucky bluegrass.

Rocky Outcrop

A rock outcrop in the north portion of the site supports a few trees and shrubs including subalpine fir, Englemann spruce, lodgepole, limber pine, and broom huckleberry (*Vaccinium scoparium*). Forbs such as pussytoes and golden banner (*Thermopsis montana*) were also present

Spruce/Fir Woodland

Limited spruce/fir woodland occurs in the north part of the site. This community is characterized by a dense Englemann spruce and subalpine fir canopy with a sparse understory of shrubs including broom huckleberry, twinberry honeysuckle (*Lonicera involucrata*), fireweed (*Chamerion danielsii*), whisk broom parsley (*Harbouria trachypleura*), and heartleaf arnica (*Arnica cordifolia*).

Upland Meadow

The upland meadow comprises a small portion of the northern part of the site a. The area is characterized by Kentucky bluegrass and prairie sagewort forb (*Artemisia ludoviciana*) as co-dominants in a species-rich herbaceous community. Other common grasses include smooth brome (*Bromopsis inermis*), Timothy, Canada bluegrass (*Poa compressa*), and sun sedge (*Carex pensylvanica* subsp. *heliophila*). The most common forbs include sedum (*Amerosedum lanceolatum*), pussytoes (*Antennaria parviflora*), fringed sage (*Artemisia frigida*), wild geranium (*Geranium richardsonii* and *G. viscosissimum*), yarrow (*Achillea lanulosa*), fringed thistle (*Cirsium centaureae*) and wild strawberry. The only weed noted includes scattered small populations of Canada thistle (*Breea arvensis*) at the community edges where it grades into more mesic areas. (This amendment includes a commitment to control noxious weeds which may occur within the proposed permit area.)

Scattered, low-growing shrubs include Wood's rose, shrubby cinquefoil, broom huckleberry and common juniper (*Juniperus communis*). Occasional clumps of Scouler's willow (*Salix scouleriana*) also occur in the upland meadow.

Willow/Spruce/Fir Woodland

The willow/spruce/fir woodland represents an intermediate community that grades into both the spruce/fir woodland as well as the willow woodland. The canopy is dominated by a number of willow species including Geyer (*Salix geyeriana*), plane-leaf (*S. planifolia*), mountain (*S. montana*), and sandbar (*S. exigua*) intermixed with Colorado blue spruce (*Picea pungens*) and subalpine fir. This community also supports a diverse shrub story with dense stands of thin-leaf alder (*Alnus incana* subsp. *Tenuifolia*) and bog birch (*Betula pumila*) as well as wax currant (*Ribes cereum*), prickly currant (*R. lacustre*), twinberry honeysuckle and Wood's rose. A lush herbaceous understory includes wild strawberry, wild geranium,

large-leaved avens (*Geum macrophyllum*), yellow bedstraw (*Galium verum*), bluebells (*Mertensia ciliata*), dandelion (*Taraxacum officinale*), clover (*Trifolium spp.*), and death camas (*Zigadenus venenosus*).

Willow Woodland, A Wetland Plant Community

The willow woodland community occurs adjacent to the creek channel, in the most mesic portion of the site. The area is characterized by a dense willow canopy composed of the same species found in the willow/spruce/fir woodland. The same dense shrub and lush herbaceous components that are present in the willow/spruce/fir woodland also occur in this community.”

1.2.1 Soil

Soils were mapped by Walsh Environmental Scientists and Engineers, LLC, (Walsh 2008b) and the following descriptions are from the Walsh report.

“Soils at the site are generally divided into three types, with different types north of the Coon Track Creek wetland, south of the Coon Track Creek wetland, and the Coon Track Creek Wetland itself.

Soils north of the Coon Track Creek wetland area, which is an area previous development sometimes referred to as “Caribou” or “Idaho Tunnel site”, are characterized by NRCS as Leighcan-Catamount families, 5 to 40 percent slopes. NRCS further categorized this soil type as found on Mountain slopes, and composed of residuum and/or slope alluvium derived from igneous and metamorphic rock.” Soil depths are shallow and are above very cobbly or graveling deposits. It is somewhat excessively drained.

“Soils within the Coon Track Creek wetland area, which divides the site down the middle, are characterized by NCS as Gateview family – Cryaquolls complex, 0 to 15 percent slopes. NRCS further categorizes this soil type as found on alluvial fans or terraces, and composed of gravelly alluvium and/or gravelly glaciofluvial deposits derived from igneous, metamorphic, and sedimentary rock. It is well drained.”

‘Soils south of the Coon Track Creek wetland area, which is an area of previous development referred to a “Cross”, are characterized by NRCS as Leighcan family, 50 to 40 percent slopes. NRCS further categorizes this soil type as found on mountain slopes, and composed of colluvium over residuum weathered from igneous and metamorphic rock.” Soil is about very cobbly sandy loam to 9 inches and very sandy loam to 38 inches. It is somewhat excessively drained.

The NRCS Soil Report is shown below.

Custom Soil Resource Report

Arapaho-Roosevelt National Forest Area, Colorado, Parts of Boulder, Clear Creek, Gilpin, Grand, Park and Larimer Counties

6102A--Gateview family-Cryaquolls complex. 0 to 15 percent slopes

Map Unit Setting

Elevation: 8,000 to 9,500 feet
Mean annual precipitation: 20 to 40 inches
Mean annual air temperature: 36 to 45 degrees F
Frost-free period: 30 to 70 days

Map Unit Composition

Gateview family and similar soils: 60 percent
Cryaquolls and similar soils: 25 percent

Description of Gateview Family Setting

Landform: Alluvial fans, terraces
Parent material: Gravelly alluvium and/or gravelly glaciofluvial deposits derived from igneous, metamorphic and sedimentary rock

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage Class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Other vegetative classification: Quaking aspen/Thurber's fescue (POTR5/FE1H) (00503), Quaking aspen/Fendler's meadowrue (POTR5/THFE) (00512)

Typical profile

0 to 3 inches: Loam
3 to 11 inches: Gravelly sandy loam
11 to 22 inches: Gravelly sandy loam
22 to 34 inches: Very gravelly sandy loam
34 to 54 inches: Extremely gravelly sandy loam
54 to 62 inches: Extremely gravelly sandy day loam

Description of Cryaquolls

Setting

Landform: Flood plains
Parent material: Gravelly alluvium and/or gravelly glaciofluvial deposits derived from igneous, metamorphic, and sedimentary rock.

Properties and qualities

Slope: 0 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)

Available water capacity: High (about 11.1 inches)

Interpretive groups

Other vegetative classification: Booth's willow-willow/reedgrass (SAB02-SALIX/ CALAM) (S1498), Geyer's willow-willow/reedgrass (SAGE2-S AUX/CALAM) (S1495), Geyer's willow-willow/Northwest Territory sedge (SAGE2-SALIX/ CAUT) (S1413)

Typical profile

0 to 4 inches: Moderately decomposed plant material

4 to 16 inches: Silt loam

16 to 24 inches: Silt loam

24 to 30 inches: Silt loam

30 to 40 inches: Sandy loam

40 to 64 inches: Silt loam

7700B-leighcan family, 5 to 40 percent slopes

Map Unit Setting

Elevation: 9,000 to 11,200 feet

Mean annual precipitation: 20 to 40 inches

Mean annual air temperature: 36 to 39 degrees F

Frost-free period: 30 to 50 days

Map Unit Composition

Leighcan family and similar soils: 85 percent

Description of Leighcan Family

Setting

Landform: Mountain slopes

Parent material: Colluvium over residuum weathered from igneous and metamorphic rock

Properties and qualities

Slope: 5 to 40 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity. Very low (about 2.7 inches)

Interpretive groups

Other vegetative classification: Subalpine fir - Engelmann spruce/moss (ABLA- PIEN/MOSS) (C0311), Subalpine fir - Engelmann spruce/myrtle whortleberry (ABLA-PIENNAMY2) (C0320), Subalpine fir - Engelmann spruce/grouse whortleberry (ABLA-PIENNASC) (C0321)

Typical profile

0 to 2 inches: Cobbly silt loam
2 to 9 inches: Very cobbly silt loam
9 to 28 inches: Very cobbly sandy loam
28 to 45 inches: Extremely stony loamy sand
45 to 60 inches: Extremely stony loamy sand

7755B--Leighcan-Catamount families, moist complex, 5 to 40 percent slopes**Map Unit Setting**

Elevation: 8,000 to 11,000 feet
Mean annual precipitation: 20 to 40 inches
Mean annual air temperature: 36 to 39 degrees F
Frost-free period: 30 to 50 days

Map Unit Composition

Leighcan family, moist, and similar soils: 45 percent
catamount family, moist, and similar soils: 40 percent

Description of Leighcan Family, Moist**Setting**

Landform: Mountain slopes
Parent material: Residuum and/or slope alluvium derived from igneous and metamorphic rock

Properties and qualities

Slope: 5 to 40 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Other vegetative classification: Subalpine fir - Engelmann spruce/grouse whortleberry (ABLA-PIENNASC) (C0321), Subalpine fir-Engelmann spruce/ myrtle whortleberry (ABLA-PIENNAMY2) (C0320)

Typical profile

0 to 2 inches: Cobbly silt loam
2 to 9 inches: Very cobbly silt loam
9 to 28 inches: Very cobbly sandy loam
28 to 45 inches: Extremely stony loamy sand
45 to 60 inches: Extremely stony loamy sand

Description of Catamount Family, Moist**Setting**

Landform: Mountain slopes
Parent material: Residuum weathered from igneous and metamorphic rock

Properties and qualities

Slope: 5 to 40 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock
Drainage class: Excessively drained
capacity of the most limiting layer to transmit water (Ksat)_ - Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity. Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 0.9 inches)

Interpretive groups

Other vegetative desilication: Subalpine fir - Engelmann spruce/myrtle whortleberry (ABLA-PDENNAMY2) (C0320), Subalpine fir- Engelmann spruce/ grouse whortleberry (ABLA-PIENNASC) (C0321)

Typical profile

0 to 1 inches: Slightly decomposed plant material
1 to 2 inches: Gravelly loam
2 to 5 inches: Very gravelly sandy loam
5 to 11 inches: Extremely cobbly sandy loam
11 to 15 inches: Extremely cobbly sandy loam
15 to 26 inches: Weathered bedrock
26 to 30 inches: Unweathered bedrock

7702B-Goosepeak-Catamount families, moist complex, 5 to 40 percent slopes

Map Unit Setting

Elevation: 9,000 to 10,200 feet

Mean annual precipitation: 20 to 40 inches

Mean annual air temperature: 36 to 39 degrees F

Frost-free period: 30 to 50 days

Map Unit Composition

Goosepeak family, moist, and similar soils: 45 percent

Catamount family, moist, and similar soils: 40 percent

Description of Goosepeak Family, Moist

Setting

Landform: Benches

Parent material: Colluvium and/or re55duum derived from sandstone

Properties and qualities

Slope: 5 to 40 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

capacity of the most limiting layer to transmit water (KsatJ): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)

Available water capacity: Low (about 4.2 inches)

Interpretive groups

Other vegetative classification: Subalpine fir - Engelmann spruce/myrtle whortleberry (ABLA-PIENNAMY2) (C0320), Subalpine fir - Engelmann spruce/ common juniper (ABLA-PIEN/JUCO6) (C0309)

Typical profile

0 to 1 inches: Slightly decomposed plant material

1 to 3 inches: Moderately decomposed plant material

3 to 5 inches: sandy loam

5 to 13 inches: Cobbly fine sandy loam

13 to 32 inches: Very cobbly sandy day loam

32 to 62 inches: Extremely cobbly sandy loam

1.2.2 Permanent, Man-Made Structures

The only permanent man-made structures within 200 feet of the affected area are listed in the table below.

Table 1 Permanent, Man-Made Structures Within 200 Feet of the Area	
Structure	Owner
County Road 128	Boulder County
Power Line	Xcel Energy
Phone Line	Century Link (AT&T)
U.S. Forest Service Road 505	U.S. Forest Service
Snow Shed at Caribou 300 Level Portal	Grand Island Resources
Historic Structures at Potosi Shaft area	Grand Island Resources
Fencing at Potosi Shaft area	Grand Island Resources

Boulder County, County Road 128 and an Excel power line which supplies power to the mine site and runs somewhat east and west from the site toward Nederland and up onto U.S. Forest Service property. USFS Road 505 splits off County Road 128 and heads towards the Caribou 300 Level portal. In addition, there is a Century Link phone line on the south side of the proposed permit boundary which runs somewhat east and west. These structures have been a feature on and around the mine site for many years during its periods of activity and in-activity. The other structures are owned by GIR.

Permanent, man-made structures within 200 feet of the affected lands are shown on Maps 2 and 3.

1.2.3 Colorado Parks and Wildlife (CPW) Statement

A Colorado Parks and Wildlife statement will not be required for this Amendment Application. The proposed modifications will not result in a Designated Mining Operation or significant impacts to wildlife use.

1.3 Water Resources

1.3.1 Surface Water Resources

Coon Track Creek bisects the proposed permit area. Associated with the drainage are some wetlands on either side of Coon Track Creek.

Surface water quality impacts are not expected. Where needed, appropriate Best Management Practice (BMP) storm water controls will be implemented during the construction and reclamation of the proposed activities. No hazardous or toxic chemicals will be used during any of the proposed construction.

Stormwater discharge and management is regulated by the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) Colorado Pollutant Discharge Elimination

System (CPDES). Mine stormwater management is documented under Permit #COR 040242. The mine submits annual reports on our Surface Water Management program (SWMP). As required by regulation, the current SWMP S containing sediment and erosion Best Management Practices (BMPs), are maintained on site for use and inspection. Appropriate BMP storm water controls will be implemented during the proposed construction and reclamation activities. No hazardous or toxic chemicals will be used during any of the proposed reclamation construction.

No actual stream flow or surface water quality data are available for Coon Track Creek or North Beaver Creek into which Coon Track Creek and Hicks Gulch flow. North Beaver Creek flows into Middle Boulder Creek at Nederland, CO. Stream flow data from Middle Boulder Creek at Nederland, CO, USGS Station ID 06725500 is used below to provide stream flow data. Stream Flow data (shown below) are from the following source: Colorado Division of Water Resources, data retrieved, May 4, 2021.

GIR has discussed surface and groundwater monitoring programs with the DRMS and is preparing programs to monitor surface and groundwater quality. The surface and groundwater monitoring programs will be submitted to DRMS separate from this Amendment.

1.3.2 Wetlands

Wetlands on the Cross Mine property are primarily associated with Coon Track Creek, which is a narrow and well-defined channel that flows through the length of the property and drains the entire Cross Mine area watershed. Coon Track Creek is a tributary of Beaver Creek, which flows into Middle Boulder Creek above Barker Reservoir. Coon Track Creek exhibits steady low flows year-round below the mine site due to discharges from the Cross and Caribou mines, with high flows during snowmelt runoff.

Waters of the U.S., including associated wetlands, were surveyed within the proposed site boundary by WSP in summer of 2021. The on-site wetland delineation followed the USACE procedure for identifying wetland boundaries by completing the appropriate number of sampling points, investigating the required wetland criteria, and identifying the boundary between wetland and upland areas. A shovel was used to complete soil sampling points and check the soils and hydrology at periodic intervals throughout the delineated boundary to confirm accuracy and/or adjust the boundary accordingly. All wetland boundaries within the project were geolocated using a sub-meter accuracy global positioning system (GPS) and incorporated into a geographic information system (GIS) using ArcGIS Collector software (WSP 2021). A Jurisdictional Determination was requested from the United States Corp of Engineers (USACE) (WSP 2021) on August 11, 2021. The JD has not yet been approved by the (USACE), but the approval will be forwarded to DRMS upon approval. At the USACE request, this JD will be updated every five years.

GIR received a letter of USACE No Permit Required Verification from the USACE stating that a 404 permit is not required for the road over the wetlands and creek. This letter is provided in Attachment I (USACE 2021).



MIDDLE BOULDER CREEK AT NEDERLAND, CO. (BOCMIDCO)
 USGS STATION ID 06725500

DISCHARGE IN CFS WATER YEAR OCTOBER 2019 TO SEPTEMBER 2020
 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	33	54	31	33	24	25	63	403	116	44	25
2	17	29	30	28	29	23	26	72	365	111	42	18
3	17	28	26	26	29	23	28	89	318	116	40	15
4	18	29	25	28	37	22	28	102	316	122	39	14
5	18	28	25	28	47	22	25	83	313	117	38	13
6	18	26	25	25	55	21	27	74	315	108	37	12
7	18	29	24	30	29	21	18	77	277	102	35	12
8	19	28	24	30	26	22	13	76	240	92	33	14
9	19	25	24	30	26	22	15	78	193	87	31	16
10	18	26	24	29	27	21	19	80	154	84	30	19
11	18	26	24	37	29	23	21	78	137	84	29	22
12	20	30	23	38	30	22	19	82	156	85	27	18
13	19	26	24	36	29	22	13	92	189	80	26	17
14	19	24	24	33	28	23	14	94	215	87	26	14
15	19	24	24	31	28	23	14	95	214	89	25	12
16	19	24	24	32	27	23	9.7	110	200	84	24	11
17	18	24	27	29	27	23	13	128	203	78	23	11
18	19	24	33	30	27	25	12	169	203	75	23	9.6
19	18	24	27	31	27	33	11	227	201	70	22	9.2
20	19	23	26	32	27	45	12	257	154	62	34	9.0
21	17	25	26	29	27	35	16	231	143	60	33	8.4
22	19	33	24	28	27	25	19	191	150	59	32	8.1
23	20	36	23	27	26	26	20	184	170	58	32	8.1
24	37	27	23	28	24	24	22	175	178	58	31	7.8
25	25	30	22	28	25	24	22	139	180	73	29	7.7
26	22	32	35	27	27	25	24	120	164	70	31	7.6
27	23	36	29	27	27	26	31	145	167	56	32	7.4
28	31	32	25	28	25	30	42	197	161	54	31	7.5
29	33	23	22	28	24	34	46	262	149	52	32	7.5
30	32	23	40	27	26	26	52	338	138	49	30	7.1
31	36		40	37		25		385		46	25	
TOTAL	662	827	846	928	849	783	656.7	4493	6366	2484	966	368.0
MEAN	21.4	27.6	27.3	29.9	29.3	25.3	21.9	145	212	80.1	31.2	12.3
AC-FT	1310	1640	1680	1840	1680	1550	1300	8910	12630	4930	1920	730
MAX	37	36	54	38	55	45	52	385	403	122	44	25
MIN	17	23	22	25	24	21	9.7	63	137	46	22	7.1

WATER YEAR 2020 TOTAL 20228.7 MEAN 55.3 MAX 403 MIN 7.1 AC-FT 40120

MAX DISCH
 MAX GH



Table 4.1. Results of standard reference water samples used in the ICP-OES analyses of Boulder Creek water samples

[mg/L, milligrams per liter; --, element not analyzed; MPV, most probable value; <, less than; ND, not determined in standard]

	HIGH-FLOW						LOW-FLOW						MPV					
	SRWS69 (mg/L)	T115 (mg/L)	T143 (mg/L)	T153 (mg/L)	T159 (mg/L)	T159 (mg/L)	SRWS67 (mg/L)	SRWS69 (mg/L)	T153 (mg/L)	T159 (mg/L)	SRWS67 (mg/L)	SRWS69 (mg/L)	T115 (mg/L)	T143 (mg/L)	T153 (mg/L)	T159 (mg/L)		
Al	0.52	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.67	<0.08	<0.08	0.018	0.62	0.014	0.015	0.001	0.028		
As	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	<0.03	<0.03	<0.03	0.018	0.012	0.040	0.022	0.035	0.035	0.032		
B	0.11	0.091	0.026	0.096	0.022	0.12	0.11	0.12	0.11	ND	ND	0.099	0.035	0.099	0.026	0.026		
Ba	0.038	--	0.089	0.2	0.04	0.037	--	0.037	0.039	0.219	0.043	0.250	0.082	0.184	0.038	0.038		
Be	0.035	0.059	0.007	<0.0001	0.011	0.051	<0.0001	0.034	0.011	0.044	0.032	0.054	0.009	ND	0.011	0.011		
Ca	50	55	57	28	26	44	29	50	26	ND	ND	51	54	28	26	26		
Cd	<0.001	0.013	0.02	0.016	0.026	0.01	<0.001	<0.001	0.017	0.01	0.001	0.014	0.0191	0.016	0.024	0.024		
Co	0.01	0.014	0.015	<0.001	0.011	0.013	0.015	0.015	0.001	0.011	0.014	0.0154	0.017	ND	0.0133	0.0133		
Cr	0.001	0.036	0.036	0.014	0.028	0.03	0.003	0.003	0.015	0.028	0.028	0.005	0.037	0.015	0.027	0.027		
Cu	0.31	0.015	0.021	0.024	0.033	0.027	0.33	0.33	0.026	0.028	0.297	0.017	0.022	0.024	0.033	0.033		
Fe	0.11	1.2	0.12	0.074	<0.007	0.81	0.22	0.22	0.078	ND	ND	1.175	0.222	0.075	0.0489	0.0489		
K	3.3	--	2.5	1.6	1.8	3.2	3.9	3.9	1.8	ND	ND	5.41	2.5	1.6	1.52	1.52		
Li	0.44	0.19	0.026	0.06	0.013	--	0.47	0.47	0.064	0.627	0.397	0.132	0.018	0.053	0.009	0.009		
Mg	--	--	--	8.9	5.7	--	--	--	9.2	ND	ND	27.6	10.4	8.72	5.6	5.6		
Mn	0.23	0.47	0.005	0.07	0.015	0.61	0.23	0.23	0.078	ND	ND	0.455	0.018	0.075	0.022	0.022		
Na	49	--	37	29	--	27	51	31	--	ND	ND	140	34	28.7	100	100		
Ni	<0.02	<0.02	0.076	0.034	0.024	0.004	0.017	0.017	0.036	0.096	0.018	0.017	0.071	0.032	0.022	0.022		
Pb	0.02	0.011	0.089	0.05	0.017	<0.006	0.023	0.023	0.051	0.005	0.023	0.013	0.083	0.046	0.017	0.017		
SiO ₂	7.8	11	--	5.8	12	3.6	7.9	7.9	6.2	ND	ND	9.9	23.4	5.79	11.5	11.5		
Se	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.04	<0.04	<0.04	0.012	ND	0.010	0.023	0.006	0.012	0.012		
Sr	--	--	0.32	0.32	0.2	0.39	--	--	0.33	0.375	0.612	0.67	0.31	0.31	0.19	0.19		
V	<0.001	0.014	0.027	0.016	0.012	<0.001	<0.001	<0.001	0.017	ND	ND	0.018	0.030	0.019	0.014	0.014		
Zn	0.013	0.4	0.014	0.067	0.014	0.016	0.03	0.03	0.087	0.017	0.028	0.381	0.020	0.073	0.019	0.019		

1.3.3 Surface Water Quality

Water quality varies throughout the Boulder Creek Watershed, but is generally best in higher elevations where there is less human activity. Water quality declines downstream because of increased human impact and longer contact time with soil and rock. Surface water from snowmelt and groundwater that flowed through unreactive geology generally has low concentrations of dissolved solids and minerals. Overall, the chemistry of Boulder Creek at higher elevations is consistent with weathering of the crystalline rocks and historical mining does not appear to have contributed to metal loading in the creek. Analytical results show that metal concentrations (arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc) are all below 1 mg/L. Low sulfate concentrations could be derived from minor dissolution of pyrite (Verplank et al.2000).

The waste rock is primarily composed of gneiss and quartz monzonite. These materials have been analyzed for leachability and acid production by DRMS-approved methods. The results of the analyses demonstrated the materials are non-acid producing and non-metals leaching. Due to the nature of the waste rock generated by mining operations, significant impact to groundwater quality is not expected.

Coon Track Creek is characterized by steep side slopes and a rocky channel bottom. In the upper and mid-reaches of the creek, the presence of wetland habitat is nominal and only extends beyond the banks in a few isolated, low-lying areas. Five man-made, plastic-lined ponds flank the north and west sides of the mining complex. The pond fringes are devoid of vegetation. Below the mine structures, the creek meanders along a narrow ravine before exiting the property through a Boulder County maintained culvert under the Cross Mine access road. Wetland habitat associated with the downstream reaches is limited to the riparian corridor and to a wet meadow area on the north bank that is situated just east of Pond #2 and extends into the adjacent aspen woodland.

The primary source of hydrology for wetlands is provided by up-slope runoff, groundwater exfiltration, and flows from the creek. Groundwater flows from the Idaho and Cross adits are directed into pond #2 and contribute to wetland hydrology in the lower half of the property. Secondary sources are provided by naturally occurring side slope seeps, snowmelt, and precipitation events.

1.3.4 Groundwater Resources

The proposed mine and its expansion area are not impacted by designated floodplains, because the site is located very near the headwaters of Coon Track Creek. Mining will be as presented in the original mine permit application. No impacts to groundwater due to the proposed site modifications are expected.

Groundwater at the site is generally controlled by drainage out of the existing mine adits, which report to two ponds for the addition of lime and discharge to Coon Track Creek through a permitted discharge point, and by discharge to stream channels, seeps, and springs.

Waste rock analyses previously performed and part of the Division's existing permit file indicate the host rock and ore are non-acid generating. Groundwater pH based on three quarters of analysis has been between pH 6.4 and 7.6 in the three domestic wells.

The waste rock analyses and pH of the groundwater sampled at the three domestic wells indicate the waste rock is benign and there should not be a groundwater quality issue. GIR is updating its Water Sampling and Analysis Plan.

1.4 Wildlife

This is a high-altitude mining operation with a short growing season (3.5 months on average). Impacts to wildlife have been insignificant due to minimal surface activity associated with this operation. On-going operations under an active underground mining operation will also have minimal impacts to wildlife. Regardless, GIR will make every effort to be aware of wildlife in order to prevent and or mitigate potential impacts.

2 References

- O'Shea-Stone, M. and Ash, J. 2008. Burlington Mine VCUP Case History an Ecological Approach to Mine Site Remediation in Proceedings High Altitude Revegetation Workshop No. 18, ed. Joe E. Brummer. March 2008, Fort Collins, Colorado.
- Philip L. Verplanck, McCleskey, R. B and Roth D. 2000. Chapter 4 - Inorganic Water Chemistry of the Boulder Creek Watershed, Colorado, During High-Flow and Low-Flow Conditions, 2000 in Comprehensive Water Quality of the Boulder Creek Watershed, Colorado During High-Flow and Low-Flow Conditions 2000. Water-Resources Investigations, Report 03-4045.
- Walsh Environmental Scientists and Engineers LLC. 2008a. Cross Mine Vegetation Ecological Site Survey and Assessment, Boulder County, Colorado.
- Walsh Environmental Scientists and Engineers LLC. 2008b. Special Use Application and Addendum Cross Mine Expansion, Boulder County, Colorado, July.
- Walsh Environmental Scientists and Engineers LLC. 2008c. Request for Verification of Jurisdictional Delineation, Boulder, Colorado.
- WSP 2021. Request for Verification of Jurisdictional Delineation – Corps File No. NWO-2021-00388-DEN and NWO-2008-316-DEN, Cross Mine Site, Boulder County, Colorado. Boulder Colorado.

Exhibit C

1 Mining Plan (Rule 6.3.3)

The purpose of this mining plan is to supplement the existing approved mining plan. The sections in this mining plan describe how mining will affect the permit area for the duration of the operation. This plan is correlated to Exhibit E – Maps 2 and 3. Roads are shown on Map 1.

This is an on-going mining operation. Based on known reserves and mining at 70,000 tons per year, the operation could produce for up to 50 years. We do not anticipate periods of intermittent mining activity.

1.1 Caribou 300 Level Portal and Potosi Shaft Openings

1.1.1 Caribou 300 Level Portal

The Caribou 300 Level Portal will be accessed from USFS Road 505.

Current and Proposed Use

The Caribou 300 Level Portal has not been used since operations ceased in the 1970s. There is an existing snowshed, with a locking gate, but past damage allows ingress and trespass. The current state of the Caribou 300 Portal does not allow for any personnel entry to the Caribou mine workings because of total collapse. The Caribou 300 Portal will need to go through an evaluation process before the best use to operations can be determined. The current proposed use of the Caribou 300 Level Portal is ventilation and as an emergency escapeway.

Security

Once the Caribou 300-Level Portal is included in the permit area, a process of repairing and securing the snowshed will commence. The rehabilitation will consist of installation of a perimeter fence to deny public entry into the snowshed area and repairing and securing the snowshed itself.

The Caribou 300 Level Portal will be reconstructed to have a secure and stable face into the hillside. The portal face will be created with concrete and/or rock blocks and tiebacks. The existing snowshed will be removed for this operation. The portal door will be steel and secured by hinges to the concrete/stone portal face. The door will be secured with padlocks and vandal proof padlock covers to prevent entry or approach by the public as we evaluate future use.

The perimeter fence will 75 ft by 190 ft of 6 ft chain link with 1 ft high barb wire on top with (overall height of 7 ft) Each post would be secured with concrete footings at a depth of 2.5 ft. The top and the bottom of the posts would have connecting beams. The fence will have a single locking 6 ft wide gate with a one-foot barb wire top and padlock protection. Fencing will be posted with hazard and trespassing signs on three sides. Boundary markers along with signs will be placed at the proposed Caribou 300 Level Portal permit boundaries. The boundaries for the proposed Caribou 300 Level Portal will be clearly marked by monuments or other markers that are clearly visible and adequate to delineate

such boundaries to ensure all disturbances are within the approved permit area. Additionally, when the permit is approved, GRI will post a permit identification sign at the Caribou 300 Level Portal entrance, that is clearly visible from the access road, with a minimum sized of 187 square inches, with appropriate font size and including the name of the operator, operation name, a statement that a reclamation permit has been issued by the Colorado Mined Land Reclamation Board, and the permit number. During operations, the area will be monitored using the mine WIFI video security array.

The current snowshed has been breached. Once the Caribou 300-Level Portal is included in the permit area, the shed will be secured by reattaching the corrugated galvanized steel sides to framing and reinforcing attachments from inside the snowshed. The exterior of the existing 6x6x20 foot galvanized snowshed will be modified with metal coverings to frustrate removal of corrugated galvanized steel side panels. The existing gate will be repaired and reinforced as needed to secure for operational use and be compliant with the padlock protection detail in Figure 1 of Exhibit D.

1.1.2 Potosi Shaft

The Potosi Shaft will be accessed on foot from County Road 128.

Current and Proposed Use

The Potosi Shaft is not currently used. The shaft is currently secured by a temporary fence with barb wire and snow fencing for visibility. The current state of the Potosi Shaft, and potential underground connection to the Idaho Tunnel, does not allow for any personnel entry to evaluate connections and condition of underground workings. The Potosi Shaft will need to go through an evaluation process before the best use to operations can be determined. The current proposed use of the Potosi Shaft is ventilation and as an emergency escapeway.

Security

Once the Potosi Shaft is included in the permit area, the existing temporary fencing will be removed and a perimeter constructed. The new fence will be 45 ft by 60 ft of 6 ft chain link with 1 ft high barb wire on top with (overall height of 7 ft). Each post will be secured with concrete footings at a depth of 2.5 ft. The top and the bottom of the posts will have connecting beams. The fence will have a single locking 6 ft wide gate with a one-foot barb wire top and padlock protection. Fencing will be posted with hazard and trespassing signs on four sides. Boundary markers along with signs will be placed at the proposed Potosi Shaft permit boundaries. The boundaries for the proposed Potosi Shaft will be clearly marked by monuments or other markers that are clearly visible and adequate to delineate such boundaries to ensure all disturbances are within the approved permit area. Additionally, when the permit is approved, GRI will post a permit identification sign at the Potosi Shaft entrance, that is clearly visible from the access road, with a minimum sized of 187 square inches, with appropriate font size and including the name of the operator, operation name, a statement that a reclamation permit has been issued by the Colorado Mined Land Reclamation Board, and the permit number. During operations, the area will be monitored using the mine WIFI video security array.

1.2 Other Shafts, Adits, and Portals

1.2.1 Idaho Tunnel Portal

Current Use

The Idaho Tunnel is currently used for exploration drilling. That use will continue until closure and reclamation. GIR anticipates that core samples and a small amount of waste rock will be generated during exploration drilling. Core samples will be stored in the site office. Waste rock (approximately 1,400 cu yds) will be stored in the waste rock storage area.

Security

The Idaho Tunnel is located on the main mine site. When not in use a locking steel gate prevents unauthorized access. The area is monitored using the mine WIFI video security array.

1.2.2 Cross Adit

Current Use

The Cross Adit is currently used for mine access. That use will continue until closure and reclamation.

Security

The Cross Adit is located on the main mine site. When not in use a locking steel gate prevents unauthorized access. The area is monitored using the mine WIFI video security array.

1.2.3 Cross Ventilation Shaft

Current Use

The Cross Ventilation Shaft is used for ventilation of the Cross mine. That use will continue until closure and reclamation.

Security

The Cross Ventilation Shaft is on the main mine property, posted, flagged with snow fence and covered with a screen. The area is monitored using the mine WIFI video security array.

1.2.4 Cross Ventilation Shaft and Escapeway

Current Use

The Cross Ventilation and Escapeway Shaft is used for ventilation of the Cross mine, emergency escape, and mine rescue. That use will continue until closure and reclamation.

Security

The Cross Ventilation and Escapeway Shaft is on the main mine property, posted, flagged with snow fence and covered with a screen. The area is monitored using the mine WIFI video security array.

1.3 Ponds and Water Infrastructure

There are 5 lined ponds at the Cross Caribou Mine: Ponds 1, 2, 3A, 3B, and 3C. Locations of the ponds are shown on Map 2. The ponds are used to treat stormwater and water from mine operations. Ponds

3A, 3B, and 3C receive water from the site and portals and this water is conveyed to Pond 1 where it is treated. After treatment, Pond 1 water is conveyed to Pond 2 and discharged. There are several supporting infrastructure components to the water system. Flow sheds contain valves that control flow between ponds and discharge. Lines that move water between ponds are surface features. There are 6 segments of 6-inch diameter line with the following lengths:

- Segment 1 – 35 feet
- Segment 2 – 208 feet
- Segment 3 – 90 feet
- Segment 4 – 229 feet
- Segment 5 – 90 feet
- Segment 6 – 125 feet

1.4 Topsoil

As shown in Exhibit B, Section 1.1, soil in the permit application areas is composed of mostly of a thin layer of loam underlain by cobbly and stony loam and weathered and unweathered bedrock except for the Cryaquolls, which are silty loams on relatively flat to gentle slopes (0 - 15 percent slopes). Other soil types are present on steeper slopes and transition to cobbly and stony within approximately 3 to 5 inches. There is little soil that can be salvaged at this site. There are no plant growth medium stockpiles on the site.

No topsoil stockpile construction is expected as part of this Amendment. Areas proposed for disturbance have previously been disturbed as part of the site's historic mining operations. If topsoil of sufficient quantity is found, it will be stockpiled so that rehandling is minimized. If soil is stockpiled, topsoil stockpiles will be field identified or marked. On occasion, topsoil may be added or removed from the topsoil stockpile to salvage or replace topsoil during mining operations.

Topsoil will be removed from the site of the proposed leach field and placed adjacent to the leach field. Once the leach field is constructed, the topsoil will be replaced, prepared for seeding, seeded with the approved seed mix and mulched. (Please see Exhibit D, Section 1.10). Mulching will only occur if the activity may be conducted without resulting in safety concerns on slopes.

The proposed Amendment activities will result in tree removal. Where tree removal is necessary, appropriate efforts will be made to remove only those trees and shrubs necessary to provide for an efficient and safe reclamation. Any trees removed during site construction will be made available to the employees for fire wood. Because site reclamation is well into the future, shrubs removed during site development will be hauled to an offsite facility for proper disposal.

The proposed road between the Cross mine and the Caribou mine is partially on previously disturbed land. The road construction in previously undisturbed areas is predominantly fill and any topsoil removed will be reused on road embankment revegetation. The addition of the new road will provide any topsoil or vegetative cover to be salvaged.

1.5 Overburden

This is an underground mining operation, producing ore from various near vertical mineralized veins and deposit thickness is not applicable. Some waste rock will be produced as the new Idaho Tunnel Drift is developed. Additionally, other development work will generate waste rock. The amount of waste rock generated annually is estimated as 20,000 to 40,000 yards.

1.6 Waste Rock Pile

There is currently one waste rock pile on the site (Exhibit E, Map 2) The waste rock pile by the Cross Ore Building is an ore pile and it will remain an ore pile for the life of the mine. It will have a maximum size of 1,000 yards. It will be exhausted then reclaimed at the end of mine. The small waste rock pile by the decline excavation was moved to the Waste Rock Pile. The Waste Rock Pile is located at the upper or western entrance to the Caribou Mine. The waste rock management area will be used for all waste rock generated on site. It has a working stacked capacity of approximately 20,000 cubic yards. Waste rock will be screened at one of two grizzlies currently on site in the waste rock area, but not crushed. This produces a fine material and a coarse rip-rap sized material that meets most of the mines uses. Water spray is used for dust control. Waste rock is primarily composed of gneiss and quartz monzonite. Waste rock may be trucked off-site periodically for beneficial use by a permitted facility in Golden, CO.

1.7 Operational Components

Major operational components of the mining operation are listed below. There are other site components shown on Map 2 that are not operational components of the mine. These include the Historic Cabin, Munitions Shed 1 and 2, and the NOAA Shed.

Ventilation Shaft	New Roadway between Cross and Caribou Mines
Ventilation Shaft and Escapeway	Roadway Accessing Caribou 300 Level
Cross Mine Adit	Caribou Management Office
Idaho Tunnel Portal	Caribou Water Treatment Shed (Danny's Den)
Caribou 300 Level Portal	Flow Shed 1
Potosi Shaft	Flow Shed 2
Waste Rock Storage Area	Snowsheds
Pond 1	Potable Water Pipe
Pond 2	Sanitary Water Pipe
Pond 3A, 3B, 3C	Septic Tank and Leach Field
Caribou Parking Area	Cross Shop and Adit Access
Cross Parking Area	Cross Ore Building
Subsurface Drinking Water Supply Line	Ore Storage Area
Offices and Dry Room	Fuel and Oil Shed

Exhibit E – Maps 2 and 3 depict the major components of the existing mining operation. With the exception of the proposed Idaho Tunnel rehabilitation, the proposed road, and the increase in permit boundary, no other changes are proposed at this time. The proposed road will measure approximately 875 feet in length by 40 feet in width. The increase in acreage to the permit boundary is 1.04 acres.

The sizes of the disturbed areas are shown in Table 1.

Table 1 Disturbance Table			
Facility	Square ft	Acres	Approximate Dimensions
New Roadway Between Cross and Caribou Mines	28,465	0.653	875x40
Roadway Accessing Caribou 300 Level	300	0.0096	25x12
Ventilation Shaft	25	0.0006	5x5
Ventilation Shaft and Escapeway	64	0.0014	5x5
Cross Mine Adit	64	0.0014	8x8
Idaho Tunnel Portal	144	0.003	12x12
Caribou 300 Level Portal	64	0.0014	8x8
Potosi Shaft	36	0.0008	6x6
Disturbed Hillside Around Idaho Tunnel Portal	6,417	0.1473	NA
Land That Will be Reclaimed That Is Not Associated With a Reclamation Feature (includes *)	117,248	2.692	NA
Cross Mine Decline Area (will not be built)*	NA	NA	NA
Waste Rock Storage Area	12,068	0.277	174x189
Ore Storage Area	4,633	0.106	80x73
Cross Ore Building	3,200	0.734	80x40
Pond 1	2,004	0.0460	40x60
Pond 2	8,285	0.1902	110x70
Pond 3A, 3B, 3C (entire area)	8,636	0.1982	93x157
Caribou Management Office	420	0.0096	420x10
Cross Snow Shed	160	0.0036	16x10
Caribou Water Treatment Shed (Danny's Den)	112	0.0025	100x11
Water Monitoring Station (Shed 1)	66	0.0015	10x6
Water Monitoring Station (Shed 2)	32	0.0007	6x6
Caribou Parking Area	33,485	0.7687	317x100
Subsurface Drinking Water Supply Line	NA	NA	NA
Offices and Dry Room	5,825	0.1199	115x30
Historic Cabin	1,316	0.0302	31x30
Cross Shop and Adit Access	2,926	0.0672	57x50
Cross Ore Building	3,200	0.0073	80x40

Table 1 Disturbance Table			
Facility	Square ft	Acres	Approximate Dimensions
NOAA Shed	117	0.0026	9x16
Fuel/Oil Shed	437	0.0100	28x16
Caribou Management Office	320	0.0073	32x10
Cross Parking Area	10,010	0.2298	203x52
Ore Storage Access Road	3,420	0.0785	114x30
Water Plumbing System	2,331	0.0535	NA
Septic Tank and Leach Field	3,770	0.0865	NA
Munitions Bunker (North)	56	0.0013	7x8
Munitions Bunker (South)	56	0.0013	7x8
Flow Shed 1	60	0.0014	10x6
Flow Shed 2	36	0.0008	6x6
Total Disturbed Area	259,808	5.9	NA
Total Undisturbed Area	175,356	4.0	NA

1.8 New Roads

As described in the Boulder County Development Agreement (dated August 22, 2011), GIR will be adding an internal property road between the Cross Gold Mine and the Consolidated Caribou Mine.

The proposed "Cross Caribou Access Road"(Exhibit E, Map 4) is designed using Boulder County guidelines for non-paved roads as a basis for key design parameters. The entire alignment of the road proposed is approximately 1,000 feet, beginning on the southern end at an elevation of 9,688 ft and ending on the northern end at an approximate elevation of 9,740 ft. The road centerline is aligned to make best use of topographic features, to facilitate the control and disposal of surface and subsurface water, and to control or reduce erosion. The road will follow natural contours to minimize disturbance of drainage patterns. For design purposes, it was assumed overall cut slopes at 1.5H:1V and can range from 0.5H:1V in sections of competent rock to 1H:1V in sections where weathered rock might be encountered. The fill slopes will be a minimum of 1.7H:1V. The Coon Creek Track will be routed underneath the road using twin 5 ft x 4 ft box concrete pre-cast culverts and was designed for the 100-year peak flow. Energy dissipation structures will be constructed upstream and downstream of the box culverts.

Table 2 New Road Design Parameters	
Description Design Parameter	Design
Minimum Radius Horizontal Curve	45 ft
Maximum Gradient	8% Max
Minimum Length of Vertical Curve (Sag)	80 ft
Minimum Length of Vertical Curve (Crest)	80 ft
Road Width	20 ft Min

Table 2 New Road Design Parameters	
Description Design Parameter	Design
Side Slopes (Cut)	NA
Fill Slopes	2H:1V
Surfacing Thickness	24"

A new two track road will be created to the Caribou 300 Level Portal area from USFS Road 505. This road will be 25 feet long and 12 feet wide. This will not be an engineered road but will be an access point for the area.

1.9 Water Use

1.9.1 Water Sources and Volumes

Potable Water

No changes in source or use are proposed as part of this Amendment. Notice is provided here of required changes in permitting since last application. Historically, operations have used three wells to supply water for domestic and potable use. The three wells used for domestic use (Cross, Cabin, and Caribou) have been re-permitted as domestic/industrial with the Division of Water Resources, applications filed May 5, 2021. The well ownership has been changed to Grand Island Resources LLC to align with water rights ownership. Water rights are provided through a 1/8 share in the Farmers Ditch Company adjudicated and decreed for use from mine workings in case number W-8261-76. A Substitute Water Supply Plan (SWSP) was filed May 19, 2021 to allow use of W-8261-76 mine workings water from co-located drilled wells. Supporting documentation is attached. GIR will provide a copy of the approved SWSP when received.

Operational Water

No changes in source or use are proposed as part of this Amendment. Notice is provided here of required changes in permitting since last application. Historically, operations have used a pump located on the 4th level of the Cross Mine for dewatering.

Operational Groundwater Quality Impacts

The waste rock is primarily composed of gneiss and quartz monzonite. These materials are benign and have been analyzed for leachability and acid production by DRMS-approved methods. The results of the analyses demonstrated the materials are non-acid producing and non-metals leaching. Due to the nature of the waste rock generated by mining operations, significant impact to groundwater quality is not expected.

Analyses were conducted by Core Laboratories in 1994 on two composite samples from the Cross Mine. These analyses were accepted by DRMS (then DMG) in February 1995. These samples were collected in support of building a mill for ore processing. Samples were collected approximately every 15 feet along

the Apache Drift from four veins and delivered to an ore cart as a bulk sample. This sample was crushed to 1 inch minus, and shoveled and reshoveled to mix. Three grab samples of approximately 40 lbs each were collected and sent to Core Labs for the above tests. These samples were ore samples not waste rock, but provide a conservative approach to estimating leachate for Caribou waste rock. All sample and analysis approaches were approved by DRMS (see DRMS Record GENERAL4488) prior to collection and analysis.

Discussion of sample composting and the Chain of Custody are shown in DRMS File Number Hydro 25221.

The following analyses were conducted:

- One acid-base accounting (ABA) analysis and a whole-rock elemental analysis performed on a composite head sample (Laboratory No. 941801-0001, DRMS File Number REP03382),
- One 30-week humidity cell test, apparently conducted on the same composite head sample (Laboratory Nos. 941802-0011 (head sample), -0021 (head sample) and -0031 (composite head) (Attachment II), and
- Partial data from a whole-rock analysis on a composite tail sample. (Laboratory No. 94 1801-0002, DRMS File Number REP26712).

The mining district is located near the northeastern exposed limit of the Colorado Mineral Belt. The deposits of the Caribou district have been described by the U.S. Geological Survey (USGS) as "polymetallic veins with abundant carbonates or the associated wall rock has been altered to contain carbonates." The vein structures occur as steeply dipping northeast-striking veins that cut the east/west striking veins. The vein mineralization was emplaced during multiple phases (up to seven) and includes early and persistent pyrite, copper, zinc, lead, and silver sulfides and gold. A relatively early carbonate-rich phase resulted in common dolomite, calcite, rhodochrosite, and other carbonate minerals in the veins. These carbonates are indicative of the acid-neutralizing potential of the ore body, and therefore the lack of any acid rock drainage potential.

The Caribou stock (Cross and Caribou) is primarily monzonite to quartz monzonite. Minor rock types occur as small dikes and include high potassium felsic dikes and magnetite-biotite monzodiorite although there are some differences in rock type (Holland 1994).

Potential for Acid Rock Drainage

Given the nature of the host rock and ore body, acid rock drainage (ARD) should not occur. (Prior analyses submitted and reviewed by the DRMS have shown the host rock and ore body to be non-acid producing.) Baseline water sampling over the last twenty years confirms these conclusions with consistently low metal loading and pH levels in the range of 6.4 to 7.6.

GIR will comply with all applicable groundwater standards established by the Water Quality Control Commission. Appropriate water treatment is being provided at water treatment pond (Pond 1), sufficient to meet applicable water quality discharge standards, as specified in our CDPES permit.

Surface Water Quality Impacts

As with groundwater, surface water quality impacts are not expected. Groundwater exposed from dewatering is discharged to Coon Track Creek under our CPDES permit. Where needed, appropriate storm water controls will be implemented during the construction and reclamation of the proposed activities.

Mine stormwater management is documented under Permit #COR 040242. The mine submits annual reports on our Storm Water Management program (SWMP). As required by regulation, the SWMP containing sediment and erosion Best Management Practices (BMPs), are maintained on site for use and inspection. Appropriate BMP storm water controls will be implemented during the proposed construction and reclamation activities. No hazardous or toxic chemicals will be used during any of the proposed reclamation construction.

GIR currently manages one permitted mine water discharge point, which discharges directly into Coon Track Creek under Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) Colorado Pollutant Discharge Elimination System (CPDES) Permit CO-0032751.

No additional areas of disturbance, other than what are proposed as part of this Amendment shall occur. Storm water control measures will adhere to SWMP for all construction activities, on-going mining and final site reclamation operations. This is an underground mining operation, and all mine waters will be treated to meet applicable water quality standards. These measures will protect against offsite damages.

Impacts to Water Quantity

No changes proposed as part of this Amendment would affect water quality.

Permit conditions including numeric protection levels for unclassified groundwater uses and points of compliance will be provided to DRMS by December 31, 2021 in a water quality monitoring plan.

Operational Groundwater Quality and Quantity Controls

The mine will be increasing dewatering as the mining plan progresses.

Stormwater Runoff Controls

Mine stormwater management is documented under Permit #COR 040242. The mine submits annual reports on our Surface Water Management program (SWMP). As required by regulation, the current SWMP containing sediment and erosion BMPs, are maintained on site for use and inspection. Appropriate BMP storm water controls will be implemented during the proposed construction and reclamation activities.

Points of Compliance

No points of compliance are proposed at this time.

Water rights are provided through a 1/8 share in the Farmers Ditch Company adjudicated and decreed for use from mine workings in case number W-8261-76. GIR is currently in compliance with existing Colorado water laws and regulations governing injury to existing water rights, under its approved mining and reclamation permit.

1.10 Mining Method

No change under this Amendment.

1.10.1 On-site Operations

The primary commodities mined are gold, silver, lead, zinc, and copper. Secondary commodities are waste rock. Waste rock will be screened on site at one of two grizzlies currently in the Caribou waste rock area. This produces a fine material and a coarse rip-rap sized material that meets most of the mines uses. Water spray is used for dust control.

Waste rock will be used on-site and all other waste rock may be delivered to Colorado Aggregate Recyclers in Golden CO for reuse. GIR will retain a maximum of approximately 20,000 yards of waste rock on site.

There are no on-site processing changes under this Amendment. Cross Mine ore will be processed at an offsite facility. There are no changes to explosive use from the existing approved permit. There will be no impacts to offsite areas as described in the Geotechnical Stability Exhibit is shown in Exhibit S.

1.10.2 Mill and Tailings

There is no mill on site and a tailing pond is not currently planned for the operation. No drill pits are anticipated during mining operations within the limits of the proposed permit boundary. However, if such pits are required, GIR will submit a technical revision at that time, prior to drilling operations.

1.10.3 Groundwater Quality

Groundwater Monitoring

The Groundwater Monitoring Plan for this facility will be submitted to DRMS by December 31, 2021.

Exhibit D

1 Reclamation Plan (Section 6.3.4)

The Cross Mine will be reclaimed in accordance with DRMS permit requirements and Section 3 of the Reclamation Performance Standards (Section 3.1, Hard Rock, Metal, and Designated Mining Operations (Colorado Mined Land Reclamation Board 2019) as described below. The Reclamation Performance Standards follow the Reclamation Measures

The post-mining land use will be Forestry in accordance with Boulder County (BOCO) regulations and as approved by DRMS in 1999 (DRMS Record REV08755) and BOCO (DRMS Record REV201670) and in 2012, BOCO approved building retention (See Attachment III) and Article 4 of the Land Use Code (BOCO 2021), shown in Attachment IV). Reclamation activities described in this plan are directed toward this future use on what is private land. The existing private residence (historic cabin) will be retained on site. No substitute lands are proposed for reclamation. No structural fill will be imported.

The site components that will be reclaimed include the following:

Table1 Site Components for Reclamation		
Site Component	Square Feet Approximate	Acres
Cross Mine Adit	64	0.0014
Cross Ventilation Shaft and Escapeway	64	0.0014
Cross Ventilation Shaft	36	0.0008
Idaho Tunnel Portal	144	0.0033
Caribou 300 Level Portal	64	0.0014
Potosi Shaft	36	0.0008
Waste Rock Area	12,068	0.2770
Ore Storage Area	4,633	0.1063
Pond 1	2,004	0.0460
Pond 2	8,285	0.1902
Ponds 3A, 3B, 3c	8,636	0.1982
New Roadway between Cross and Caribou Mines	28,465	0.6534
Disturbed Hillside Around Idaho Tunnel Portal	6,417	0.1473
Roadway from USFS Road 505 to Snowshed Door at	300	0.0068

Table1 Site Components for Reclamation		
Site Component	Square Feet Approximate	Acres
Caribou 300 Level Portal		
Ore Storage Road	3,420	0.0785
Land That Will be Reclaimed That Is Not Associated With a Reclamation Feature	117,248.3	2.692
Flow Shed 1	60	0.0014
Flow Shed 2	36	0.0008
TOTAL	191,980	4.4

1.1 Excess Equipment and Facilities

No site reclamation will begin until the underground mining activity is complete. Excess equipment will be repurposed offsite or hauled to an approved landfill for disposal such as Republic Services Foothills Landfill (approximately 29.5 miles to the east). All remaining explosives will be disposed according to regulation and approved methods. Any remaining fuels, lubricants, toxic substances (if any) will be disposed in approved facilities such as BOCO Hazardous Materials Management Facility in Boulder Colorado (approximately 21.9 miles to the east). All equipment and scrap will be removed from the area. Materials that are potentially salable will be salvaged and sold. This will reduce the amount of waste that would be transported to waste facility.

Storage containers will be removed from the site and repurposed offsite, if possible. If these facilities cannot be repurposed, they will be hauled to an approved landfill for disposal such as Front Range Landfill (approximately 40 miles to the east). Trash, weeds, and other debris that will interfere with seeding operations will be removed and disposed of in an approved landfill such as Front Range Landfill.

Facilities and structures that are left as part of the post mining land use will meet BOCO building and zoning codes.

1.2 Shafts and Portals

There are currently 2 ventilation shafts, one shaft, one adit, and two portals that will require closure as listed in Table 2. All shafts, adits, portals, and ventilation shafts will be closed according to the Colorado Inactive Mine Program standards and specifications (DRMS 2009).

Table 2 Shafts and Portals	
Name	Size (feet)
Cross Mine Adit	8x8
Idaho Tunnel Portal	12x12

Table 2 Shafts and Portals	
Name	Size (feet)
Caribou Level 300 Portal	8x8
Potosi Shaft	6x6
Cross Ventilation Shaft and Escapeway	5x5
Cross Ventilation Shaft	5x5

1.2.1 Cross Mine Adit

The Cross Mine Adit will be closed using the concrete block wall closure shown in Figure 1 of Exhibit D. Concrete blocks will be 8x8x16. The Cross Mine Adit closure is estimated to be 8 x 8 feet in vertical and horizontal dimension (Sections A and B in Figure 1 of Exhibit D). The snowshed will be removed prior to closure and the materials recycled or disposed of according to the reclamation plan (Exhibit D, Section 1.1). The adit closure will be fenced with a 5x5 foot chain link fence and will be posted for hazard and trespass. Approximately 25 square feet will be revegetated.

1.2.2 Idaho Tunnel Portal

The Idaho Tunnel Portal will be closed using the concrete block wall closure shown in Figure 1 of Exhibit D. Concrete blocks will be 8x8x16. The Idaho Tunnel portal closure is estimated to be 12 x 12 feet in vertical and horizontal dimension (Sections A and B in Figure 1 of Exhibit D). The snowshed will be removed prior to closure and the materials recycled or disposed of according to the reclamation plan (Exhibit D, Section 1.1). A 2 x 2 x 0.25-foot grated access door will be installed that will be used in the block wall to provide for water inspection. The portal closure will be fenced with a 50-foot chain link fence and posted for hazard and trespass. Approximately 25 square feet will be revegetated.

The Idaho Tunnel slope has a horizontal area of approximately 0.147 acres and a slope surface of approximately 0.178 acres.

Based on the results of the slope analysis described in the approved Technical Revision (TR) No. 9, which indicates that the slope is stable, the slope surface will be graded to AOC with a slope no greater than 2:1 using materials left from historic and current operations. If conditions change (bulkhead addition or other conditions), additional slope evaluation may be required in the future and would be provided to DRMS as a TR. GIR anticipates using a DR7 (or equivalent bulldozer) to regrade the slope. The area (approximately 0.178 acres) will be covered with 1 foot of topsoil in accordance with Exhibit D, Section 1.10. Topsoil will be graded using a DR7 (or equivalent bulldozer). Revegetation will be in accordance with Exhibit D, Section 1.11. Seed (Table 3) will be used to provide a vegetative cover that is consistent with the DRMS Inactive Mine Lands Program suggested seed mix. The area will be drill seeded and hydromulched. Seed will be planted during fall of reclamation year one.

Trees and shrubs (Table 4) will be hand planted during the spring of reclamation year two to further reduce potential erosion and to enhance blending into surrounding landscapes. (Exhibit D, Section 1.10). The area will be evaluated weekly during the reclamation year two summer season to check on reseeding and planting success. Supplemental water of trees and shrubs may be warranted on occasion.

The stability of replaced topsoil on this graded slope will be assured by roughing in final grading to

reduce slippage zones. Runoff along slopes will be controlled with erosion and sediment control structures to minimize rill and gully on slopes (See Exhibit D, Section 1.13).

1.2.3 Caribou 300 Level Portal

The Caribou 300 Level portal closure is estimated to be 8 x 8 feet in vertical and horizontal dimensions. The portal will be closed using a concrete block closure as shown on Figure 1 (Exhibit D). Concrete blocks will be 8x8x16. Because the portal is dry a drainage pipe will not be necessary. Additionally, a grated access door will not be used in the block wall because the closure will be recontoured.

Following construction of the concrete block wall closure, the hillside contour will be restored to AOC using materials within the permit area left from historic portal construction and use. The snowshed and fencing will be removed prior to closure and the materials recycled or disposed of according to the Exhibit D, Section 1.1.

The estimated disturbance area requiring revegetation and erosion control is the dimension of the disturbance area (75 by 190 feet). The portal closure will be fenced with a 50-foot chain link fence and will be posted for hazard and trespass.

1.2.4 Potosi Shaft

If the Potosi Shaft is put into use, that construction and use would be permitted in a later Technical Revision to the mine permit, and the reclamation of the construction required to use the shaft will be different than that presented here. This reclamation plan assumes that the shaft has been evaluated and is not put to use.

The Potosi Shaft will be closed using the precast concrete panel closure shown in Figure 2 of Exhibit D. The fencing will be removed prior to closure and the materials recycled or disposed of according to the reclamation plan (Exhibit D, Section 1.1). The concrete panels will be 3 by 3 feet by 1 foot, with 1 foot wire and/or rebar for reinforcement, and will be secured with bolted panel footings. The Potosi Shaft closure will use 9 panels (3x3 array) and two 10-foot support beams fixed with concrete as shown in the detail in in Figure 2 of Exhibit D. The concrete to be used for panels and beams will have a minimum compressive strength of 3,000 psi. A grated access door will not be used in the concrete panels because the closure will be recontoured.

Following construction of the concrete panel closure, the gentle hillside contour at the Potosi Shaft will be restored to original contour within the disturbance zone, burying the panels. Material excavated during historic shaft construction will be used. The estimated disturbance area requiring revegetation and erosion control is the dimension of the disturbance area (45 by 60 feet because of fencing removal.) The shaft closure will be fenced with a 5x5 foot chain link fence and will be posted for hazard and trespass.

1.2.5 Cross Ventilation Shaft and Escapeway

The Cross Ventilation Shaft and Escapeway will use the concrete panel closure shown in Figure 2 of Exhibit D. Any fencing will be removed prior to closure and the materials recycled or disposed of according to the reclamation plan (Exhibit D, Section 1.1). The panels will be 3 by 3 feet, with 1 foot thickness, wire and/or rebar reinforced, and will be secured with bolted panel footings. The Cross

Ventilation and Escapeway Shaft closure will use 6 panels (2x3 array) and one 8-foot support beam fixed with concrete in accordance with the detail in in Figure 2 of Exhibit D. Panel and beam concrete will have a minimum compressive strength of 3,000 psi. A grated access door will not be used in the concrete panels because the closure will be recontoured.

Following construction of the concrete panel closure, the hillside contour at the Cross Ventilation and Escapeway Shaft will be restored to original contour by burying the panels. Material left over from historic shaft construction will be used. The estimated disturbance area requiring revegetation and erosion control is 25 x 25 feet. The shaft closure will be fenced with a 5x5 foot chain link fence and will be posted for hazard and trespass.

1.2.6 Cross Ventilation Shaft

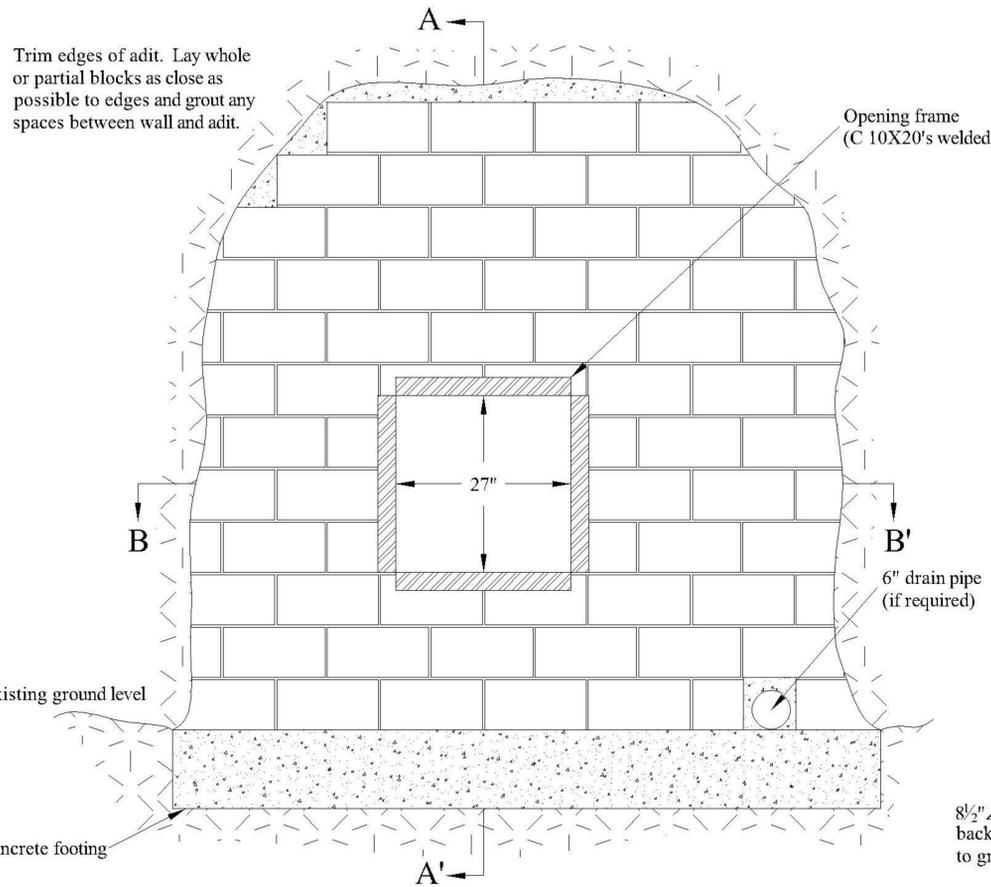
The Cross Ventilation Shaft will use the concrete panel closure shown in Figure 2 of Exhibit D. Any fencing will be removed prior to closure and the materials recycled or disposed of according to the reclamation plan (Exhibit d, Section 1.1). The panels will be 3 by 3 feet, with 1 foot thickness, wire and/or rebar reinforced, and will be secured with bolted panel footings. The Cross Ventilation Shaft closure will use 6 panels (2x3 array) and one 8-foot support beam fixed with concrete in accordance with the detail in in Figure 2 of Exhibit D. Panel and beam concrete will have a minimum compressive strength of 3,000 psi. A grated access door will not be used in the concrete panels because the closure will be recontoured.

Following construction of the concrete panel closure, the hillside contour at the Cross Ventilation Shaft will be restored to original contour by burying the panels. Material left over from historic shaft construction will be used. The estimated disturbance area requiring revegetation and erosion control is 25 x 25 feet. The shaft closure will be fenced with a 5x5 foot chain link fence and will be posted for hazard and trespass.

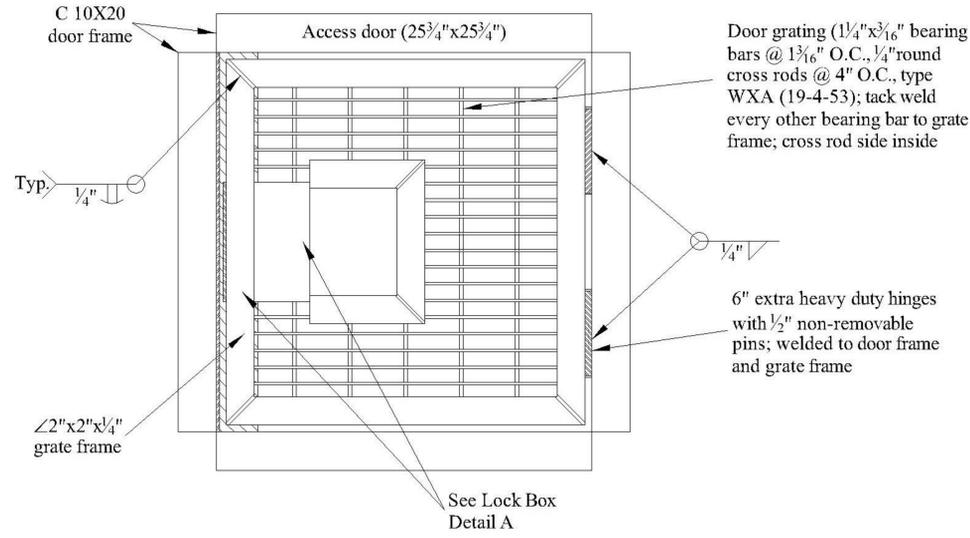
1.3 Waste Rock Area

There is one existing waste rock pile on the site (Exhibit E, Map 2). The small waste rock pile by the decline excavation was removed to the Caribou Waste Rock Pile in 2021. The Waste Rock Pile is located at the upper or western entrance to the Caribou Mine. This is the waste rock area proposed for future use under this amendment. The waste rock management area will be used for all waste rock generated on site after construction of the new road. GIR will retain approximately 0 to 20,000 yards of waste rock for on-site needs. The majority of the waste rock will be eliminated prior to reclamation. If at closure not all waste rock has been repurposed, it will be placed in the Idaho Tunnel. GIR is also exploring options to deliver waste rock to multiple facilities including to Colorado Aggregate Recyclers in Golden CO (approximately 22 miles to the south east).

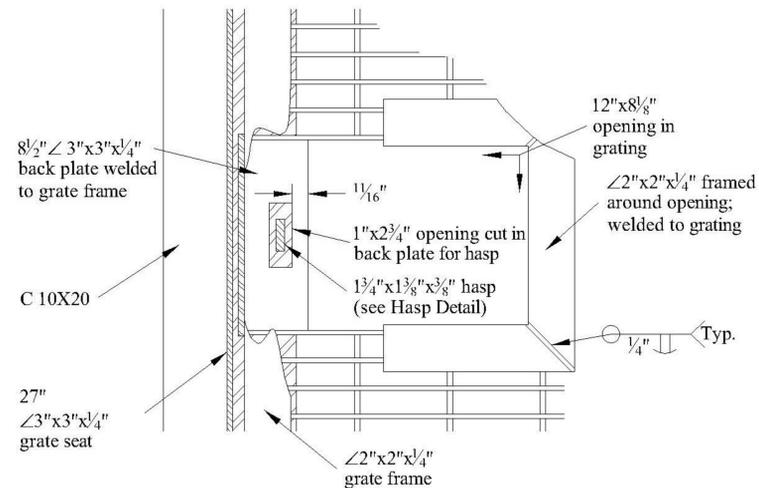
The waste rock pile foot print is estimated at approximately 0.277 acres and will be reclaimed in accordance with the procedures in Exhibit D, Section 1.10 and 1.11.



CONCRETE BLOCK WALL CLOSURE

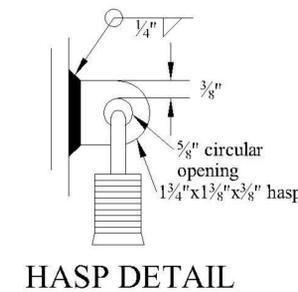


GRATED ACCESS DOOR

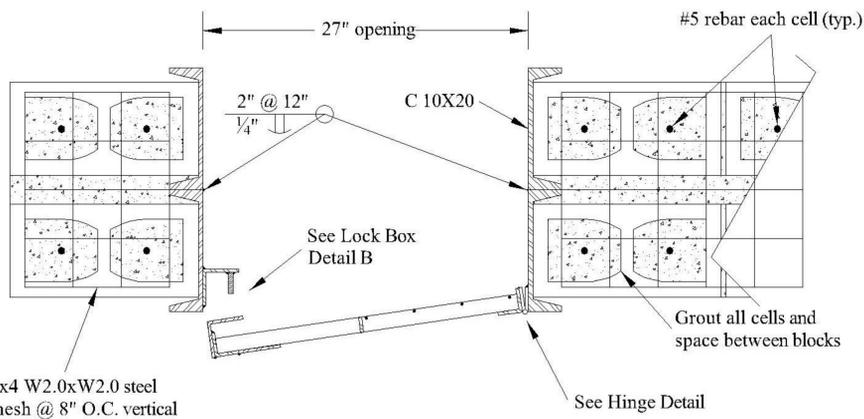


LOCK BOX DETAIL A

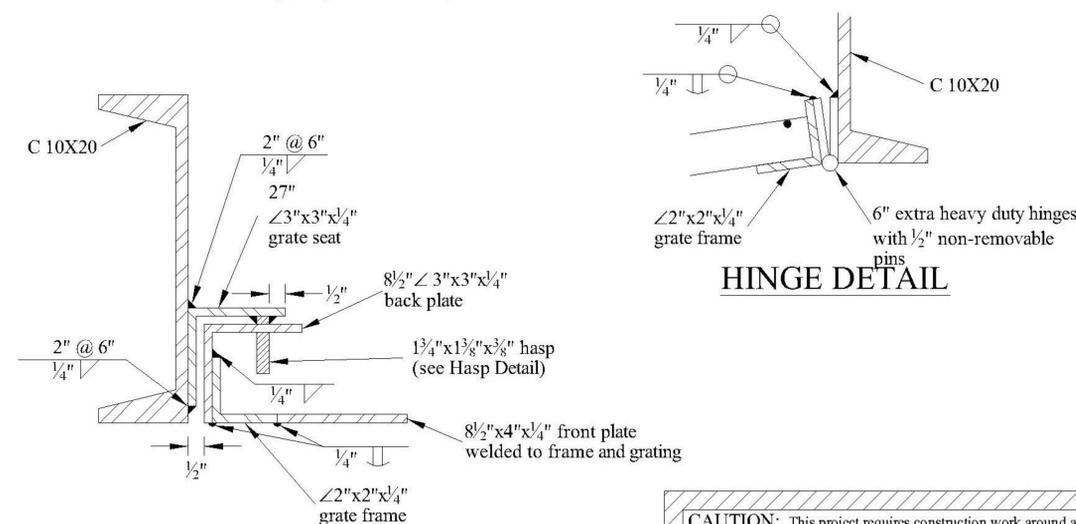
(Front plate not shown)



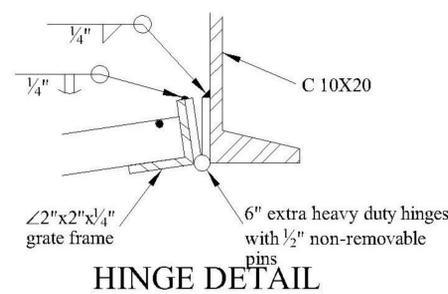
HASP DETAIL



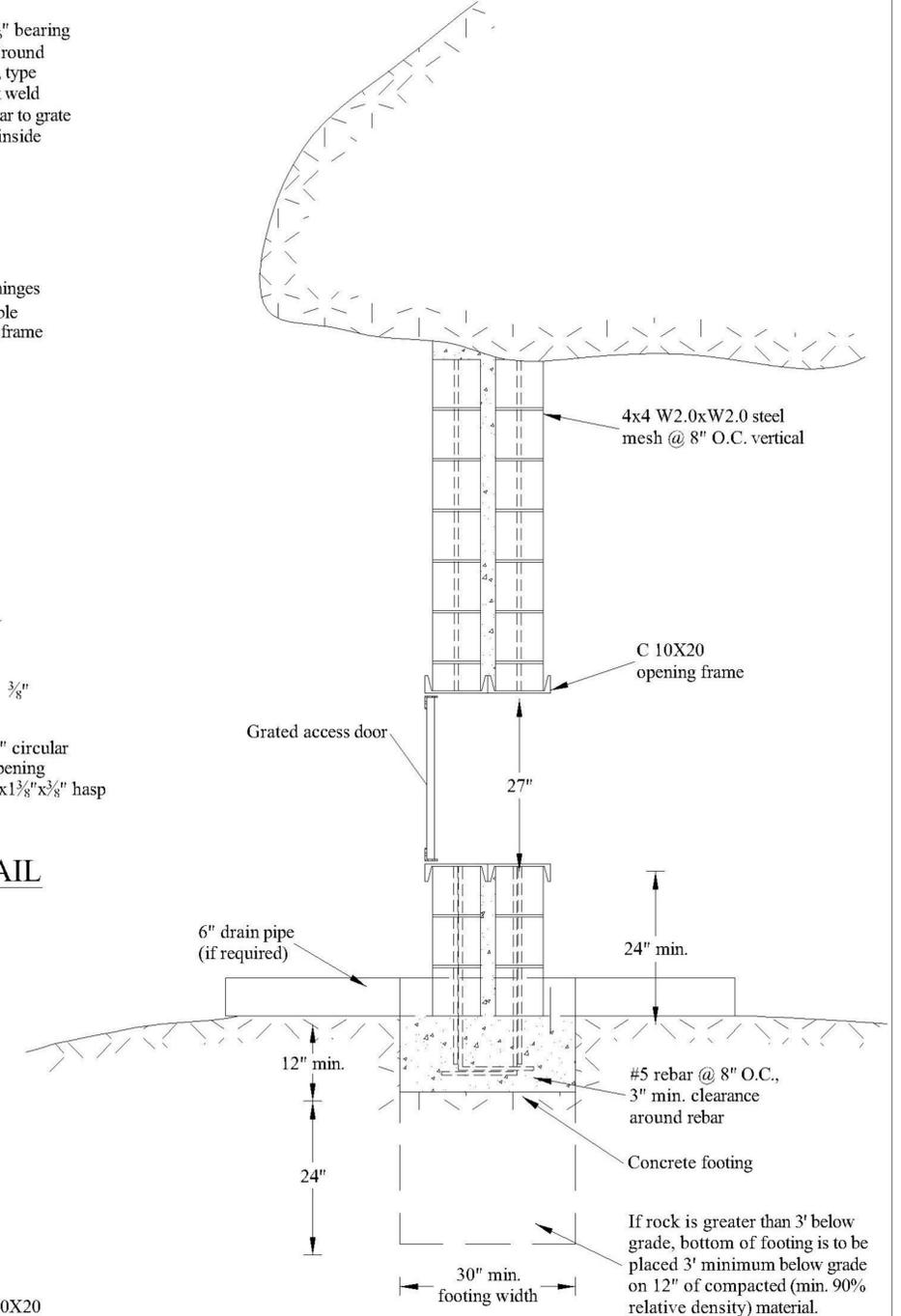
CONCRETE BLOCK WALL CLOSURE SECTION B-B'



LOCK BOX DETAIL B



HINGE DETAIL



CONCRETE BLOCK WALL CLOSURE SECTION A-A'

Exhibit D Figure 1



INACTIVE MINE RECLAMATION PROGRAM

**STANDARD DRAWING No. 12
CONCRETE BLOCK BULKHEAD SEAL CLOSURE**

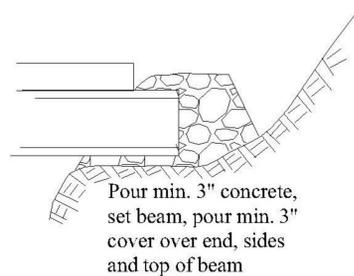
Scale Varies	12/15/03	Sheet No. 1 of 1
Drawn by: JTG	Reviewed by: JTH & ALA	

CAUTION: This project requires construction work around and over hazardous and unprotected mine shafts, stopes, adits, and other openings which may be open to the surface or hidden from view by trash, debris or thin and unstable layers of surficial materials or rock. The contractor shall be responsible for thoroughly investigating the site conditions and scheduling his equipment, equipment operations, personnel and safety procedures to prevent accidents and injuries.

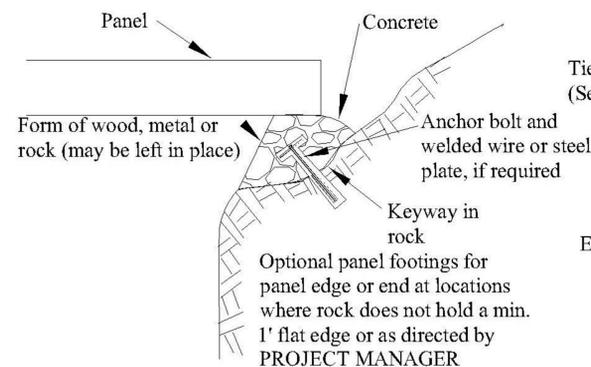
Beam span (ft)	Min. section modulus(in ³)	Beam sections having 12" min. flange width and min. section modulus	Built up sections Cont. welds
10	67.5	HP 12 x 63 HP 12 x 74 HP 12 x 84 All HP 13 & HP14 W 12 x 65 on up W 14 x 90 on up	C 15 x 33.9 on up MC 12 x 37 on up W 8 x 40 on up W 10 x 33 on up W 12 x 26 on up
11	79.2	HP 12 x 63 HP 12 x 74 HP 12 x 84 All HP 13 & HP14 W 12 x 65 on up W 14 x 90 on up	C 15 x 33.9 on up MC 12 x 40 on up W 8 x 48 on up W 10 x 39 on up W 12 x 35 on up
12	91.9	HP 12 x 74 HP 12 x 84 HP 13 x 73 HP 13 x 87 HP 13 x 100 All HP 14 W 12 x 72 on up W 14 x 90 on up	C 15 x 40 on up MC 12 x 50 MC 13 x 50 on up W 8 x 58 on up W 10 x 45 on up W 12 x 35 on up
13	106	HP 12 x 84 HP 13 x 87 HP 13 x 100 All HP 14 W 12 x 72 on up W 14 x 90 on up	C 15 x 50 MC 18 x 42.7 on up W 10 x 49 on up W 12 x 45 on up
14	120	HP 13 x 100 HP 14 x 89 HP 14 x 102 HP 14 x 117 W 12 x 96 on up W 14 x 90 on up	MC 18 x 42.7 on up W 10 x 54 on up W 12 x 50 on up
16	136	HP 13 x 100 HP 14 x 102 HP 14 x 117 W 12 x 106 on up W 14 x 90 on up	MC 18 x 51.9 on up W 10 x 66 on up W 12 x 53 on up
18	164	HP 14 x 102 HP 14 x 117 W 12 x 120 on up W 14 x 103 on up	S 18 x 54.7 on up W 10 x 77 on up W 14 x 61 on up W 16 x 58 on up W 18 x 50 on up W 21 x 49 on up
20	188	W 12 x 161 on up W 14 x 119 on up W 21 x 112 on up W 24 x 100 on up	S 18 x 70 S 20 x 65.4 on up W 10 x 89 on up W 12 x 72 on up W 14 x 61 on up W 16 x 58 on up W 18 x 55 on up W 21 x 55 on up
22	212	W 12 x 161 on up W 14 x 136 on up W 24 x 100 on up W 24 x 100 on up	S 20 x 65.4 on up S 24 x 79.9 on up W 10 x 100 on up W 12 x 79 on up W 14 x 74 on up W 16 x 71 on up W 18 x 60 on up W 21 x 55 on up W 24 x 55 on up
24	236	W 12 x 190 W 14 x 150 on up W 24 x 100 on up W 24 x 100 on up	S 20 x 65.4 on up W 10 x 112 on up W 12 x 92 on up W 14 x 78 on up W 16 x 78 on up W 18 x 64 on up W 21 x 62 on up W 24 x 61 on up

Structural steel beam supports for precast concrete panels.
(Section modulus and shapes taken from AISC Manual of Steel Construction, 8th edition.) Beams shall be ASTM A36 all purpose steel.

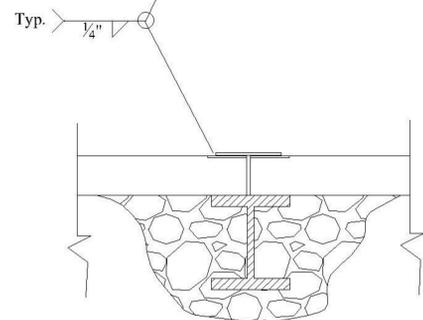
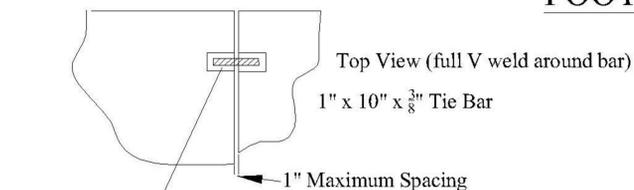
BEAM DESIGN TABLE



**DETAIL A
BEAM SEAT**

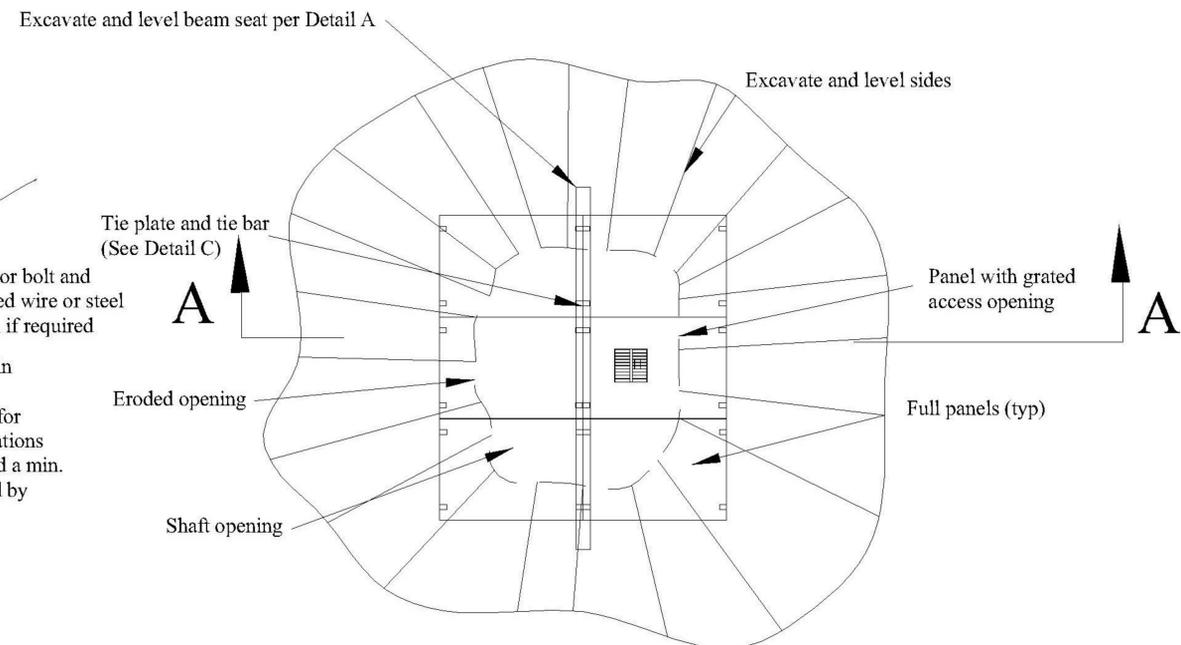


**DETAIL B
OPTIONAL PANEL
FOOTINGS**

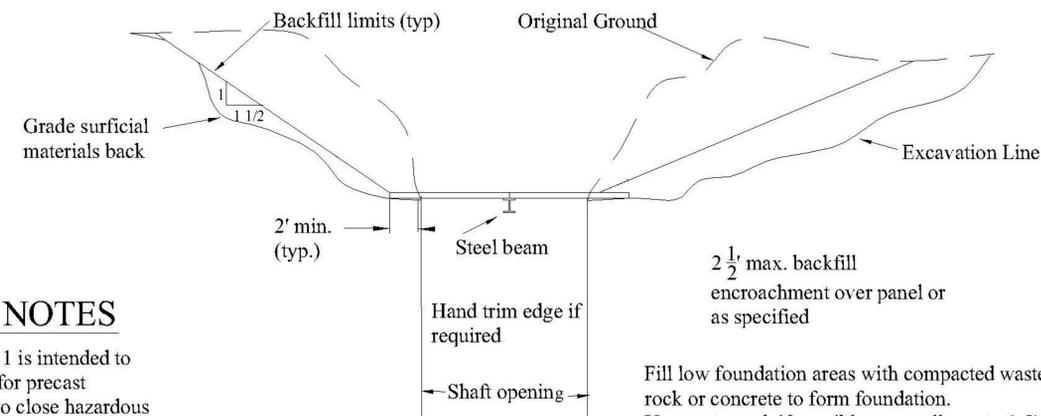


**DETAIL C
SECTION AND TIE
PLATE DETAIL**

CAUTION: This project requires construction work around and over hazardous and unprotected mine shafts, stope, adits, and other openings which may be open to the surface or hidden from view by trash, debris or thin and unstable layers of surficial materials or rock. The CONTRACTOR shall be responsible for thoroughly investigating the site conditions and scheduling his equipment, equipment operations, personnel and safety procedures to prevent accidents and injuries.



**PRECAST CONCRETE
PANEL CLOSURE**



**PRECAST CONCRETE
PANEL CLOSURE
SECTION A - A'**

GENERAL NOTES

- Standard Drawing No. 1 is intended to provide installation details for precast reinforced concrete panels to close hazardous mine openings. Standard Drawing No. 1 shall be used in conjunction with site specific information in the bid documents.
- During excavation, the nature of the bearing surface for precast concrete panels may vary and show a different configuration than that shown on the drawings. The contractor shall notify the Project Manager of this situation and various panel footing options or layout modifications will be authorized if required.
- Concrete for panel footings, shims and miscellaneous uses shall have a minimum compressive strength of 3,000 psi at 28 days.
- Steel beam and built up steel section supports for precast concrete panels are shown in Table A for the maximum allowable fill height of four feet for precast concrete panels. The opening to be covered may vary up to 24 feet in span and any length. Only those HP, W, and built up shapes meeting the section modulus requirements for various spans, and having minimum of a 12 inch wide flange, are shown.

Exhibit D Figure 2



INACTIVE MINE RECLAMATION PROGRAM

STANDARD DRAWING No. 1
PRECAST CONCRETE PANEL CLOSURE

Scale Varies	December 2003	Sheet No. 1 of 1
Drawn by: ALA	Reviewed by JTH and JTG	

1.4 Ore Pile

The rock pile by the Cross Ore Buildings an ore pile and will have a maximum size of 1,000 cubic yards. It will remain an ore pile for the life of the mine. At closure all ore will have been removed from the site, but the ore pile footprint will be reclaimed. The area (approximately 0.106 acres) will be contoured to AOC. The ore pile footprint will be covered with a 2-ft thick topsoil and revegetated in accordance with Exhibit D, Sections 1.10 and 1.11.

The road to the ore pile will be reclaimed. This small road (approximately 0.0785 acres) will be ripped, tilled, and regraded to provide a surface for revegetation in accordance with Exhibit D, Sections 1.10 and 1.11.

1.5 Ponds

Ponds 1, 2, 3A, 3B, and 3C will be reclaimed. After mining ends, water in Pond 3A, B, and C will be moved to Pond 1 and Ponds 3A, 3B, and 3C will be reclaimed. Water in Pond 1 water will be passed through the treatment system to Pond 2 and Pond 1 will be reclaimed. Pond 2 water will be discharged. After Pond 2 is no longer discharging, Pond 2 will be reclaimed. Any sediment on the liners will be sampled and removed, if required by regulatory requirements, and disposed of in an approved facility. The pond liners will be removed and disposed off-site at an approved facility such as Republic Services Foothills Landfill (approximately 29.5 miles to the east). The pond areas will be filled in as necessary with soil from the pond berms, regraded to blend in with surrounding contours, and revegetated in accordance with Exhibit D, Sections 1.10 and 1.11. No additional topsoil is anticipated. The approximate areas of the ponds follow: Pond 1 – 0.0460, Pond 2 – 0.1902, Ponds 3 A, B, and C – 0.198 acres.

Liners were removed from 3A, B, and C in 2020. Approximately 20 cubic yards of sediment was removed from liners at that time. GIR anticipates similar amounts will be removed from the five ponds at closure; approximately 10 yards from 3A, 3B, and 3C and approximately 10 yards from Ponds 1 and 2 on closure. The liners in Ponds 1 (2,004 ft²), Pond 2 (8,285 ft²), 3A (1,555 ft²), 3B (1,750 ft²), and 3C (13,835 ft²) will be removed. Liners are larger than ponds because liner is buried below pond edges and berms. Flow sheds that support Pond 2 will be removed and the footprints will be reclaimed in accordance with Exhibit D, Sections 1.10 and 1.11. Lines between ponds (See Exhibit C, Section 1.3) will be removed and disposed of offsite. Areas beneath the flow lines will be reclaimed in accordance with Exhibit D, Sections 1.10 and 1.11.

1.6 Coon Track Creek

The new road over and culverts in Coon Track Creek will be removed. Concrete and rock used in the construction of the road will be removed. Concrete and other construction materials will be moved to the Idaho Tunnel. The Creek and creek banks will be restored to as near to original conditions as possible (See Exhibit D, Sections 1.10 and 1.11). To restore flow conditions, natural rock and boulders, steps, or other techniques, may be used depending on the condition of the Creek at closure considering energy dissipation and erosion control. GIR will photograph the Creek and banks prior to construction to document original conditions. Creek banks will be regraded as necessary and revegetated. Photographs

will inform creek bank revegetation. GIR will use species listed in Table 3 (fall planting) initially to prevent erosion of the bank but will also plant willows, alders, and shrubs, as shown in Table 5 (spring planting), during creek bank revegetation.

1.7 Wetlands

The wetlands (approximately 10,907 ft²; 0.2504 acres) around Coon Track Creek will be reclaimed by replanting with native wetland species (See Exhibit D, Section 1.11). Species will include those listed in Table 3 and willows and shrubs (Table 5) will be hand planted.

1.8 Roads

The new road between Cross and Caribou mines (Map 4) will be reclaimed.

The total area of the road and disturbance area equals 0.653 acres. The Coon Track Creek culvert along with all other road structures (anchors, riprap, foundations) will be removed along with road base and materials. These materials will be placed into the Idaho Tunnel. Road materials along the portion of the road traversing the wetland will be removed and placed into the Idaho Tunnel. The remainder of the road will be regraded to approximate the original topography. Berms will be knocked down and regraded with the surrounding area. Additional fill material will be used as necessary to fill the road cuts and restore the slopes to natural contours. The roads will be revegetated in accordance with Exhibit D, Sections 1.10 and 1.11.

The two-track road to the Caribou 300 Level Portal will be reclaimed in accordance with Exhibit D, Sections 1.10 and 1.11. The Caribou Level 300 road (approximately 0.0006 acres) will be ripped, tilled, and regraded prior to revegetation in accordance with Exhibit D, Sections 1.10 and 1.11.

The Ore Storage access road (approximately 0.0785) will be ripped, tilled, and regraded prior to revegetation in accordance with Exhibit D, Section 1.10 and 1.11.

1.9 Miscellaneous Reclamation Areas

Exhibit E, Map 5, Map 6, and Map 7 show the areas that will be regraded and reclaimed. The area that will be regraded and reclaimed has a horizontal area of approximately 117,248.3 square feet (2.692 acres) and an average slope of 27.42%. This area will be regraded and reseeded in accordance with Exhibit D, Sections 1.10 and 1.11.

1.10 Soil Preparation and Revegetation

Surfaces for revegetation will be roughed to gain a mechanical bond between the subgrade and the replaced topsoil. Where the subgrade is of acceptable quality, it may include disc plowing the topsoil and subgrade together where there is access and safety is not compromised. The seedbed will be loosened (four to six inches (4" to 6") deep) and smoothed.

GIR will replace topsoil in as even a manner as equipment allows. Topsoil will be sourced locally in Nederland, CO (approximately 155,250 ft³ (5,750 yd³). Because of the shallow, cobbly and rocky soil types at this site, there is no available site soil for reclamation. Soil amendments will be as

recommended by the local NRCS. Currently, they recommend that if soil tests are not performed, forty (40) pounds per acre of each of the major nutrients (nitrogen and phosphoric acid [H₃PO₄]) be applied.

If phosphoric acid is applied, it will be applied on the overburden prior to plant growth medium replacement. This nutrient is not mobile. Placing it in the root zone prior to plant growth medium replacement will ensure optimal utilization by plant roots.

Soils having been compacted by traffic or other equipment will be tilled (approximately 0.7387 acres) (deep-chiseled or ripped if necessary) breaking up restrictive or compacted layers, and then harrowed and rolled or packed to produce the required firm seedbed. Seed will be drill seeded. The seedbed will be settled and fairly firm, but left rough enough to catch the seed and allow some coverage by soil when tracked in by equipment or harrowed and packed into the soil surface. Seedbed preparation will be avoided when the soil is wet to prevent seedbed compaction.

Topsoil will be replaced to a depth of 8 to 12 inches in area with thin and rocky soils (approximately 0.178 acres [Costs in Appendix III reflect soil to 12 inches.]). Soil will need to be deep enough to encourage root growth. Other areas (waste rock area footprint for instance) topsoil will be placed to a depth of 2 feet (approximately 1.25 acres).

Because this is an underground mine, no overburden was removed and none will be replaced. The operation will not conduct backfill operations as one would expect for open pit or strip mine. There is always the possibility some minor backfilling may occur (ponds). Where backfilling should occur, it will be done in such a manner that the backfilled material will be appropriately compacted to prevent slippage or settling, provided it can be done in a manner not endangering operators and equipment. No toxic or acid forming material will be backfilled on site. Therefore, leaching of toxic or acid forming materials shall not occur.

1.11 Seed Mixes

The seed and planting mixes suggested below, were developed from the vegetation descriptions contained in Exhibit B, recommendations from DRMS, and reports from O'Shea-Stone and Ash (2008). Seeds and plantings may change because of availability at the time of reclamation or if site conditions change.

Revegetation will be primarily to restore areas to meadow conditions not to replace all trees and shrubs. The designated seed mixture will be sown uniformly on the prepared areas during the fall to take advantage of winter moisture and cover. Seeding shall not be conducted if the ground is frozen. The seedbed will be settled and fairly firm, but left rough enough to catch the seed.

The seed mix recommended by the DRMS Inactive Mine Lands Program for high elevations will be used for revegetation. The following seed mix (Table 3) is the DRMS recommended reclamation seed mix from Table 20-5 DRMS (2009) and is the suggested seed mix for areas above 9,000 ft. to timberline, and contains species currently at the site.

Seeding will take place in the fall of the year to take advantage of winter moisture, ensuring a satisfactory level of establishment. Seed will be drilled. The seeded areas will be hydromulched and

crimped or tacked to control wind and water erosion. Because these are fertile, mountain soils, we do not intend to routinely take subsoil and topsoil soil samples for analysis. However, where soil amendments are necessary, they will be applied as appropriate (see Exhibit D, Section 1.10). No grazing will be permitted since this is private land.

Table 3			
Subalpine Vegetation Areas {9,000' to tree line}			
The below rates are for drilled seeding. The rates for broadcast seeding are double the drilled rate.			
Species	Scientific Name	Variety	lbs/acre
Yarrow*	<i>Achillea lanulosa</i>	-	0.1
Groundsel	<i>Senecio atratus</i>	-	0.1
Lupine	<i>Lupinus alpestris</i>	-	LO
Slender wheatgrass	<i>Elymus trachycaulus</i>	San Lois	1.4
Nodding brome	<i>Bromus anomalous</i>		2.5
Sheep fescue	<i>Festuca ovina</i>	Cover	0.5
Hard fescue	<i>Festuca ovine duriuscula</i>	Durra	0.5
Red fescue	<i>Festuca rubra</i>	Penn lawn	0.5
Tufted hairgrass	<i>Deschampsia caespitosa</i>		0.5
Redtop	<i>Agrostis alba</i>		0.1
Blue wildrye	<i>Elymus glaucus</i>		1.15
Mutton grass	<i>Poa fendleriana</i>	San Lois	0.5
TOTAL pls lbs./acre (drilled)			9.45

*To be bagged separately from mix. Bag to be attached outside of primary seed bag.

This mix will be used across all areas requiring reclamation. Specific areas will be supplemented by upland tree and shrubs and wetland species (Tables 4 and 5). Quantities for supplemental species will depend of the final reclamation slope configurations and the best chance of success for each species.

Suggested species selected are similar to those described in Exhibit B, Section 1.1 and successful reclamation in similar environments (O'Shea-Stone and Ash 2008).

The Idaho Tunnel slope will be seeded with the species in Table 3 and will be supplemented with the tree and shrub species listed in Table 4. Trees and shrubs will be planted in the spring if possible.

Table 4			
Upland Tree and Shrub Reclamation Mix			
Species	Scientific Name	Number of Plants	Size of Planting
Ponderosa Pine	<i>Pinus ponderosa</i>	40	5-inch containerized
Mountain Mahogany	<i>Cercarpus montanus</i>	15	5-inch containerized
Rocky Mountain Juniper	<i>Juniperus scopulorum</i>	15	5-inch containerized
Quaking Aspen	<i>Populus tremuloides</i>	15	5-inch containerized
Wild Rose	<i>Rosa woodsii</i>	10	5-inch containerized
Chokecherry	<i>Padus virginiana</i>	10	5-inch containerized
Waxcurrent	<i>Ribes cereum</i>	10	5-inch containerized

Table 4 Upland Tree and Shrub Reclamation Mix			
Species	Scientific Name	Number of Plants	Size of Planting
Shrubby cinquefoil	<i>Pentaphylloides floribunda</i>	10	5-inch containerized
Black eyed Susan	<i>Rudbeckia hirta</i>	10	2.5-inch containerized
Rocky Mountain penstemon	<i>Penstemon strictus</i>	10	2.5-inch containerized
Total Number of Plants		145	

The wetland areas and Coon Track Creek banks will be seeded with the species in Table 3 and supplemented with the suggested species in Table 5.

Table 5 Wetland Reclamation Mix			
Species	Scientific Name	Number of Plants	Size of Planting
Colorado Blue Spruce	<i>Picea pungens</i>	10	5-inch containerized
Thin-leaf alder	<i>Alnus incana</i>	10	2.5-inch containerized
Willow	<i>Salix</i>	20	2.5-inch containerized
Wax currant,	<i>Ribes cereum</i>	20	2.5-inch containerized
Woods Rose	<i>Rosa woodsii</i>	20	2.5-inch containerized
Chokecherry	<i>Padus virginiana</i>	20	2.5-inch containerized
Wild strawberry	<i>Fragaria vesca</i>)	20	2.5-inch containerized
Wild Geranium	<i>Geranium richardsonii</i>	20	2.5-inch containerized
Blue Bells	<i>Mertensia ciliata</i>	20	2.5-inch containerized
Total Number of Plants		160	

Containerized tree and shrub seedlings will be hand planted on the Idaho Tunnel slope, wetland, and Coon Track Creek bank areas. Shrubs will dominate these areas and will be planted at a rate that considers the final topography and species success at being established. The total area of tree and shrub plantings will be approximately 0.3977 acres.

After reseeding, hydromulch be applied at the rate of one and a half (1 1/2) tons per acre (DRMS 2009). Vegetation success will be monitored for 5 years.

1.12 Slopes

Slopes will be reconfigured to Approximate Original Contour (AOC) or less and will blend in with the surrounding topography or match the AOC. Map 8 shows, and Table 6 lists the reclamation areas of slopes steeper than 2:1 and 3:1.

Table 6 Slopes Steeper Than 2:1 and 3:1						
Zone	Horizontal Surface		Slope Surface		% of Total	Average Slope
	Area Square Feet	Acres	Area Square Feet	Acres		
1 (flatter than 3:1 within disturbance area)	123,001.8	2.824	124,578.2	2.860	68.8	12.8%

Table 6 Slopes Steeper Than 2:1 and 3:1						
	Horizontal Surface		Slope Surface			
Zone	Area Square Feet	Acres	Area Square Feet	Acres	% of Total	Average Slope
2 (between 3:1 and 2:1)	21,953.6	0.504	23,728.8	0.545	12.3	40.8%
3 (everything that is steeper than 2:1)	33,858.6	0.777	41,595.6	0.955	18.9	69.6%
Total	178,814	4.105	189,902.6	4.360		

At the Idaho Tunnel hillside, the vertical slope is currently steeper than 3:1. However, as per approved Technical Revision (TR) No. 9, the final reclamation of the hillsides will meet all slope requirements and AOC (Please see Exhibit D, Section 1.2.2). If necessary, the stability of replaced topsoil on graded slopes will be assured by roughing in final grading to reduce slippage zones. Runoff along slopes will be controlled with erosion and sediment control structures to minimize rill and gully on slopes (See Exhibit D, Section 1.14).

Because this is an underground mining operation, there will be no highwalls. There will be some rock faces where shafts occur. The New Cross Decline Portal is not going to be constructed. The hillside excavation for the portal has been denuded and possibly over steepened. This area is going to be reclaimed during current operations. The reclamation will proceed in the following manner.

A geotechnical assessment of the current slope stability will be performed by a professional engineer. If it is stable, it will be revegetated using rates and methods specified in Exhibit D, Sections 1.10 and 1.11 and temporary sediment control measures implemented in compliance with the mine Stormwater Management Plan.

If the engineer's recommendation is that the slope is unable to be revegetated as-is, the engineer will be tasked to create a stabilization plan for this slope. If stabilization is needed, the project and engineering recommendations will be provided to DRMS in the form of a TR in early 2022. Reclamation, or stabilization followed by reclamation, of the New Cross Decline excavation will begin in the 2022 construction season. The temporary sediment control measures implemented in compliance with the mine Stormwater Management Plan will be maintained until DRMS certifies 70% revegetation of the slope. The sediment control measures associated with the slope will be removed at that time.

Grading will be conducted on the contour where it does not pose a safety hazard to operators and equipment.

During site reclamation, Best Management Practice (BMP) storm water control practices will be in place to control erosion and siltation. Slides and other damage should not be a factor because only small areas will likely need to be graded.

1.13 Remaining Site Features

The following mine components will remain after reclamation:

Caribou Parking Area

Potable Water Pipe

Cross Parking Area	Sanitary Water Pipe
Subsurface Drinking Water Supply Line	Caribou Management Office
Offices and Dry Room	Cross Shop
Historic Cabin	Cross Ore Building
NOAA Shed	Munitions Bunker (North)
Fuel and Oil Shed	Caribou Well
Septic Tank and Leach Field	Cross Well and Cabin Well
Existing Access Road	Cross Ore Building
Other Features: Historic Cabin, Munitions Shed 1 and 2, and the NOAA Shed.	Caribou Water Treatment Shed (Danny’s Den)

Wildlife use will be incidental and not part of the post mining land use.

1.14 Erosion Control Features

The surface areas that will require stabilization include any remaining waste rock piles and areas around the ponds and stream. Appropriate storm water controls will be used to retain runoff sediment. All remaining ditches and sediment control facilities will be reclaimed following the specifications in this amendment and applicable Mined Land Reclamation Board regulations. All storm water control structures and facilities will be removed and the areas reclaimed once the major areas of site reclamation are successfully revegetated and stabilized so that storm water controls may safely be removed.

There are no large siltation structures at the site. Should one become necessary in the future it will be removed during reclamation. No new earthen dams will be constructed under this Amendment.

1.15 Water Monitoring

Water monitoring is not anticipated.

1.16 Reclamation Costs

Reclamation costs were estimated using the Nevada Standardized Reclamation Cost Estimator Version 1.4.1 (SRCE), Build 017b (available at: <https://nvbond.org/>). (NDEP-BMRR 2019). This cost estimator is a robust and accepted by federal and state agencies in the western U.S. A summary is provided in Table 7 below and the full set of spreadsheets (with quantities) is available in Appendix III.

The surface areas of buildings and other rectangular structures are calculated using the nominal dimensions of the buildings. The surface areas of non-rectangular features are determined in AutoCAD using the surface area command. The polylines that bind these features are constructed using survey data.

Triangulation surface files were generated of the existing ground and all features that contain fill material. The fill material surfaces include the berms built to construct Ponds 1, 2, 3A, 3B, and 3C; the fill for the new road; and the waste rock and ore piles. The volume between the existing ground and the final surface was then calculated in AutoCAD, with an inclusion perimeter polyline utilized to demarcate the boundary of the feature.

1.16.1 Site Specific Assumptions

- Topsoil is trucked in from Nederland (4.3 miles = 22,704 ft distance at 6.6% grade).
- Pond sediment is trucked to landfill in Erie (44.3 miles = 233,872 ft at -2.2% grade).
- Foundation is assumed to be 6" for buildings and 0" for CONEX containers
- The planting mix in Table 4 and 5 (Riparian or custom) as the planting mix because it is the most expensive mix in the spreadsheet at \$393/acre.
- Mulch and fertilizer are included in the revegetation cost estimate.
- There is a 60% erosion maintenance to the budget, which was approximated by determining revegetated areas where the natural ground exceeds 3:1.
- There is a 50% revegetation maintenance allowance.
- The spreadsheet is designed for regrading, not complete removal of waste rock piles. Waste rock volumes with haul distances (similar to the ponds) are used.
- Acres for reclamation are shown in Exhibit D, Table 1.

Table 7 Reclamation Cost Summary				
	Labor	Equipment	Materials	Total
A. Earthwork/Recontouring	\$34,465	\$76,279	\$13,267	\$124,011
B. Revegetation/Stabilization	\$2,760	\$987	\$9,178	\$12,925
C. Detoxification/Water Treatment/Disposal of Wastes	\$905	\$1,695	\$0	\$2,600
D. Structure, Equipment and Facility Removal, and Misc.	\$10,099	\$4,548	\$7,980	\$22,627
E. Monitoring	\$7,104	\$20,084	\$1,306	\$28,494
F. Construction Management Support	\$34,693	\$9,065	\$0	\$43,758
G. Closure Planning, G&A, Human Resources	\$0	\$0	\$0	\$0
Subtotal Operational and Maintenance	\$90,026	\$112,658	\$31,731	\$234,415
Indirect Costs	-	-	-	\$102,384
Total	-	-	-	\$336,799

1.17 Time Limit and Phased Reclamation (Section 3.1.3)

This is an underground mining operation. Once underground mining is complete and the surface facilities are no longer needed, the affected mine site surface areas (Exhibit D, Section 1.1) will be reclaimed within the five-year time period.

Year One: Reclamation will begin with removal of facilities, debris, and other materials (Exhibit D, Section 1.1) that would interfere with revegetation. Water, sediment, and liners will be removed from the ponds. Reclamation areas will be graded and prepared for revegetation. If time allows during the first year of reclamation, the reclamation sites will be revegetated. Revegetation may need to wait for Year Two: Shafts and portals will be closed and fenced. During Year Three, all remaining reclamation activities that have not been completed, will be. GIR does not anticipate reclamation past Year Three.

1.18 Public Use

Other than sanctioned mine tours, the area will not be open to the public. The mine access points will be gated and appropriately marked stating no unauthorized access is permitted.

1.19 Reclamation Measures Materials Handling (Rule 3)

All reclamation measures and materials handling will be conducted in accordance with the Colorado Mined Land Reclamation Board Mineral Rules and Regulations for Hard Rock, Metal, and Designated Mining Operations Reclamation Performance Standards, Rule 3. Specific requirements are addressed throughout the Exhibits in this permit application amendment.

1.20 Impacts to Groundwater and Surface Water

Disturbances to the prevailing hydrologic balance will be minimized by adherence to Colorado Water Quality Regulations.

Groundwater Impacts

The waste rock is primarily composed of gneiss and quartz monzonite. These materials have been analyzed for leachability and acid production by ORMS-approved methods. The results of the analyses demonstrated the materials are non-acid producing and non-metals leaching. Due to the nature of the waste rock generated by mining operations, significant impact to groundwater quality is not expected.

Surface Water

As with groundwater, surface water quality impacts are not expected. Where needed, appropriate Best Management Practice (BMP) storm water controls will be implemented during the construction and reclamation of the proposed activities. No hazardous or toxic chemicals will be used during any of the proposed construction. Please see Exhibit B, Section 1.7.1.

GIR currently manages and treats one permitted mine water discharge point, which discharges after

treatment into Coon Track Creek under Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) Colorado Pollutant Discharge Elimination System (CPDES) Permit CO-0032751.

1.21 Wildlife

During reclamation activities GIR will take into account the safety and protection of wildlife on the mine site, at processing sites, and along all access roads to the mine site with special attention given to critical periods in the life cycle of those species which require special consideration (e.g., elk calving, migration routes, and peregrine falcon nesting).

GIR will not create new wildlife habitats because the future land use is Forestry. However, the Reclamation Plan, though not intended to provide wildlife habitat, is designed to promote use by wildlife to the extent practical. The seed mix proposed for the site is extensive and is suitable for the post mining land use (Please see the Tables in Exhibit D, Section 1.10). This seed mix is recommended by the DRMS for high elevation abandoned mine site reclamation and will support use by wildlife.

1.22 Trees

The proposed Amendment reclamation activities will result in tree removal. However, appropriate efforts will be made to remove only those trees and shrubs necessary to provide for an efficient and safe reclamation. Any trees removed during reclamation will be made available to the employees for fire wood.

Weeds will be managed in accordance with Appendix I.

1.23 Fire Lanes

The main mine site access road will remain as part of the post mining land use. It will provide adequate access for site reclamation. When necessary, fire lanes or access roads shall be constructed through the areas to be reclaimed. Given the size of the mine site and the location of the main access road, no other fire lanes or access roads will be needed.

1.24 Signs and Markers

A mine identification sign with the following listed information is currently posted at the main entrance to the mining operation. An additional sign with the same required information will be posted at the additional proposed mine access point.

- The name of the Operator,
- A statement that a reclamation permit for the operator has been issued by the Colorado Mined Land Reclamation Board, and
- The permit numbers.

Given the nature of the site, some permit corners will be marked with wooden or steel fence posts; other areas will need to be drilled and a marker cemented in place. In any event, the markers will be

permanent for the duration of the mining operation, visible from one post to the next, and painted a color acceptable to BOCO.

2 References

- Boulder County, Community Planning & Permitting Department, 2021, Land Use Code. February.
- Colorado Inactive Mine Reclamation Program, Division of Reclamation, Mining & Safety Department (DRMS) of Natural Resources, State of Colorado. 2009. General Bid Specifications. March.
- Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation (NDEP-BMRR). 2019. Standardized Reclamation Cost Estimator (SRCE) Version 1.4.1, Build 017b.
- O'Shea-Stone, M. and Ash, J. 2008. Burlington Mine VCUP Case History an Ecological Approach to Mine Site Remediation in Proceedings High Altitude Revegetation Workshop No. 18, ed. Joe E. Brummer. March 2008, Fort Collins, Colorado.

Exhibit E

Maps

Map 1: Site Roads

Map 2: General Facilities Arrangement Cross and Caribou

Map 3: General Facilities Arrangement Potosi Shaft and Caribou 300 Level Portal

Map 4: New Road

Map 5: Regrading Plan

Map 6: Reclamation Plan (Cross and Caribou Site)

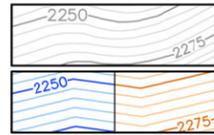
Map 7: Reclamation Plan (Potosi Shaft and Caribou 300 Level Portal)

Map 8: Permit Boundary Slope Zones

Cross Mine (M1977-410) Amendment #2

CROSS AND CARIBOU MINE NEDERLAND, COLORADO, USA PREPARED FOR: GRAND ISLAND RESOURCES

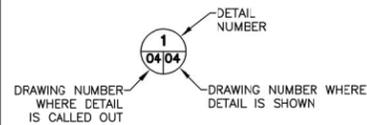
GENERAL LEGEND



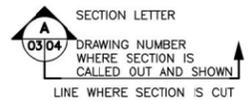
EXISTING GROUND TOPOGRAPHY
CONTOURS (IN FEET)

SITE GRADING CUT AND FILL
SURFACES, RESPECTIVELY (IN FEET)

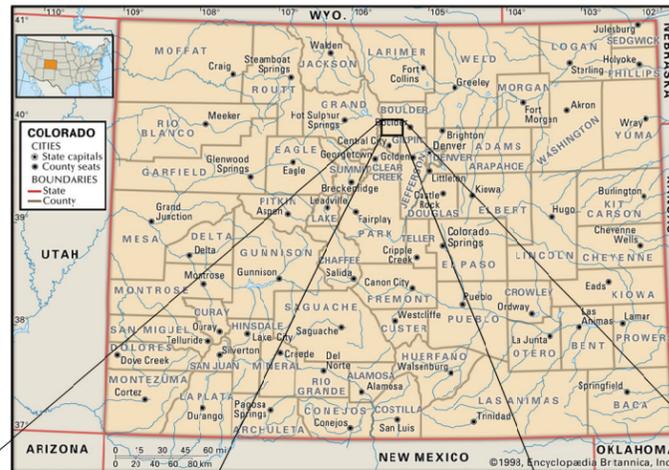
- AVG. AVERAGE
- CL CENTERLINE
- DIA. DIAMETER
- EL. ELEVATION
- ID INSIDE DIAMETER
- MAX. MAXIMUM
- MIN. MINIMUM
- NOM. NOMINAL
- N.T.S. NOT TO SCALE
- OD OUTSIDE DIAMETER
- TYP. TYPICAL
- 50ft DIMENSION IN FEET
- 2.5:1 2.5 HORIZONTAL TO 1 VERTICAL SLOPE
- ° DEGREE
- ~ APPROXIMATELY



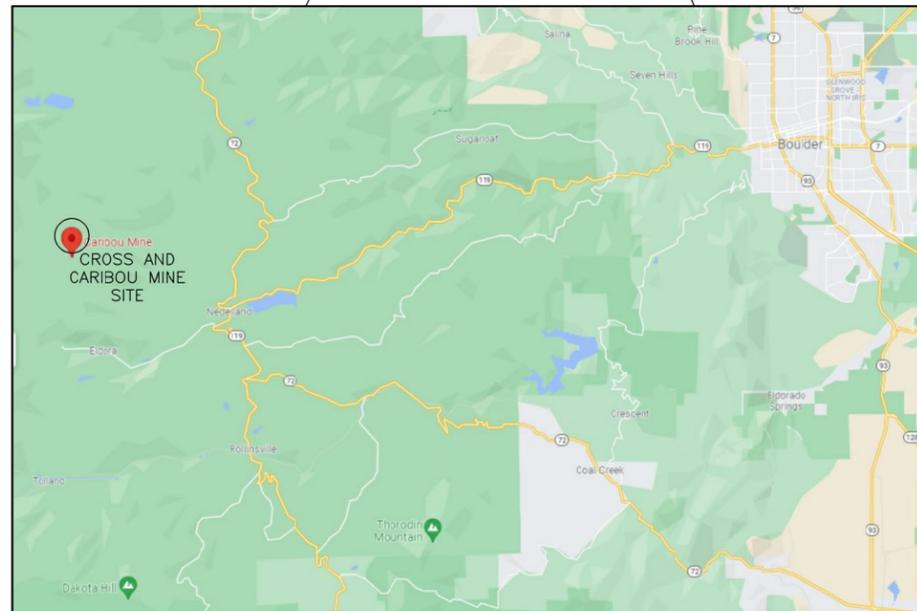
DETAIL OR SECTION CALL-OUT
(CALL-OUT NUMBERS CORRESPOND
TO THE FULL DRAWING NUMBERS)



CROSS-SECTION CALL-OUT
(CALL-OUT NUMBERS CORRESPOND
TO THE FULL DRAWING NUMBERS)



MAP OF COLORADO
NOT TO SCALE



PROJECT LOCATION
NOT TO SCALE

LIST OF DRAWINGS

Drawing Number	Description	Revision
00	TITLE, INDEX, GENERAL LEGEND AND PROJECT LOCATION MAP	REV 2
01	CROSS AND CARIBOU MINE - ROADS	REV 2
02	CROSS AND CARIBOU MINE - GENERAL FACILITY ARRANGEMENT: CROSS/CARIBOU	REV 2
03	CROSS AND CARIBOU MINE - GENERAL FACILITY ARRANGEMENT: POTOSI/CARIBOU300	REV 2
04	CROSS AND CARIBOU MINE - PROPOSED NEW ROADWAY	REV 2
05	CROSS AND CARIBOU MINE - REGRADE PLAN	REV 2
06	CROSS AND CARIBOU MINE - RECLAMATION PLAN: CROSS/CARIBOU	REV 2
07	CROSS AND CARIBOU MINE - RECLAMATION PLAN: POTOSI/CARIBOU 300	REV 2
08	CROSS AND CARIBOU MINE - PERMIT BOUNDARY SLOPE ZONES	REV 2



LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20211121.dwg DATE: 11/22/2021 11:54 AM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON

Rev	Description	By	Date
7	PROPOSED ROAD DESIGN RECEIVED OCTOBER 2021		
6	WETLAND/PLANT SPECIES RECEIVED APRIL 2021		
5	MINE FEATURES RECEIVED NOVEMBER 2021		
4	EXISTING ROADS RECEIVED APRIL 2021		
3	POND BOUNDARIES RECEIVED NOVEMBER 2021		
2	SITE FACILITIES RECEIVED NOVEMBER 2021		
1	TOPD RECEIVED APRIL 2021		
	REFERENCE		

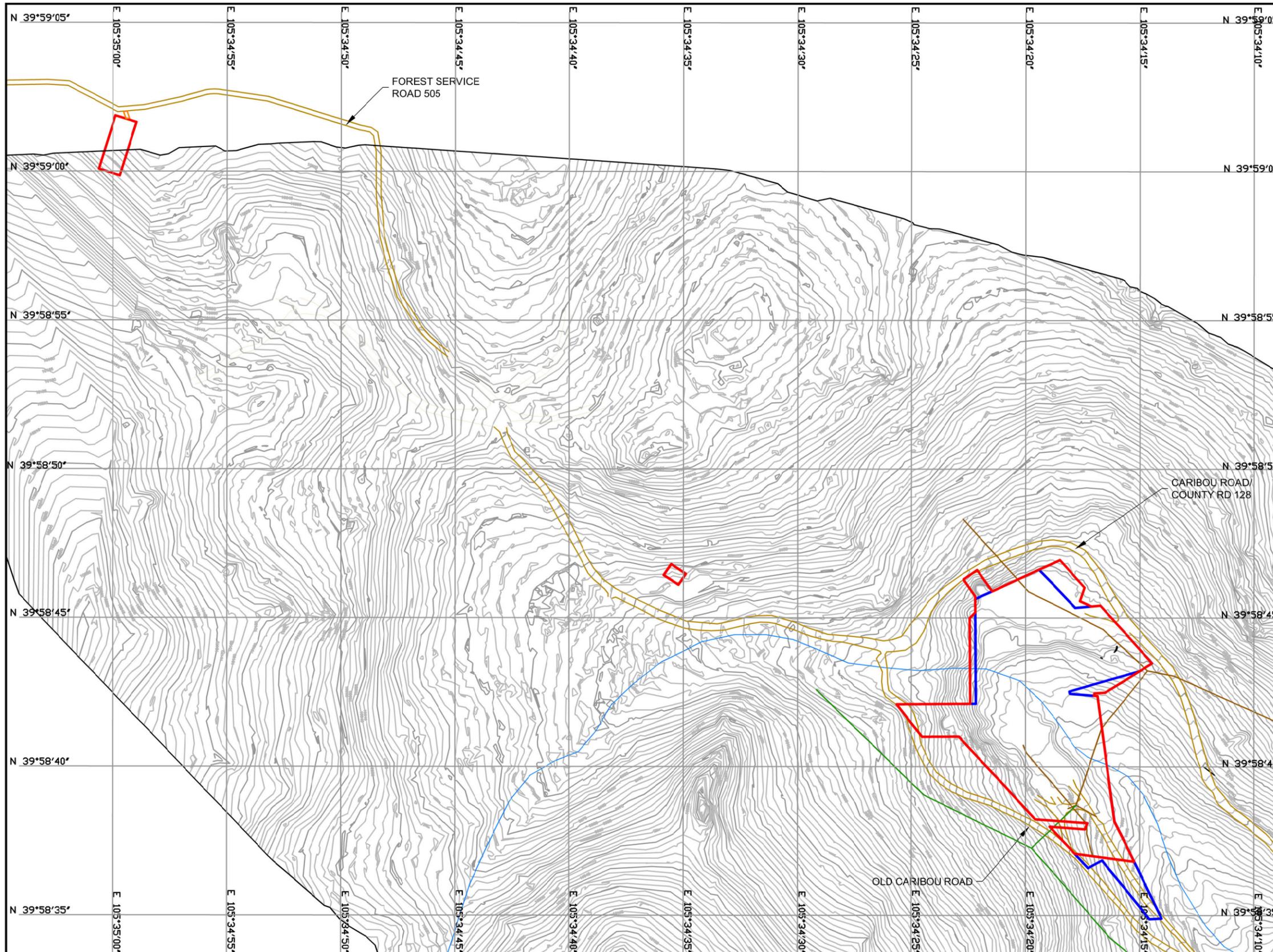
Scale: As Shown

Designed by: --
 Drawn by: GRE
 Checked by: GIR
 Approved by: GIR



TITLE, INDEX, GENERAL LEGEND AND PROJECT LOCATION MAP		2 REVISION
Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306	MAP
Location: NEDERLAND, COLORADO, USA	Date: NOV. 2021	00

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20211122.dwg DATE: 11/22/2021 12:14 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON

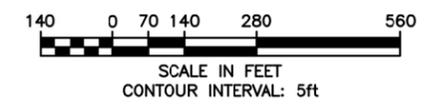


LEGEND

-  EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
-  PROPOSED PERMIT BOUNDARY (9.99 ACRES)
-  CURRENT PERMIT BOUNDARY (9.36 ACRES)
-  NATURAL DRAINAGES
-  EXISTING ROADS
-  POWER LINE (NOTE 3)
-  PHONE LINE (NOTE 3)

NOTES

1. THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.



Rev	Description	By	Date
7	PROPOSED ROAD DESGN RECEIVED OCTOBER 2021		
6	WET AND/PLANT SPECIES RECEIVED APRIL 2021		
5	MINE FEATURES RECEIVED NOVEMBER 2021		
4	EXISTING ROADS RECEIVED APRIL 2021		
3	POND BOUNDARIES RECEIVED NOVEMBER 2021		
2	SITE FACILITIES RECEIVED NOVEMBER 2021		
1	TOPO RECEIVED APRIL 2021		
	REFERENCE		

Scale: As Shown
 Designed by: --
 Drawn by: GRE
 Checked by: GIR
 Approved by: GIR

Prepared by:



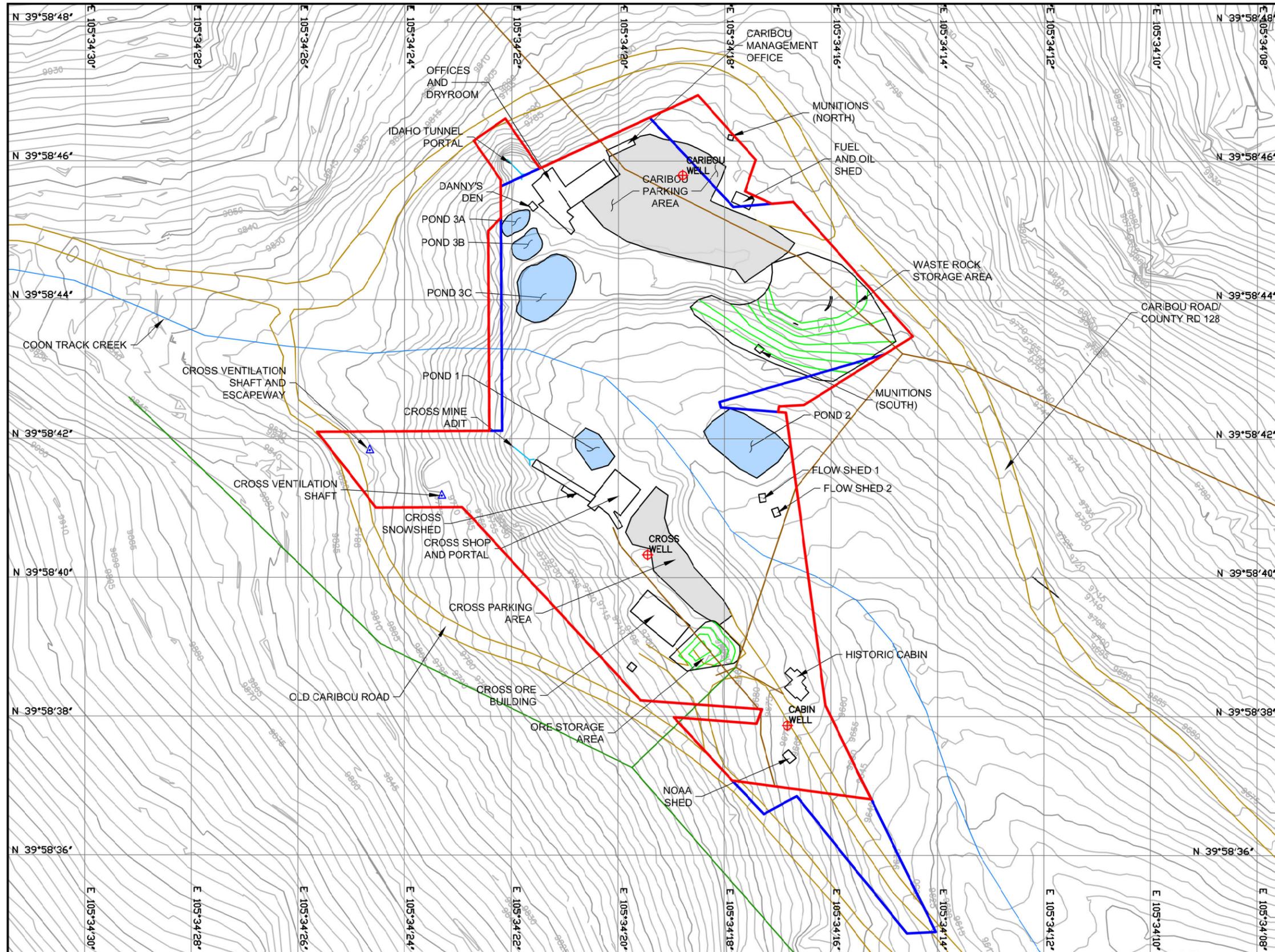
Prepared for:



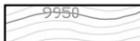
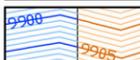
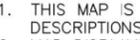
**CROSS AND CARIBOU MINE
GENERAL ROADS MAP**

Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306	MAP 01
Location: NEDERLAND, COLORADO, USA	Date: NOV. 2021	

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20211122.dwg DATE: 11/22/2021 12:24 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON

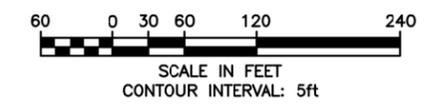


LEGEND

-  EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
-  SITE GRADING CUT AND FILL SURFACES, RESPECTIVELY
-  SITE FACILITIES
-  PROPOSED PERMIT BOUNDARY (9.99 ACRES)
-  CURRENT PERMIT BOUNDARY (9.36 ACRES)
-  POWER LINE (NOTE 3)
-  PHONE LINE (NOTE 3)
-  NATURAL DRAINAGES
-  EXISTING ROADS
-  MINE PORTAL
-  MINE SHAFT
-  GROUNDWATER WELL

NOTES

1. THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
2. MAP DISPLAYS SURFACE FEATURES ONLY.
3. POWER LINE AND PHONE LINES OBTAINED FROM CLIENT FILE "_WALSH2008 LINE.DWG" RECIEVED 29 OCTOBER 2021.



Rev	Description	By	Date
7	PROPOSED ROAD DESGN RECEIVED OCTOBER 2021		
6	WET AND/PLANT SPECIES RECEIVED APRIL 2021		
5	MINE FEATURES RECEIVED NOVEMBER 2021		
4	EXISTING ROADS RECEIVED APRIL 2021		
3	POND BOUNDARIES RECEIVED NOVEMBER 2021		
2	SITE FACILITIES RECEIVED NOVEMBER 2021		
1	TOPD RECEIVED APRIL 2021		
	REFERENCE		

Scale: As Shown
 Designed by: --
 Drawn by: GRE
 Checked by: GIR
 Approved by: GIR

Prepared by:



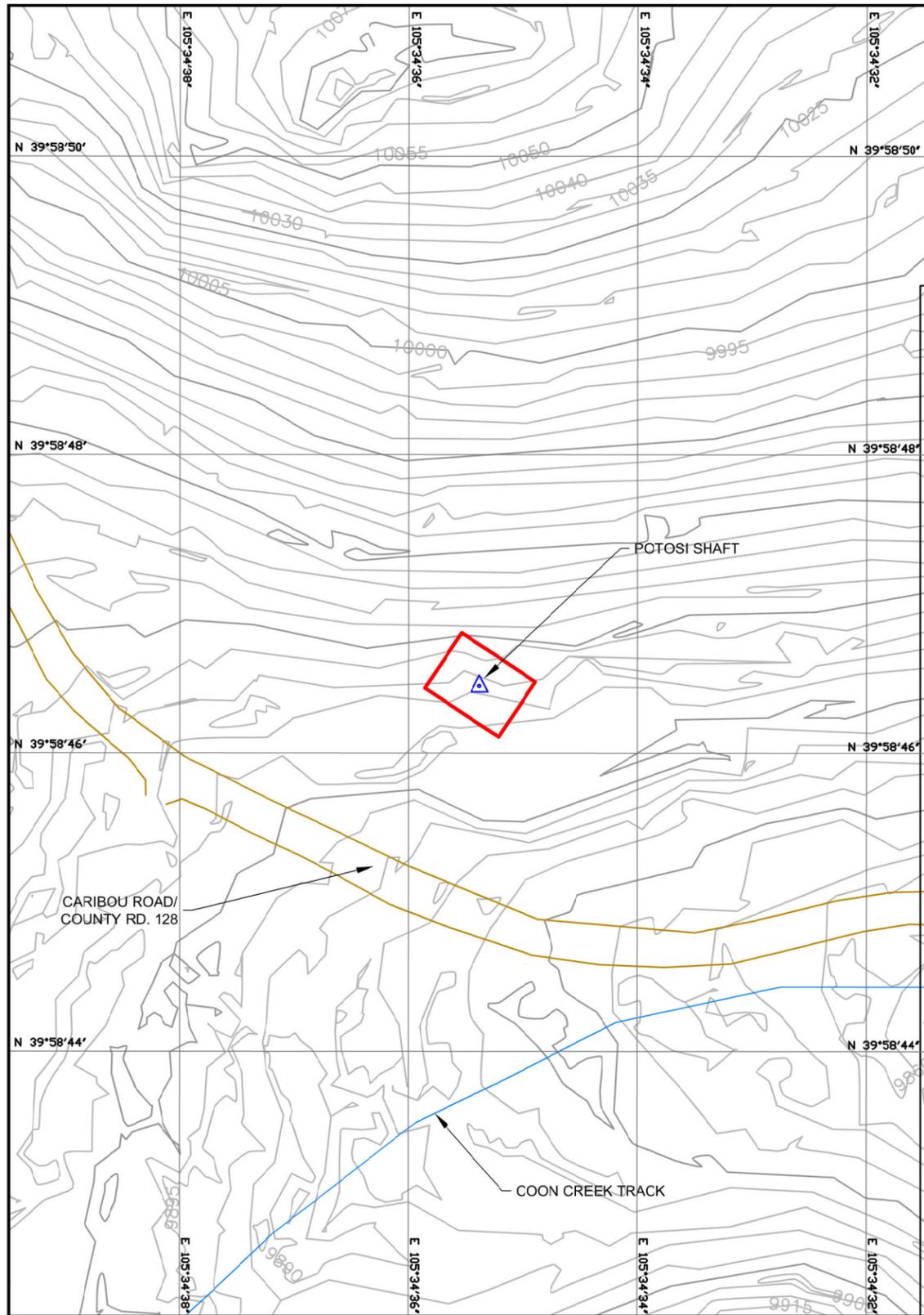
Prepared for:



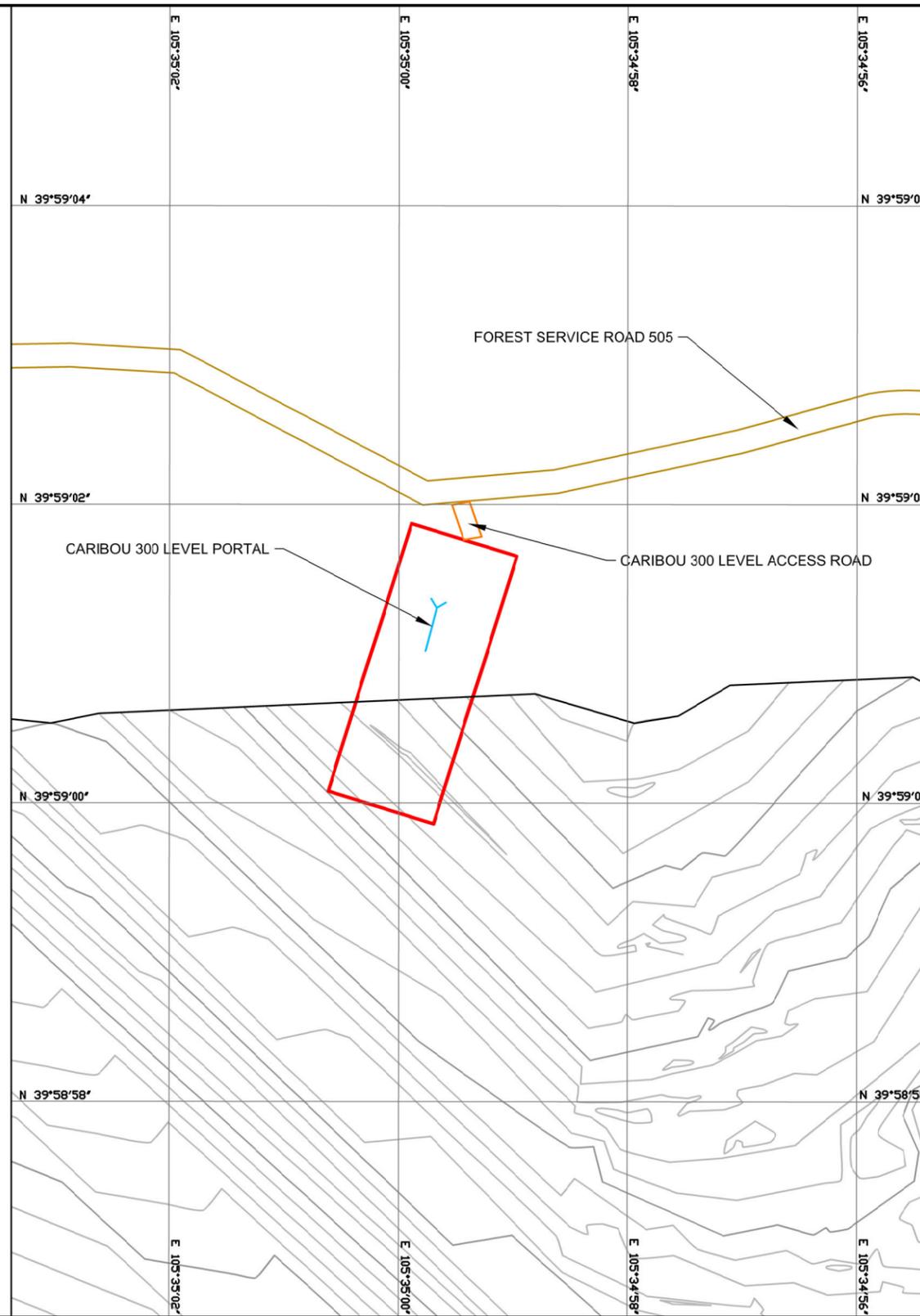
**CROSS AND CARIBOU MINE
 GENERAL FACILITY ARRANGEMENT:
 CROSS MINE AND CARIBOU MINE**

Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306	MAP 02
Location: NEDERLAND, COLORADO, USA	Date: NOV. 2021	

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20211122.dwg DATE: 11/22/2021 12:01 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON



POTOSI SHAFT



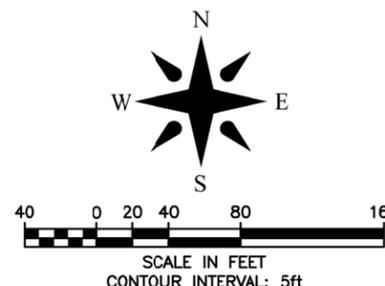
CARIBOU 300 LEVEL

LEGEND

- EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
- SITE GRADING CUT AND FILL SURFACES, RESPECTIVELY
- SITE FACILITIES
- PROPOSED PERMIT BNDRY (9.99 ACRES)
- NATURAL DRAINAGES
- EXISTING ROADS
- MINE PORTAL
- MINE SHAFT
- WELL

NOTES

1. THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
2. CARIBOU 300 LEVEL ACCESS ROAD IS A 12ft x 25ft VEHICLE PULL-OFF TO ACCESS THE CARIBOU 300 LEVEL PORTAL.



Rev	Description	By	Date
7	PROPOSED ROAD DESGN RECEIVED OCTOBER 2021		
6	WETLAND/PLANT SPECIES RECEIVED APRIL 2021		
5	MINE FEATURES RECEIVED NOVEMBER 2021		
4	EXISTING ROADS RECEIVED APRIL 2021		
3	POND BOUNDARIES RECEIVED NOVEMBER 2021		
2	SITE FACILITIES RECEIVED NOVEMBER 2021		
1	TOPD RECEIVED APRIL 2021		
	REFERENCE		

Rev	Description	By	Date
	SUBMITTED TO DRMS	GRE	11/22/2021
	REVISED PER CLIENT'S COMMENTS	GRE	11/19/2021
	ISSUED TO CLIENT FOR REVIEW	GRE	11/12/2021

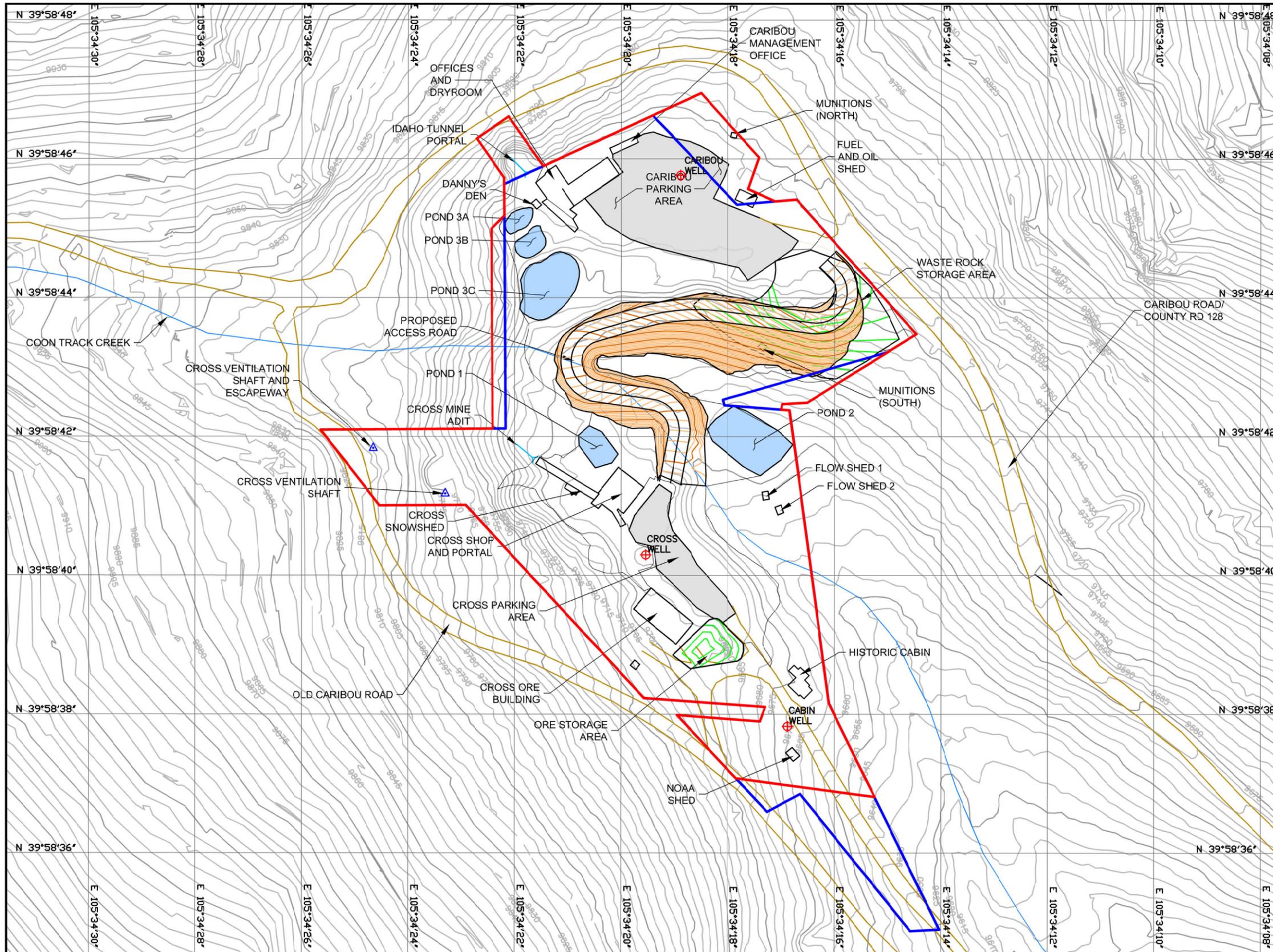
Scale: As Shown
 Designed by: --
 Drawn by: GRE
 Checked by: GIR
 Approved by: GIR



**CROSS AND CARIBOU MINE
 GENERAL FACILITY ARRANGEMENT:
 CARIBOU 300 AND POTOSI**

Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306	MAP 03
Location: NEDERLAND, COLORADO, USA	Date: NOV. 2021	

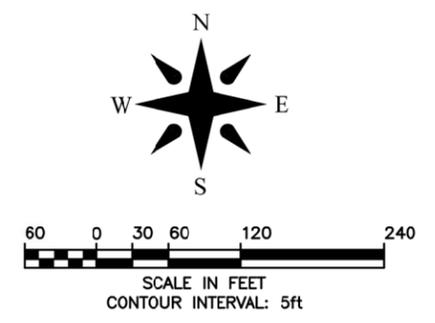
LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20211122.dwg DATE: 11/22/2021 12:29 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON



LEGEND

- EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
- SITE GRADING CUT AND FILL SURFACES, RESPECTIVELY
- SITE FACILITIES
- PROPOSED PERMIT BOUNDARY (9.99 ACRES)
- CURRENT PERMIT BOUNDARY (9.36 ACRES)
- NATURAL DRAINAGES
- EXISTING ROADS
- MINE PORTAL
- MINE VENTILATION SHAFT
- WELL
- GROUNDWATER WELL

- ### NOTES
- THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
 - PROPOSED ACCESS ROAD ALIGNMENT IS PRELIMINARY DUE TO ONGOING DESIGN.



Rev	Description	By	Date
7	PROPOSED ROAD DESGN RECEIVED OCTOBER 2021		
6	WET AND/PLANT SPECIES RECEIVED APRIL 2021		
5	MINE FEATURES RECEIVED NOVEMBER 2021		
4	EXISTING ROADS RECEIVED APRIL 2021		
3	POND BOUNDARIES RECEIVED NOVEMBER 2021		
2	SITE FACILITIES RECEIVED NOVEMBER 2021		
1	TOPD RECEIVED APRIL 2021		
	REFERENCE		

Scale: As Shown
 Designed by: --
 Drawn by: GRE
 Checked by: GIR
 Approved by: GIR

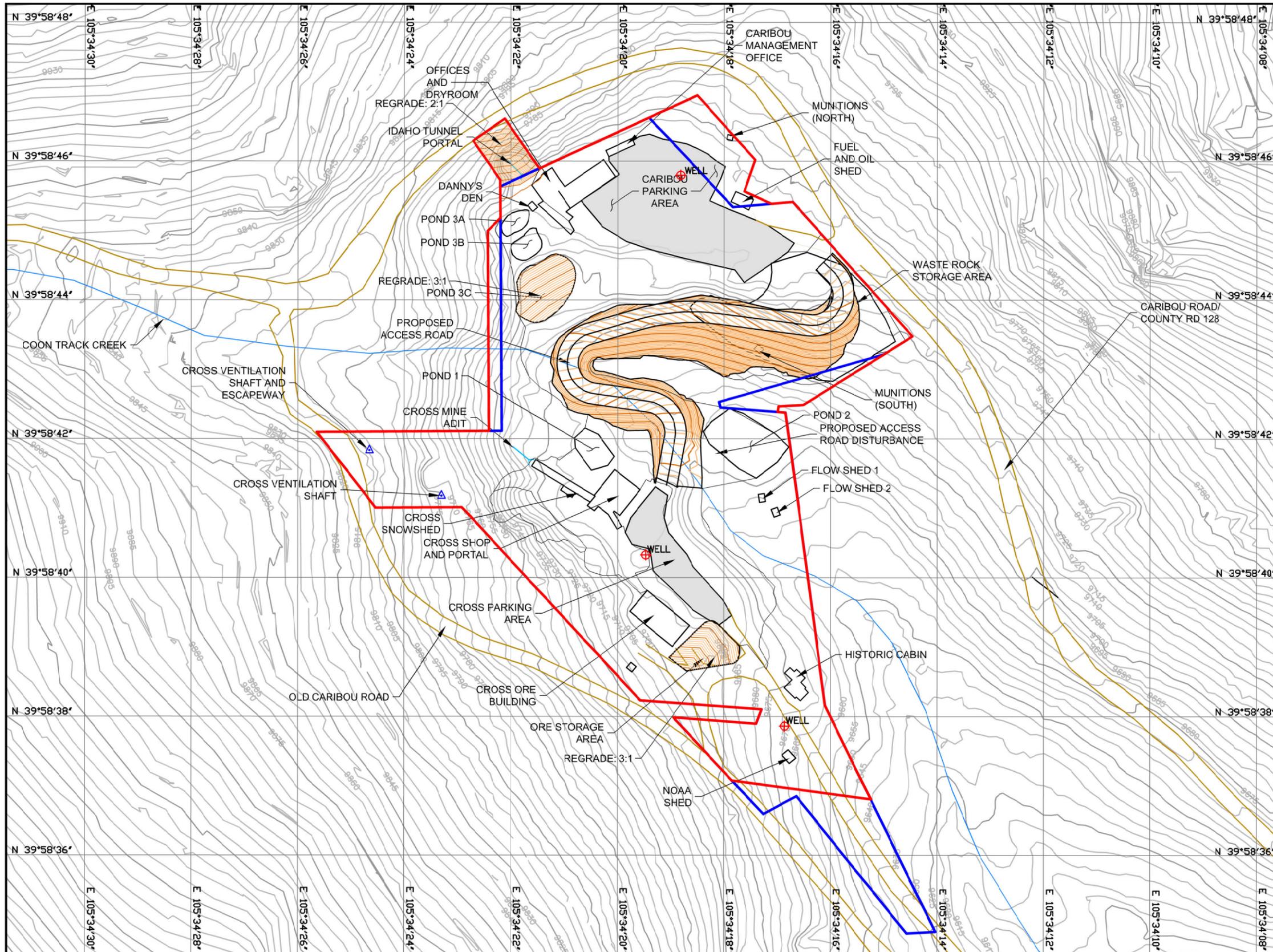
Prepared by:

Prepared for:

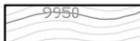
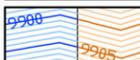
CROSS AND CARIBOU MINE PROPOSED ACCESS ROAD

Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306	MAP 04
Location: NEDERLAND, COLORADO, USA	Date: NOV. 2021	

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20211122.dwg DATE: 11/22/2021 12:34 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON

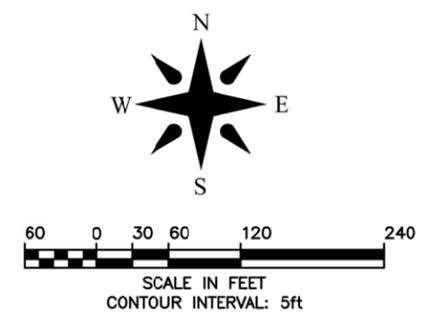


LEGEND

-  EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
-  SITE GRADING CUT AND FILL SURFACES, RESPECTIVELY
-  SITE FACILITIES
-  PROPOSED PERMIT BOUNDARY (9.99 ACRES)
-  CURRENT PERMIT BOUNDARY (9.36 ACRES)
-  NATURAL DRAINAGES
-  EXISTING ROADS
-  MINE PORTAL
-  MINE VENTILATION SHAFT
-  GROUNDWATER WELL

NOTES

1. THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
2. IDAHO TUNNEL IS REGRADED TO AN OVERALL SLOPE OF 2:1.
3. ALL OTHER RECLAIMED FEATURES ARE REGRADED TO A MAXIMUM SLOPE OF 3:1.



Rev	Description	By	Date
7	PROPOSED ROAD DESGN RECEIVED OCTOBER 2021		
6	WET AND/PLANT SPECIES RECEIVED APRIL 2021		
5	MINE FEATURES RECEIVED NOVEMBER 2021		
4	EXISTING ROADS RECEIVED APRIL 2021		
3	POND BOUNDARIES RECEIVED NOVEMBER 2021		
2	SITE FACILITIES RECEIVED NOVEMBER 2021		
1	TOPD RECEIVED APRIL 2021		
	REFERENCE		

Scale: As Shown
 Designed by: --
 Drawn by: GRE
 Checked by: GIR
 Approved by: GIR

Prepared by:



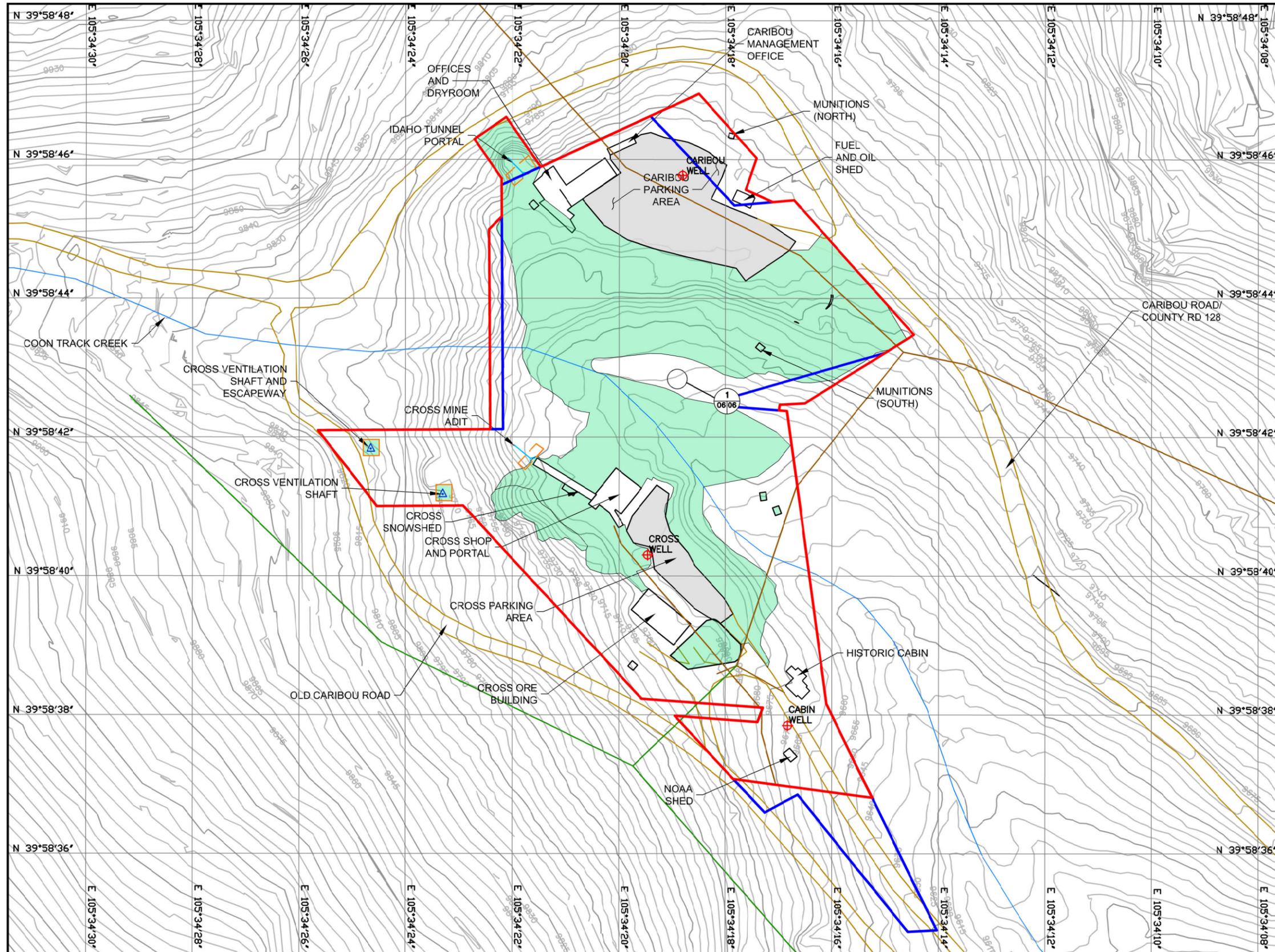
Prepared for:



**CROSS AND CARIBOU MINE
 REGRADE PLAN**

Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306	 REVISION 2 MAP 05
Location: NEDERLAND, COLORADO, USA	Date: NOV. 2021	

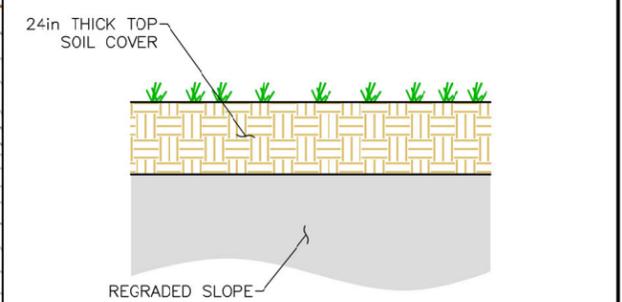
LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20211122.dwg DATE: 11/22/2021 12:38 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON



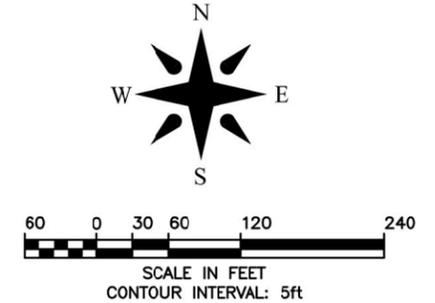
LEGEND

- EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
- SITE GRADING CUT AND FILL SURFACES, RESPECTIVELY
- RECLAIMED AND REVEGETATED
- SITE FACILITIES
- PROPOSED PERMIT BOUNDARY (9.99 ACRES)
- CURRENT PERMIT BOUNDARY (9.36 ACRES)
- POWER LINE (NOTE 3)
- PHONE LINE (NOTE 3)
- NATURAL DRAINAGES
- EXISTING ROADS
- MINE PORTAL
- MINE VENTILATION SHAFT
- GROUNDWATER WELL
- FENCING (RECLAMATION)

- ### NOTES
- THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
 - PORTALS AND ADITS WILL BE CLOSED ACCORDING TO RECLAMATION PLAN. THEY ARE SHOWN AFTER RECLAMATION BECAUSE SURFACE FEATURES WILL STILL EXIST.
 - POWER LINE AND PHONE LINES OBTAINED FROM CLIENT FILE "_WALSH2008 LINE.DWG" RECIEVED 29 OCTOBER 2021.



1 TYPICAL TOP SOIL COVER DETAIL
06/06 N.T.S.



Rev	Description	By	Date
7	PROPOSED ROAD DESGN RECEIVED OCTOBER 2021		
6	WET AND/PLANT SPECIES RECEIVED APRIL 2021		
5	MINE FEATURES RECEIVED NOVEMBER 2021		
4	EXISTING ROADS RECEIVED APRIL 2021		
3	POND BOUNDARIES RECEIVED NOVEMBER 2021		
2	SITE FACILITIES RECEIVED NOVEMBER 2021		
1	TOPD RECEIVED APRIL 2021		
	REFERENCE		

Scale: As Shown
 Designed by: --
 Drawn by: GRE
 Checked by: GIR
 Approved by: GIR

Prepared by:

Prepared for:

CROSS AND CARIBOU MINE RECLAMATION PLAN CROSS/CARIBOU

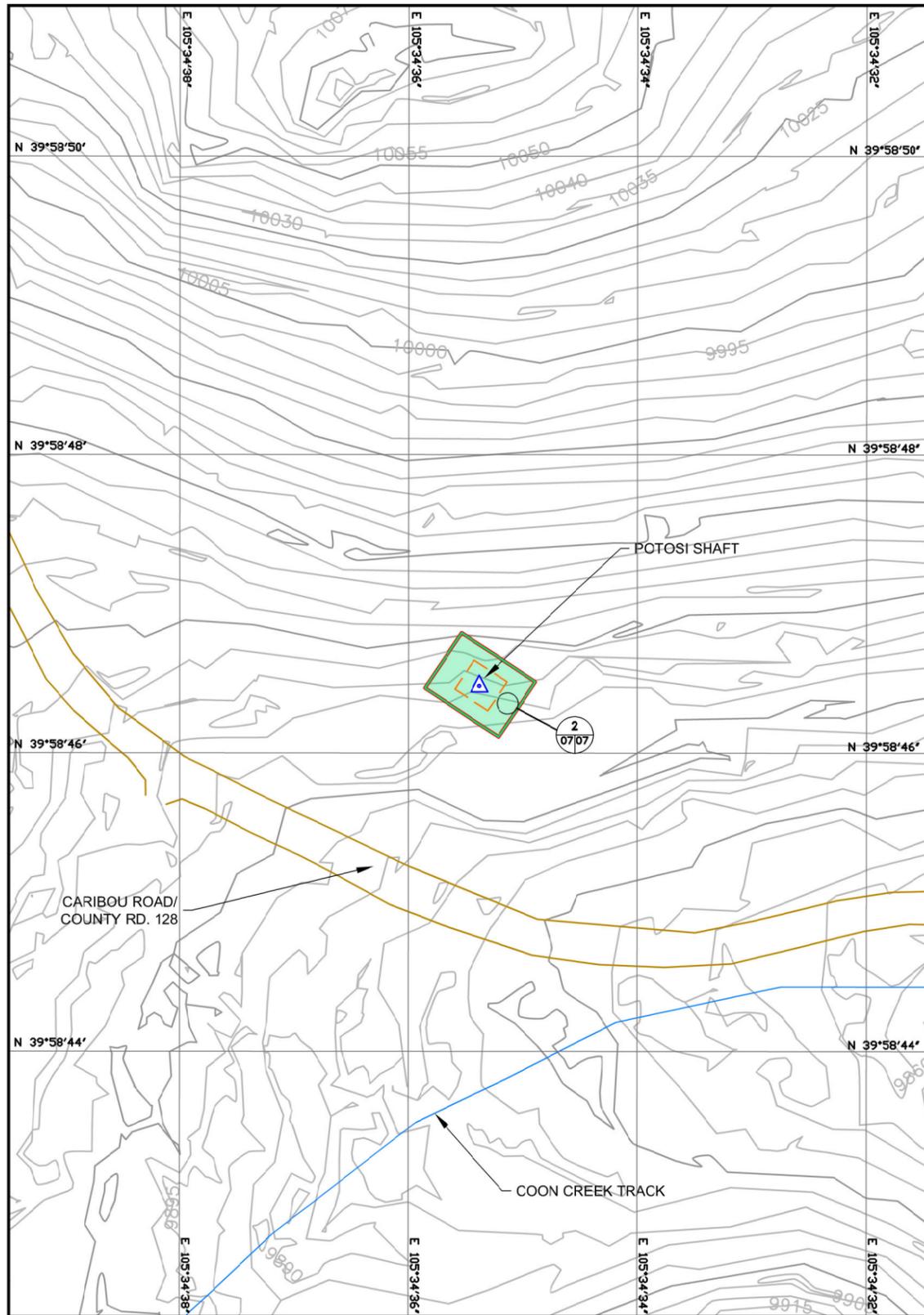
Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION
 Location: NEDERLAND, COLORADO, USA

Project No.: 21-1306
 Date: NOV. 2021

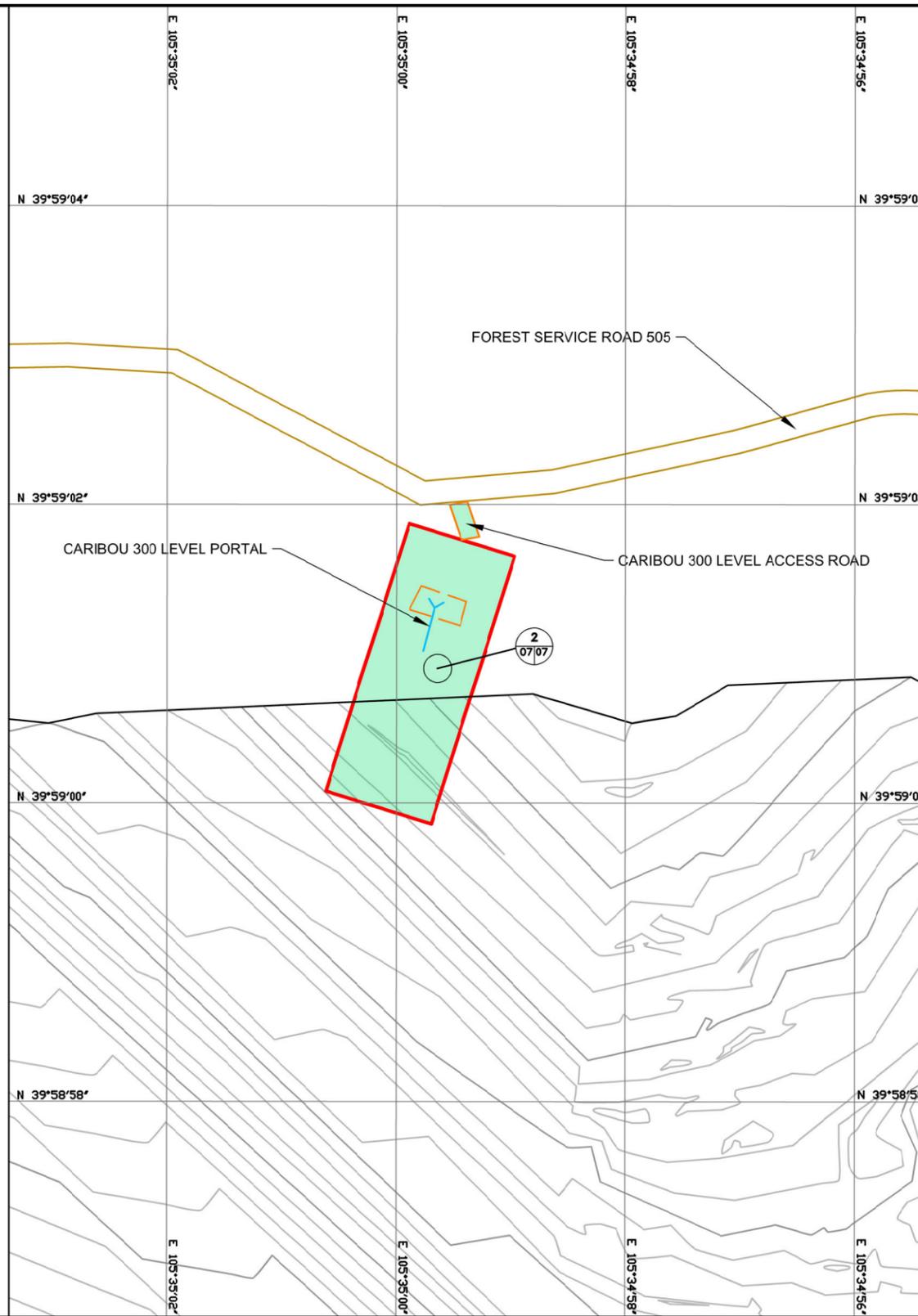
MAP 06

2 REVISION

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20211122.dwg DATE: 11/22/2021 12:04 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON



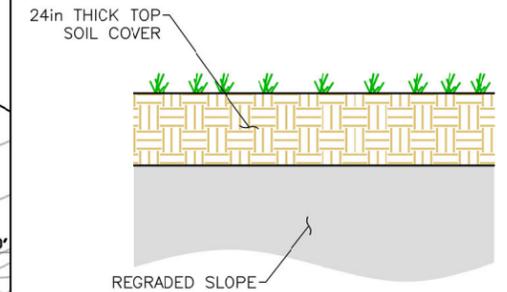
POTOSI SHAFT



CARIBOU 300 LEVEL

LEGEND

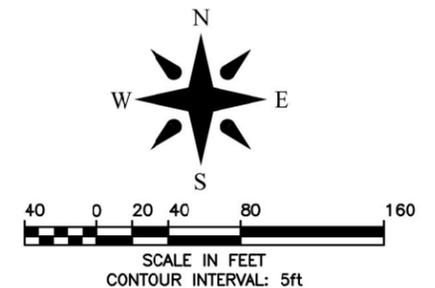
- EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
- SITE GRADING CUT AND FILL SURFACES, RESPECTIVELY
- RECLAIMED AND REVEGETATED
- SITE FACILITIES
- PROPOSED PERMIT BNDRY (9.99 ACRES)
- NATURAL DRAINAGES
- EXISTING ROADS
- MINE PORTAL
- MINE VENTILATION SHAFT
- GROUNDWATER WELL
- FENCING (RECLAMATION)



2 TYPICAL TOP SOIL COVER DETAIL
07/07 N.T.S.

NOTES

1. THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
2. CARIBOU 300 LEVEL ACCESS ROAD IS A 12ft x 25ft VEHICLE PULL-OFF TO ACCESS THE CARIBOU 300 LEVEL PORTAL.



Rev	Description	By	Date
7	PROPOSED ROAD DESGN RECEIVED OCTOBER 2021		
6	WETLAND/PLANT SPECIES RECEIVED APRIL 2021		
5	MINE FEATURES RECEIVED NOVEMBER 2021		
4	EXISTING ROADS RECEIVED APRIL 2021		
3	POND BOUNDARIES RECEIVED NOVEMBER 2021		
2	SITE FACILITIES RECEIVED NOVEMBER 2021		
1	TOPD RECEIVED APRIL 2021		
	REFERENCE		

Scale: As Shown
 Designed by: --
 Drawn by: GRE
 Checked by: GIR
 Approved by: GIR

Prepared by:

Prepared for:

**CROSS AND CARIBOU MINE
 GENERAL FACILITY ARRANGEMENT:
 CARIBOU 300 AND POTOSI**

Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION
 Location: NEDERLAND, COLORADO, USA

Project No.: 21-1306
 Date: NOV. 2021

MAP
 07

Exhibit F

List of Other Permits and Licenses Required

Provide a statement identifying which of the following permits, licenses and approvals which are held or will be sought in order to conduct the proposed mining and reclamation operations. (Effluent discharge permits, air quality emissions permits, radioactive source material licenses, disposal of dredge and fill material (404) permits, permit to construct a dam, State Historic Preservation Office clearance, highway access permits, U.S. Forest Service permits, Bureau of Land Management permits, county zoning and land use permits, and city zoning and land use permits):

Division of Reclamation, Mining, and Safety (DRMS)

Permit #: M1977-410

Amendment #1: Submitted 10/18/2011

Amendment #2: Submitted 1/6/2021

Water Quality Control Division (WQCD)

Discharge Permit #: CO-0032751

Storm Water Discharge Permit #: COR 040242

Air Pollution Control Division

Permit #: 09B00439.XP

Division of Water Resources

Permit Applications

Well Permit 116655, Caribou Well; Application change to Commercial, Domestic, Industrial Use. Permit Modification received 5/11/2021, Receipt 10012020; Case Number W8261-76

Well Permit 111953, Cross Well; Application change to Commercial, Domestic, Industrial Use. Permit Modification received 5/11/2021, Receipt 10012021; Case Number W8261-76

Well Permit 111951; Cabin Well Application to Change Use to Commercial, Dewatering, Domestic, Industrial; Receipt 10012652; W8261-76

State Engineer

Substitute Water Supply Plan approval

Alcohol Tobacco and Firearms

Federal Explosives/License Permit #: 5-CO-013-33-OH-00625

Mine Safety & Health Administration

Mine ID #: 0502430 – Cross Gold Mine

Mine ID #: 0502730 – Consolidated Caribou District

Boulder County

Special Use Permit #: SU-08-006

Letter regarding Special Use Permit #: SU-08-006 is attached below.

U.S. Army Corp of Engineers

No Permit Required Verification – Corps File No. NWO-2021-00388-DEN

Environmental Protection Agency

Mine Backfill Wells – EPA File #CO50000-12075 (attached)

Exhibit G

Source of Legal Right to Enter

Provide a description of the basis for the legal right of entry to the site and to conduct mining and reclamation for Owners of Record:

The List of claims by permit or proposed permit area are shown in the Table below.

Caribou/Cross Permit Area	Rare Metals Lode	Patent
	Brazilian Lode	Patent
	New York MS	Patent
	Cross	Patent
	Romeo	Patent
	Crown Point	Patent
	Syndicate	Patent
	Brazilian MS	Patent
	Rare Metals MS	Patent
	Cross MS	Patent
	Pleasant View	Patent
	Cross No. 2	Patent
	Grizzly Bear 1	Unpatent
	Grizzly Bear 2	Unpatent
Caribou 300 Level Portal Area	Candia	Patent
	California	Patent
Potosi Shaft Area	Rare Metals Lode	Patent
	Garfield	Patent
	Alpine	Patent
	Potosi	Patent
	Worcester	Patent
	Apollo 12	Unpatent
	Grizzly Bear 18	Unpatent

See attached:

Right to Enter Property Under Recorded Agreements

Prepared By

Gregory P Miller
PO Box 1468
Socorro, New Mexico 87801

After Recording Return To

Richard Mittasch
4415 Caribou Road
PO Box 3395
Nederland, Colorado 80466

Space Above This Line for Recorder's Use

COLORADO QUITCLAIM DEED

STATE OF COLORADO
BOULDER COUNTY

Aardvark Agencies, Inc., a Washington corporation, whose address is 4415 Caribou Road, PO Box 3395, Nederland, Colorado, 80466, County of Boulder, State of Colorado, for the consideration of Ten Dollars (\$10.00) and other good and valuable consideration, in hand paid, hereby sells and quitclaims to Grand Island Resources, LLC, a Colorado Limited Liability Company, whose address is Grand Island Resources LLC, 4415 Caribou Road, PO Box 3395, Nederland, Colorado, 80466, County of Boulder, State of Colorado, property in Boulder County, Colorado, to wit: all water and water reservoir and reservoir rights, storage and storage rights, and water or ditch company stock embracing the Nederland Mine, including all water rights conveyed by that Sheriff's Deed dated January 28, 1997, recorded at Reception No. 01673368, Film 2182, of the Boulder County records, and including 0.444 c.f.s. of water from the North Fork of Boulder Creek for use for domestic, mining and milling purposes, decreed to the Caribou Pumping Plant by decree of the District Court, Water Diversion No. 1, State of Colorado, in Case No. W-8261-76, the legal description of said structure being as follows: The plant is located on the north bank of North Boulder Creek in the SE 1/4 SW 1/4, Section 5, Township 1 South, Range 72 West, 6th PM, Boulder County, Colorado, at a point 1,000 feet North and 2,300 feet East

of the SW corner of said Section 5, with a date of appropriation on July 16, 1946. The priority shall be administered as having been filed in 1976. Said decree includes the plan for augmentation described therein, subject to the terms and conditions thereof, and was awarded March 21, 1978, by Ruling of the Referee, confirmed and approved by Judgement and Decree of the Court ON April 11, 1978.

Signed this 4th day of May, 2021.

Aardvark Agencies, Inc.
By [Signature]
Richard Mittasch
Richard Mittasch, Director

State of Colorado
County of Boulder

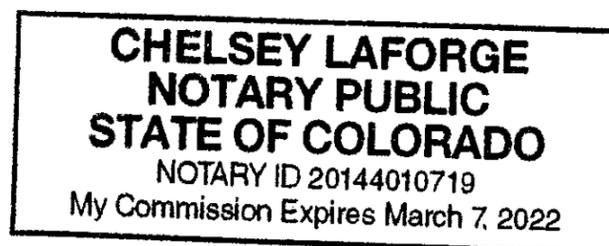
This record was acknowledged before me on May 4th, 2021
by Richard Mittasch as Director of Aardvark Agencies, Inc.

Richard Mittasch, Director of Aardvark Agencies, Inc. a Washington state corporation, on behalf of the corporation.

[Signature]
(Notary's official signature)

Colorado Notary Public
(Title of office)

MARCH 7, 2022
(Commission Expiration)



THE FARMERS DITCH COMPANY

Incorporated under the Laws of the Territory of Colorado
Office at Boulder, Colorado

Total Capital Stock Issued - 100 Shares

Certificate Number 2912



This is to Certify Grand Island Resources, LLC as the owner(s) of one eighth Share(s) (1/8) of the Capital Stock of the **Farmers Ditch Company** of Colorado, Issued Full Paid and transferable only on the books of the company, in person or by Attorney, upon the surrender of this Certificate.

This Certificate issued at Boulder, Colorado on this 21st day of May, 2021.


Secretary


President

(SEAL)

Prepared By

Gregory P Miller
PO Box 1468
Socorro, New Mexico 87801

After Recording Return To

Richard Mittasch
4415 Caribou Road
PO Box 3395
Nederland, Colorado 80466

Space Above This Line for Recorder's Use

COLORADO GENERAL WARRANTY DEED

STATE OF COLORADO
BOULDER COUNTY

KNOW ALL MEN BY THESE PRESENTS, That for and in consideration of the sum of TEN DOLLARS (\$10.00) in hand paid to Aardvark Agencies, Inc., a Washington corporation, whose address is 4415 Caribou Road, PO Box 3395, Nederland, Colorado, 80466, County of Boulder, State of Colorado (hereinafter known as the "Grantor(s)") hereby grants, conveys, and sells to Grand Island Resources LLC, a Colorado Limited Liability Company, whose address is Grand Island Resources LLC, 4415 Caribou Road, PO Box 3395, Nederland, Colorado, 80466, County of Boulder, State of Colorado (hereinafter known as the "Grantee(s)") all the rights and warrants the title, interest, and claim in or to the following described real estate in Exhibit A attached), situated in Boulder County, Colorado to-wit:

Mining Claims as described in Exhibit A

TOGETHER WITH all the rights, members and appurtenances to the Real Estate in anywise appertaining or belonging thereto.

TO HAVE AND TO HOLD, the tract or parcel of land above described together with all and singular the rights, privileges, tenements, appurtenances, and improvements unto the said Grantees, their heirs and assigns forever.

And said Grantors, for said Grantors, their heirs, successors, executors and administrators, covenants with Grantees, and with their heirs and assigns, that Grantors are lawfully seized in fee simple of the said Real Estate; that said Real Estate is free and clear from all Liens and Encumbrances, except as hereinabove set forth, and except for taxes due for the current and subsequent years, and except for any Restrictions pertaining to the Real Estate of record in the Probate Office of said County; and that Grantors will, and their heirs, executors and administrators shall, warrant and defend the same to said Grantees, and their heirs and assigns, forever against the lawful claims of all persons.

IN WITNESS WHEREOF, Grantor has executed and delivered this General Warranty Deed under seal as of the day and year first above written.

[Handwritten Signature]
Grantor's Signature

Richard Mittasch
Grantor's Name

PO Box 3395
Address

Nederland, CO 80466
City, State & Zip

[Handwritten Signature]
Grantor's Signature

Grantor's Name

Address

City, State & Zip

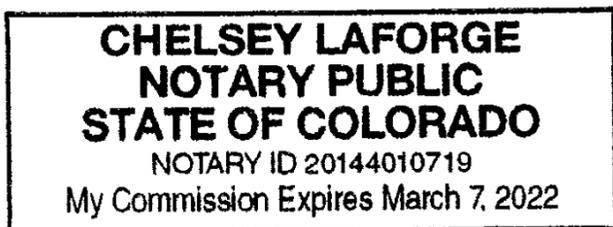
STATE OF COLORADO)

COUNTY OF Boulder)

I, the undersigned, a Notary Public in and for said County, in said State, hereby certify that Richard Mittasch whose names are signed to the foregoing instrument, and who is known to me, acknowledged before me on this day that, being informed of the contents of the instrument, they, executed the same voluntarily on the day the same bears date.

Given under my hand this 4th day of May, 2021.

[Handwritten Signature]
Notary Public



My Commission Expires: March 7, 2022

Parcel A

EXHIBIT A

The following property located in Sections 5, 7, 8 and 9, Township 1 South, Range 73 West of the 6th P.M., in the Grand Island Mining District, County of Boulder, State of Colorado, to Wit:

The East 500 Feet of the Arizona Lode Claim (United States Mineral Survey No. 54), as set forth in Patent recorded November 25, 1878 in Book 57 at Page 123, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Barablas Lode Claim (United States Mineral Survey No. 15588), as set forth in Patent recorded January 24, 1980 on Film 1101 as Reception No. 38027E, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Brazilian Lode and Brazilian Millsite Claims (United States Mineral Survey Nos. 13367A and 13367B), as set forth in Patent recorded January 28, 1911 in Book 339 at Page 75, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

(Continued to Following Pages)

The Candia, Northpark, California and Toledo Lode Claims (United States Mineral Survey No. 20483), as set forth in Patent recorded March 11, 1938 in Book 651 at Page 305, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Caribou Lode Claim (United States Mineral Survey No. 37), as set forth in Patent recorded October 9, 1872 in Book V at Page 122, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Carry Lode Claim (United States Mineral Survey No. 660), as set forth in Patent recorded January 24, 1980 on Film 1101 as Reception No. 380277, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Columbia Lode Claim (United States Mineral Survey No. 167), as set forth in Patent recorded October 27, 1883 in Book 79 at Page 41, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Douglas Lode Claim (United States Mineral Survey No. 47), as set forth in Patent recorded April 24, 1887 in Book 31 at Page 241, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Extension Lode Claim (United States Mineral Survey No. 92), as set forth in Patent recorded October 17, 1887 in Book 38 at Page 564, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Federal Lode Claim (United States Mineral Survey No. 91), as set forth in Patent recorded September 7, 1874 in Book 31 at Page 49, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Golconda Lode Claim (United States Mineral Survey No. 192), as set forth in Patent recorded November 11, 1880 in Book 59 at Page 141, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Grand Island Lode Claim (United States Mineral Survey No. 61), as set forth in Patent recorded June 27, 1883 in Book 79 at Page 269, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Grand View Lode Claim (United States Mineral Survey No. 297), as set forth in Patent recorded January 31, 1947 in Book 799 at Page 464, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Grant County Lode Claim (United States Mineral Survey No. 115), as set forth in Patent recorded October 13, 1884 in Book 79 at Page 157, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Hidden Treasure Lode Claim (United States Mineral Survey No. 105), as set forth in Patent recorded November 1, 1875 in Book 31 at Page 423, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

An undivided 10/12ths interest in and to the Isabel Lode Claim (United States Mineral Survey No. 170), as set forth in Patent recorded June 17, 1883 in Book 79 at Page 81, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Jay Lode Claim (United States Mineral Survey No. 169), as set forth in Patent recorded January 24, 1980 on Film 1101 as Reception No. 380279, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Kalamazoo Lode Claim (United States Mineral Survey No. 76), as set forth in Patent recorded August 9, 1946 in Book 887 at Page 304, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Lost Lode Claim (United States Mineral Survey No. 56), as set forth in Patent recorded January 22, 1887 in Book 79 at Page 217, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The No Name Lode Claim (United States Mineral Survey No. 77), as set forth in Patent recorded April 14, 1880 in Book 59 at Page 100, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Non Parail Lode Claim (United States Mineral Survey No. 6853), as set forth in Patent recorded January 28, 1911 in Book 339 at Page 77, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Southeasterly 500 feet of the Ontario Lode Claim (United States Mineral Survey No. 55), as set forth in Patent recorded July 7, 1875 in Book 31 at Page 310, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Poorman Lode Claim (United States Mineral Survey No. 42), as set forth in Patent recorded June 6, 1874 in Book V at Page 578, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Seven Thirty Lode Claim (United States Mineral Survey No. 71), as set forth in Patent recorded April 19, 1875 in Book 31 at Page 231, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Sherman Lode Claim (United States Mineral Survey No. 93), as set forth in Patent recorded January 15, 1885 in Book 79 at Page 161, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Silver Dollar Lode Claim (United States Mineral Survey No. 654), as set forth in Patent recorded July 25, 1884 in Book 237 at Page 122, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Socorro Lode Claim (United States Mineral Survey No. 104), as set forth in Patent recorded May 24, 1883 in Book 79 at Page 53, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Spencer Lode Claim (United States Mineral Survey No. 168), as set forth in Patent recorded February 5, 1878 in Book 49 at Page 210, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

The Fannie Lode Claim (United States Mineral Survey No. 659), as set forth in Patent recorded December 29, 1947 in Book 819 at Page 375, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

Parcel B

The Belcher Lode Mining Claim (United States Mineral Survey No. 150) located in the Grand Island Mining District, and embracing a portion of Township 1 South, Range 73 West of the 6th P.M., County of Boulder, State of Colorado,

Expressly excepting and excluding those portions thereof lying within the Caribou (United States Mineral Survey No. 37), Poorman (United States Mineral Survey No. 42), Grand Republic (United States Mineral Survey No. 51), Arizona (United States Mineral Survey No. 54), Ontario (United States Mineral Survey No. 55), Magnolia (United States Mineral Survey No. 58), Peabody (United States Mineral Survey No. 68), 730 (United States Mineral Survey No. 71), Sherman (United States Mineral Survey No. 93), Maine (United States Mineral Survey No. 102), Air Shaft (United States Mineral Survey No. 116), Stanton Island (United States Mineral Survey No. 124), 530 (United States Mineral Survey No. 137), Lode Mining Claims,

As excepted United States Patent recorded January 5, 1878, in Book 49 at Page 153.

Parcel C

The West 900.00 feet of the Ontario Lode Mining Claim (United States Mineral Survey No. 55) located in Grand Island Mining District and embracing a portion of the Northwest $\frac{1}{4}$ of Section 8, Township 1 South, Range 73 West of the 6th P.M., County of Boulder, State of Colorado,

Excepted any portion thereof lying within the Arizona Lode Mining Claim (United States Mineral Survey No. 54).

PARCEL A

THE COMSTOCK LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 52) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED OCTOBER 13, 1888 IN BOOK 79 AT PAGE 273

PARCEL B

THE DEL LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 85) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED MARCH 17, 1928 IN BOOK 452 AT PAGE 75

PARCEL C

THE STATEN ISLAND LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 124) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 5 AND 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED MAY 20, 1935 IN BOOK 452 AT PAGE 118

PARCEL D

THE PROMISE LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 149) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED OCTOBER 2, 1912 IN BOOK 167 AT PAGE 211

PARCEL E

THE MONITOR LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 227) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 8 AND 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED IN BOOK 59 AT PAGE 214

PARCEL F

THE MONADNOC LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 274) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED IN BOOK AT PAGE

PARCEL G

THE NEW YORK LOPE MINING CLAIM AND NEW YORK MILL SITE CLAIM (UNITED STATES MINERAL SURVEY NO. 344A AND 344B) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8 AND 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED SEPTEMBER 29, 1896 IN BOOK 204 AT PAGE 113

PARCEL H

THE NORTHWESTERN LOPE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 429) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED IN BOOK AT PAGE

PARCEL I

THE NAUTILUS LOPE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 452) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED IN BOOK 59 AT PAGE 332

PARCEL J

THE LITTLE EDDIE LOPE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 716) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8 TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED OCTOBER 7, 1906, IN BOOK 237 AT PAGE 48

PARCEL K

THE NORTH STAR LOPE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 5269) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5 TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED FEBRUARY 15, 1912 IN BOOK 339 AT PAGE 102

PARCEL L

THE DEVELING LOPE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 13510) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 4 AND 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED JUNE 9, 1903 IN BOOK 237 AT PAGE 108

PARCEL M

THE EUREKA LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 13685) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING SECTIONS 5 AND 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED JANUARY 25, 1904 IN BOOK 237 AT PAGE 128

PARCEL N

THE LAST CHANCE LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 14246) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 8, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED DECEMBER 19, 1979 UNDER RECEIPTION NO. 375456

PARCEL O

THE PANDORA #1 AND PANDORA #4 LODE MINING CLAIMS (UNITED STATES MINERAL SURVEY NO. 20597) LOCATED IN GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 5, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M. AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED MARCH 1, 1961 IN BOOK 1175 AT PAGE 1

THE OPHIR LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 567) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 8 AND 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH PRINCIPAL MERIDIAN AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED

AN UNDIVIDED 3/8 INTEREST IN THE CANADIAN LODE MINING CLAIM (UNITED STATES MINERAL SURVEY #866) LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 6, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH PRINCIPAL MERIDIAN AS SET FORTH AND PATENTED IN UNITED STATES PATENT RECORDED

THE ENTERPRISE LODE MINING CLAIM, SURVEY LOT NO. 19828 IN SECTIONS 4, 5, 8 AND 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH PRINCIPAL MERIDIAN, GRAND ISLAND MINING DISTRICT, EXCEPTING THOSE PORTIONS THEREOF EMBRACED IN RICO LODE MINING CLAIM AND APEX LODE MINING CLAIM, BOTH IN SURVEY LOT NO. 34286, ALSO EXCEPTING THOSE PORTIONS THEREOF EMBRACED IN OPHIR LODE MINING CLAIM SURVEY LOT NO. 567, AND CENTRAL LODE MINING CLAIM SURVEY LOT NO. 481.

Parcel P

THE ARLET NO. 1, NO. 2, NO. 3 AND NO. 4 LODE MINING CLAIMS (U.S. SURVEY NO. 16705) AND THE STANDARD NO. 8 LODE MINING CLAIM (U.S. MINERAL SURVEY NO. 25088) AND THE STANDARD NO. 6 AND NO. 9 LODE MINING CLAIMS (U.S. MINERAL SURVEY NO. 16705); LYING NORTH AND WEST OF THE SOUTH LINE OF THE AFORESAID ARLET NO. 1 LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 9 AND 16 IN TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M., COUNTY OF BOULDER, STATE OF COLORADO,

EXPRESSLY EXCEPTING AND EXCLUDING ALL THAT PORTION OF NATION NO. 2 AND NATION NO. 3 LODE CLAIM SURVEY NO. 15637, AS EXCEPTED AND EXCLUDED IN PATENT RECORDED APRIL 9, 1991 ON FILM 1668 AS RECEPTION NO. 1096724.

Parcel Q

NATIONAL PLACER (U.S. SURVEY NO. 17718) LOCATED IN GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M., COUNTY OF BOULDER, STATE OF COLORADO.

Parcel R

THE AMERICAN FLAG LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 12790); AND

EAGLE BIRD LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 12790); EXPRESSLY EXCEPTING AND EXCLUDING ANY PORTION OF SAID EAGLE BIRD LODE MINING CLAIM EMBRACED IN THE SWEET HOME LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 12597), AS EXCEPTED AND EXCLUDED IN UNITED STATES PATENT RECORDED DECEMBER 2, 1922 IN BOOK 452 AT PAGE 94;

BOTH LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTIONS 9, 10, AND 15, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M., COUNTY OF BOULDER, STATE OF COLORADO,

AND

EAST ST. LOUIS LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 14592);

ELONDIKE LODE MINING CLAIM (UNITED STATES MINERAL SURVEY NO. 14592);

BOTH LOCATED IN THE GRAND ISLAND MINING DISTRICT AND EMBRACING A PORTION OF SECTION 9, TOWNSHIP 1 SOUTH, RANGE 73 WEST OF THE 6TH P.M., COUNTY OF BOULDER, STATE OF COLORADO.

PARCEL A:

**AMERICAN FLAG LODE, U.S. Mineral Survey No. 12790,
ARIZONA LODE (EAST 500 FEET), U.S. Mineral Survey No. 54,**

**ARLET NO. 1 LODE, U.S. Mineral Survey No. 16705,
ARLET NO. 2 LODE, U.S. Mineral Survey No. 16705,
ARLET NO. 3 LODE, U.S. Mineral Survey No. 16705,
ARLET NO. 4 LODE, U.S. Mineral Survey No. 16705,**

**BARABLAS LODE, U.S. Mineral Survey No. 15588,
BELCHER LODE, U.S. Mineral Survey No. 150,
BRAZILIAN LODE, U.S. Mineral Survey No. 13367A,
BRAZILIAN MILLSITE, U.S. Mineral Survey No. 13367B,**

**CALIFORNIA LODE, U.S. Mineral Survey No. 20483,
CANADIAN LODE (UNDIVIDED 3/8), U.S. Mineral Survey No. 666,
CANDIA LODE, U.S. Mineral Survey No. 20483,
CARIBOU LODE, U.S. Mineral Survey No. 37,
CARRY LODE, U.S. Mineral Survey No. 660,**

**COLUMBIA LODE, U.S. Mineral Survey No. 167,
COMSTOCK LODE, U.S. Mineral Survey No. 52,
DEVELING LODE, U.S. Mineral Survey No. 13510,
DOUGLAS LODE, U.S. Mineral Survey No. 47,
EAGLE BIRD LODE, U.S. Mineral Survey No. 12790,**

**EAST IDAHO LODE (UNDIVIDED 50%), U.S. Mineral Survey No. 346,
EAST ST. LOUIS LODE, U.S. Mineral Survey No. 14592,
ENTERPRISE LODE (UNDIVIDED 50%), U.S. Mineral Survey No. 19828,
EUREKA LODE, U.S. Mineral Survey No. 13685,
EXTENSION LODE, U.S. Mineral Survey No. 92,**

**PANNIE LODE, U.S. Mineral Survey No. 659,
FEDERAL LODE, U.S. Mineral Survey No. 91,
GOLCONDA LODE, U.S. Mineral Survey No. 192,
GRAND ISLAND LODE, U.S. Mineral Survey No. 61,
GRAND VIEW LODE, U.S. Mineral Survey No. 297,**

**GRANT COUNTY LODE, U.S. Mineral Survey No. 115,
HIDDEN TREASURE LODE, U.S. Mineral Survey No. 105,
ISABEL LODE (UNDIVIDED 10/12), U.S. Mineral Survey No. 170,
IXL LODE, U.S. Mineral Survey No. 85,**

**JAY LODE, U.S. Mineral Survey No. 169,
KALAMAZOO LODE, U.S. Mineral Survey No. 76,
KLONDIKE LODE, U.S. Mineral Survey No. 14592,
LAST CHANCE LODE, U.S. Mineral Survey No. 14246,
LITTLE EDDIE LODE, U.S. Mineral Survey No. 716,**

**LOST LODE, U.S. Mineral Survey No. 56,
MONADNOC LODE, U.S. Mineral Survey No. 274,**

MONITOR LODE, U.S. Mineral Survey No. 227,
NATIONAL PLACER, U.S. Mineral Survey No. 17718,
NAUTILIS LODE, U.S. Mineral Survey No. 452,

NEW YORK LODE, U.S. Mineral Survey No. 344A,
NEW YORK MILLSITE, U.S. Mineral Survey No. 344B,
NO NAME LODE, U.S. Mineral Survey No. 77,
NON PAREIL, U.S. Mineral Survey No. 6859,
NORTH STAR LODE, U.S. Mineral Survey No. 5269,

NORTH PARK LODE, U.S. Mineral Survey No. 20483,
NORTHWESTERN LODE, U.S. Mineral Survey No. 429,
ONTARIO LODE (SOUTHEASTERLY 500 FEET), U.S. Mineral Survey No. 55,
ONTARIO LODE (WEST 900 FEET), U.S. Mineral Survey No. 55,
OPHIR LODE, U.S. Mineral Survey No. 387,

PANDORA #1 LODE, U.S. Mineral Survey No. 20597,
PANDORA #4 LODE, U.S. Mineral Survey No. 20597,
POORMAN LODE, U.S. Mineral Survey No. 42,
PROMISE LODE, U.S. Mineral Survey No. 149,
SEVEN THIRTY LODE, U.S. Mineral Survey No. 71,

SHERMAN LODE, U.S. Mineral Survey No. 93,
SILVER DOLLAR LODE, U.S. Mineral Survey No. 654,
SOCORRO LODE, U.S. Mineral Survey No. 104,
SPENCER LODE, U.S. Mineral Survey No. 168,
STANDARD NO. 6 LODE, U.S. Mineral Survey No. 16705,

STANDARD NO. 8 LODE, U.S. Mineral Survey No. 16705,
STANDARD NO. 9 LODE, U.S. Mineral Survey No. 16705,
STATEN ISLAND LODE, U.S. Mineral Survey No. 124,
TOLEDO LODE, U.S. Mineral Survey No. 20483,
County of Boulder, State of Colorado.

PARCEL B:

7-49 LODE (UNDIVIDED 1/3), U.S. Mineral Survey No. 16199,
AIRSHAFT, U.S. Mineral Survey No. 116,
ALPINE LODE, U.S. Mineral Survey No. 14286,
AMANDA LODE, U.S. Mineral Survey No. 13172,
AMERICAN LODE, U.S. Mineral Survey No. 14286,

ANACONDA LODE (SUBSURFACE MINERALS), U.S. Mineral Survey No. 12934,
ANACONDA LODE (T.S. HENDRICKS' SURFACE), U.S. Mineral Survey No. 12934,
APEX LODE, U.S. Mineral Survey No. 14286,
ARIZONA LODE (WEST 900 FEET), U.S. Mineral Survey No. 54,
BOB TAIL LODE (SUBSURFACE MINERALS), U.S. Mineral Survey No. 13180,

BOB TAIL LODE, SURFACE - OWNED BY T.S. HENDRICKS), U.S. Mineral Survey No. 13180,
BROKEN BOW LODE, (SUBSURFACE), U.S. Mineral Survey No. 13146,
CENTRAL LODE, U.S. Mineral Survey No. 481,
CHIEF LODE, U.S. Mineral Survey No. 15637,
CONGER LODE, U.S. Mineral Survey No. 94A,

CROSS LODGE, U.S. Mineral Survey No. 518,
CROSS MILLSITE, U.S. Mineral Survey No. 20681B,
CROSS NO. 2 LODGE, U.S. Mineral Survey No. 20681A,
CROWN POINT LODGE, U.S. Mineral Survey No. 6823,
DEFIANCE LODGE, U.S. Mineral Survey No. 5868,

EMILIE LODGE (UNDIVIDED 1/3), U.S. Mineral Survey No. 16199,
GARFIELD LODGE (UNDIVIDED 3/8), U.S. Mineral Survey No. 322,
GARFIELD LODGE (UNDIVIDED 5/8), U.S. Mineral Survey No. 322,
GILPIN COUNTY LODGE, (SMITH TRUST MINING LEASE, U.S. Mineral Survey No. 12933,
GOLD COIN, U.S. Mineral Survey No. 18514,

HOMESTEAD LODGE (SMITH TRUST MINING LEASE), U.S. Mineral Survey No. 13471,
IDAHO LODGE (39/143 INT.), U.S. Mineral Survey No. 96A,
IDAHO MILLSITE (221/858 INT.), U.S. Mineral Survey No. 96B,
IRON KING (SUBSURFACE ONLY), U.S. Mineral Survey No. 16776,
IRON KING NO. 2, (SUBSURFACE ONLY), U.S. Mineral Survey No. 16776,

IRON WONDER (SUBSURFACE ONLY), U.S. Mineral Survey No. 16776,
ISABEL LODGE (UNDIVIDED 2/12), U.S. Mineral Survey No. 170,
JULIET LODGE, U.S. Mineral Survey No. 13272,
LAFAYETTE LODGE (SUBSURFACE MINERALS), U.S. Mineral Survey No. 12934,
LAFAYETTE LODGE (SURFACE - THOMAS S. HENDRICKS), U.S. Mineral Survey No. 12934,

LARAMIE COUNTY LODGE (SMITH TRUST MINING LEASE), U.S. Mineral Survey No. 13471,
LARAMIE COUNTY NO. 2 LODGE, U.S. Mineral Survey No. 13471,
L.S. ROOT MILLSITE, U.S. Mineral Survey No. 117,
MAINE LODGE, U.S. Mineral Survey No. 102,
MAMMOTH LODGE, U.S. Mineral Survey No. 13272,
MONTICELLO LODGE, U.S. Mineral Survey No. 15637,

NATION LODGE, U.S. Mineral Survey No. 12985,
NATION NO. 2 LODGE, U.S. Mineral Survey No. 15637,
NATION NO. 3 LODGE, U.S. Mineral Survey No. 15637,
PAY ROCK LODGE, U.S. Mineral Survey No. 8480,
PONDEROSA LODGE, U.S. Mineral Survey No. 13172,

POTOSI LODGE, U.S. Mineral Survey No. 48,
PROTECTION LODGE, U.S. Mineral Survey No. 13272,
RARE METALS LODGE, U.S. Mineral Survey No. 20681A,
RARE METALS MILLSITE, U.S. Mineral Survey No. 20681B,
READY CASH LODGE, U.S. Mineral Survey No. 6852,

RICO LODGE, U.S. Mineral Survey No. 14286,
ROBERTS PLACER (SUBSURFACE ONLY), U.S. Mineral Survey No. 14284,
ROMEO LODGE, U.S. Mineral Survey No. 13272,
SILVER BRICK LODGE, U.S. Mineral Survey No. 159,
SILVER POINT LODGE, U.S. Mineral Survey No. 39,

SMUGGLER LODGE, U.S. Mineral Survey No. 13219,
SUNNY VIEW LODGE, U.S. Mineral Survey No. 13471,
SYNDICATE LODGE, U.S. Mineral Survey No. 15609,
TACOMA LODGE, U.S. Mineral Survey No. 13272,

TEN FORTY LODE, U.S. Mineral Survey No. 287,
WINDY POINT LODE, U.S. Mineral Survey No. 16926,
WORCESTER LODE, U.S. Mineral Survey No. 14286,
County of Boulder, State of Colorado.

Parcel A

Dutch Park Lode Claim (United States Mineral Survey No. 16838) located in the Grand Island Mining District, as set forth in Patent recorded April 21, 1937 at Book 398 at Page 441, expressly excepting and excluding all that portion of ground embraced in mining claims or mineral surveys excepted in the above referenced patent.

Congo Chief Lode Claim located in the Grand Island Mining District, as set forth in the Additional and Amended Location Certificate recorded August 13, 1925 in Book 320 Page 280 Boulder County embracing portions of Section 5, Township 1 South Range 73 West of the Sixth Principal Meridian.

Congo Chief #2 Lode Claim located in the Grand Island Mining District, as set forth in the Location Certificate recorded October 22, 1917 in Book 332 Page 493 Boulder County embracing portions of Section 4, Township 1 South Range 73 West of the Sixth Principal Meridian.

Chester City Lode Claim 1/8th interest located in the Grand Island Mining District, as set forth in the Additional and Amended Location Certificate recorded March 5, 1907 in Book 230 Page 24 Boulder County embracing portions of Section 24, Township 1 North Range 72 West of the Sixth Principal Meridian

London Lode Claim 1/8th interest located in the Grand Island Mining District, as set forth in the Additional and Amended Location Certificate recorded September 19, 1969 in Film #0679 Boulder County embracing portions of Section 24, Township 1 North Range 72 West of the Sixth Principal Meridian.

PREPARED BY:

Joseph Thomas
Grand Island Resources
12567 W. Cedar Dr., Suite 250
Lakewood, CO 80228

AFTER RECORDING RETURN TO:

Richard Mittasch
Grand Island Resources
12567 W. Cedar Dr., Suite 250
Lakewood, CO 80228

SPACE ABOVE IS FOR RECORDERS USE

QUIT CLAIM DEED

On May 11, 2021, THE GRANTOR(S) Calais Resources Colorado, Inc. for and in consideration of One Hundred dollars (\$ 100.00) and/or other good and valuable consideration conveys, releases, and quit claims to GRANTEE(S)

Grand Island Resources, LLC
12567 West Cedar Drive
Suite 250
Lakewood, Colorado 80228

The following described unpatented mining claims, situated in the State of Colorado, in the county of Boulder.

BLM SERIAL NUMBER	CLAIM NAME	LEGAL DESCRIPTION
See attached list	See attached list	See attached list

U.S. DEPT OF INTERIOR
BUREAU OF LAND MGMT
COLORADO STATE OFFICE DENVER
2021 MAY 12 A 10:37

Grantor does hereby convey, release and quitclaim 100 Percent of the Grantor's rights, title, and interest in and to the above described property and premises to the Grantee(s), and the Grantee(s) heirs, and assigns forever, so that neither Grantor(s) nor Grantee(s) heirs, legal representatives, or assigns shall have, claim or demand and right or title to the property, premises, or appurtenances, or any part thereof.

Grantor Signature(s) [Handwritten Signature]

Date: MAY 12, 2021

State of COLORADO, County of BOULDER,
SS:

By _____

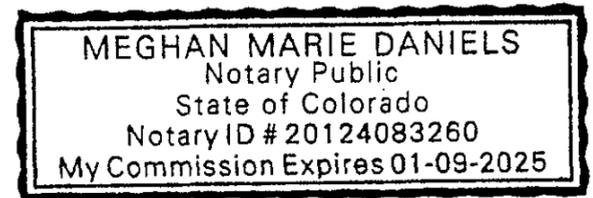
Meghan Marie Daniels
Notary Public

Administrative Assistant
Title (and Rank)

My Commission Expires: 01-09-2025

Notary Address

405 Urban St. # 310
Lakewood, CO 80228



Printed Name of Notary Republic Meghan Marie Daniels
Notary Public for the State of Colorado

Residing at: Edge Environmental, Inc.

My Commission Expires: 01-09-2025

U.S. DEPT OF INTERIOR
BUREAU OF LAND MGMT
COLORADO STATE OFFICE DENVER
2021 MAY 12 A 10:37

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC230687	APOLLO #9	1545	947790	Center of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing N 88° 34' 27.12" E, 1150.465' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC230688	APOLLO #12	1545	947791	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing S 13° 21' 42.48" W, 1600.144' to POB. HENCE from POB, S 48° 26' 45.24" E, 1500', THEN, N 41° 33' 14.76" E, 600', THEN, N 48° 26' 45.24" W, 1500', THEN, S 41° 33' 14.76" W, 600' to the POB.
CMC230689	APOLLO #13	1545	947792	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing S 30° 8' 35.16" W, 852.610' to POB. HENCE from POB, S 48° 26' 45.24" E, 1500', THEN, N 41° 33' 14.76" E, 600', THEN, N 48° 26' 45.24" W, 1500', THEN, S 41° 33' 14.76" W, 600' to the POB.
CMC230690	APOLLO #14	1545	947793	
CMC230691	APOLLO #18	1545	947794	SW corner of the NE¼-SW¼ of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 70° 2' 8.88" E, 837.049' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC230692	APOLLO #19	1545	947795	Center of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 45° 26' 7.80" W, 770.235' to POB. HENCE from POB, S 48° 26' 45.24" E, 1200', THEN, N 41° 33' 14.76" E, 600', THEN, N 48° 26' 45.24" W, 1200', THEN, S 41° 33' 14.76" W, 600' to the POB.
CMC230693	APOLLO #20	1545	947796	
CMC224379	APOLLO #21	1495	877378	
CMC224380	APOLLO #22	1495	877379	Center of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 58° 40' 46.20" W, 172.643' to POB. HENCE from POB, S 48° 26' 45.24" E, 1200', THEN, N 41° 33' 14.76" E, 600', THEN, N 48° 26' 45.24" W, 1200', THEN, S 41° 33' 14.76" W, 600' to the POB.
CMC204780	BEAR #1	1542	937349	Center of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing N 60° 48' 15.12" E, 864.733' to POB. HENCE from POB, N 0° 3' 14.76" E, 1500', THEN, N 89° 56' 45.24" W, 600', THEN, S 0° 3' 14.76" W, 1500', THEN, S 89° 56' 45.24" E, 600' to the POB.
CMC204781	BEAR #2	1542	937350	Center of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing N 26° 40' 54.12" E, 1170.778' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204782	BEAR #3	1542	937351	Center of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing S 2° 47' 46.68" E, 853.490' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.

BLM DISTRICT OFFICE
 1000 14TH ST
 BOULDER, CO 80502
 303-440-7300
 03-07-2019

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC204783	BEAR #4	1542	937352	Center of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing N 63° 47' 36.96" W, 959.200' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC182017	BEAR #5	1542	937353	Center of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing N 25° 23' 13.56" W, 683.912' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC201312	BEAR #6	1542	937354	Center of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing S 18° 42' 32.76" W, 857.559' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC201313	BEAR #7	1542	587576	SW corner of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 88° 21' 34.56" E, 2630.256' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204784	BEAR #8	1542	631260	SW corner of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 86° 42' 38.52" E, 2064.723' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204785	BEAR #9	1542	631261	SW corner of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 55° 7' 47.28" E, 2614.326' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204786	BEAR #10	1542	631262	SW corner of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 50° 29' 1.32" E, 2044.400' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC245167	BLACK BEAR #1	1882	1343515	SW corner of the SW¼-NW¼ of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing S 29° 10' 10.20" E, 1304.935' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245168	BLACK BEAR #2	1882	1343516	SW corner of the SW¼-NW¼ of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing S 14° 11' 33.36" E, 764.591' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.

12 A 10 30
 BUREAU OF LAND MANAGEMENT
 UNITED STATES DEPARTMENT OF THE INTERIOR
 BOULDER COUNTY OFFICE

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC245169	BLACK BEAR #3	1882	1343517	SW corner of the SW¼-NW¼ of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing N 37° 6' 39.60" E, 431.675' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245170	BLACK BEAR #4	1882	1343518	SW corner of the SW¼-NW¼ of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing N 85° 44' 13.56" W, 712.803' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245171	BLACK BEAR #5	1882	1343519	SW corner of the SW¼-NW¼ of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing N 68° 44' 31.20" W, 1244.923' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245172	BLACK BEAR #6	1882	1343520	SW corner of the SE¼-SE¼ of Section 6, T 1 S, R 73 W of the 6th PM to a point bearing S 76° 59' 35.16" E, 1112.013' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245173	BLACK BEAR #7	1882	1343521	SW corner of the SE¼-SE¼ of Section 6, T 1 S, R 73 W of the 6th PM to a point bearing S 76° 57' 12.24" W, 651.606' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245174	BLACK BEAR #8	1882	1343522	SW corner of the SE¼-SE¼ of Section 6, T 1 S, R 73 W of the 6th PM to a point bearing S 18° 55' 27.48" W, 576.400' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245175	BLACK BEAR #9	1882	1343523	SW corner of the SE¼-SE¼ of Section 6, T 1 S, R 73 W of the 6th PM to a point bearing N 15° 31' 21.36" W, 979.737' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245182	BLACK BEAR #16	1882	1343530	SW corner of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing N 52° 49' 36.48" W, 1703.217' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245183	BLACK BEAR #17	1882	1343531	SW corner of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing N 55° 12' 10.08" W, 1105.951' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.

U.S. DEPT. OF INTERIOR
 BUREAU OF LAND MANAGEMENT
 OFFICE OF THE ASSISTANT
 DIRECTOR
 DENVER, COLORADO
 MAY 12 10 30 AM '08

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC245184	BLACK BEAR #18	1882	1343532	SW corner of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing N 63° 5' 17.16" W, 515.077' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245185	BLACK BEAR #19	1882	1343533	SW corner of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing N 3° 24' 43.20" E, 165.778' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245186	BLACK BEAR #20	1882	1343534	SW corner of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 37° 57' 2.88" E, 713.905' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245187	BLACK BEAR #21	1882	1343535	SW corner of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 42° 44' 29.40" E, 1308.942' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245188	BLACK BEAR #22	1882	1343536	SW corner of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 44° 32' 2.40" E, 1906.911' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245189	BLACK BEAR #23	1882	1343537	SW corner of the NE¼-SW¼ of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 61° 30' 31.68" E, 1448.136' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245190	BLACK BEAR #24	1882	1343538	SW corner of the NE¼-SW¼ of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 70° 26' 6.72" E, 874.217' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245191	BLACK BEAR #25	1882	1343539	SW corner of the NE¼-SW¼ of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 74° 17' 32.64" W, 389.118' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245192	BLACK BEAR #26	1882	1343540	SW corner of the NE¼-SW¼ of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing N 8° 25' 2.64" W, 508.498' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.

DEPARTMENT OF INTERIOR
 BUREAU OF LAND MANAGEMENT
 OFFICE OF STATE AND FEDERAL RELATIONS
 12 APR 2012 10:38 AM

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC245193	BLACK BEAR #27	1882	1343541	SW corner of the NE¼-SW¼ of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing N 30° 8' 51.72" W, 1041.983' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245196	BLACK BEAR #30	1882	1343544	SW corner of the NE¼ of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 21° 47' 19.68" W, 783.017' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245197	BLACK BEAR #31	1882	1343545	SW corner of the NE¼ of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 65° 59' 10.68" W, 809.813' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245198	BLACK BEAR #33	1882	1343546	Center of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 45° 29' 38.04" W, 771.918' to POB. HENCE from POB, S 48° 26' 45.24" E, 1200', THEN, N 41° 33' 14.76" E, 600', THEN, N 48° 26' 45.24" W, 1200', THEN, S 41° 33' 14.76" W, 600' to the POB.
CMC245199	BLACK BEAR #34	1882	1343547	
CMC245200	BLACK BEAR #35	1882	1343548	
CMC245201	BLACK BEAR #36	1882	1343549	SW corner of the SE¼-NE¼ of Section 7, T 1 S, R 73 W of the 6th PM to a point bearing S 59° 21' 31.68" E, 932.756' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245202	BLACK BEAR #37	1882	1343550	SW corner of the SE¼-NE¼ of Section 7, T 1 S, R 73 W of the 6th PM to a point bearing S 78° 21' 1.80" E, 364.780' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245203	BLACK BEAR #38	1882	1343551	SW corner of the SE¼-NE¼ of Section 7, T 1 S, R 73 W of the 6th PM to a point bearing N 15° 54' 1.44" W, 340.726' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245204	BLACK BEAR #39	1882	1343552	SW corner of the NW¼-NE¼ of Section 7, T 1 S, R 73 W of the 6th PM to a point bearing S 63° 15' 39.60" E, 957.436' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245205	BLACK BEAR #40	1882	1343553	SW corner of the NW¼-NE¼ of Section 7, T 1 S, R 73 W of the 6th PM to a point bearing S 85° 23' 4.20" E, 407.375' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.

U.S. DEPT OF INTERIOR
 BUREAU OF LAND MANAGEMENT
 DENVER OFFICE
 DENVER, CO 80202
 MAY 12 A 10:38

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC245206	BLACK BEAR #41	1882	1343554	SW corner of the NE¼-NW¼ of Section 7, T 1 S, R 73 W of the 6th PM to a point bearing S 2° 56' 9.60" E, 798.673' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC245207	BLACK BEAR #42	1882	1343555	SW corner of the NE¼-NW¼ of Section 7, T 1 S, R 73 W of the 6th PM to a point bearing N 45° 58' 50.88" E, 567.602' to POB. HENCE from POB, N 41° 33' 14.76" E, 1500', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1500', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC246237	BLACK BEAR #49	1921	1378111	SW corner of Section 10, T 1 S, R 73 W of the 6th PM to a point bearing S 21° 10' 40.80" E, 1503.041' to POB. HENCE from POB, N 71° 13' 14.88" E, 1200', THEN, N 18° 46' 44.76" W, 600', THEN, S 71° 13' 14.88" W, 1200', THEN, S 18° 46' 45.84" E, 600' to the POB.
CMC246238	BLACK BEAR #50	1921	1378112	SW corner of Section 10, T 1 S, R 73 W of the 6th PM to a point bearing S 22° 59' 25.44" E, 904.164' to POB. HENCE from POB, N 71° 13' 14.88" E, 1200', THEN, N 18° 46' 44.76" W, 600', THEN, S 71° 13' 14.88" W, 1200', THEN, S 18° 46' 45.84" E, 600' to the POB.
CMC246239	BLACK BEAR #51	1921	1378113	SW corner of the SE¼-SE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 68° 38' 48.48" E, 400.151' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC246240	BLACK BEAR #52	1921	1378114	SW corner of the SE¼-SE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 70° 23' 20.04" E, 999.813' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC246241	BLACK BEAR #53	1921	1378115	SW corner of the SE¼-SE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 52° 31' 14.52" E, 1784.924' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC246242	BLACK BEAR #54	1921	1378116	SW corner of the SE¼-SE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 33° 36' 13.68" E, 1531.812' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC246256	BLACK BEAR #68	1921	1378130	SW corner of the SW¼-NW¼ of Section 4, T 1 S, R 73 W of the 6th PM to a point bearing S 84° 39' 30.24" E, 623.450' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 83° 6' 45.36" E, 600' to the POB.

U.S. DEPT. OF INTERIOR
 BUREAU OF LAND MGMT.
 COLORADO STATE OFFICE DENVER
 MAY 12 A 10:38

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC246257	BLACK BEAR #69	1921	1378131	SW corner of the SW¼-NW¼ of Section4, T 1 S, R 73 W of the 6th PM to a point bearing S 59° 24' 47.16" E, 1101.702' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC246258	BLACK BEAR #70	1921	1378132	SW corner of the SW¼-NW¼ of Section4, T 1 S, R 73 W of the 6th PM to a point bearing N 35° 55' 32.16" E, 1083.329' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC246259	BLACK BEAR #71	1921	1378133	SW corner of the SW¼-NW¼ of Section4, T 1 S, R 73 W of the 6th PM to a point bearing N 12° 34' 53.04" E, 1413.739' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC246260	BLACK BEAR #72	1921	1378134	SW corner of the SW¼-NW¼ of Section4, T 1 S, R 73 W of the 6th PM to a point bearing S 33° 22' 36.12" W, 532.573' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC246261	BLACK BEAR #73	1921	1378135	SW corner of the SW¼-NW¼ of Section4, T 1 S, R 73 W of the 6th PM to a point bearing N 2° 6' 41.04" W, 947.934' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC246262	BLACK BEAR #74	1921	1378136	SW corner of the SW¼-NW¼ of Section4, T 1 S, R 73 W of the 6th PM to a point bearing N 84° 21' 14.40" W, 1297.494' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC246263	BLACK BEAR #75	1921	1378137	SW corner of the SW¼-NW¼ of Section4, T 1 S, R 73 W of the 6th PM to a point bearing N 68° 43' 54.48" W, 1737.364' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC246264	BLACK BEAR #76	1921	1378138	SW corner of the SW¼-NW¼ of Section4, T 1 S, R 73 W of the 6th PM to a point bearing N 14° 2' 47.40" W, 1494.497' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC246265	BLACK BEAR #77	1921	1378139	SW corner of the SW¼-NW¼ of Section4, T 1 S, R 73 W of the 6th PM to a point bearing N 19° 28' 40.08" W, 2070.861' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.

U.S. DEPT. OF INTERIOR
 BUREAU OF LAND MGMT.
 STATE OFFICE DENVER
 MAY 12 A 10:38

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC246266	BLACK BEAR #79	1921	1378140	Center of Section 5, T 1 S, R 73 W of the 6th PM to a point bearing S 30° 58' 19.20" E, 1021.511' to POB. HENCE from POB, N 41° 33' 14.76" E, 1000', THEN, N 48° 26' 45.24" W, 600', THEN, S 41° 33' 14.76" W, 1000', THEN, S 48° 26' 45.24" E, 600' to the POB.
CMC246267	BLACK BEAR #81	1921	1378141	SW corner of the SW¼-NW¼ of Section 4, T 1 S, R 73 W of the 6th PM to a point bearing N 68° 44' 31.92" E, 1033.705' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC246268	BLACK BEAR #82	1921	1378142	Center of Section 4, T 1 S, R 73 W of the 6th PM to a point bearing N 49° 10' 28.20" W, 1996.519' to POB. HENCE from POB, N 0° 3' 14.76" E, 1500', THEN, N 89° 56' 45.25" W, 600', THEN, S 0° 3' 14.76" W, 1500', THEN, S 89° 56' 45.26" E, 600' to the POB.
CMC246269	BLACK BEAR #83	1921	1378143	Center of Section 4, T 1 S, R 73 W of the 6th PM to a point bearing N 34° 55' 36.12" W, 1591.156' to POB. HENCE from POB, N 0° 3' 14.76" E, 1500', THEN, N 89° 56' 45.25" W, 600', THEN, S 0° 3' 14.76" W, 1500', THEN, S 89° 56' 45.26" E, 600' to the POB.
CMC246270	BLACK BEAR #84	1921	1378144	Center of Section 4, T 1 S, R 73 W of the 6th PM to a point bearing N 82° 41' 14.64" E, 1524.587' to POB. HENCE from POB, N 0° 3' 14.76" E, 1500', THEN, N 89° 56' 45.25" W, 600', THEN, S 0° 3' 14.76" W, 1500', THEN, S 89° 56' 45.26" E, 600' to the POB.
CMC246271	BLACK BEAR #85	1921	1378145	Center of Section 4, T 1 S, R 73 W of the 6th PM to a point bearing N 77° 57' 35.64" E, 932.769' to POB. HENCE from POB, N 0° 3' 14.76" E, 1500', THEN, N 89° 56' 45.25" W, 600', THEN, S 0° 3' 14.76" W, 1500', THEN, S 89° 56' 45.26" E, 600' to the POB.
CMC246272	BLACK BEAR #86	1921	1378146	Center of Section 4, T 1 S, R 73 W of the 6th PM to a point bearing N 41° 47' 31.20" E, 2272.145' to POB. HENCE from POB, N 0° 3' 14.76" E, 1500', THEN, N 89° 56' 45.25" W, 600', THEN, S 0° 3' 14.76" W, 1500', THEN, S 89° 56' 45.26" E, 600' to the POB.
CMC246273	BLACK BEAR #87	1921	1378147	Center of Section 4, T 1 S, R 73 W of the 6th PM to a point bearing N 28° 20' 50.64" E, 1925.704' to POB. HENCE from POB, N 0° 3' 14.76" E, 1500', THEN, N 89° 56' 45.25" W, 600', THEN, S 0° 3' 14.76" W, 1500', THEN, S 89° 56' 45.26" E, 600' to the POB.
CMC246274	BLACK BEAR #88	1921	1378148	Center of Section 4, T 1 S, R 73 W of the 6th PM to a point bearing N 13° 34' 30.72" E, 3903.770' to POB. HENCE from POB, N 89° 56' 45.24" W, 1200', THEN, S 0° 3' 14.76" W, 600', THEN, S 89° 56' 45.24" E, 1200', THEN, N 0° 3' 14.76" E, 600' to the POB.

U.S. DEPT OF INTERIOR
 BUREAU OF LAND MANAGEMENT
 COLORADO STATE OFFICE DENVER
 2011 MAY 12 A 10:3

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC204763	GRIZZLY BEAR #1	1310	631239	SW corner of the SW¼-NW¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 24° 37' 27.84" E, 722.280' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204764	GRIZZLY BEAR #2	1310	631240	SW corner of the SW¼-NW¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 45° 38' 42.72" E, 1215.320' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204765	GRIZZLY BEAR #3	1310	631241	SW corner of the SW¼-NW¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 54° 4' 12.72" E, 1775.132' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204766	GRIZZLY BEAR #4	1310	631242	SW corner of the SW¼-NW¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 58° 21' 2.88" E, 2355.337' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204767	GRIZZLY BEAR #5	1310	631243	SW corner of the SW¼-NE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 81° 19' 41.88" E, 1426.082' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204768	GRIZZLY BEAR #6	1310	631244	SW corner of the SW¼-NE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 88° 30' 32.04" E, 841.915' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204769	GRIZZLY BEAR #7	1310	631245	SW corner of the SW¼-NE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 58° 0' 12.96" W, 322.397' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204770	GRIZZLY BEAR #8	1310	631246	SW corner of the SW¼-NE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing S 38° 53' 47.04" W, 468.038' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204771	GRIZZLY BEAR #9	1310	631247	SW corner of the SW¼-NE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing S 36° 20' 50.28" E, 1311.590' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.

U.S. DEPT OF INTERIOR
BUREAU OF LAND MANAGEMENT
OFFICE OF THE ASSISTANT
SECRETARY FOR LAND AND
SOIL CONSERVATION
DENVER, CO 80202
MAY 12 A 10:30

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC204772	GRIZZLY BEAR #10	1310	631248	SW corner of the SW¼-NE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing S 9° 29' 30.48" E, 1266.943' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204773	GRIZZLY BEAR #11	1311	633563	SW corner of the SW¼-NE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 13° 59' 20.04" E, 1486.616' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204774	GRIZZLY BEAR #12	1310	631250	SW corner of the SW¼-NE¼ of Section 9, T 1 S, R 73 W of the 6th PM to a point bearing N 29° 33' 24.12" E, 1880.133' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204775	GRIZZLY BEAR #13	1311	633564	SW corner of Section 10, T 1 S, R 73 W of the 6th PM to a point bearing N 80° 53' 35.52" W, 1273.083' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204776	GRIZZLY BEAR #14	1310	631252	SW corner of Section 10, T 1 S, R 73 W of the 6th PM to a point bearing N 89° 42' 52.56" W, 1822.925' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204777	GRIZZLY BEAR #15	1310	631253	SW corner of Section 10, T 1 S, R 73 W of the 6th PM to a point bearing N 85° 35' 50.28" E, 2398.058' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204778	GRIZZLY BEAR #16	1310	631254	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing S 41° 20' 33.72" W, 301.567' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC204779	GRIZZLY BEAR #17	1542	937355	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing S 61° 19' 20.28" W, 874.611' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.
CMC227600	GRIZZLY BEAR #18	1525	914014	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing S 44° 59' 8.88" W, 1629.342' to POB. HENCE from POB, S 18° 46' 44.76" E, 1500', THEN, N 71° 13' 14.88" E, 600', THEN, N 18° 46' 45.84" W, 1500', THEN, S 71° 13' 14.88" W, 600' to the POB.

DEPT OF INTERIOR
 BUREAU OF LAND MGMT
 DISTRICT OFFICE DENVER
 APR 12 A 10:30

BLM Serial Number	Claim Name	Film	Rec#	Legal
CMC227601	GRIZZLY BEAR #19	1525	914015	Center of Section 8, T 1 S, R 73 W of the 6th PM to a point bearing N 88° 17' 39.12" E, 1355.274' to POB. HENCE from POB, N 0° 3' 14.76" E, 1500', THEN, N 89° 56' 45.24" W, 600', THEN, S 0° 3' 14.76" W, 1500', THEN, S 89° 56' 45.24" E, 600' to the POB.
CMC252768	KODIAK BEAR #1-RELOC		2608688	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing N 38° 41' 23.64" W, 938.621' to POB. HENCE from POB, S 33° 6' 45.36" E, 1500', THEN, N 56° 53' 14.64" E, 600', THEN, N 33° 6' 45.36" W, 1500', THEN, S 56° 53' 14.64" W, 600' to the POB.
CMC252495	KODIAK BEAR #2		2520101	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing N 76° 22' 43.32" W, 1008.785' to POB. HENCE from POB, S 33° 6' 45.36" E, 1500', THEN, N 56° 53' 14.64" E, 600', THEN, N 33° 6' 45.36" W, 1500', THEN, S 56° 53' 14.64" W, 600' to the POB.
CMC252496	KODIAK BEAR #3		2520102	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing N 86° 32' 58.92" E, 1485.671' to POB. HENCE from POB, S 33° 6' 45.36" E, 1500', THEN, N 56° 53' 14.64" E, 600', THEN, N 33° 6' 45.36" W, 1500', THEN, S 56° 53' 14.64" W, 600' to the POB.
CMC252497	KODIAK BEAR #4		2520103	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing N 48° 56' 26.16" E, 1910.097' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC252498	KODIAK BEAR #5		2520104	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing N 32° 21' 11.16" E, 2081.198' to POB. HENCE from POB, N 56° 53' 14.64" E, 1500', THEN, N 33° 6' 45.36" W, 600', THEN, S 56° 53' 14.64" W, 1500', THEN, S 33° 6' 45.36" E, 600' to the POB.
CMC231003	PANDORA	1550	947086	Intersection of Sections 4, 5, 8 & 9, T 1 S, R 73 W of the 6th PM to a point bearing N 4° 34' 26.40" W, 1188.919' to POB. HENCE from POB, N 34° 30' 0.72" E, 1020', THEN, N 32° 27' 59.04" W, 652', THEN, S 34° 29' 59.28" W, 1020', THEN, S 32° 28' 1.56" E, 652' to the POB.
CMC231004	PANDORA #2	1550	947087	
CMC231005	PANDORA #3	1550	947085	
CMC204787	PLEASANT VIEW	1310	631238	

U.S. DEPT OF INTERIOR
 BUREAU OF LAND MANAGEMENT
 1100 STATE STREET
 BOULDER, CO 80502

Exhibit H

Municipalities Within a Two Mile Radius

There are no municipalities within a two mile radius of the proposed Grand Island Resources, LLC mine site expansion area.

Exhibit I

Proof of Filing With County Clerk

Please see email from Boulder County Clerk and Records Office. Due to COVID restrictions, stamped receipts are not currently available.

Exhibit J

Rule 6.3.11

Proof of Notices to Board of County Commissioners and Soil Conservation District:

Please see attached notice documents.

*Please see email from Boulder County Board of
Commissioners. Due to COVID restrictions, stamped
receipts are not currently available.*

Rmittasch@nedmining.com

From: Rmittasch@nedmining.com
Sent: Tuesday, January 5, 2021 1:12 PM
To: 'Commissioners@bouldercounty.org'
Subject: Notice for Cross Gold Mine for Grand Island Resources
Attachments: GIR 110(2) Application Executed.pdf

Dear County Commissioners:

As part of our processes for filling our 110 application for our amendment # 2 under DRMS Permit M-1977-410. We are providing a copy of application for review by the Boulder County, Commissioners (BCCC) and the Boulder County Colorado Soil Conservation District (BCSCD)

If you or any of your office need more information or go over any question please feel free to call or write us at the information below:

Regards,

Richard Mittasch
Grand Island Resources, LLC
4415 Caribou Rd
Nederland, CO 80466
Rmittasch@nedmining.com
(720) 207-5154

From: Boulder County Board of Commissioners <commissioners@bouldercounty.org>
Sent: Tuesday, January 5, 2021 1:12 PM
To: Rmittasch@nedmining.com
Subject: Auto-Reply Msg

Thank you for sending your comments, feedback, and/or questions to the Boulder County Commissioners. Your message has been received and will be forwarded to the Board of County Commissioners

COVID-19

If you are writing about COVID-19, we have compiled a list of resources to give clarity around county operations and services and to provide resources to our community members in need. Please visit the following pages to find more information:

- www.boco.org/COVID-19 (Facts and FAQs to help lessen the spread of COVID-19)
- www.boco.org/COVID-19Resources (For those affected by the impacts of COVID-19)

We are working closely with Boulder County Public Health to provide timely communications around COVID-19 actions. Please visit these social media sites for updates:

- **Boulder County Public Health** [Facebook](#) & Twitter: [@bouldercohealth](#)

Additionally, a partnership between the University of Colorado Boulder (CU), the City of Boulder, and Boulder County Public Health is actively involved in addressing the increase in COVID-19 cases among CU students. For updates and additional information, please visit the following websites:

- **Boulder County Public Health:** www.boco.org/COVID-19
- **City of Boulder:** <https://bouldercolorado.gov/coronavirus>
- **CU:** www.colorado.edu/covid-19

(See also: "[Public Health, CU, and the City of Boulder Respond to Increase in COVID Cases](#)" -- 9/15/2020)

Please note: **Boulder County Public Health (BCPH) is the responsible authority for public health orders in Boulder County concerning COVID-19.** BCPH has statutory authority to direct, amend, or rescind public health orders in coordination with the State of Colorado. *The Board of County Commissioners does not have authority over these public health orders nor does it have authority over CU or the City of Boulder on issues related to COVID-19.*

Other

- **If your email references a specific program, project, or public issue,** your comments will be reviewed by the office or department most closely related to your inquiry or comment and a reply may come directly from them.
- **If your email is regarding a specific planning issue coming before the Board of County Commissioners for public hearing** - such as a Community Planning & Permitting or Parks & Open Space Docket - your remarks will be forwarded to the staff planner collecting all comments for that issue. Your comments will then be included in a packet for the county commissioners to review prior to a public hearing on the matter.
- **Any communication to Boulder County is considered an item of public record** and must be made available by request under the Colorado Open Records Act (CORA). Information contained within the communication will not be redacted or edited for content.
- **If you have questions about an issue or would like to find out when future meetings or hearings are scheduled,** see [Board of County Commissioners](#) or view the [calendar](#), or search for the issue on our website at www.BoulderCounty.org.

We sincerely appreciate your interest and engagement with Boulder County.

Thanks again for contacting us.

With best regards,

Boulder County Commissioners
Deb Gardner, Elise Jones, Matt Jones

Boulder County Commissioners' Office
303-441-3500

DPollock@nedmining.com

From: DPollock@nedmining.com
Sent: Friday, December 18, 2020 9:42 AM
To: 'recording@bouldercounty.org'
Cc: 'Richard Mittasch'; 'TApodaca'; 'Daniel Takami'
Subject: Grand Island Resources Recording Request
Attachments: BOCO ClerkandRecorderCoverLetter 12-18-2020.docx; 12-18-20
BoulderCountyClerkSubmittal.pdf

Boulder County Clerk and Recorder's Office,

Please find attached a cover letter and DRMS permit application to be recorded. Payment instructions are included in the cover letter.

If you have any questions or concerns, please contact me.

Thank you,
Daniel Pollock
Director of Regulations and Permitting
Grand Island Resources
Nederland Mining Consultants
720.207.5154 – Office
312.342.6145 – Cell



**GRAND ISLAND
RESOURCES**

December, 18 2020

Boulder County Clerk and Records Office
1750 33rd St
Boulder, CO 80301
303.413.7700
recording@bouldercounty.org

RE: File No. M1977-410-110(2) Limited Impact Permit Amendment Application

Applicant: Grand Island Resources, LLC

Greetings,

Please find enclosed, to be filed and recorded, a Department of Reclamation, Mining and Safety - Limited Impact Operation 110(2) Reclamation Permit Application Form.

Total # of pages – 7 (not including this cover letter).

Payment Method:

Visa # [REDACTED]

Name: Anthony R Russo

Expiration: [REDACTED]

CVV: [REDACTED]

Please confirm a successful transaction/recording to the following email:
dpollock@nedmining.com

Thank you in advance for your assistance in this matter. Should there be any questions or concerns, please contact me at the information listed below.

Sincerely,

Daniel V Pollock
Director of Regulations and Permitting
Grand Island Resources, LLC
Office – 720.207.5154
Cell – 312.342.6145

DPollock@nedmining.com

From: Recording <recording@bouldercounty.org>
Sent: Monday, December 21, 2020 1:55 PM
To: DPollock@nedmining.com
Cc: 'Richard Mittasch'; 'TApodaca'; 'Daniel Takami'
Subject: RE: Grand Island Resources Recording Request

Good afternoon Daniel,

I have filed your document in our public notices file with the received date of 12/18/2020 since that is when you initially sent it in.

As discussed, public notices such as this are not recorded in the real estate records; they are filed in the public notices to provide public access upon request.

Please let me know if you have any questions.

Regards,
Jennifer

Jennifer Bowser
Recording Division Manager
Boulder County Clerk and Recorder
303.413.7770
recording@bouldercounty.org

From: DPollock@nedmining.com <DPollock@nedmining.com>
Sent: Friday, December 18, 2020 9:42 AM
To: Recording <recording@bouldercounty.org>
Cc: 'Richard Mittasch' <rmittasch@nedmining.com>; 'TApodaca' <TApodaca@nedmining.com>; 'Daniel Takami' <DanielTakami@gmail.com>
Subject: Grand Island Resources Recording Request

Boulder County Clerk and Recorder's Office,

Please find attached a cover letter and DRMS permit application to be recorded. Payment instructions are included in the cover letter.

If you have any questions or concerns, please contact me.

Thank you,
Daniel Pollock
Director of Regulations and Permitting
Grand Island Resources
Nederland Mining Consultants
720.207.5154 – Office
312.342.6145 – Cell

Exhibit K

Reserved

Exhibit L

Permanent Man-Made Structures

Permanent Man-made Structures:

Provide information sufficient to demonstrate that the stability of any structures located within two hundred (200) feet of the operation or affected land will not be adversely affected:

The Xcel power line and Qwest phone line currently cross or enter the mining operation. These structures have been associated with the mining operation since it was first permitted in 1977. In addition, Boulder County Road 128 runs adjacent to existing structures located just south and east of CR 128. U.S. Forest Road 505 is within 200 feet of the Caribou 300 Level Portal. These structures will not be impacted by the proposed activities associated with the permit amendment. Compensation agreements are not part of this amendment since this is an existing mining operation and the structures, as noted above, have been associated with this operation since 1977, if not earlier.

The three water wells are part of the existing mining operations. As such, they do not require compensation agreements.

Structure	Owner
County Road 128	Boulder County
Power Line	Xcel Energy
Phone Line	Century Link (AT&T)
U.S. Forest Service Road 505	U.S. Forest Service
Snow Shed at Caribou 300 Level Portal	Grand Island Resources
Historic Structures at Potosi Shaft Area	Grand Island Resources
Fencing at Potosi Shaft Area	Grand Island Resources

An example Structure Agreement which meets the requirements of the Statutes is shown below.

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

- a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or
- b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or
- c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20*)

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

- 1. Boulder County Road CR 226, Caribou Road
- 2. _____
- 3. _____
- 4. _____
- 5. _____

(Please list additional structures on a separate page)

CERTIFICATION

The Applicant, Grand Island Resources, LLC (print applicant/company name),
by Daniel Takami (print representative's name), as Manager (print
representative's title), does hereby certify that Boulder County, Colorado (structure owner) shall
be compensated for any damage from the proposed mining operation to the above listed structure(s)
located on or within 200 feet of the proposed affected area described within Exhibit A, of the Reclamation
Permit Application for Transfer of Operator/Cross Gold Mine/Caribou Mine (operation name),
File Number M- 1977 410.

*This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its
authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and
the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations.
Any alteration or modification to this form shall result in voiding this form.*

NOTARY FOR PERMIT APPLICANT

ACKNOWLEDGED BY:



Applicant GRAND ISLAND RESOURCES, LLC Representative Name DANIEL TAKAMI

Date JUNE 11, 2020 Title MANAGER

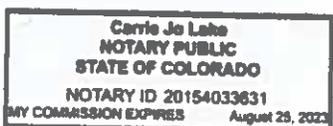
STATE OF Colorado)

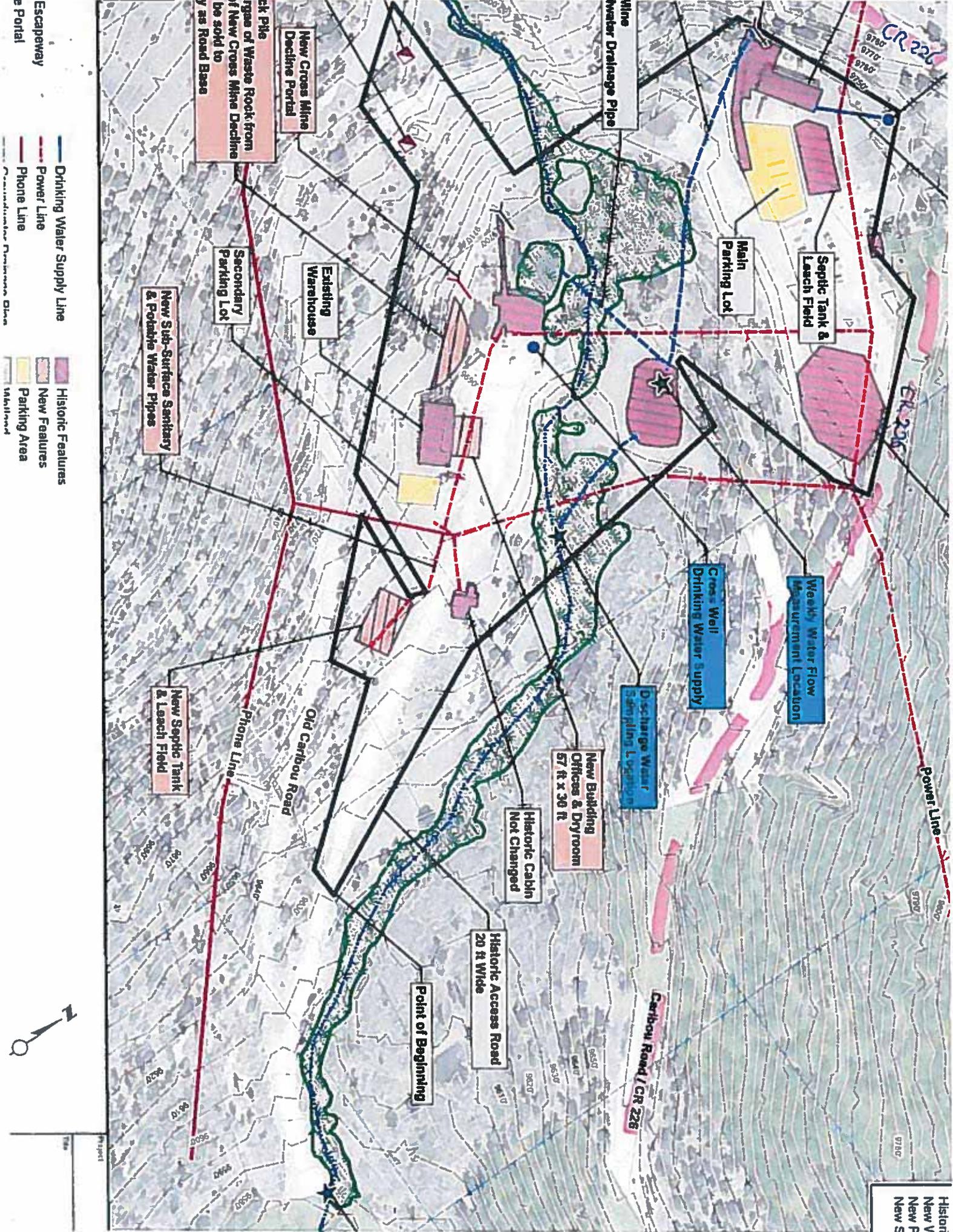
) ss.

COUNTY OF Boulder)

The foregoing was acknowledged before me this 11th day of JUNE, 2020, by
DANIEL TAKAMI as MANAGER of GRAND ISLAND RESOURCES, LLC

Carrie Jo Lake My Commission Expires: 8/25/2023
Notary Public





Historic
New Y
New P
New S

Power Line

Weekly Water Flow
Measurement Location

Cross Well
Drinking Water Supply

Discharge Water
Sampling Location

New Building
Offices & Dryroom
57 ft x 36 ft

Historic Cabin
Not Changed

Historic Access Road
20 ft wide

Point of Beginning

Caribou Road / CR 228

Old Caribou Road

Existing
Warehouse

New Sub-Surface Sanitary
& Potable Water Pipes

New Septic Tank
& Leach Field

Septic Tank &
Leach Field

Main
Parking Lot

New Cross Mine
Decline Portal

Rock Pile
Edge of Waste Rock from
New Cross Mine Decline
to be sold to
as Road Base

- Drinking Water Supply Line
- Power Line
- Phone Line
- Escapeway
- Portal
- Historic Features
- New Features
- Parking Area
- Stabilized

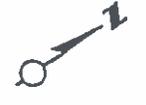


Exhibit M

Rule 1.6.2(1)(a)

**Notice of Filing to BOCO Conservation
District**

To be filed after application is accepted by DRMS.

Exhibit N

Rule 1.6.2(1)(b)

Post Notice Sign(s) at Mine Site

Notices were posted at the entrance to the Cross Mine and the Caribou Mine on December 12, 2020. They are also posted on the exterior of each building as well as inside at office locations.

Exhibit O

Rule 1.6.2(1)(d)

Notice to Newspapers and Landowners

Certified receipts to surrounding Landowners and a Notice published in the Mountain Ear are shown below.

7019 0700 0001 2925 5052

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

For delivery information, visit our website at www.usps.com®

Denver, CO 80221

OFFICIAL USE

Certified Mail Fee	\$3.60
Extra Services & Fees (check box, add fee as appropriate)	\$2.85
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$1.60
Total Postage and Fees	\$8.05



Sent To MR. MARK PHILLIPS
 Street and Apt. No., or PO Box No. 3060 WEST 58TH AVE.
 City, State, ZIP+4® DENVER CO 80221

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7018 3090 0001 3289 5040

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

For delivery information, visit our website at www.usps.com®

Lawrenceburg, IN 47025

OFFICIAL USE

Certified Mail Fee	\$3.75
Extra Services & Fees (check box, add fee as appropriate)	\$3.05
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$1.76
Total Postage and Fees	\$8.56



Sent To MR. WILLIAM BACHMANN, JR
 Street and Apt. No., or PO Box No. 14 PEBBLE BEACH, LANE
 City, State, ZIP+4® LAWRENCEBURG, IN 47025-7393

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 0700 0001 2925 5060

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

For delivery information, visit our website at www.usps.com®

Nederland, CO 80466

OFFICIAL USE

Certified Mail Fee	\$3.60
Extra Services & Fees (check box, add fee as appropriate)	\$2.85
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$1.60
Total Postage and Fees	\$8.05



Sent To ARAVAKH AGENCIES, INC
 Street and Apt. No., or PO Box No. P.O. BOX 3395
 City, State, ZIP+4® NEDERLAND CO 80466

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7018 3090 0001 3289 5057

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

For delivery information, visit our website at www.usps.com®

BRIGHTON, CO 80602

OFFICIAL USE

Certified Mail Fee	\$3.75
Extra Services & Fees (check box, add fee as appropriate)	\$3.05
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$1.76
Total Postage and Fees	\$8.56



Sent To MRS. W. ANDRITON & MS. REBELLA ANDRITON
 Street and Apt. No., or PO Box No. 13881 VAYLORA ST.
 City, State, ZIP+4® BRIGHTON, CO 80602-6367

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7018 3090 0001 3289 508

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

ELKINS, NH 03233
OFFICIAL USE

Certified Mail Fee	\$3.75
\$	\$3.05
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.78
\$	\$0.78
Total Postage and Fees	\$7.53
\$	\$7.53



Sent To Mr. David Danning
 Street and Apt. No., or PO Box No. P.O. Box 264
 City, State, ZIP+4® ELKINS, NH 03233

CLASSIFIEDS

FIREWOOD

HIGH TIMBER FIREWOOD

Pine, Hardwood or Mix. Immediate Delivery
Also Available - Semi-green Block & Lengths,
Chips & Sawdust. 303-258-7942

LUMBERJACKS

Pine, Fir or mix.
720-212-1875

FOR RENT

Rollinsville Mini-Storage

www.rollinsvilleministorage.com
Ask us about our move-in special!
303-258-0648

BLACK HAWK SELF STORAGE

26 Jankowski Dr. Approx. 6 miles
N. of Black Hawk on Hwy 119.
303-516-1940

HELP WANTED

Asplundh Contractor for United Power. Sick of Commuting down the hill to look at a computer screen all day?

Do you enjoy adventures in the mountains? Want to get paid for them?

Asplundh Tree Expert, LLC's yard in Coal Creek Canyon is seeking experienced and non-experienced Line Clearance Groundpersons & Climbers/Trimmers for full-time year-round employment.

Wages starting at \$16/hour. Competitive wages and exceptional advancement opportunities with the largest tree company on the planet!
Health, dental, vision, paid holidays, and 401 (k) options after 90 days of service
One-week paid vacation after one year of service & 3-weeks after 5 years of service
Applicants must pass a pre-employment drug test
Must be willing to obtain a CDL in the future
Must be able to perform physically demanding year-round work outdoors with, or without a reasonable accommodation
In order to be considered, you must complete an application at www.asplundh.ourcareerpages.com (Colorado). Interested applicants should contact Jon Butcher, (720) 229-3726.
Asplundh Tree Expert, LLC is an EOE/ AA: Minority/Female/Veterans/Disabled

Town Of Nederland Seeks Full-Time Operator I In Streets Dept.

The Town of Nederland is accepting applications for a full-time Operator I in the Public Works Department (Streets). This entry-level position performs a variety of duties related to the installation, maintenance, and repair of all public roadways, infrastructure, and storm water drainage. Other duties include heavy equipment operation, parks/building maintenance, and fire mitigation.

Must have a valid Commercial Driver's License (CDL), or obtain within six months of hire
Previous experience with heavy equipment operations, snow plowing, and streets maintenance highly desirable
Must be willing and able to be on-call and/or subject to on-call 24/7
\$17.00 to \$22.00 per hour, depending on experience (excellent benefits package included)
To apply, please submit a resume and Town of Nederland application. To view the full job description and download the application, go to nederlandco.org/employment.

TO EMAIL: christyr@nederlandco.org (preferred)
TO MAIL: Town of Nederland, PO Box 396, Nederland, CO 80466-0396
TO DROP OFF: Nederland Town Hall, 45 W. 1st Street, Nederland, CO 80466 (deposit into the black "Payment" box by the front door if Town Hall is closed)

Clerical Assistant needed for very busy Practice Management Service company to provide backup to a very busy Practice Manager. The ideal candidate will be skilled and computer knowledgeable and willing to work part time to start for 2-3 days per week in a home office environment. Excellent customer service skills and phone manners, strong work ethic and willing to learn the business. Some previous experience is good but not necessary.

Caregiver Wanted!

Job Summary. Making in-depth connected relationships within the home care environment is the greatest reward for becoming an in-home caregiver. We are looking for certified caregivers to join our growing team and help to bring our unique care philosophy to life. Homewatch CareGivers offers you flexible hours, incentive programs, career advancement, paid mileage, and training unequaled in our industry. Whether you are currently working in this field or are ready to rejoin the workforce after taking time off for your own family, this is an incredible opportunity to feel great about your job and the impact it has on others. Use our new Care smart phone app to keep track of your work schedule, shift responsibilities, communicate with the office and family and much more.

Job Description. We are looking for certified caregivers, ready to provide quality in-home care, but also to develop an enriching meaningful relationship with our clients. Our clients often require assistance with activities of daily living, but also require assistance staying connected with the outside world through social activities, appointments and errands; your role as a certified caregiver helps them to live life to their fullest. Our Care smart phone app keeps track of our client care plans, changes in ADL status and outcomes. This position allows for a full scope of interaction with the client in their home including assistance with their activities of daily living, maintaining their home environment, and keeping them engaged with the outside world.

Benefits. Use our new Care App to track your work schedule, see caregiving responsibilities for each shift, help with family communication, and more.
Competitive pay \$13.00-\$16.00/hour DOE.
Advancement opportunity to team leadership positions.
Online Training programs include 12 hours of paid annual coursework.
On-going CEU's available to maintain certification eligibility.
Referral bonuses provided for exceptional caregiver recruits.
Paid holidays and vacation time accrual.

Requirements. Must be able to provide verification of any certifications held.
Experience as a caregiver in a home care setting or skilled facility, preferred.
Must pass national and multi-jurisdictional background checks, Department of Motor Vehicle checks, as well as TB and drug screening tests.
Must be able to meet quality standards of care during shifts and follow standard procedures for engaging with the rest of the care team.
Must possess a valid driver's license and automobile insurance.
Client is looking for 10am-5pm on Tuesday's and Saturday's. MUST be reliable.

Location: Rollinsville, CO 80474
Please call (720)524-4192 with any questions.

Truck driver wanted!

Class B CDL required.
Safety requirements: Safely operate 36' Box truck, Forklift pallet jack.
Must be able to lift 50 pounds.
Mostly dock to dock.
Idaho Springs to Denver.
28 to 40 hours per week.
Competitive pay contact steve.i@tommyknocker.com
Or call 720-732-2107

MUSIC

Music Creativity Lessons. Music lessons should be fun—that's the best way to learn. I teach beginner to advanced music creativity and piano in classical, pop, rock, jazz and experimental genres. I incorporate improvisation, music theory and ear training into my lessons while emphasizing artistic expression along with the value of hard work. I graduated in 2020 with a degree in music composition from the University of Colorado, Boulder. Lessons are offered both in-person (covid-19 safe) and online—first lesson is always free with no commitment. References available. You can hear my music at JackGaffney.com. For info call 303-524-2472.

BRIGHTWOOD MUSIC offers MUSIC LESSONS!

Brightwood Music lessons are available for all ages and abilities. Now offering socially distant in-person lessons, Skype and Zoom lessons.

Doug Armitage. Guitar, Mandolin, Upright Bass, Ukulele, Tenor Banjo, Music Theory. Beginner 720.369.9494

Curly Collins. Upright Bass, Mandolin, Fiddle. Guitar. 920.475.6691

Dan Freeman. Banjo. Available by Appointment. 720.371.1757

Shaun Garin. Guitar, Mandolin and Bass. 410.440.3574

Allison Hardt-Zeman. Violin, guitar, ukulele, piano. Specializing in kids' lessons. 720.412.8619

Patrice LeBlanc. Piano and Voice. Patrice has over 20 years of experience working with all ages, levels and abilities. She has a MA degree in Musical Theatre and Music Composition from Regis University. Patrice is a versatile performer as a vocalist, pianist and performs as a soloist or with bands in jazz, blues, rock and folk music. 303.421.2243

Christine Mallery. Cello, Viola, Violin, Bass. All ages and abilities. Beginning bass, flute, and trumpet. Experienced teacher with a Master's

Degree in Cello and Viola Performance. Suzuki Training. 540.840.6868

Paul Stadler. Saxophone. Available by Appointment. 303.642.7375

Eric Richard Stone. Singer, songwriter, voice lessons. 303.883.3206

To find out more about individual instructors, music lessons, or Brightwood Music in general, please call 303.258.8863.

SERVICES

Lumberjacks Tree Service

All forestry services including fire mitigation, restoration & clean-up. Well equipped to perform large or small projects plus 25 years experience & caring w/ an individualized approach. **720-212-1875.**

Dan's Hauling

Rental/ Garage cleanout, Autos, construction, Remodel debris.
Daniel **303-459-3277**

HIGH TIMBER MOUNTAIN TREE SERVICES

Fire Mitigation & Technical Trees
"Resolve Insurance Requirements"
Consultation & Forest Management
Chipping & Slash Removal
Approved by the Colorado State Forest Service
Fully Insured Since 1981
303-258-7942

Instrument repairs in Nederland! Need to fix up that instrument you found in your grandpas attic or at the local thrift store? Full time luthier available for restringing to detailed refret jobs, to complete reconstruction. Brightwood Music has the repair services you need! Brightwood Music is located at 20 E Lakeview Dr., Unit 109 Nederland. We are also shipping strings, accessories and instruments during the pandemic. Call to find out more. Call 303.258.8863 for more information!

PUBLIC NOTICE

PUBLIC NOTICE

Grand Island Resources, LLC; 4415 Caribou Road – PO BOX 3395 Nederland, CO 80466, has filed an Amendment Application to a 110(2) Hard Rock Reclamation Permit with the Colorado Mined Land Reclamation Board under provisions of the Colorado Mined Land Reclamation Act. The proposed mine is known as the Cross Gold Mine and is located approximately 4 miles Northwest of Nederland, Section 9, Township 1 South, Range 73 West, 06th Principal Meridian, in Boulder County.

The proposed date of commencement is February 1, 2022, and the proposed date of completion is February 1, 2072. The proposed future use of the land is forestry.

Additional information and tentative decision date may be obtained from the Division of Reclamation, Mining, and Safety; 1313 Sherman Street, Room 215, Denver, Colorado

80203, (303) 866-3567, or at the Boulder County Clerk and Recorder's office; 1750 33rd Street, Boulder, CO 80301, (303) 413-7700, or the above-named applicant. A complete copy of the application is available at the above-named County Clerk and Recorder's office and at the Division's office.

Comments concerning the application and exhibits must be in writing and must be received by the Division of Reclamation, Mining, and Safety by 4:00 p.m. on March 7, 2021.

Please note that under the provisions of C.R.S. 34-32-101 et seq. Comments related to noise, truck traffic, hours of operation, visual impacts, effects on property values and other social or economic concerns are issues not subject to this Office's jurisdiction. These subjects, and similar ones, are typically addressed by your local governments, rather than the Division of Reclamation, Mining, and Safety or the Mined Land Reclamation Board.

Dental Insurance
Physicians Mutual Insurance Company

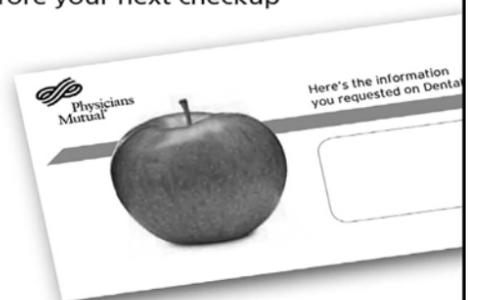
A less expensive way to help get the dental care you deserve!

- Get help paying dental bills and keep more money in your pocket
- This is real dental insurance — NOT just a discount plan
- Get affordable coverage before your next checkup

Don't wait! Call now and we'll rush you a FREE Information Kit with all the details.

1-855-429-7670
dental50plus.com/copa

Insurance Policy P150
6210 0519



Colorado Statewide
Classified Advertising
Network

Colorado Press Network

Buy a 25-word statewide classified line ad in newspapers across the state of Colorado for just \$300 per week. Ask about our frequency discounts!
Contact this newspaper, call Colorado Press Network,
720-274-7174 or email: rtoledo@colopress.net

Exhibit P

Rule 1.6.2(1)(e)

List of Surrounding Land Owners

RULE 1.6.2(1)(e)

List of Surrounding Land Owners

Permit Area and Adjacent Property Owners within 200 Feet:

The following is a consolidated list of adjacent property owners within 200 feet, for the parcels that encompass that proposed permit area. The list was developed from Boulder County Assessor records.

Adjacent Property Owners within 200 feet of the affected area:

Owner	Mailing Address
Grand Island Resources, LLC	PO Box 3395 Nederland, CO 80466
US Government US Forest Service	C/O Land Staff 2140 Yarmouth Boulder, CO 80301
Boulder County (Road Right of Way)	PO Box 471 Boulder, CO 80306
Mark Phillips	3060 W 58th Ave Denver CO 80221
Aardvark Agencies Inc.	P.O. Box 3395 Nederland, CO 80466
Norton Edward and Rebecca Sue Pronto	13881 Laylora St. Brighton, CO 80602
David J. Dunning	P.O. Box 264 Elkins, NH 03233
William J. Bachman, Jr	14 Pebble Beach Lane Lawrenceburg, IN 47025
Permitted Area Property Owner(s)	Mailing Address
Grand Island Resources, LLC	PO Box 3395 Nederland, CO 80466

Exhibit Q

Rule 1.6.2(1)(g)

Proof of Publication Return Receipts

To be filed after application is accepted by DRMS.

Appendix I

Weed Management

Weed Management

GIR will follow all requirements of the Boulder County Noxious Weed Management Plan. GIR will control, to the extent possible, List A and List B noxious weed species. List A species will be eradicated prior to seed development. Once noxious plants are eliminated, efforts will be made to detect and eliminate new plants arising from seed, reproductive propagule, or root stock. Plants, seeds, or other propagules removed from the site will be placed in sealed plastic bags and disposed of at an offsite solid waste landfill, which covers refuse daily with six inches of soil. List A species in Boulder County include the following:

- Orange Hawkweed (*Hieracium aurantiacum*)
- Spotted Knapweed (*Acosta maculosa*)
- Japanese Knotweed (*Polygonum cuspidatum*)
- Purple Loosestrife (*Lythrum salicaria*)
- Mediterranean Sage (*Salvia aethiopis*)
- Rush Skeletonweed (*Chondrilla juncea*)
- Cypress Spurge (*Euphorbia cyparissias*)
- Myrtle Spurge (*Euphorbia myrsinites*)
- Yellow Starthistle (*Centaurea solstitialis*)

List B noxious weeds will be treated by containment and suppression, through mowing, tilling, and hand pulling. A combination of techniques may be used. GIR will work with the Boulder County Weed Coordinator in determining the best method of controlling weeds.

List B noxious weed species include the following:

- Bull thistle (*Cirsium vulgare*)
- Canada thistle (*Cirsium arvense*)
- Common Teasel (*Dipsacus fullonum*)
- Dalmatian toadflax (*Linaria dalmatica*) (both broad-leaved and narrowleaved)
- Diffuse knapweed (*Centaurea diffusa*)
- Houndstongue (*Cynoglossum officinale*)
- Leafy spurge (*Euphorbia esula*)
- Musk thistle (*Carduus nutans*)
- Russian knapweed (*Rhaponticum repens*)
- Saltcedar or tamarisk (*Tamarix ramosissima*)
- Scotch thistle (both *Onopordum tauricum* and *Onopordum acanthium*)
- Spotted knapweed (*Centaurea stoebe*)
- Yellow Toadflax (*Linaria vulgaris*)

Appendix II

Colorado Parks and Wildlife Statement

A Colorado Parks and Wildlife statement will not be required for this Amendment Application. The proposed modifications will not result in a Designated Mining Operation or significant impacts to wildlife use.

Appendix III

Reclamation Cost

Closure Cost Estimate
Property Information

Enter Data Below in Green and Blue Spaces

STANDARDIZED RECLAMATION COST ESTIMATOR

Version 1.4.1

Build 017b (Revised 16 May 2019)

Approved for use in Nevada, August 1, 2012

COST DATA FILE INFORMATION	
File Name:	RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
Cost Data File:	SRCE_Cost_Data_File_1_12_Std_2020.xlsm
Cost Data Date:	August 1, 2020
Cost Data Basis:	User Data Data Cost Units: Imperial
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM

PROJECT INFORMATION	
Property/Mine Name:	Cross and Caribou Property Code:
Project Name:	Cross and Caribou Reclamation Estimator
Date of Submittal:	November 23 2021 Average Altitude: 9700 ft.
Select One:	<input type="radio"/> Notice or Sm Exploration Plan <input type="radio"/> Lg Exploration Plan <input checked="" type="radio"/> Mine Operation
Select One:	<input type="radio"/> Private Land <input checked="" type="radio"/> Public or Public/Private
Cost Estimate Type:	Surety
Cost Basis Category:	Northern Nevada Churchill, Douglas, Elko, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, Washoe, and White Pine Counties
Cost Basis Description:	

**Closure Cost Estimate
Table of Contents**

Project Name: Cross and Caribou Reclamation Estimator
Project Date: November 23 2021
Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
Reclamation Plan

Table of Contents

- Property Information
- Cost Summary
- Exploration
- Exploration Roads & Pads
- Waste Rock Dumps
- Heap Leach Pads
- Tailings
- Roads
- Pits
- Quarries & Borrow Pits
- Underground Openings
- Material Hauling
- Foundations and Buildings
- Other Demo & Equipment Removal
- Sediment & Drainage Control
- Process Ponds
- Landfills
- Yards, Etc.
- Waste Disposal
- Well Abandonment
- Misc. Costs
- Monitoring
- Construction Management
- Solution Management
- Other User
- Reclamation Quantities
- Labor Costs
- Equipment Costs
- Material Costs
- Misc. Unit Costs
- Fleets (Crews)
- Productivity
- User Tools
- Seed Mixture
- User Sheet 1
- User Sheet 2
- User Sheet 3
- User Sheet 4
- User Sheet 5
- User Sheet 6
- User Sheet 7
- User Sheet 8

Description

Description

**Closure Cost Estimate
Table of Contents**

User Sheet 9
User Sheet 10
User Sheet 11
User Sheet 12
User Sheet 13
User Sheet 14
User Sheet 15
User Sheet 16
User Sheet 17
User Sheet 18
User Sheet 19
User Sheet 20

**Closure Cost Estimate
Cost Summary**

Project Name: Cross and Caribou Reclamation Estimator

Project Date: November 23 2021

Model Version: Version 1.4.1

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

A. Earthwork/Recontouring	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$0	\$0	\$0	\$0
Exploration Roads & Drill Pads	\$0	\$0	\$0	\$0
Roads	\$3,948	\$9,585	\$0	\$13,533
Well Abandonment	\$0	\$0	\$0	\$0
Pits	\$0	\$0	N/A	\$0
Quarries & Borrow Areas	\$0	\$0	\$0	\$0
Underground Openings	\$7,064	\$3,722	\$13,267	\$24,053
Process Ponds	\$6,044	\$12,383	\$0	\$18,427
Heaps	\$0	\$0	\$0	\$0
Waste Rock Dumps	\$6,896	\$19,986	\$0	\$26,882
Landfills	\$0	\$0	\$0	\$0
Tailings	\$0	\$0	\$0	\$0
Foundation & Buildings Areas	\$3,276	\$9,738	\$0	\$13,014
Yards, Etc.	\$4,368	\$12,984	\$0	\$17,352
Drainage & Sediment Control	\$0	\$0	\$0	\$0
Generic Material Hauling	\$2,869	\$7,881	\$0	\$10,750
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal	\$34,465	\$76,279	\$13,267	\$124,011
Mob/Demob if included in Other User sheet	\$0	\$0	\$0	\$0
Mob/Demob				\$0
Subtotal "A"	\$34,465	\$76,279	\$13,267	\$124,011
B. Revegetation/Stabilization	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$0	\$0	\$0	\$0
Exploration Roads & Drill Pads	\$0	\$0	\$0	\$0
Roads	\$280	\$100	\$696	\$1,076
Well Abandonment				N/A
Pits	\$0	\$0	\$0	\$0
Quarries & Borrow Areas	\$0	\$0	\$0	\$0
Underground Openings				N/A
Process Ponds	\$700	\$250	\$685	\$1,635
Heaps	\$0	\$0	\$0	\$0
Waste Rock Dumps	\$280	\$100	\$793	\$1,173
Landfills	\$0	\$0	\$0	\$0
Tailings	\$0	\$0	\$0	\$0
Foundation & Buildings Areas	\$420	\$150	\$342	\$912
Yards, Etc.	\$940	\$337	\$6,548	\$7,825
Drainage & Sediment Control	\$0	\$0	\$0	\$0
Generic Material Hauling	\$140	\$50	\$114	\$304
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "B"	\$2,760	\$987	\$9,178	\$12,925
C. Detoxification/Water Treatment/Disposal of Wastes**	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Process Ponds/Sludge				\$0
Heaps				\$0
Dumps (Waste & Landfill)				\$0
Tailings				\$0
Surplus Water Disposal				\$0
Monitoring				\$0
Miscellaneous				\$0
Solid Waste - On Site	\$905	\$1,695	N/A	\$2,600
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "C"	\$905	\$1,695	\$0	\$2,600
D. Structure, Equipment and Facility Removal, and Misc.	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Foundation & Buildings Areas	\$2,639	\$2,389	\$0	\$5,028
Other Demolition	\$0	\$0	\$0	\$0
Equipment Removal	\$0	\$0	\$0	\$0
Fence Removal	\$2,241	\$822		\$3,063
Fence Installation	\$1,137	\$270	\$7,980	\$9,387
Culvert Removal	\$1,938	\$710	N/A	\$2,648
Pipe Removal	\$2,144	\$357	N/A	\$2,501
Powerline Removal	\$0			\$0
Transformer Removal	\$0			\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Misc. Costs	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "D"	\$10,099	\$4,548	\$7,980	\$22,627
E. Monitoring	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Reclamation Monitoring and Maintenance	\$7,104	\$20,084	\$1,306	\$28,494
Ground and Surface Water Monitoring	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Subtotal "E"	\$7,104	\$20,084	\$1,306	\$28,494

**Closure Cost Estimate
Cost Summary**

Project Name: Cross and Caribou Reclamation Estimator

Project Date: November 23 2021

Model Version: Version 1.4.1

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

F. Construction Management & Support	Labor	Equipment ⁽²⁾	Materials	Total
Construction Management	\$34,693	\$9,065	N/A	\$43,758
Construction Support	\$0	\$0	\$0	\$0
Road Maintenance	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "F"	\$34,693	\$9,065	\$0	\$43,758
Subtotal Operational & Maintenance Costs				
	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials ⁽³⁾	Total
Subtotal A through F	\$90,026	\$112,658	\$31,731	\$234,415

** Other Operator supplied costs - additional documentation required.

**Closure Cost Estimate
Cost Summary**

Project Name: Cross and Caribou Reclamation Estimator

Project Date: November 23 2021

Model Version: Version 1.4.1

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

Indirect Costs		Include?	Total
1. Engineering, Design and Construction (ED&C) Plan (7)			\$18,753
2. Contingency (8)			\$23,442
3. Insurance (9)	\$1,350		\$1,350
4. Performance Bond (10)			\$7,032
5. Contractor Profit (11)			\$23,442
6. Contract Administration (12)			\$23,442
7. Government Indirect Cost (13)			\$4,923
Subtotal Add-On Costs			\$102,384
Total Indirect Costs as % of Direct Cost			44%
GRAND TOTAL			\$336,799

Administrative Cost Rates (%)

	Cost Ranges for Indirect Cost Percentages				
	<=	<=	<=	>	
1. Engineering, Design and Construction (ED&C) Plan (7)	\$1,000,000	\$25,000,000		\$25,000,000	Small Plan
Variable Rate	8%	6%		4%	0%
2. Contingency (8)	\$500,000	\$5,000,000	\$50,000,000	\$50,000,000	Small Plan
Variable Rate	10%	8%	6%	4%	0%
3. Insurance (9)	1.5%	of labor costs			
4. Bond (10)	3.0%	of the O&M costs if O&M costs are >\$100,000			
5. Contractor Profit (11)	10%	of the O&M costs			
6. Contract Administration (12)	\$1,000,000	\$25,000,000		\$25,000,000	
Variable Rate	10%	8%		6%	
Government Indirect Cost (13)	21%	of contract administration			

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES

- Federal construction contracts require Davis-Bacon wage rates for contracts over \$2,000. Wage rate estimates may include base pay, payroll loading.
- The reclamation cost estimate must include the estimated plugging cost of at least one drill hole for each active drill rig in the project area. Where the
- Miscellaneous items should be itemized on accompanying worksheets.
- Fluid management should be calculated only when mineral processing activities are involved. Fluid management represents the costs of maintaining proper
- Handling of hazardous materials includes the cost of decontaminating, neutralizing, disposing, treating and/or isolating all hazardous materials used, produced,
- Any mitigation measures required in the Plan of Operations must be included in the reclamation cost estimate. Mitigation may include measures to avoid,
- Engineering, design and construction (ED&C) plans are often necessary to provide details on the reclamation needed to contract for the required work. To
- A contingency cost is included in the reclamation cost estimation to cover unforeseen cost elements. Calculate the contingency cost as a percentage of the
- Insurance premiums are calculated at 1.5% of the total labor costs. Enter the premium amount if liability insurance is not included in the itemized unit costs.
- Federal construction contracts exceeding \$100,000 require both a performance and a payment bond (Miller Act, 40 USC 270et seq.). Each bond premium is
- For Federal construction contracts, use 10% of estimated O&M cost for the contractor's profit.
- To estimate the contract administration cost, use 6 to 10% of the operational and maintenance (O&M) cost. Calculate the contract administration cost as a
- Government indirect cost rate is 21% of the contract administration costs.

**Closure Cost Estimate
Reclamation Quantities**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Data Cost File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Reclamation Quantity Summary												Unit Costs				
Description	Total Regrade or Haul Volume cy	Total Regrade or Haul Cost \$	Total Cover Volume cy	Cover Placement Cost \$	Total Growth Media Volume cy	Growth Media Placement Cost \$	Total Surface Area acres	Total Scarify Cost \$	Total Revetation Cost \$	TOTALS \$	Regrade Unit Cost \$/CY	Material Haul or Backfill Unit Cost \$/CY	Cover Unit Cost \$/CY	Growth Media Unit Cost \$/CY	Scarify Unit Cost \$/CY	Area Unit Cost \$/acre
1 Waste Rock Dumps	1,512	\$ 512	1,791	\$ 17,352	597	\$ 8,676	0.74	\$ 342	\$ 1,173	\$ 28,055	\$0.34	N/A	\$9.69	\$14.53	\$462.16	\$37,912.16
2 Tailings Impoundments		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
3 Heap Leach Pads		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
5 Open Pits		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
4 Quarries & Borrow Pits		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
6 Roads	2,333	\$ 1,914			2,064	\$ 11,277	0.75	\$ 342	\$ 1,076	\$ 14,609	\$0.82	N/A		\$5.46	\$456.00	\$19,478.67
7 Landfills		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
8 Buildings			64	\$ 13,014		\$ -	0.3	\$ -	\$ 912	\$ 13,926		N/A	\$203.34		\$0.00	\$46,420.00
9 Yards		\$ -	645	\$ 8,676	645	\$ 8,676	4.15	\$ -	\$ 7,825	\$ 25,177		N/A	\$13.45	\$13.45	\$0.00	\$6,066.75
10 Ponds	2,254	\$ 4,852			783	\$ 11,280	0.6	\$ 1,635	\$ 17,767	\$ 17,767	N/A	\$2.15		\$14.41		\$29,611.67
11 Exploration Roads		\$ -				\$ -		\$ -	\$ -	\$ -		N/A				
12 Exploration Trenches		\$ -				\$ -		\$ -	\$ -	\$ -		N/A				
13 Diversion Ditches		\$ -				\$ -		\$ -	\$ -	\$ -		N/A				
14 Sediment Ponds		\$ -				\$ -		\$ -	\$ -	\$ -		N/A				
15 Generic Haulage/Backfill	507	\$ 1,903	242	\$ 4,338	48	\$ 4,338	0.1	\$ 171	\$ 304	\$ 11,054	N/A	\$3.75	\$17.93	\$90.38	\$1,710.00	#####
16 Adit/Decline Backfilling1		\$ -								\$ -	N/A					
17 Shaft Backfilling	472	\$ 4,852								\$ 4,852	N/A	\$10.28				
TOTALS	7,078	\$ 14,033	2,742	\$ 43,380	4,137	\$ 44,247	6.64	\$ 855	\$ 12,925	\$ 115,440						
Average Costs	per CY	\$1.98	per CY	\$15.82	per CY	\$10.70	per acre	\$128.77	\$15.12	\$17,386	per acre					

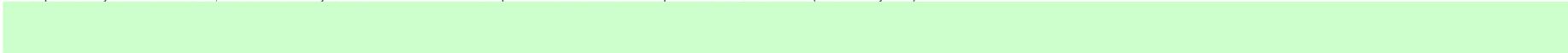
**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$207	\$305	N/A	\$512
Cover Placement Cost	\$4,367	\$12,985	N/A	\$17,352
Topsoil Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$6,896	\$19,986	\$0	\$26,882
Revegetation Cost	\$280	\$100	\$793	\$1,173
TOTALS	\$7,176	\$20,086	\$793	\$28,055

Waste Rock Dumps - User Input																						
Facility Description				Physical - MANDATORY										Cover				Growth Media				
	Description (required)	ID Code	Type	Underlying Ground Slope % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % Grade	Lift (dump) Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Dump Footprint acres	Regrade Volume (1) (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Dump to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Dump to Stockpile % grade		
1	Ore Storage		Waste Rock Dump	2.0	2.0	3.0	0.0	15	104	20	0.11		18.0	18.0	22,704	-6.6	6.0	6.0	22,704	-6.6		
2	Waste Rock Storage		Waste Rock Dump	5.0	2.0	3.0	0.0	35	240	20	0.72		18.0	18.0	22,704	-6.6	6.0	6.0	22,704	-6.6		

- Notes:
 1. All Physical parameters must be input even if manual overrides for volume or area are used.
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$207	\$305	N/A	\$512
Cover Placement Cost	\$4,367	\$12,985	N/A	\$17,352
Topsoil Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$6,896	\$19,986	\$0	\$26,882
Revegetation Cost	\$280	\$100	\$793	\$1,173
TOTALS	\$7,176	\$20,086	\$793	\$28,055

Waste Rock Dumps - User Input (cont.)		You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category																
Description (required)	Grading				Cover		Growth Media		Revegetation									
	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Areas (select)	Flat (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/Rip? (select)	Flat Area Scarify/Rip? (select)	Scarify/Ripping Fleet (select)
1 Ore Storage	1	Stone - crushed	Small	No	Topsoil	Small Truck	Topsoil	Small Truck	Mix 4	Mix 4		Straw Mulch	None	None	None	Yes	Yes	Small Dozer
2 Waste Rock Storage	1	Stone - crushed	Small	No	Topsoil	Small Truck	Topsoil	Small Truck	Mix 4	Mix 4		Straw Mulch	None	None	None	Yes	Yes	Small Dozer

Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

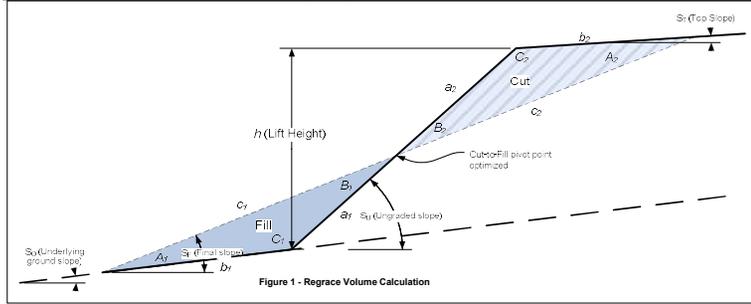
**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$207	\$305	N/A	\$512
Cover Placement Cost	\$4,367	\$12,985	N/A	\$17,352
Topsoil Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$6,896	\$19,986	\$0	\$26,882
Revegetation Cost	\$280	\$100	\$793	\$1,173
TOTALS	\$7,176	\$20,086	\$793	\$28,055

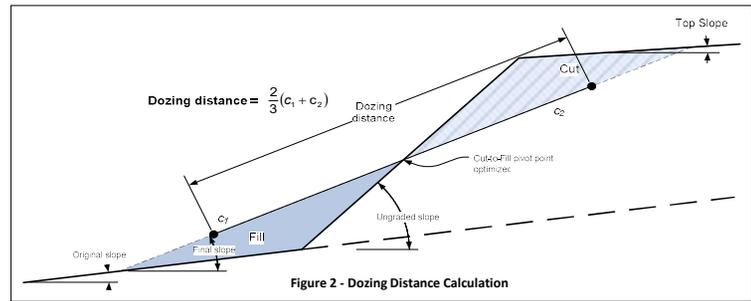
Waste Rock Dumps - Calculations

Regrading Volume Calculation

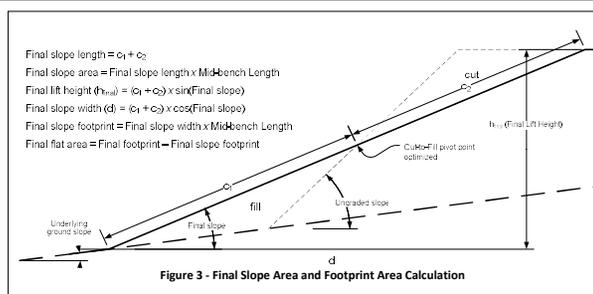


Regrading Push Distance Calculation

dozing distance: based on 2/3 final cut slope + 2/3 final fill slope (minimum = 50 ft)



Final Slope Area and Footprint Area Calculations



Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per dump

Slopes:

Number of passes = Final slope length ÷ Grader width
 Travel distance = Number of passes x Mid-bench length
 Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
 Minimum 1 hr

Flat Areas:

Flat area width = Final flat area ÷ Average long dimensions
 Number of passes = Flat area width ÷ Grader width
 Travel distance = Number of passes x Average long dimensions
 Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation: Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$207	\$305	N/A	\$512
Cover Placement Cost	\$4,367	\$12,985	N/A	\$17,352
Topsoil Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$6,896	\$19,986	\$0	\$26,882
Revegetation Cost	\$280	\$100	\$793	\$1,173
TOTALS	\$7,176	\$20,086	\$793	\$28,055

Waste Rock Dumps - Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Ore Storage	108	50	D7R	1,076	1.6	1.0	0.85	1.0	911	1	\$69	\$102	\$171
2	Waste Rock Storage	1,404	64	D7R	888	1.6	1.0	0.85	1.0	752	2	\$138	\$203	\$341
		1,512									3	\$207	\$305	\$512

**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$207	\$305	N/A	\$512
Cover Placement Cost	\$4,367	\$12,985	N/A	\$17,352
Topsoil Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$6,896	\$19,986	\$0	\$26,882
Revegetation Cost	\$280	\$100	\$793	\$1,173
TOTALS	\$7,176	\$20,086	\$793	\$28,055

Waste Rock Dumps - Cover and Growth Media Costs																	
	Description (required)	Cover (lower layer)							Growth Media Placement								
		Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1	Ore Storage	266	725/966G/D7R	535	23	0	\$1,092	\$3,246	\$4,338	89	725/966G/D7R	535	23	0	\$1,092	\$3,246	\$4,338
2	Waste Rock Storage	1,525	725/966G/D7R	535	23	3	\$3,275	\$9,739	\$13,014	508	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338
		1,791				3	\$4,367	\$12,985	\$17,352	597				1	\$2,184	\$6,492	\$8,676

**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$207	\$305	N/A	\$512
Cover Placement Cost	\$4,367	\$12,985	N/A	\$17,352
Topsoil Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$6,896	\$19,986	\$0	\$26,882
Revegetation Cost	\$280	\$100	\$793	\$1,173
TOTALS	\$7,176	\$20,086	\$793	\$28,055

Waste Rock Dumps - Scarifying/Revegetation Costs																
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/Scarifying Fleet	Slope Scarifying/Ripping Hours hrs	Flat Area Scarifying/Ripping Hours hrs	Scarifying/Ripping Labor Costs \$	Scarifying/Ripping Equipment Cost \$	Total Scarifying/Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Ore Storage	0.11		0.11	48	20	D7R	0		\$69	\$102	\$171	\$140	\$50	\$118	\$308
2	Waste Rock Storage	0.63		0.63	114	20	D7R	1		\$69	\$102	\$171	\$140	\$50	\$675	\$855
		0.74		0.74				1		\$138	\$204	\$342	\$280	\$100	\$793	\$1,173

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)

**Closure Cost Estimate
Roads**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$836	\$1,078	N/A	\$1,914
Cover Placement Cost	\$2,974	\$8,303	N/A	\$11,277
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$3,948	\$9,585		\$13,533
Revegetation Cost	\$280	\$100	\$696	\$1,076
TOTALS	\$4,228	\$9,685	\$696	\$14,609

Roads - User Input														
You must fill in ALL green cells and relevant blue cells in this section for each road														
Facility Description				Physical (1) - MANDATORY					User Overrides		Growth Media			
	Description (required)	ID Code	Type	Underlying Ground Slope % grade	Ungraded Slope _H:TV	Cut Slope degrees	Road Width ft	Road Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness in	Haul Distance from Growth Media Stockpile ft	Slope from Road to Stockpile % grade
1	New Road		Project Road				30.0	805	8%			24.0	22,704	-7%
2	Caribou 300 Level Access Road		Access Road	0.0			12.0	25	0%			24.0	22,704	-7%
3	Ore Storage Access Road		Access Road	0.0			114.0	30	0%			24.0	22,704	-7%

- Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
 3. Because the work required for building roads with a dozer is similar to that required to regrade a road with a dozer, this sheet could be used to provide a rough estimate of road construction costs if a dozer is selected as the grading fleet.



**Closure Cost Estimate
Roads**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$836	\$1,078	N/A	\$1,914
Cover Placement Cost	\$2,974	\$8,303	N/A	\$11,277
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$3,948	\$9,585		\$13,533
Revegetation Cost	\$280	\$100	\$696	\$1,076
TOTALS	\$4,228	\$9,685	\$696	\$14,609

Roads - User Input (cont.)						
		Haul Road Safety Berms				
	Description (required)	Berm Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Number of Berms (2) (1 or 2 sides)
1	New Road	300.0	6.0	50.0	2.5	1
2	Caribou 300 Level Access Road	0.0	0.0	0.0	0.0	1
3	Ore Storage Access Road					

(2) Enter 1 if berm on only one side of road, 2 if both sides of road are bermed.

**Closure Cost Estimate
Roads**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$836	\$1,078	N/A	\$1,914
Cover Placement Cost	\$2,974	\$8,303	N/A	\$11,277
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$3,948	\$9,585		\$13,533
Revegetation Cost	\$280	\$100	\$696	\$1,076
TOTALS	\$4,228	\$9,685	\$696	\$14,609

Roads - User Input (cont.)													
You must fill in ALL green cells and relevant blue cells in this section for each road													
	Description (required)	Grading				Growth Media			Revegetation				
		Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	No. of Excavators if grade >30% (select)	Growth Media Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/ Ripping? (select)	Ripping Fleet (select)
1	New Road	1	Alluvium	Sm Excavator		Topsoil	Small Truck		Mix 4	Straw Mulch	None	Yes	Small Dozer
2	Caribou 300 Level Access Road	1	Alluvium	Sm Excavator		Topsoil	Small Truck		Mix 4	Straw Mulch	None	No	
3	Ore Storage Access Road											Yes	Small Dozer

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
2. If original slope >30% only excavators are allowed.

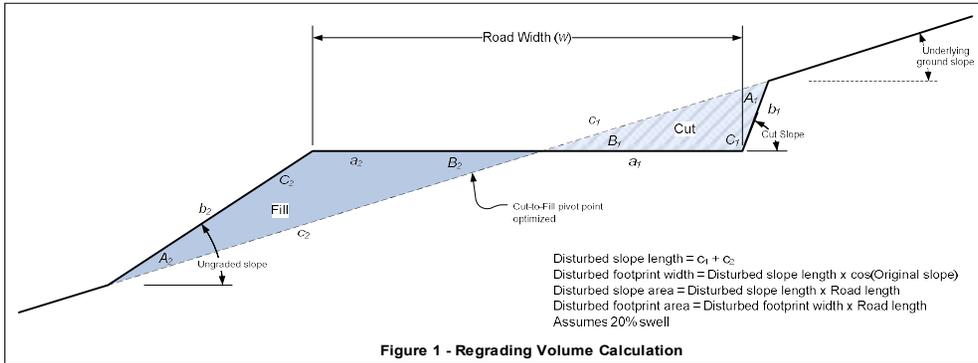
Closure Cost Estimate Roads

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
Date of Submittal: November 23 2021
File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
Cost Estimate Type: Surety **Cost Basis:** Northern Nevada

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$836	\$1,078	N/A	\$1,914
Cover Placement Cost	\$2,974	\$8,303	N/A	\$11,277
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$3,948	\$9,585		\$13,533
Revegetation Cost	\$280	\$100	\$696	\$1,076
TOTALS	\$4,228	\$9,685	\$696	\$14,609

Roads - Calculations

Regrading Volume and Footprint Volume

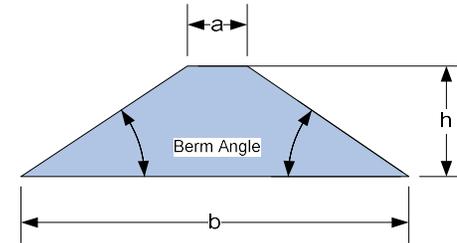


Will not allow dozer for slopes greater than 30%
 For dozer regrading push distance = road width
 Assumes dozer push is uphill
 Assumes minimum push distance of 100 ft

Disturbed slope length = $C_1 + C_2$
 Disturbed footprint width = Disturbed slope length x $\cos(\text{Original slope})$
 Disturbed slope area = Disturbed slope length x Road length
 Disturbed footprint area = Disturbed footprint width x Road length
 Assumes 20% swell

Safety Berm Volume Calculation

Cross Sectional Area = $\frac{(a+b)}{2} \times h$
 Berm Volume = Berm Length x Cross Sectional Area x No. Sides



Total berm volume doubled if both sides of road are bermed.
 If length of berm on each side of road is different, input total length of both berms and input 1 for number of sides

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
 Number of passes = Final slope length ÷ Grader width
 Travel distance = Number of passes x Road length
 Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
 For dozer regrading assumes push distance = 3 x road width

Revegetation Calculations

Minimum of 1 acre crew time per area

**Closure Cost Estimate
Roads**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$836	\$1,078	N/A	\$1,914
Cover Placement Cost	\$2,974	\$8,303	N/A	\$11,277
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$3,948	\$9,585		\$13,533
Revegetation Cost	\$280	\$100	\$696	\$1,076
TOTALS	\$4,228	\$9,685	\$696	\$14,609

Roads - Regrading Costs								
	Description (required)	Regrading Volume cy	Recontouring Fleet	Fleet Productivity cy/hr	Total Fleet Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	New Road	2,333	325C	398	6	\$836	\$1,078	\$1,914
2	Caribou 300 Level Access Road	0				\$0	\$0	\$0
3	Ore Storage Access Road	0				\$0	\$0	\$0
		2,333			6	\$836	\$1,078	\$1,914

**Closure Cost Estimate
Roads**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$836	\$1,078	N/A	\$1,914
Cover Placement Cost	\$2,974	\$8,303	N/A	\$11,277
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$3,948	\$9,585		\$13,533
Revegetation Cost	\$280	\$100	\$696	\$1,076
TOTALS	\$4,228	\$9,685	\$696	\$14,609

Roads - Growth Media Costs									
	Description (required)	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1	New Road	1,789	725/966G/D7R	511	11	4	\$2,379	\$6,642	\$9,021
2	Caribou 300 Level Access Road	22	725/966G/D7R	511	11	1	\$595	\$1,661	\$2,256
3	Ore Storage Access Road	253	Material Type!	Material Type!	Material Type!	Material Type!	\$0	\$0	\$0
		2,064				5	\$2,974	\$8,303	\$11,277

**Closure Cost Estimate
Roads**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$836	\$1,078	N/A	\$1,914
Cover Placement Cost	\$2,974	\$8,303	N/A	\$11,277
Ripping/Scarifying Cost	\$138	\$204	N/A	\$342
Subtotal Earthworks	\$3,948	\$9,585		\$13,533
Revegetation Cost	\$280	\$100	\$696	\$1,076
TOTALS	\$4,228	\$9,685	\$696	\$14,609

Roads - Scarifying/Revegetation Costs												
	Description (required)	Total Surface Area acres	Final Slope Length ft	Ripping/ Scarifying Fleet	Ripping Hours hrs	Ripping Labor Costs \$	Ripping Equipment Cost \$	Total Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	New Road	0.55	30.0	D7R	1	\$69	\$102	\$171	\$140	\$50	\$589	\$779
2	Caribou 300 Level Access Road	0.10	12.0			\$0	\$0	\$0	\$140	\$50	\$107	\$297
3	Ore Storage Access Road	0.10	114.0	D7R	1	\$69	\$102	\$171	\$0	\$0	\$0	\$0
		0.75			2	\$138	\$204	\$342	\$280	\$100	\$696	\$1,076

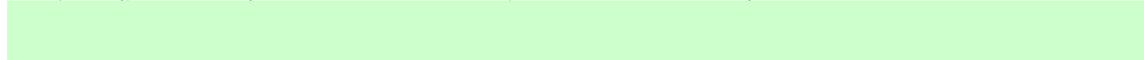
**Closure Cost Estimate
Underground Openings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$4,438	\$342	\$12,711	\$17,491
Shaft Backfill/Cover	\$1,554	\$3,298	N/A	\$4,852
Shaft Capping	\$1,072	\$82	\$556	\$1,710
TOTALS	\$7,064	\$3,722	\$13,267	\$24,053

Adits, Portals & Declines - User Input										
Facility Description			Physical Characteristics				Backfill Material			
	Description (required)	ID Code	Height ft	Width ft	Backfill/ Plug Type	Distance to Bulkhead ft	Backfill Material Condition (select)	Backfill Material Type (select)	Distance to Backfill Borrow ft	Slope from Adit to Borrow Area % grade
1	Idaho Tunnel Portal		12.0	12.0	Concrete Bulk	40	1	Gravel	484	-1.0
2	Caribou 300 Level Portal		8.0	8.0	Concrete Bulk	40	1	Gravel	3,690	-5.0
3	Idaho Tunnel - Access Gate		12.0	12.0	Bat Gate					
4	Cross Mine Adit		8.0	8.0	Concrete Bulk	40	1	Gravel	402	4.0
5	Caribou 300 - Access Gate		8.0	8.0	Bat Gate					
6	Cross Adit - Access Gate		8.0	8.0	Bat Gate					

- Notes: 1) Foam (adit) option is for smaller openings that can be plugged with simple forms and a 5 ft thick plug.
 2) Foam (production) option is for larger production openings (declines, etc.) and requires larger form construction and minimum 10 ft thick plug.
 3) All foam plugs include minimum 15ft of backfill from opening to plug.
 4) Bat gate option is for small openings and the material cost is the same for any size opening.
 5) Backfilling assumes that small dozer will push material from nearby stockpile or dump
 6) Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table



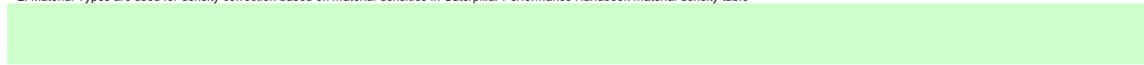
**Closure Cost Estimate
Underground Openings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$4,438	\$342	\$12,711	\$17,491
Shaft Backfill/Cover	\$1,554	\$3,298	N/A	\$4,852
Shaft Capping	\$1,072	\$82	\$556	\$1,710
TOTALS	\$7,064	\$3,722	\$13,267	\$24,053

Shaft Openings - User Input											
You must fill in ALL green cells and relevant blue cells in this section for each shaft											
Facility Description			Physical Characteristics			Backfill or Foundation Cover					
	Description (required)	ID Code	Diameter ft	Shaft Depth (for backfill method) ft	Backfill/ Plug Type (select)	Backfill Material Type (select)	Cover/ Backfill Fleet (select)	Thickness (if not complete backfill) ft	Distance to Backfill Borrow ft	Slope from Shaft to Borrow Area % grade	Maximum Fleet Size (user override)
1	Potosi Shaft - Backfill		6.0	300	Backfill	Stone - crushed	Small Truck	260.0	1,000	-2.0	2
2	Potosi Shaft - Concrete Plug		6.0	300	Concrete Cap	Gravel	Small Truck	40.0	50	2.0	2
3	Ventilation Shaft 1 - Backfill		2.0	500	Backfill	Stone - crushed	Small Truck	460.0	595	-10.0	2
4	Ventilation Shaft 2 - Backfill		2.0	500	Backfill	Stone - crushed	Small Truck	460.0	500	-10.0	2
5	Ventilation Shaft 1 - Concrete Plug		2.0	500	Concrete Cap	Gravel	Small Truck	40.0	50	2.0	2
6	Ventilation Shaft 2 - Concrete Plug		2.0	500	Concrete Cap	Gravel	Small Truck	40.0	50	2.0	2

- Notes:
- If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
 - Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table



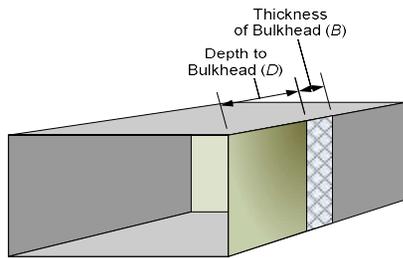
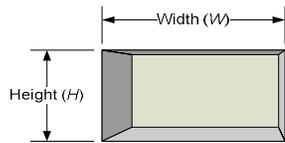
**Closure Cost Estimate
Underground Openings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$4,438	\$342	\$12,711	\$17,491
Shaft Backfill/Cover	\$1,554	\$3,298	N/A	\$4,852
Shaft Capping	\$1,072	\$82	\$556	\$1,710
TOTALS	\$7,064	\$3,722	\$13,267	\$24,053

Underground Openings - Calculations

Adits, Declines and Portals - Volume Calculations



Cross-Sectional Area (A) = $W \times H$
 Volume of Concrete Bulkhead = $A \times B$
 Volume of Backfill = $A \times D$

Concrete Cover/Bulkhead Volume Calculation

Using Means Heavy Construction Cost Data (2004)

Estimate cover/bulkhead thickness
 Assumes that all concrete works are reinforced
 Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision
 (addressed in Misc. Costs) and Davis-Bacon Wage Rates
 Assumes 18 in thick slab

Backfill Calculations

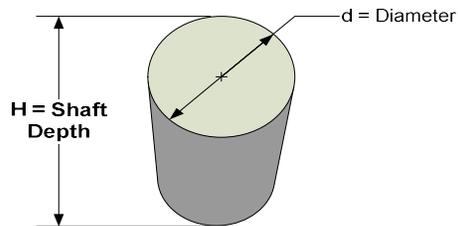
Uses 1 large and 1 small dozer for adit backfill

Assumes max 400 foot push
 Assumes average operator and 50 min/hr availability

Uses truck & loader load, haul place fleets for shafts

Concrete cap will be 1.5 feet thick, reinforced, structurally supported.
 If concrete cap is used, assume 10 feet of rock backfill on top of cap.
 Assumes that all concrete works are reinforced
 If backfill is used, assume overfill by 5 feet
 Carpenter rate incl Fringe: per hour

Shaft Volume Calculations



Radius (r) = $\frac{1}{2}d$
 Cross-Sectional Area (A) = πr^2
 Volume = $A \times H$

**Closure Cost Estimate
Underground Openings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$4,438	\$342	\$12,711	\$17,491
Shaft Backfill/Cover	\$1,554	\$3,298	N/A	\$4,852
Shaft Capping	\$1,072	\$82	\$556	\$1,710
TOTALS	\$7,064	\$3,722	\$13,267	\$24,053

Adits, Portals & Declines Plugging																					
Uses RS Means Heavy Construction Cost Data for bulkhead production rate, material costs and crews																					
		Bulkhead Construction					Backfill or Foam (1)					Bat Gate or Culvert (2,3,4)									
	Description (required)	Bulkhead Volume cy	Backfill (rock) Volume cy	Backfill Equipment Fleet	Backfill Productivity LCY/hr	Backfill Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Bulkhead Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Material (Foam) Cost \$	Total Backfill Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Bat Gate Cost \$	Total Labor Cost \$		
1	Idaho Tunnel Portal	8					\$3,344	\$258	\$1,304	\$4,906	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,344	
2	Caribou 300 Level Portal	4					\$547	\$42	\$652	\$1,241	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$547	
3	Idaho Tunnel - Access Gate						\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,368	\$3,368	\$0	
4	Cross Mine Adit	4					\$547	\$42	\$652	\$1,241	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$547	
5	Caribou 300 - Access Gate						\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,368	\$3,368	\$0	
6	Cross Adit - Access Gate						\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,368	\$3,368	\$0	
		16					\$4,438	\$342	\$2,608	\$7,388	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10,103	\$10,103	\$4,438	

- Notes:
- 1) Foam costs include 1 hour move to and setup + 1 hr. minimum crew time
 - 2) Assumes 1 hr walk-in/walk-out time for equipment
 - 3) Batgate assumes 8 hr install time each
 - 4) Bat culvert backfill costs based on one 8-hr day (i.e. backfilling hours = 8 hrs).

**Closure Cost Estimate
Underground Openings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$4,438	\$342	\$12,711	\$17,491
Shaft Backfill/Cover	\$1,554	\$3,298	N/A	\$4,852
Shaft Capping	\$1,072	\$82	\$556	\$1,710
TOTALS	\$7,064	\$3,722	\$13,267	\$24,053

Shaft Plugging														
	Description (required)	Cover/Cap						Backfill/Cover						
		Cover Area ft2	Backfill or Cover Volume cy	Backfill Equipment Fleet	Number of Trucks	Backfill Productivity LCY/hr	Backfill Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Shaft Cap Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Backfill Cost \$
1	Potosi Shaft - Backfill	28	311	#REF!	2	370	2	\$0	\$0	\$0	\$0	\$444	\$943	\$1,387
2	Potosi Shaft - Concrete Plug	28	41	#REF!	2	490	1	\$1,072	\$82	\$556	\$1,710	\$222	\$471	\$693
3	Ventilation Shaft 1 - Backfill	3	56	#REF!	2	377	1	\$0	\$0	\$0	\$0	\$222	\$471	\$693
4	Ventilation Shaft 2 - Backfill	3	56	#REF!	2	392	1	\$0	\$0	\$0	\$0	\$222	\$471	\$693
5	Ventilation Shaft 1 - Concrete Plug	3	4	#REF!	2	490	1	\$0	\$0	\$0	\$0	\$222	\$471	\$693
6	Ventilation Shaft 2 - Concrete Plug	3	4	#REF!	2	490	1	\$0	\$0	\$0	\$0	\$222	\$471	\$693
		68	472				7	\$1,072	\$82	\$556	\$1,710	\$1,554	\$3,298	\$4,852

**Closure Cost Estimate
Haul Material**

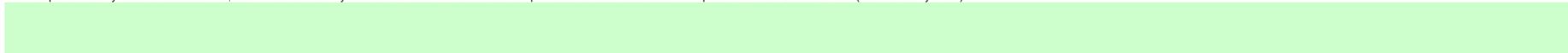
Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$616	\$1,287	N/A	\$1,903
Cover Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Topsoil Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Ripping/Scarifying Cost	\$69	\$102	N/A	\$171
Subtotal Earthworks	\$2,869	\$7,881	\$0	\$10,750
Revegetation Cost	\$140	\$50	\$114	\$304
TOTALS	\$3,009	\$7,931	\$114	\$11,054

Generic Material Hauling - User Input																			
Facility Description				Physical		Hauled Material			Crushing & Screening					Cover			Growth Media		
Description (required)	ID Code	Type	Final Surface Area acres	Average Ripping Distance ft	Material Volume Required cy	Distance from Borrow Source (1) ft	Slope to Borrow Source % grade	Crush Material	Screen Material	Loss to Crushing/ Screening %	Distance to Placement Location (2) ft	Slope to Placement % grade	Cover Thickness in	Distance to Cover Borrow ft	Slope to Borrow % grade	Growth Media Thickness in	Distance to Growth Material Stockpile ft	Slope to Stockpile % grade	
1 Idaho Tunnel Regrade		UG Mine - Openin	0.09	50	507	260	-5.0	No	Yes	10%	50	-3.0	20	22,704	-7.0	4	22,704	-7.0	

Notes:

1. Input distance to crusher if material to be crushed
2. Input distance from crusher to placement if material to be crushed
3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



**Closure Cost Estimate
Haul Material**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$616	\$1,287	N/A	\$1,903
Cover Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Topsoil Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Ripping/Scarifying Cost	\$69	\$102	N/A	\$171
Subtotal Earthworks	\$2,869	\$7,881	\$0	\$10,750
Revegetation Cost	\$140	\$50	\$114	\$304
TOTALS	\$3,009	\$7,931	\$114	\$11,054

Generic Material Hauling - User Input (cont.)																
ID	Description (required)	Hauling Material				Cover			Growth Media			Revegetation				
		Haul Material Type (select)	Material Hauling Fleet (select)	Each Fleet Size (from/to crusher) (user override)	Compact After Placement?	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch Type (select)	Fertilizer Type (select)	Scarify/Rip? (select)	Scarifying/Ripping Fleet (select)
1	Idaho Tunnel Regrade	Stone - crush	Small Truck		Yes	Topsoil	Small Truck		Topsoil	Small Truck		Mix 4	Hydro Mulch	None	Yes	Small Dozer

Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Haul Material**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$616	\$1,287	N/A	\$1,903
Cover Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Topsoil Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Ripping/Scarifying Cost	\$69	\$102	N/A	\$171
Subtotal Earthworks	\$2,869	\$7,881	\$0	\$10,750
Revegetation Cost	\$140	\$50	\$114	\$304
TOTALS	\$3,009	\$7,931	\$114	\$11,054

Generic Material Hauling - Load, Haul, Place and Grade													
	Description (required)	Material Haulage							Crush and/or Compact				
		Material Volume to Crusher cy	Final Material Volume cy	Material Haulage Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Hauling Labor Cost \$	Hauling Equipment Cost \$	Total Crush/ Screen Cost \$	Compact Labor Cost \$	Compact Equipment Cost \$	Total Load/Haul/ Place Cost \$
1	Idaho Tunnel Regrade	563	507	725/966G/D7R	452	4	1	\$444	\$942	\$254	\$172	\$91	\$1,903
		563	507				1	\$444	\$942	\$254	\$172	\$91	\$1,903

Notes: Final Material Volume includes allowance for additional material hauled to crushing/screening plant based on Loss to Crushing/Screening input above.

**Closure Cost Estimate
Haul Material**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$616	\$1,287	N/A	\$1,903
Cover Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Topsoil Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Ripping/Scarifying Cost	\$69	\$102	N/A	\$171
Subtotal Earthworks	\$2,869	\$7,881	\$0	\$10,750
Revegetation Cost	\$140	\$50	\$114	\$304
TOTALS	\$3,009	\$7,931	\$114	\$11,054

Generic Material Hauling - Cover and Growth Media Costs																
Description (required)	Cover Placement									Growth Media Placement						
	Cover Volume cy	Cover Placement Fleet	Cover Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Placement Cost \$	Growth Media Volume cy	Growth Media Placement Fleet	Growth Media Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1 Idaho Tunnel Regrade	242	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338	48	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338
	242				1	\$1,092	\$3,246	\$4,338	48				1	\$1,092	\$3,246	\$4,338

**Closure Cost Estimate
Haul Material**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$616	\$1,287	N/A	\$1,903
Cover Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Topsoil Placement Cost	\$1,092	\$3,246	N/A	\$4,338
Ripping/Scarifying Cost	\$69	\$102	N/A	\$171
Subtotal Earthworks	\$2,869	\$7,881	\$0	\$10,750
Revegetation Cost	\$140	\$50	\$114	\$304
TOTALS	\$3,009	\$7,931	\$114	\$11,054

Generic Material Hauling - Scarifying/Revegetation Costs											
	Description (required)	Total Surface Area acres	Ripping/ Scarifying Fleet	Scarifying/ Ripping/ Hours hrs	Scarifying/ Ripping Labor Cost \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Cost \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Idaho Tunnel Regrade	0.10	D7R	0	\$69	\$102	\$171	\$140	\$50	\$114	\$304
		0.10			\$69	\$102	\$171	\$140	\$50	\$114	\$304

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REV.B.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$2,361	\$1,667	N/A	\$4,028
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$278	\$722	N/A	\$1,000
Subtotal Demolition	\$2,639	\$2,389	\$0	\$5,028
Cover Placement Cost	\$3,276	\$9,738	N/A	\$13,014
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$3,276	\$9,738	\$0	\$13,014
Revegetation Cost	\$420	\$150	\$342	\$912
TOTALS	\$6,335	\$12,277	\$342	\$18,954

Buildings & Foundation - User Input																	
Facility Description			Physical - MANDATORY								Foundation Cover (1)			Growth Media (1) (entire footprint)			
ID	Description (required)	ID Code	Type	Length ft	Width ft	Eve Height ft	Slab Thickness in	Foundation Wall Thickness in	Foundation Wall Height ft	Average Flat Area Long Dimension (ripping distance) ft	Building Area Footprint (including surrounding facilities) acres	Foundation Cover Thickness in	Distance from Foundation Cover Borrow Area ft	Slope from Facility to Borrow Area % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	Cross Snow Shed		Site Facilities - Structures	164	10	8	4					12	22,704	-7.0	12	22,704	-7.0
2	Flow Shed 1		Other Site Facilities - Sub-Str	10	6	8	4					12	22,704	-7.0	12	22,704	-7.0
3	Flow Shed 2		Other Site Facilities - Sub-Str	6	6	8	4					12	22,704	-7.0	12	22,704	-7.0

- Notes:
1. Foundation cover only calculated to cover slab. Growth media estimated over entire footprint area
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



**Closure Cost Estimate
Foundations & Buildings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$2,361	\$1,667	N/A	\$4,028
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$278	\$722	N/A	\$1,000
Subtotal Demolition	\$2,639	\$2,389	\$0	\$5,028
Cover Placement Cost	\$3,276	\$9,738	N/A	\$13,014
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$3,276	\$9,738	\$0	\$13,014
Revegetation Cost	\$420	\$150	\$342	\$912
TOTALS	\$6,335	\$12,277	\$342	\$18,954

Buildings & Foundation - User Input (cont.)																
You must fill in ALL green cells and relevant blue cells in this section for each building or facility																
Description (required)	Construction Materials			Slab Demolition		Foundation Cover			Growth Media			Revegetation				
	Building Type (select)	Foundation Type (select)	Wall (select)	Slab Demo Method (select)	Slab Breaking Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1 Cross Snow Shed	Sm. steel	Block 4 in (100 mm) thick		Break & bury	Sm Excavator	Stone - crushed	Small Truck		Topsoil	Small Truck		Mix 4	Hydro Mulch	None	Yes	Small Dozer
2 Flow Shed 1	Sm. wood	Block 4 in (100 mm) thick		Break & bury	Sm Excavator	Stone - crushed	Small Truck		Topsoil	Small Truck		Mix 4	Hydro Mulch	None	Yes	Small Dozer
3 Flow Shed 2	Sm. wood	Block 4 in (100 mm) thick		Break & bury	Sm Excavator	Stone - crushed	Small Truck		Topsoil	Small Truck		Mix 4	Hydro Mulch	None	Yes	Small Dozer

Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$2,361	\$1,667	N/A	\$4,028
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$278	\$722	N/A	\$1,000
Subtotal Demolition	\$2,639	\$2,389	\$0	\$5,028
Cover Placement Cost	\$3,276	\$9,738	N/A	\$13,014
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$3,276	\$9,738	\$0	\$13,014
Revegetation Cost	\$420	\$150	\$342	\$912
TOTALS	\$6,335	\$12,277	\$342	\$18,954

Buildings & Foundation - Calculations	
Building Volume Calculations	
Using Means Heavy Construction Cost Data (2004) calculates cubic feet from building dimensions Estimate slab thickness and wall thickness if not known Assumes that all concrete slabs are reinforced Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision (addressed in Misc. Costs) and Davis-Bacon Wage Rates Demolition costs do not include hauling or disposing of debris - Use Waste Disposal module	
Slab Demolition Calculations	
Minimum 1 hr excavator time for slab demolition	
Cover Volume Calculation	
Foundation area x cover thickness If "Bury in Place" is selected as slab demolition method, cover thickness is adjusted such that total cover (cover + growth media) equals value entered in "Minimum thickness of cover over unbroken slab" cell above	
Ripping/Scarifying Calculations	
Flat area width = Final flat area + Average long dimensions Number of passes = Flat area width + Grader width Travel distance = Number of passes x Average long dimensions Total hours = (Travel distance + Grader productivity) + (Number of passes x Grader maneuver time)	
Revegetation	
Minimum 1 acre revegetation crew time per area	

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REV.B.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$2,361	\$1,667	N/A	\$4,028
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$278	\$722	N/A	\$1,000
Subtotal Demolition	\$2,639	\$2,389	\$0	\$5,028
Cover Placement Cost	\$3,276	\$9,738	N/A	\$13,014
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$3,276	\$9,738	\$0	\$13,014
Revegetation Cost	\$420	\$150	\$342	\$912
TOTALS	\$6,335	\$12,277	\$342	\$18,954

Building & Foundation Demolition Costs																			
Uses RS Means Heavy Construction Cost Data for building and wall demolition cost calculations. Uses CAT Handbook for slab breaking production.																			
	Description (required)	Building Footprint (slab area) sqft	Building Volume cu ft	Wall Length ft	Wall Area sq ft	Slab Demolition Fleet	Slab Volume cy	Building Demolition			Wall Demolition			Slab Demolition			Total Costs		
								Total Labor Cost \$	Total Equipment Cost \$	Total Building Demolition Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Wall Demolition Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Slab Breaking Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Demolition Costs \$
1	Cross Snow Shed	1,640	13,120	348	0	325C	20	\$2,230	\$1,574	\$3,804	\$0	\$0	\$0	\$139	\$361	\$500	\$2,369	\$1,935	\$4,304
2	Flow Shed 1	60	480	32	0	325C	1	\$62	\$58	\$140	\$0	\$0	\$0	\$139	\$361	\$500	\$221	\$419	\$640
3	Flow Shed 2	36	288	24	0	325C	0	\$49	\$35	\$84	\$0	\$0	\$0	\$0	\$0	\$0	\$49	\$35	\$84
			13,888				21	\$2,361	\$1,667	\$4,028	\$0	\$0	\$0	\$278	\$722	\$1,000	\$2,639	\$2,389	\$5,028

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$2,361	\$1,667	N/A	\$4,028
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$278	\$722	N/A	\$1,000
Subtotal Demolition	\$2,639	\$2,389	\$0	\$5,028
Cover Placement Cost	\$3,276	\$9,738	N/A	\$13,014
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$3,276	\$9,738	\$0	\$13,014
Revegetation Cost	\$420	\$150	\$342	\$912
TOTALS	\$6,335	\$12,277	\$342	\$18,954

Building & Foundation - Foundation Cover and Growth Media Costs																						
	Description (required)	Foundation Cover									Growth Media						Total Cover & Growth Media Costs					
		Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/Hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/Hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Costs \$		
1	Cross Snow Shed	61	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338								\$0	\$0	\$0	\$1,092	\$3,246	\$4,338
2	Flow Shed 1	2	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338								\$0	\$0	\$0	\$1,092	\$3,246	\$4,338
3	Flow Shed 2	1	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338								\$0	\$0	\$0	\$1,092	\$3,246	\$4,338
		64				3	\$3,276	\$9,738	\$13,014								\$0	\$0	\$0	\$3,276	\$9,738	\$13,014

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$2,361	\$1,667	N/A	\$4,028
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$278	\$722	N/A	\$1,000
Subtotal Demolition	\$2,639	\$2,389	\$0	\$5,028
Cover Placement Cost	\$3,276	\$9,738	N/A	\$13,014
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$3,276	\$9,738	\$0	\$13,014
Revegetation Cost	\$420	\$150	\$342	\$912
TOTALS	\$6,335	\$12,277	\$342	\$18,954

Building & Foundation - Scarifying/Revegetation Costs															
	Description (required)	Flat Area acres	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/Ripping			Revegetation				Total Scarify & Revegation Costs			
					Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Costs \$
1	Cross Snow Shed	0.10	D7R	0	\$0	\$0	\$0	\$140	\$50	\$114	\$304	\$140	\$50	\$114	\$304
2	Flow Shed 1	0.10	D7R	0	\$0	\$0	\$0	\$140	\$50	\$114	\$304	\$140	\$50	\$114	\$304
3	Flow Shed 2	0.10	D7R	0	\$0	\$0	\$0	\$140	\$50	\$114	\$304	\$140	\$50	\$114	\$304
		0.30			\$0	\$0	\$0	\$420	\$150	\$342	\$912	\$420	\$150	\$342	\$912

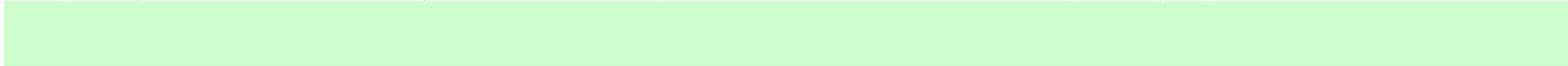
**Closure Cost Estimate
Process Ponds**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$1,554	\$3,298	N/A	\$4,852
Growth Media Placement Costs	\$2,975	\$8,305	N/A	\$11,280
Liner Cutting & Folding Costs	\$1,515	\$780	N/A	\$2,295
Subtotal Earthworks	\$6,044	\$12,383	\$0	\$18,427
Revegetation Costs	\$700	\$250	\$685	\$1,635
TOTALS	\$6,744	\$12,633	\$685	\$20,062

Process Ponds - User Input														
You must fill in ALL green cells and relevant blue cells in this section for each pond														
Facility Description		Pond Dimensions (1)				Backfill - (If trucks are used) (1)				Growth Media				
	Description (required)	ID Code	Pond Length ft	Pond Width ft	Pond Depth ft	Pond Sideslope Angle _H:1V	Disturbed Area (if calculated elsewhere) acres	Percent Backfill (100% if blank)	Distance from Backfill Borrow ft	Slope from Facility to Borrow Area % grade	Pond Volume (if calculated elsewhere) cy	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	Pond 1		54	28	6.0			67%	300	16%		24	22,704	-7%
2	Pond 2		113	61	8.0			75%	275	0%		24	22,704	-7%
3	Pond 3A		12	30	5.0			60%	230	0%		24	22,704	-7%
4	Pond 3B		15	35	6.0			67%	260	-5%		24	22,704	-7%
5	Pond 3C		32	40	10.0			80%	215	-3%		24	22,704	-7%

- Notes:
- All Physical parameters must be input even if manual overrides for volume or area are used.
 - If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



**Closure Cost Estimate
Process Ponds**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$1,554	\$3,298	N/A	\$4,852
Growth Media Placement Costs	\$2,975	\$8,305	N/A	\$11,280
Liner Cutting & Folding Costs	\$1,515	\$780	N/A	\$2,295
Subtotal Earthworks	\$6,044	\$12,383	\$0	\$18,427
Revegetation Costs	\$700	\$250	\$685	\$1,635
TOTALS	\$6,744	\$12,633	\$685	\$20,062

Process Ponds - User Input (cont.)											
	Description (required)	Liner	Backfill			Growth Media			Revegetation		
		Crew Cut & Fold Time ⁽²⁾ hrs	Backfill Material Type (select)	Backfill Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)
1	Pond 1	2.0	Stone - crushed	Small Truck		Topsoil	Small Truck		Mix 4	Hydro Mulch	None
2	Pond 2	2.0	Stone - crushed	Small Truck		Topsoil	Small Truck		Mix 4	Hydro Mulch	None
3	Pond 3A	2.0	Stone - crushed	Small Truck		Topsoil	Small Truck		Mix 4	Hydro Mulch	None
4	Pond 3B	2.0	Stone - crushed	Small Truck		Topsoil	Small Truck		Mix 4	Hydro Mulch	None
5	Pond 3C	2.0	Stone - crushed	Small Truck		Topsoil	Small Truck		Mix 4	Hydro Mulch	None

Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
 (2) Pond liner removal crew (2Clab + excavator) = 2 General Laborers + 325C Excavator

**Closure Cost Estimate
Process Ponds**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$1,554	\$3,298	N/A	\$4,852
Growth Media Placement Costs	\$2,975	\$8,305	N/A	\$11,280
Liner Cutting & Folding Costs	\$1,515	\$780	N/A	\$2,295
Subtotal Earthworks	\$6,044	\$12,383	\$0	\$18,427
Revegetation Costs	\$700	\$250	\$685	\$1,635
TOTALS	\$6,744	\$12,633	\$685	\$20,062

Process Ponds - Calculations

Pond Volume Calculation

Area and Volume of the Frustrum of a Pyramid

Surface Area = $ab + cd + (a+b+c+d) \times \frac{s}{2}$

Volume = $\frac{h}{3} (ab + cd + \sqrt{abcd})$

Revegetation Calculations

Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Process Ponds**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$1,554	\$3,298	N/A	\$4,852
Growth Media Placement Costs	\$2,975	\$8,305	N/A	\$11,280
Liner Cutting & Folding Costs	\$1,515	\$780	N/A	\$2,295
Subtotal Earthworks	\$6,044	\$12,383	\$0	\$18,427
Revegetation Costs	\$700	\$250	\$685	\$1,635
TOTALS	\$6,744	\$12,633	\$685	\$20,062

Process Ponds - Liner Cutting and Folding					
	Description (required)	Crew Hours hrs	Total Labor Cost \$	Total Equipment Cost \$	Total Liner Removal Cost \$
1	Pond 1	2	\$303	\$156	\$459
2	Pond 2	2	\$303	\$156	\$459
3	Pond 3A	2	\$303	\$156	\$459
4	Pond 3B	2	\$303	\$156	\$459
5	Pond 3C	2	\$303	\$156	\$459
		10	\$1,515	\$780	\$2,295

**Closure Cost Estimate
Process Ponds**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$1,554	\$3,298	N/A	\$4,852
Growth Media Placement Costs	\$2,975	\$8,305	N/A	\$11,280
Liner Cutting & Folding Costs	\$1,515	\$780	N/A	\$2,295
Subtotal Earthworks	\$6,044	\$12,383	\$0	\$18,427
Revegetation Costs	\$700	\$250	\$685	\$1,635
TOTALS	\$6,744	\$12,633	\$685	\$20,062

Process Ponds - Backfill and Growth Media Costs																	
	Description (required)	Pond Backfill							Growth Media								
		Backfill Volume cy	Backfill Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours hrs	Total Labor Cost \$	Total Equipment Cost \$	Total Backfill Cost \$	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1	Pond 1	225	725/966G/D7R	458	2	1	\$222	\$471	\$693	112	725/966G/D7R	511	11	1	\$595	\$1,661	\$2,256
2	Pond 2	1,532	725/966G/D7R	461	2	3	\$666	\$1,414	\$2,080	511	725/966G/D7R	511	11	1	\$595	\$1,661	\$2,256
3	Pond 3A	40	725/966G/D7R	466	2	1	\$222	\$471	\$693	27	725/966G/D7R	511	11	1	\$595	\$1,661	\$2,256
4	Pond 3B	78	725/966G/D7R	460	2	1	\$222	\$471	\$693	39	725/966G/D7R	511	11	1	\$595	\$1,661	\$2,256
5	Pond 3C	379	725/966G/D7R	466	2	1	\$222	\$471	\$693	95	725/966G/D7R	511	11	1	\$595	\$1,661	\$2,256
		2,254				7	\$1,554	\$3,298	\$4,852	783				5	\$2,975	\$8,305	\$11,280

**Closure Cost Estimate
Process Ponds**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$1,554	\$3,298	N/A	\$4,852
Growth Media Placement Costs	\$2,975	\$8,305	N/A	\$11,280
Liner Cutting & Folding Costs	\$1,515	\$780	N/A	\$2,295
Subtotal Earthworks	\$6,044	\$12,383	\$0	\$18,427
Revegetation Costs	\$700	\$250	\$685	\$1,635
TOTALS	\$6,744	\$12,633	\$685	\$20,062

Process Ponds - Revegetation Costs						
	Description (required)	Surface Area acres	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Pond 1	0.10	\$140	\$50	\$114	\$304
2	Pond 2	0.20	\$140	\$50	\$229	\$419
3	Pond 3A	0.10	\$140	\$50	\$114	\$304
4	Pond 3B	0.10	\$140	\$50	\$114	\$304
5	Pond 3C	0.10	\$140	\$50	\$114	\$304
		0.60	\$700	\$250	\$685	\$1,635

**Closure Cost Estimate
Yards, Etc.**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Growth Media Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$4,368	\$12,984		\$17,352
Revegetation Cost	\$940	\$337	\$6,548	\$7,825
TOTALS	\$5,308	\$13,321	\$6,548	\$25,177

Yards, Etc. - User Input												
You must fill in ALL green cells and relevant blue cells in this section for each building or facility												
Facility Description			Physical			Cover			Growth Media			
Description (required)	ID Code	Type	Area acres	Average Flat Area Long Dimension (ripping distance) ft	Regrade Volume (calculated elsewhere) cy	Cover Thickness in	Distance from Cover Borrow Area ft	Slope from Facility to Borrow Area % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade	
1 Limber/Lodgepole Pine Revegetation			1.51									
2 Willow/Spruce/Fir Woodland Revegetation			0.50									
3 Willow Woodland Revegetation			0.50									
4 Aspen Woodlands Revegetation			1.21									
5 Caribou 300 Level Reclamation			0.06			12	22,704	-7.0	12	22,704	-7.0	
6 Potosi Shaft Reclamation			0.33			12	22,704	-7.0	12	22,704	-7.0	

- Notes:
- All Physical parameters must be input even if manual overrides for volume or area are used.
 - If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

Items 1-4 address the costs associated with purchasing native trees and shrubs, in addition to the seed mixtures costed out in other sheets
 Items 5 and 6 address revegetation costs associated with reseeding entire Caribou 300 permit area and Potosi shaft permit area

**Closure Cost Estimate
Yards, Etc.**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Growth Media Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$4,368	\$12,984		\$17,352
Revegetation Cost	\$940	\$337	\$6,548	\$7,825
TOTALS	\$5,308	\$13,321	\$6,548	\$25,177

Yards, Etc. - User Input (cont.)															
You must fill in ALL green cells and relevant blue cells in this section for each building or facility															
	Description (required)	Grading			Cover			Growth Media			Revegetation				
		Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1	Limber/Lodgepole Pine Revegetation										User Mix 1				
2	Willow/Spruce/Fir Woodland Revegetation										User Mix 2				
3	Willow Woodland Revegetation										User Mix 3				
4	Aspen Woodlands Revegetation										User Mix 4				
5	Caribou 300 Level Reclamation				Topsoil	Small Truck		Topsoil	Small Truck		User Mix 4	Hydro Mulch	None	No	
6	Potosi Shaft Reclamation				Topsoil	Small Truck		Topsoil	Small Truck		User Mix 4	Hydro Mulch	None	No	

Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Yards, Etc.**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Growth Media Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$4,368	\$12,984		\$17,352
Revegetation Cost	\$940	\$337	\$6,548	\$7,825
TOTALS	\$5,308	\$13,321	\$6,548	\$25,177

Yards, Etc. - Calculations	
Grading Calculations	
Average push distance assumed to be 2/3 of the 600 feet maximum from Caterpillar Handbook or 400 feet Material assumed to be loose stockpile (1.2 productivity factor) Slope assumed to be 0 to 5% (1.0 productivity factor)	
Cover Volume Calculation	
Yard area x cover thickness	
Ripping/Scarifying Calculations	
Flat area width = Final flat area + Average long dimensions Number of passes = Flat area width + Grader width Travel distance = Number of passes x Average long dimensions Total hours = (Travel distance + Grader productivity) + (Number of passes x Grader maneuver time) Minimum 1 hr ripping/scarifying per area	
Revegetation	
Minimum 1 acre revegetation crew time per area	

**Closure Cost Estimate
Yards, Etc.**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Growth Media Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$4,368	\$12,984		\$17,352
Revegetation Cost	\$940	\$337	\$6,548	\$7,825
TOTALS	\$5,308	\$13,321	\$6,548	\$25,177

Yards, Etc. - Regrading Costs													
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side)													
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Limber/Lodgepole Pine Revegetation			Dozing Material							\$0	\$0	\$0
2	Willow/Spruce/Fir Woodland Revegetation			Dozing Material							\$0	\$0	\$0
3	Willow Woodland Revegetation			Dozing Material							\$0	\$0	\$0
4	Aspen Woodlands Revegetation			Dozing Material							\$0	\$0	\$0
5	Caribou 300 Level Reclamation			Dozing Material							\$0	\$0	\$0
6	Potosi Shaft Reclamation			Dozing Material							\$0	\$0	\$0
											\$0	\$0	\$0

**Closure Cost Estimate
Yards, Etc.**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Growth Media Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$4,368	\$12,984		\$17,352
Revegetation Cost	\$940	\$337	\$6,548	\$7,825
TOTALS	\$5,308	\$13,321	\$6,548	\$25,177

Yards, Etc. - Cover and Growth Media Costs																
Description (required)	Cover								Growth Media							
	Cover Volume cy	Topsoil Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1 Limber/Lodgepole Pine Revegetation						\$0	\$0	\$0						\$0	\$0	\$0
2 Willow/Spruce/Fir Woodland Revegetation						\$0	\$0	\$0						\$0	\$0	\$0
3 Willow Woodland Revegetation						\$0	\$0	\$0						\$0	\$0	\$0
4 Aspen Woodlands Revegetation						\$0	\$0	\$0						\$0	\$0	\$0
5 Caribou 300 Level Reclamation	161	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338	161	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338
6 Potosi Shaft Reclamation	484	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338	484	725/966G/D7R	535	23	1	\$1,092	\$3,246	\$4,338
	645				2	\$2,184	\$6,492	\$8,676	645				2	\$2,184	\$6,492	\$8,676

**Closure Cost Estimate
Yards, Etc.**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Growth Media Placement Cost	\$2,184	\$6,492	N/A	\$8,676
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$4,368	\$12,984		\$17,352
Revegetation Cost	\$940	\$337	\$6,548	\$7,825
TOTALS	\$5,308	\$13,321	\$6,548	\$25,177

Yards, Etc. - Scarifying/Revegetation Costs												
	Description (required)	Surface Area acres	Area Long Dimension ft	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Limber/Lodgepole Pine Revegetation	1.51	0			\$0	\$0	\$0	\$211	\$76	\$2,265	\$2,552
2	Willow/Spruce/Fir Woodland Revegetation	0.50	0			\$0	\$0	\$0	\$140	\$50	\$750	\$940
3	Willow Woodland Revegetation	0.50	0			\$0	\$0	\$0	\$140	\$50	\$750	\$940
4	Aspen Woodlands Revegetation	1.21	0			\$0	\$0	\$0	\$169	\$61	\$1,815	\$2,045
5	Caribou 300 Level Reclamation	0.10		Select Fleet		\$0	\$0	\$0	\$140	\$50	\$225	\$415
6	Potosi Shaft Reclamation	0.33		Select Fleet		\$0	\$0	\$0	\$140	\$50	\$743	\$933
		4.15				\$0	\$0	\$0	\$940	\$337	\$6,548	\$7,825

**Closure Cost Estimate
Waste Disposal**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan

Date of Submittal: November 23 2021

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm

Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$905	\$1,695	N/A	\$2,600
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$905	\$1,695	\$0	\$2,600

Waste Disposal - User Input - Solid Waste									
	Description (required)	ID Code	Waste Type (select)	Disposal Method (select)	Quantity cy	Landfill (Bulk) Disposal			Dumpster
						Distance to Landfill ft	Slope to Landfill % grade	Number of Trucks (user override)	Months Dumpster Rental months
1	Sediment (Pond 1)		Waste Mgmt & Disposal	Landfill (bulk)	4	233872	2.2		
2	Sediment (Pond 2)		Waste Mgmt & Disposal	Landfill (bulk)	4	233872	2.2		
3	Sediment (Pond 3A)		Waste Mgmt & Disposal	Landfill (bulk)	2	233872	2.2		
4	Sediment (Pond 3B)		Waste Mgmt & Disposal	Landfill (bulk)	2	233872	2.2		
5	Sediment (Pond 3C)		Waste Mgmt & Disposal	Landfill (bulk)	4	233872	2.2		

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

**Closure Cost Estimate
Waste Disposal**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan

Date of Submittal: November 23 2021

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm

Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$905	\$1,695	N/A	\$2,600
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$905	\$1,695	\$0	\$2,600

Waste Disposal - User Input - Hazardous Materials									
	Description (required)	ID Code	Waste Type (select)	Container Type (select)	Vacuum Truck Size (select)	Liquid Quantity gallons	Soild Quantity cy	One Way Travel Distance to Disposal Site mi	One Way Travel Time to Disposal Site hr

Notes:

1. Use Other Demo & Equip Removal Sheet for tank removal



**Closure Cost Estimate
Waste Disposal**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan

Date of Submittal: November 23 2021

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm

Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$905	\$1,695	N/A	\$2,600
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$905	\$1,695	\$0	\$2,600

Waste Disposal - User Input - Hydrocarbon Contaminated Soils						
	Description (required)	ID Code	Waste Type (select)	Disposal Method (select)	Quantity cy	Travel Distance to Offsite Disposal mi

Notes:

1. Use Yards or Landfills Sheets for bioremediation facility reclamation



**Closure Cost Estimate
Waste Disposal**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan

Date of Submittal: November 23 2021

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm

Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$905	\$1,695	N/A	\$2,600
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$905	\$1,695	\$0	\$2,600

Waste Disposal - Assumptions & Calculations

Solid Waste Disposal

Off site disposal assumes use of average rolloff dumpster [30 cy (m3), 10 ton (tonne)]
 On site disposal assumes use of small loader/truck fleet for haulage
 Average density for on site disposal = 2,600 lb/cy (1,540 kg/m3)
 For on site disposal only 1 truck is required unless total truck hours > 8, only 2 trucks unless total truck hours are > 16

Hazardous Materials Disposal

Assumes all hazardous materials are known
 Enter EITHER solid or liquid quantity each line.
 If container type = 55 gallon (200 liter) drum then solid waste hauling costs apply
 Average density for solids assumed to be 2,600 lb/cy (1,540 kg/m3)
 Vacuum truck sizes: small = 2,200 gal (~8,300 litres), large = 5,000 gal (~19,000 litres)
 Vacuum truck on site for 4 hours for each load

Hydrocarbon Contaminated Soils Disposal

Assumes all hazardous materials are known
 On site disposal assumes biopad treatment
 Exavation productivity =45 cy./hr (35 m3/hr) (Means Heavy Construction, 2006: 02315-424-0360)

**Closure Cost Estimate
Waste Disposal**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan

Date of Submittal: November 23 2021

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm

Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$905	\$1,695	N/A	\$2,600
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$905	\$1,695	\$0	\$2,600

Waste Disposal - Solid Waste Disposal										
	Description (required)	Waste Volume cy	Number of Off Site Dumpster Loads	Landfill Fleet Equipment	Landfill Fleet Productivity LCY/hr	Number of Trucks	Total Fleet Hours	Total Dumpster Cost \$	Total Labor Cost \$	Total Equipment Cost \$
1	Sediment (Pond 1)	4		725/966G/D7R	6	1	1	\$0	\$181	\$339
2	Sediment (Pond 2)	4		725/966G/D7R	6	1	1	\$0	\$181	\$339
3	Sediment (Pond 3A)	2		725/966G/D7R	6	1	1	\$0	\$181	\$339
4	Sediment (Pond 3B)	2		725/966G/D7R	6	1	1	\$0	\$181	\$339
5	Sediment (Pond 3C)	4		725/966G/D7R	6	1	1	\$0	\$181	\$339
		16					5	\$0	\$905	\$1,695

**Closure Cost Estimate
Waste Disposal**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan

Date of Submittal: November 23 2021

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm

Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$905	\$1,695	N/A	\$2,600
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$905	\$1,695	\$0	\$2,600

Waste Disposal - Hazardous Materials Disposal									
Description (required)	Liquid Waste Volume gallons	Solid Waste Volume cy	Number of Truck Loads	Tons of Waste Tons	Pick-up Fees \$	Transport Fees \$	Disposal Fees \$	Total Hazardous Material Cost \$	
					\$0	\$0	\$0	\$0	

**Closure Cost Estimate
Waste Disposal**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan

Date of Submittal: November 23 2021

File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm

Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$905	\$1,695	N/A	\$2,600
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$905	\$1,695	\$0	\$2,600

Waste Disposal - Hydrocarbon Contaminated Soils										
Description (required)	Quantity cy	Disposal Equipment Fleet	Total Fleet Hours	Treatment Cost \$	Transport Fees \$	Disposal Fees \$	Total Labor Cost \$	Total Equipment Cost \$	Total Waste Disposal Cost \$	
				\$0	\$0	\$0	\$0	\$0	\$0	

**Closure Cost Estimate
Misc. Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$2,241	\$822	N/A	\$3,063
Fence Installation	\$1,137	\$270	\$7,980	\$9,387
Culvert & Buried Pipe Removal	\$1,938	\$710	N/A	\$2,648
Surface Pipe Removal	\$2,144	\$357	N/A	\$2,501
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$7,460	\$2,159	\$7,980	\$17,599

Fence Removal							
You must fill in ALL green and blue cells							
Costs							
	Description (required)	ID Code	Length ft	Type (select type)	Labor Cost \$	Equipment Cost \$	Total Cost \$
1	Caribou 300 Perimeter Fence		530	Chain link 8-10 ft	\$1,431	\$525	\$1,956
2	Potosi Shaft Perimeter Fence		300	Chain link 8-10 ft	\$810	\$297	\$1,107
					\$2,241	\$822	\$3,063

Notes:

Fence Installation							
You must fill in ALL green and blue cells							
Input				Costs			
	Description (required)	ID Code	Length ft	Type (select type)	Labor Cost \$	Equipment Cost \$	Material Cost (\$)
1	Idaho Tunnel Fence		50	Chain link 8-10ft	\$271	\$64	\$1,900
2	Caribou 300 Level Fence		50	Chain link 8-10ft	\$271	\$64	\$1,900
3	Cross Mine Portal		50	Chain link 8-10ft	\$271	\$64	\$1,900
4	Ventilation & Escapeway Shaft Perimeter		20	Chain link 8-10ft	\$108	\$26	\$760
5	Ventilation Shaft Perimeter		20	Chain link 8-10ft	\$108	\$26	\$760
6	Potosi Shaft Perimeter		20	Chain link 8-10ft	\$108	\$26	\$760
					\$1,137	\$270	\$7,980

Notes:

**Closure Cost Estimate
Misc. Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$2,241	\$822	N/A	\$3,063
Fence Installation	\$1,137	\$270	\$7,980	\$9,387
Culvert & Buried Pipe Removal	\$1,938	\$710	N/A	\$2,648
Surface Pipe Removal	\$2,144	\$357	N/A	\$2,501
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$7,460	\$2,159	\$7,980	\$17,599

Culvert & Buried Pipe Removal							
You must fill in ALL green and blue cells							
			Input			Costs	
	Description (required)	ID Code	Length ft	Type (select type)	Location (select)	Labor Cost \$	Equipment Cost \$
1	New Road (Culvert 1)		72.5	36 in (1m) Diame	On site	\$969	\$355
2	New Road (Culvert 2)		72.5	36 in (1m) Diame	On site	\$969	\$355
						\$1,938	\$710

Notes:

Surface Pipe Removal							
You must fill in ALL green and blue cells							
			Input			Costs	
	Description (required)	ID Code	Length ft	Type (select type)	Location (select)	Labor Cost \$	Equipment Cost \$
1	Segment 1		35	6 in (150 mm) - 8	On site	\$97	\$16
2	Segment 2		208	6 in (150 mm) - 8	On site	\$574	\$96
3	Segment 3		90	6 in (150 mm) - 8	On site	\$248	\$41
4	Segment 4		229	6 in (150 mm) - 8	On site	\$632	\$105
5	Segment 6		90	6 in (150 mm) - 8	On site	\$248	\$41
6	Segment 6		125	6 in (150 mm) - 8	On site	\$345	\$58
						\$2,144	\$357

Notes:

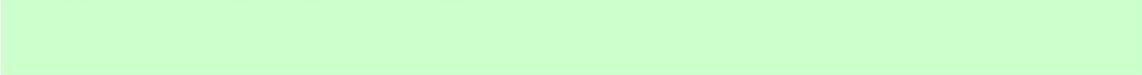
**Closure Cost Estimate
Misc. Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$2,241	\$822	N/A	\$3,063
Fence Installation	\$1,137	\$270	\$7,980	\$9,387
Culvert & Buried Pipe Removal	\$1,938	\$710	N/A	\$2,648
Surface Pipe Removal	\$2,144	\$357	N/A	\$2,501
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$7,460	\$2,159	\$7,980	\$17,599

Power Line and Substation Removal			You must fill in ALL green and blue cells				
			Input				
Description (required)	ID Code	Power Line Length miles	Power Line Type (select)	Number of Substations #	Location (select)	Power Line Removal \$	
						\$0	

Notes: If substation owned by operator, use Other Demo & Equipment Removal sheet
 User may need to add line items in Foundations & Buildings for substation slab demolition and fence removal
 Labor/Equipment costs assume approximately 80% of cost are equipment and 20% are labor related costs



**Closure Cost Estimate
Misc. Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$2,241	\$822	N/A	\$3,063
Fence Installation	\$1,137	\$270	\$7,980	\$9,387
Culvert & Buried Pipe Removal	\$1,938	\$710	N/A	\$2,648
Surface Pipe Removal	\$2,144	\$357	N/A	\$2,501
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$7,460	\$2,159	\$7,980	\$17,599

Rip-Rap & Rock Lining			You must fill in ALL green and blue cells				
	Description (required)	ID Code	Input		Costs		
			Area S.Y.	Type (select type)	Labor Cost \$	Equipment Cost \$	Material Cost \$
					\$0	\$0	\$0

Notes:

**Closure Cost Estimate
Misc. Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$2,241	\$822	N/A	\$3,063
Fence Installation	\$1,137	\$270	\$7,980	\$9,387
Culvert & Buried Pipe Removal	\$1,938	\$710	N/A	\$2,648
Surface Pipe Removal	\$2,144	\$357	N/A	\$2,501
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$7,460	\$2,159	\$7,980	\$17,599

Closure Cost Estimate
Monitoring

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Reclamation Monitoring & Maintenance - Cost Summary				
	Labor	Equipment	Lab & Materials	Totals
Revegetation Maintenance	\$465	\$166	\$1,306	\$1,937
Erosion Maintenance	\$6,639	\$19,918	N/A	\$26,557
Reclamation Monitoring	\$0	\$0	N/A	\$0
Subtotal Reclamation Monitoring	\$7,104	\$20,084	\$1,306	\$28,494
Water Quality Monitoring	\$0	\$0	\$0	\$0
TOTAL MONITORING	\$7,104	\$20,084	\$1,306	\$28,494

Reclamation Maintenance										
Description	Total Revegetation Surface Area (1,2) acres	% Area Requiring Reseeding	Seed Mix (select)	Area Requiring Reseeding acres	Seed \$/acres	Labor \$/acres	Equipment \$/acres	Totals \$		
Revegetation Maintenance	7	50%	Mix 4	3.3	\$393.25	\$140.00	\$50.00			
Labor								\$465		
Equipment								\$166		
Materials								\$1,306		
Cost/Acre								\$583		
								Subtotal	\$1,937	

Notes: 1) Surface area is NOT the same as footprint disturbance area typically used for permitting purposes.

Description	Total Volume Growth Media cy	% Volume Requiring Maintenance	Average Growth Media Placement Cost \$/CY	Volume Requiring Replacement cy	Labor (assume: 25%) \$/acres	Equipment (assume: 75%) \$/acres	Total \$
Erosion Maintenance	4,137	60%	\$10.70	2,482	\$6,639.00	\$19,918.00	\$26,557

Notes:

Reclamation Monitoring						
Description	Hrs/Day	Days/Year	Number of Years	Rate \$/hr		
Field Work						
Field Geologist/Engineer				\$140.56		
Range Scientist				\$125.56		
						\$0
Reporting						
Field Geologist/Engineer				\$140.56		
Range Scientist				\$125.56		
					Subtotal	\$0
Travel						
	Hrs/Trip hr	Trips/Year	Years	Truck Cost \$/hr		
Travel				\$28.83		
					Subtotal	\$0
					Total Reclamation Monitoring	\$0

Notes:

Adits, Portals, and Declines													
Description (required)	Bulkhead Volume cy	Bulkhead Construction				Gate				Total Costs			
		Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Bulkhead Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Bat Gate Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Plugging Costs \$
Caribou 300 Level Portal	4	\$547	\$42	\$652	\$1,241	\$0	\$0	\$3,368	\$3,368	\$547	\$42	\$4,020	\$4,609

Fence Removal					
Description (required)	Length ft	Type (select type)	Costs		
			Labor Cost \$	Equipment Cost \$	Total Cost \$
Caribou 300 Perimeter Fence	530	Chain link	\$1,431	\$525	\$1,956

Fence Installation							
Description (required)	ID Code	Input		Costs			
		Length ft	Type (select type)	Labor Cost \$	Equipment Cost \$	Material Cost (\$)	Total Cost \$
Caribou 300 Level Fence		50	Chain link 8-	\$271	\$64	\$1,900	\$2,235

Yards, Etc. - Cover and Growth Media Costs																
Description (required)	Cover								Growth Media							
	Cover Volume cy	Topsoil Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
Caribou 300 Level Reclamatio	161	25/966G/D7	535	23	1	\$1,092	\$3,246	\$4,338	161	25/966G/D7F	535	23	1	\$1,092	\$3,246	\$4,338

Scarifying/Revegetation Costs											
Description (required)	Surface Area acres	Area Long Dimension ft	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$

Fence Removal					
			Costs		
Description (required)	Length	Type	Labor Cost	Equipment Cost	Total Cost
	ft	(select type)	\$	\$	\$
Potosi Shaft Perimeter Fence	300	Chain link	\$810	\$297	\$1,107

Fence Installation						
		Input		Costs		
Description (required)	Length	Type	Labor Cost	Equipment Cost	Material Cost	Total Cost
	ft	(select type)	\$	\$	(\$)	\$
Potosi Shaft Closure Fence	20	Chain link	\$108	\$26	\$760	\$894

Yards, Etc. - Cover and Growth Media Costs																
		Cover							Growth Media							
Description (required)	Cover Volume	Topsoil Replacement Fleet	Fleet Productivity	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost	Total Equipment Cost	Total Cover Cost	Growth Media Volume	Growth Media Fleet	Fleet Productivity	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost	Total Equipment Cost	Total Growth Media Cost
	cy		LCY/hr			\$	\$	\$	cy		LCY/hr			\$	\$	\$
Potosi Shaft Reclamation	484	25/966G/D7	535	23	1	\$1,092	\$3,246	\$4,338	484	25/966G/D7	535	23	1	\$1,092	\$3,246	\$4,338

Scarifying/Revegetation Costs											
Description (required)	Surface Area	Area Long Dimension	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours	Scarifying/ Ripping Labor Costs	Scarifying/ Ripping Equipment Cost	Total Scarifying/ Ripping Costs	Revegetation Labor Cost	Revegetation Equipment Cost	Revegetation Material Cost	Total Revegetation Cost
	acres	ft		hrs	\$	\$	\$	\$	\$	\$	\$
Potosi Shaft Reclamation	0.33				\$0	\$0	\$0	\$140	\$50	\$743	\$933

Shaft Plugging													
		Cover/Cap									Backfill/Cover		
Description (required)	Cover Area	Backfill or Cover Volume	Backfill Equipment Fleet	Number of Trucks	Backfill Productivity	Backfill Hours	Total Labor Cost	Total Equipment Cost	Total Material Cost	Total Shaft Cap Cost	Total Labor Cost	Total Equipment Cost	Total Backfill Cost
	ft2	cy			LCY/hr		\$	\$	\$	\$	\$	\$	\$
Potosi Shaft - Backfill	28	311		2	370	2	\$0	\$0	\$0	\$0	\$444	\$943	\$1,387
Potosi Shaft - Concrete Plug	28	41		2	490	1	\$1,072	\$82	\$556	\$1,710	\$222	\$471	\$693

**Closure Cost Estimate
Constr. Mgmt**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Construction Management & Road Maintenance - Cost Summary				
	Labor	Equipment	Materials	Totals
Construction Management	\$34,693	\$9,065	N/A	\$43,758
Construction Support		\$0		\$0
Road Maintenance	\$0	\$0	\$0	\$0
TOTAL CONSTRUCTION MANAGEMENT	\$34,693	\$9,065	\$0	\$43,758

Construction Management							
Construction Management Staff							
Description	Duration mo.	Hours/ Month hr.	Number of Supervisors	Supervisor Rate \$/hr	Labor Cost \$	Equipment Cost ⁽¹⁾ \$	Totals \$
Active Reclamation	9	40	1	\$96.37	\$34,693	\$9,065	\$43,758
Monitoring & Maintenance					\$0	\$0	\$0
Total Staff					\$34,693	\$9,065	\$43,758
Construction Management Support							
Description	Duration mo.	Number of Units		Rental Rate \$/mo	Generator Cost \$/mo	Equipment Cost ⁽¹⁾ \$	Totals \$
Temporary Office Rental						\$0	\$0
Temporary Toilets						\$0	\$0
Total Support						\$0	\$0
Notes: Office rental assumes only 1 generator required for every 4 trailers							
Total Construction Management							\$43,758

Road Maintenance							
Description	Fleet Size (select)	Number	Duration mo.	Hours/ Month hr.	Labor Cost \$	Equipment Cost \$	Totals \$
Active Reclamation							
Water Truck					\$0	\$0	\$0
Grader					\$0	\$0	\$0
Monitoring & Maintenance							
Water Truck					\$0	\$0	\$0
Grader					\$0	\$0	\$0
Description	Gallons/ Day	Days/ Month	Duration mo.	Cost/ Gallon \$			Totals \$
Water Fees							
Water Fees							\$0
Total Project Maintenance					\$0	\$0	\$0
Notes: 1) Supervisor equipment = pickup truck							

**Closure Cost Estimate
Labor Rates**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS		
Cost Basis/Project Region	Northern Nevada	Churchill, Douglas, Elko, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, Washoe, and White Pine Counties
Power Equipment Operators	50-150 miles	\$0.00
Truck Drivers	50-150 miles	\$0.00
Laborers	50-150 miles	\$0.00
INDIRECT COSTS		
Unemployment (%)	3.00%	
Retirement/SS/Medicare (%)	7.65%	
Workman's Compensation (%)	7.60%	
Other Indirects		
State Payroll Tax (13),(15),(17)		
Total Other Indirects	0.00%	

HOURLY LABOR RATE TABLE										
EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Labor Group	Base Rate (\$/hr)	Zone Adjustment (\$/hr)	Hourly Wage (\$/hr)	Fringe (\$/hr)	Retirement/Medicare (\$/hr)	Unemployment Insurance (\$/hr)	Workman's Compensation (\$/hr)	Other Indirect Costs (\$/hr)	Total (\$/hr)
Equipment Operators (\$/hr) (2)										
Bulldozers										
D6R		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
D6R w/ Winch					\$24.80					
D7R		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
D8R		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
D9R		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
D10R		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
D11R		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
Wheeled Dozers										
824G					\$24.80					
834G					\$24.80					
844					\$24.80					
854G					\$24.80					
Motor Graders										
120H		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
14G/H		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
16G/H		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
24M					\$24.80					
Track Excavators										
312C		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
320C		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
325C		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
330C		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
345B		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
365BL					\$24.80					
385BL		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
Scrapers										
631G		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
637G		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
Wheeled Loaders										
924G		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
928G		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
950G		\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16
966G		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
972G		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
980G		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
988G		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
990					\$24.80					
992G		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
994D					\$24.80					
L2350					\$24.80					
Shovels										
PC2000					\$24.80					
PC3000					\$24.80					
PC4000					\$24.80					
PC5500					\$24.80					
PC8000					\$24.80					
Hydraulic Hammers										
H-120 (fits 325)										
H-160 (fits 345)										
H-180 (fits 365/385)										
Demolition Shears										
S340 (fits 322/325/330)										
S365 (fits 330/345)										
S390 (fits 365/385)										
Demolition Grapples										
G315 (fits 322/325)										
G320 (fits 325/330)										
G330 (fits 345/365)										

**Closure Cost Estimate
Labor Rates**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS		
Cost Basis/Project Region	Northern Nevada	Churchill, Douglas, Elko, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, Washoe, and White Pine Counties
Power Equipment Operators	50-150 miles	\$0.00
Truck Drivers	50-150 miles	\$0.00
Laborers	50-150 miles	\$0.00
INDIRECT COSTS		
Unemployment (%)	3.00%	
Retirement/SS/Medicare (%)	7.65%	
Workman's Compensation (%)	7.60%	
Other Indirects		
State Payroll Tax (13),(15),(17)		
Total Other Indirects	0.00%	

HOURLY LABOR RATE TABLE										
Other Equipment										
420D 4WD Backhoe		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
428D 4WD Backhoe		\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17
CS533E Vibratory Roller		\$36.92	\$0.00	\$36.92	\$24.80	\$1.11	\$2.82	\$2.81	\$0.00	\$68.46
CS633E Vibratory Roller					\$24.80					
CP533E Sheepsfoot Compact					\$24.80					
CP633E Sheepsfoot Compact					\$24.80					
Light Truck - 1.5 Ton					\$24.80					
Supervisor's Truck					\$24.80					
Flatbed Truck					\$24.80					
Air Compressor + tools	\$35.46	\$0.00	\$35.46	\$24.80	\$1.06	\$2.71	\$2.69	\$0.00	\$66.73	
Welding Equipment	\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17	
Heavy Duty Drill Rig	\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16	
Pump (plugging) Drill Rig	\$37.51	\$0.00	\$37.51	\$24.80	\$1.13	\$2.87	\$2.85	\$0.00	\$69.16	
Concrete Pump				\$24.80						
Gas Engine Vibrator	\$36.92	\$0.00	\$36.92	\$24.80	\$1.11	\$2.82	\$2.81	\$0.00	\$68.46	
Generator 5KW				\$24.80						
HDEP Welder (pipe or liner)				\$24.80						
5 Ton Crane	\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17	
20 Ton Crane	\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17	
50 Ton Crane	\$38.37	\$0.00	\$38.37	\$24.80	\$1.15	\$2.94	\$2.92	\$0.00	\$70.17	
120 Ton Crane				\$24.80						

NOTES:
 (1) Equipment Type: Caterpillar model or equivalent, LeTourneau
 (2) Equipment Operator Source: D-B NV20200002 01/03/2020
 (3) Zone Basis: From Washoe Co. Courthouse

Truck Drivers (\$/hr) (4)										
725	truck Driver > 25 yds <	\$31.50	\$0.00	\$31.50	\$4.16	\$0.95	\$2.41	\$2.39	\$0.00	\$41.41
730	ruck Driver > 25 yds <	\$31.50	\$0.00	\$31.50	\$4.16	\$0.95	\$2.41	\$2.39	\$0.00	\$41.41
735	ruck Driver > 25 yds <	\$31.50	\$0.00	\$31.50	\$4.16	\$0.95	\$2.41	\$2.39	\$0.00	\$41.41
740	ruck Driver > 25 yds <	\$31.50	\$0.00	\$31.50	\$4.16	\$0.95	\$2.41	\$2.39	\$0.00	\$41.41
769D	ruck Driver > 25 yds <	\$31.50	\$0.00	\$31.50	\$4.16	\$0.95	\$2.41	\$2.39	\$0.00	\$41.41
773E					\$4.16					
777D	ruck Driver > 60 yds <	\$31.50	\$0.00	\$31.50	\$4.16	\$0.95	\$2.41	\$2.39	\$0.00	\$41.41
785C					\$4.16					
793C					\$4.16					
797B					\$4.16					
613E (5,000 gal) Water Wagon	ter Truck > 2,500 gall	\$31.50	\$0.00	\$31.50	\$4.16	\$0.95	\$2.41	\$2.39	\$0.00	\$41.41
621E (8,000 gal) Water Wagon	ter Truck > 2,500 gall	\$31.50	\$0.00	\$31.50	\$4.16	\$0.95	\$2.41	\$2.39	\$0.00	\$41.41
777D Water Truck					\$4.16					
785C Water Truck					\$4.16					
Dump Truck (10-12 yd3)	Truck Driver > 8 yds <	\$31.50	\$0.00	\$31.50	\$4.16	\$0.95	\$2.41	\$2.39	\$0.00	\$41.41

NOTES:
 (4) Truck Driver Source: D-B SUNV2017-001 10/1/2018
 (5) Zone Basis: From Washoe Co. Courthouse

**Closure Cost Estimate
Equipment Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Monthly Rental Basis: 160 hrs month

EQUIPMENT RENTAL RATE TABLE				
EQUIPMENT TYPE (1)	Monthly Owner/Rental Rate	Equipment Hourly Rate	Fuel/Lube/ Wear	Total Rate
Bulldozers				
D6R	\$10,605.00	\$66.28	\$26.50	\$92.78
D6R w/ Winch			\$13.69	\$13.69
D7R	\$11,575.00	\$72.34	\$29.24	\$101.58
D8R	\$22,030.00	\$137.69	\$39.47	\$177.16
D9R	\$29,580.00	\$184.88	\$56.05	\$240.92
D10R	\$41,000.00	\$256.25	\$72.14	\$328.39
D11R	\$64,000.00	\$400.00	\$105.01	\$505.01
Wheeled Dozers				
824G			\$23.54	\$23.54
834G			\$27.59	\$27.59
844			\$32.85	\$32.85
854G			\$41.61	\$41.61
Motor Graders				
120H	\$9,790.00	\$61.19	\$29.81	\$90.99
14G/H	\$14,075.00	\$87.97	\$43.48	\$131.45
16G/H	\$22,000.00	\$137.50	\$54.50	\$192.00
24M			\$33.95	\$33.95
Track Excavators				
312C	\$5,380.00	\$33.63	\$12.51	\$46.13
320C	\$6,070.00	\$37.94	\$20.03	\$57.97
325C	\$8,490.00	\$53.06	\$25.00	\$78.07
330C	\$11,015.00	\$68.84	\$30.19	\$99.03
345B	\$14,565.00	\$91.03	\$37.48	\$128.52
365BL			\$28.91	\$28.91
385BL	\$22,950.00	\$143.44	\$58.28	\$201.71
Scrapers				
631G	\$25,295.00	\$158.09	\$62.93	\$221.03
637G	\$35,000.00	\$218.75	\$89.41	\$308.16
Wheeled Loaders				
924G	\$4,850.00	\$30.31	\$19.62	\$49.93
928G	\$5,300.00	\$33.13	\$22.02	\$55.14
950G	\$7,750.00	\$48.44	\$27.46	\$75.89
966G	\$11,115.00	\$69.47	\$36.01	\$105.47
972G	\$14,075.00	\$87.97	\$40.68	\$128.65
980G	\$14,075.00	\$87.97	\$45.83	\$133.80
988G	\$23,460.00	\$146.63	\$64.79	\$211.42
990			\$37.23	\$37.23
992G	\$63,000.00	\$393.75	\$121.76	\$515.51
994D			\$78.84	\$78.84
L2350			\$144.54	\$144.54
Shovels				
PC2000			\$81.03	\$81.03
PC3000			\$109.50	\$109.50
PC4000			\$153.30	\$153.30
PC5500			\$260.61	\$260.61
PC8000			\$326.31	\$326.31
Hydraulic Hammers				
H-120 (fits 325)	\$5,810.00	\$36.31	\$5.62	\$41.93
H-160 (fits 345)	\$12,240.00	\$76.50	\$10.98	\$87.48
H-180 (fits 365/385)	\$16,520.00	\$103.25	\$13.01	\$116.26
Demolition Shears				
S340 (fits 322/325/330)				\$0.00
S365 (fits 330/345)				\$0.00
S390 (fits 365/385)				\$0.00
Demolition Grapples				
G315 (fits 322/325)				\$0.00
G320 (fits 325/330)				\$0.00
G330 (fits 345/365)				\$0.00
Other Equipment				
420D 4WD Backhoe	\$2,700.00	\$16.88	\$15.26	\$32.14
428D 4WD Backhoe	\$3,450.00	\$21.56	\$15.13	\$36.70
CS533E Vibratory Roller	\$8,140.00	\$50.88	\$8.21	\$59.09
CS633E Vibratory Roller			\$10.40	\$10.40
CP533E Sheepsfoot Compactor			\$8.21	\$8.21
CP633E Sheepsfoot Compactor			\$10.40	\$10.40
Light Truck - 1.5 Ton	\$4,043.60	\$25.27	\$3.56	\$28.83
Supervisor's Truck	\$3,634.40	\$22.72	\$2.46	\$25.18
Flatbed Truck	\$4,043.60	\$25.27	\$11.81	\$37.08
Air Compressor + tools	\$5,749.04	\$35.93	\$2.19	\$38.12
Welding Equipment	\$3,036.00	\$18.98	\$4.38	\$23.36
Heavy Duty Drill Rig	\$32,802.00	\$205.01	\$26.28	\$231.29
Pump (plugging) Drill Rig	\$32,802.00	\$205.01	\$21.90	\$226.91
Concrete Pump	\$3,470.00	\$21.94	\$21.90	\$43.84
Gas Engine Vibrator	\$554.40	\$3.47	\$2.19	\$5.66
Generator SKW	\$1,651.76	\$10.32	\$3.29	\$13.61
HDEP Welder (pipe or liner)	\$8,778.00	\$54.86	\$4.38	\$59.24
5 Ton Crane	\$7,779.20	\$48.62	\$6.57	\$55.19
20 Ton Crane	\$11,924.00	\$74.53	\$8.76	\$83.29
50 Ton Crane	\$11,924.00	\$74.53	\$10.29	\$84.82
120 Ton Crane			\$11.39	\$11.39
Trucks				
725	\$15,300.00	\$95.63	\$36.52	\$132.14
730	\$15,300.00	\$95.63	\$37.61	\$133.24
735	\$15,300.00	\$95.63	\$50.89	\$146.51
740	\$15,300.00	\$95.63	\$52.11	\$147.73
769D	\$21,650.00	\$135.31	\$37.23	\$172.54
773E	\$34,025.00	\$212.66	\$49.74	\$262.39
777D	\$55,700.00	\$348.13	\$70.98	\$419.10
785C			\$53.11	\$53.11
793C			\$91.43	\$91.43
797B			\$128.66	\$128.66
813E (5,000 gal) Water Wagon	\$6,630.00	\$41.44	\$22.07	\$63.51
821E (8,000 gal) Water Wagon	\$11,220.00	\$70.13	\$39.20	\$109.33
777D Water Truck			\$36.68	\$36.68
785C Water Truck			\$53.11	\$53.11
Dump Truck (10-12 yd ³)	\$11,814.00	\$73.84	\$12.42	\$86.26
NOTES:				
(1) Power Equipment Source:				
(2) Power Equipment Type:	Caterpillar model or equivalent, LeTourneau loader, Komatsu shovels			
(3) Drilling Equipment Source:	RS Means Heavy Construction (2020 Q2)			
(4) Other Equipment Source:	RS Means Heavy Construction (2020 Q2)			
(5) Drill rig includes support (pipe) truck.				

**Closure Cost Estimate
Equipment Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVb.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm

FUEL, LUBE AND WEAR CALCULATIONS						
EQUIPMENT TYPE	PM Cost Per Hour ⁽¹⁾	Under carriage or Tires ⁽²⁾	G.E.T Consumption ⁽³⁾	Fuel Use Rate gal/hr ⁽⁴⁾	Cost@ 2.19/gal	Total Hourly Equipment Cost
Bulldozers						
D6R	\$7.63		\$5.18	6.25	\$13.69	\$26.50
D6R w/ Winch				6.25	\$13.69	\$13.69
D7R	\$7.63		\$5.18	7.50	\$16.43	\$29.24
D8R	\$8.05		\$10.07	9.75	\$21.35	\$39.47
D9R	\$9.18		\$15.66	14.25	\$31.21	\$56.05
D10R	\$10.80		\$21.92	18.00	\$39.42	\$72.14
D11R	\$14.71		\$32.26	26.50	\$58.04	\$105.01
Wheeled Dozers						
824G		\$0.00		10.75	\$23.54	\$23.54
834G		\$0.00		12.60	\$27.59	\$27.59
844		\$0.00		15.00	\$32.85	\$32.85
854G		\$0.00		19.00	\$41.61	\$41.61
Motor Graders						
120H	\$4.64	\$5.63	\$10.78	4.00	\$8.76	\$29.81
14G/H	\$5.78	\$8.43	\$15.58	6.25	\$13.69	\$43.48
16G/H	\$6.04	\$10.75	\$21.28	7.50	\$16.43	\$54.50
24M				15.50	\$33.95	\$33.95
Track Excavators						
312C	\$4.36		\$4.03	1.88	\$4.12	\$12.51
320C	\$4.65		\$4.65	4.90	\$10.73	\$20.03
325C	\$4.68		\$5.87	6.80	\$14.45	\$25.00
330C	\$5.77		\$6.46	8.20	\$17.96	\$30.19
345B	\$7.66		\$6.61	10.60	\$23.21	\$37.48
365BL				13.20	\$28.91	\$28.91
385BL	\$6.42		\$13.53	17.50	\$38.33	\$58.28
Scrapers						
631G	\$7.74	\$13.86	\$8.48	15.00	\$32.85	\$62.93
637G	\$12.87	\$13.86	\$10.66	23.75	\$52.01	\$89.41
Wheeled Loaders						
924G	\$3.53	\$5.59	\$4.47	2.75	\$6.02	\$19.62
929G	\$4.14	\$5.59	\$4.62	3.50	\$7.67	\$22.02
950G	\$5.15	\$4.95	\$8.60	4.00	\$8.76	\$27.46
966G	\$5.37	\$7.25	\$10.79	5.75	\$12.59	\$36.01
972G	\$6.07	\$7.25	\$13.67	6.25	\$13.69	\$40.68
980G	\$6.07	\$9.67	\$13.67	7.50	\$16.43	\$45.83
988G	\$11.37	\$12.27	\$14.65	12.10	\$26.50	\$64.79
990				17.00	\$37.23	\$37.23
992G	\$12.59	\$25.17	\$33.63	23.00	\$50.37	\$121.76
994D				36.00	\$78.84	\$78.84
L2350				66.00	\$144.54	\$144.54
Shovels						
PC2000				37.00	\$81.03	\$81.03
PC3000				50.00	\$109.50	\$109.50
PC4000				70.00	\$153.30	\$153.30
PC5500				119.00	\$260.61	\$260.61
PC8000				149.00	\$326.31	\$326.31
Hydraulic Hammers						
H-120 (fts 325)	N/A		\$5.62			\$5.62
H-160 (fts 345)	N/A		\$10.98			\$10.98
H-180 (fts 365/385)	N/A		\$13.01			\$13.01
Demolition Shears						
S340 (fts 322/325/330)	N/A					\$0.00
S365 (fts 330/345)	N/A					\$0.00
S390 (fts 365/385)	N/A					\$0.00
Demolition Grapples						
G315 (fts 322/325)	N/A					\$0.00
G320 (fts 325/330)	N/A					\$0.00
G330 (fts 345/365)	N/A					\$0.00
Other Equipment						
420D 4WD Backhoe	\$4.29	\$0.81	\$3.59	3.00	\$6.57	\$15.26
428D 4WD Backhoe	\$4.06	\$0.81	\$3.69	3.00	\$6.57	\$15.13
CS533E Vibratory Roller			N/A	3.75	\$8.21	\$8.21
CS633E Vibratory Roller			N/A	4.75	\$10.40	\$10.40
CP533E Sheepsfoot Compactor			N/A	3.75	\$8.21	\$8.21
CP633E Sheepsfoot Compactor			N/A	4.75	\$10.40	\$10.40
Light Truck - 1.5 Ton		\$0.27	N/A	1.50	\$3.29	\$3.56
Supervisor's Truck		\$0.27	N/A	1.00	\$2.19	\$2.46
Flatbed Truck		\$1.51	N/A	4.70	\$10.29	\$11.81
Air Compressor + tools			N/A	1.00	\$2.19	\$2.19
Welding Equipment			N/A	2.00	\$4.38	\$4.38
Heavy Duty Drill Rig			N/A	12.00	\$26.28	\$26.28
Pump (plugging) Drill Rig			N/A	10.00	\$21.90	\$21.90
Concrete Pump			N/A	10.00	\$21.90	\$21.90
Gas Engine Vibrator			N/A	1.00	\$2.19	\$2.19
Generator 5KW			N/A	1.50	\$3.29	\$3.29
HDEP Welder (pipe or liner)			N/A	2.00	\$4.38	\$4.38
5 Ton Crane			N/A	3.00	\$6.57	\$6.57
20 Ton Crane			N/A	4.00	\$8.76	\$8.76
50 Ton Crane			N/A	4.70	\$10.29	\$10.29
120 Ton Crane			N/A	5.20	\$11.39	\$11.39
Trucks						
725	\$8.53	\$14.47	\$3.22	4.70	\$10.29	\$36.52
730	\$8.53	\$14.47	\$3.22	5.20	\$11.39	\$37.61
735	\$8.53	\$23.04	\$3.22	7.35	\$16.10	\$50.89
740	\$8.53	\$24.26	\$3.22	7.35	\$16.10	\$52.11
769D	\$6.32	\$7.05	\$3.60	9.25	\$20.26	\$37.23
773E	\$7.82	\$12.14	\$4.04	11.75	\$25.73	\$49.74
777D	\$11.19	\$18.59	\$4.51	16.75	\$36.68	\$70.98
785C				24.25	\$53.11	\$53.11
793C				41.75	\$91.43	\$91.43
797B				58.75	\$128.66	\$128.66
619E (5,000 gal) Water Wagon	\$5.12	\$3.82		6.00	\$13.14	\$22.07
621E (8,000 gal) Water Wagon	\$7.24	\$6.42		10.75	\$23.54	\$39.20
777D Water Truck				16.75	\$36.68	\$36.68
785C Water Truck				24.25	\$53.11	\$53.11
Dump Truck (10-12 yd3) (5)	N/A	\$1.03	N/A	5.20	\$11.39	\$12.42
Notes:						
(1) PM Source: Cashman Equipment Company (July 2020) unless noted						
(2) Undercarriage Source: Purocell Tire Quote: June 2020						
(3) G.E.T. Source: Cashman Equipment Company (July 2020) unless noted						
(4) Fuel Use Source: Caterpillar Handbook, Edition 35, Ch. 20, or estimated average for smaller vehicles						
(5) Dump Truck Oper. Cost Source: Means Heavy Construction (2008)						

**Closure Cost Estimate
Equipment Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REV.B.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm

TIRE COST TABLES						
Equipment	Tire Size	# of Tires Per Piece of Equipment	Cost Per Tire	Tire Cost ⁽¹⁾⁽²⁾	Life Expectancy Hours _(Low/Zone A) ⁽³⁾	Tire Cost per Hour
Bulldozers						
D6R			N/A			
D6R w/ Winch			N/A			
D7R			N/A			
D8R			N/A			
D9R			N/A			
D10R			N/A			
D11R			N/A			
Wheeled Dozers						
824G	29.5R25	4		\$0.00	3,500	\$0.00
834G	35/65-R33	4		\$0.00	3,500	\$0.00
844	45/65-R39	4		\$0.00	3,500	\$0.00
854G	45/65-R45	4		\$0.00	3,500	\$0.00
Motor Graders						
120H	13PR24	6	\$3,282.50	\$19,695.00	3,500	\$5.63
14G/H	20.5R25	6	\$4,919.50	\$29,517.00	3,500	\$8.43
16G/H	23.5R25	6	\$6,272.90	\$37,637.40	3,500	\$10.75
24M	23.5R25	6		\$0.00	3,500	
Track Excavators						
312C			N/A			
320C			N/A			
325C			N/A			
330C			N/A			
345B			N/A			
365BL			N/A			
385BL			N/A			
Scrapers						
631G	37.25R35	4	\$13,862.80	\$55,451.20	4,000	\$13.86
637G	37.25R35	4	\$13,862.80	\$55,451.20	4,000	\$13.86
Wheeled Loaders						
924G	17.5R25	4	\$6,292.00	\$25,168.00	4,500	\$5.59
928G	17.5R25	4	\$6,292.00	\$25,168.00	4,500	\$5.59
950G	26.5R25	4	\$5,565.40	\$22,261.60	4,500	\$4.95
966G	26.5R25	4	\$8,160.20	\$32,640.80	4,500	\$7.25
972G	26.5R25	4	\$8,160.20	\$32,640.80	4,500	\$7.25
980G	29.5R25	4	\$10,873.40	\$43,493.60	4,500	\$9.67
988G	35/65-33	4	\$13,808.70	\$55,234.80	4,500	\$12.27
990	41.25/70-39	4		\$0.00	4,500	
992G	45/65R45	4	\$28,316.00	\$113,264.00	4,500	\$25.17
994D	55/85R57	4		\$0.00	4,500	
L2350	55/85R57	4		\$0.00	4,500	
Shovels						
PC2000			N/A			
PC3000			N/A			
PC4000			N/A			
PC5500			N/A			
PC8000			N/A			
Hydraulic Hammers						
H-120 (fits 325)			N/A			
H-160 (fits 345)			N/A			
H-180 (fits 365/385)			N/A			
Demolition Shears						
S340 (fits 322/325/330)			N/A			
S365 (fits 330/345)			N/A			
S390 (fits 365/385)			N/A			
Demolition Grapples						
G315 (fits 322/325)			N/A			
G320 (fits 325/330)			N/A			
G330 (fits 345/365)			N/A			
Other Equipment						
420D 4WD Backhoe	340/80R18-19.5LR24	2	\$1,221.10	\$2,442.20	3,000	\$0.81
428D 4WD Backhoe	340/80R18-16.9R28	2	\$1,221.10	\$2,442.20	3,000	\$0.81
CS533E Vibratory Roller			N/A			
CS633E Vibratory Roller			N/A			
CP533E Sheepfoot Compactor			N/A			
CP633E Sheepfoot Compactor			N/A			
Light Truck - 1.5 Ton		4	206.2	\$824.80	3,000	\$0.27
Supervisor's Truck		4	206.2	\$824.80	3,000	\$0.27
Flatbed Truck		22	206.2	\$4,536.40	3,000	\$1.51
Air Compressor + tools			N/A			
Welding Equipment			N/A			
Heavy Duty Drill Rig		4		\$0.00	3,000	
Pump (plugging) Drill Rig		4		\$0.00	3,000	
Concrete Pump			N/A			
Gas Engine Vibrator			N/A			
Generator 5KW			N/A			
HDEP Welder (pipe or liner)			N/A			
5 Ton Crane		4		\$0.00	3,000	
20 Ton Crane		4		\$0.00	3,000	
50 Ton Crane		6		\$0.00	3,000	
120 Ton Crane		6		\$0.00	3,000	
Trucks						
725	23.5R25	6	\$4,824.30	\$28,945.79	2,000	\$14.47
730	23.5R25	6	\$4,824.30	\$28,945.79	2,000	\$14.47
735	26.5R25	6	\$7,681.00	\$46,086.00	2,000	\$23.04
740	29.5R25	6	\$9,086.20	\$54,517.20	2,000	\$27.26
769D	18.00R33	6	\$7,054.80	\$42,328.80	6,000	\$7.05
773E	24.00R35	6	\$10,119.20	\$60,715.20	5,000	\$12.14
777D	27.00R49	6	\$15,494.70	\$92,968.20	5,000	\$18.59
785C	33.00R51	6		\$0.00	4,000	
793C	40.00R57	6		\$0.00	4,000	
797B	40.00R57	6		\$0.00	4,000	
613E (5,000 gal) Water Wagon	23.5R25	6	\$3,818.10	\$22,908.60	6,000	\$3.82
621E (8,000 gal) Water Wagon	33.25R29	6	\$11,223.35	\$67,340.10	8,000	\$8.42
777D Water Truck	27.00R49	6		\$0.00	5,000	
785C Water Truck	33.00R51	6		\$0.00	4,000	
Dump Truck (10-12 vd3)		10	\$619.90	\$6,199.00	6,000	\$1.03
Notes:						
(1) Unit Cost Basis:	Cost per set					
(2) Cost Basis:	Total cost for all required tires.					
(3) Tire Cost Source:	Purcell Tire Quote: June 2020					
(4) Tire Wear Source:	Caterpillar Handbook, Edition 35, Ch. 20					

Closure Cost Estimate Material Costs

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
Date of Submittal: November 23 2021
File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
Cost Estimate Type: Surety **Cost Basis:** Northern Nevada

Revegetation Materials			
Seed Mixes			
Seed Mix	Description	Cost/Acre	
None			
Mix 1	Basins	\$302.50	
Mix 2	Low Hills	\$332.75	
Mix 3	Uplands	\$363.00	
Mix 4	Riparian or Custom	\$393.25	
User Mix 1	Limber/Lodgepole Pine	\$1,500.00	
User Mix 2	Willow/Spruce/Fir Woodland	\$1,500.00	
User Mix 3	Willow Woodland	\$1,500.00	
User Mix 4	Aspen Woodlands	\$1,500.00	
	Cost/lb	lbs/Acre	Cost/Acre
User Mix 5 (from Seed Mix sheet	\$0.00	\$25.97	\$0.00
Notes:			
Mulch			
Item	Cost/lb	lbs/Acre	Cost/Acre
None			
Straw Mulch	\$0.17	4000	\$677.78
Hydro Mulch	\$0.25	3000	\$750.00
Timber Mulch			
Notes:	Granite Seed \$500 per Ton in 50 lb bag Wood (Hydro) Mulch (June 2020)		

Closure Cost Estimate Material Costs

Revegetation Method				
Slopes				
Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Waste Rock Dumps	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Heap Leach	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Tailings	Hand Broadcast	\$140.00	\$50.00	\$190.00
Quarries & Borrow Pits	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Flat Areas and Undifferentiated				
Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Exploration Trenches	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Exploration Roads	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Waste Rock Dumps	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Heap Leach	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Tailings	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Quarries & Borrow Pits	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Roads	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Pits	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Haul Material	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Foundations & Buildings	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Sediment & Drainage Control	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Process Ponds	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Landfills	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Yards, Etc.	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Revegetation Maintenance	Mechanical Broadcast	\$140.00	\$50.00	\$190.00

**Closure Cost Estimate
Misc. Unit Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Revegetation										
	Means Number	Unit	Crew	Daily Output	Daily Output User	Materials	Labor	Equipment	Total	Notes
Seeding - Broadcast Hand (1)		acres					\$140.00	\$50.00	\$190.00	
Seeding - Broadcast Mechanical (1)		acres					\$140.00	\$50.00	\$190.00	
Seeding - Drill (1)		acres		365			\$140.00	\$120.00	\$260.00	
Seeding - Hydroseeding (1)				365			\$250.00	\$150.00	\$400.00	
Shrub Planting - bare root 6-10 in (150- 250mm) (2)	02910-400-0561	ea.	1 Clab	365					\$0.00	
Tree Planting - bare root 11-16 in (270- 400mm) (3)	02910-400-0562	ea.	1 Clab	260					\$0.00	
Cactus Planting (4)		ea.	1 Clab						\$0.00	
NOTES:										
(1) Seeding Source:	Source: Kelley Erosion Control (July 2020).									
(2) Shrub Source:										
(3) Tree Source:										
(4) Cactus Source:										
Building and Wall Demolition										
Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets										
	Means Number	Unit	Crew	Daily Output	Daily Output User	Labor	Equipment	Premium	Total	Notes
Building Demolition										
Lg. steel	02220-110-0012	C.F.	B-8	21500		\$0.15	\$0.12		\$0.27	
Lg. concrete	02220-110-0050	C.F.	B-8	15300		\$0.21	\$0.16		\$0.37	
Lg. masonry	02220-110-0080	C.F.	B-8	20100		\$0.16	\$0.12		\$0.28	
Lg. mixed	02220-110-0100	C.F.	B-8	20100		\$0.16	\$0.12		\$0.28	
Sm. steel	02220-110-0500	C.F.	B-3	14800		\$0.17	\$0.12		\$0.29	
Sm. concrete	02220-110-0600	C.F.	B-3	11300		\$0.23	\$0.16		\$0.39	
Sm. masonry	02220-110-0650	C.F.	B-3	14800		\$0.17	\$0.12		\$0.29	
Sm. wood	02220-110-0700	C.F.	B-3	14800		\$0.17	\$0.12		\$0.29	
Wall Demolition										
Block 4 in (100 mm) thick	02220-130-2000	S.F.	1 Clab	180		\$1.81	\$0.00	20%	\$2.17	
Block 6 in (150 mm) thick	02220-130-2040	S.F.	1 Clab	170		\$1.91	\$0.00	20%	\$2.29	
Block 8 in (200 mm) thick	02220-130-2080	S.F.	1 Clab	150		\$2.17	\$0.00	20%	\$2.60	
Block 12 in (300 mm) thick	02220-130-2100	S.F.	1 Clab	150		\$2.17	\$0.00	20%	\$2.60	
Conc 6 in (150 mm) thick	02220-130-2400	S.F.	B-9	160		\$15.99	\$1.91	10%	\$19.69	
Conc 8 in (200 mm) thick	02220-130-2420	S.F.	B-9	140		\$18.27	\$2.18	10%	\$22.50	
Conc 10 in (250 mm) thick	02220-130-2440	S.F.	B-9	120		\$21.31	\$2.54	10%	\$26.24	
Conc 12 in (300 mm) thick	02220-130-2500	S.F.	B-9	100		\$25.58	\$3.05	10%	\$31.49	

**Closure Cost Estimate
Misc. Unit Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Waste Disposal										
Unit rates from Means Heavy Construction 2006 Edition by permission of R.S.Means/Reed Construction Data .										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment		Total	Notes
Rubbish Handling										
Dumpster delivery (average for all sizes)	02220-350-0910	ea.			\$51.50				\$51.50	
Haul (average for all sizes)	02220-350-0920	ea.			\$161.00				\$161.00	
Rent per month (average for all sizes)	02220-350-0940	ea.			\$55.00				\$55.00	
Disposal fee per ton (tonne) (average for all sizes)	02220-350-0950	ton			\$60.50				\$60.50	
NOTES:										
Dumpster Cost Source	R.S. Means Heavy Construction (2020 Q2).									
Dumpster Disposal Fee Source	R.S. Means Heavy Construction (2020 Q2).									
Hazardous Material Handling - Solids (+ Liquids in drums)										
Pickup fees 55 gal (200 L). drums	02110-300-1100	ea.			\$251.00				\$251.00	
Bulk material (average)	02110-300-1220/1230	ton			\$409.50				\$409.50	
Transport - truck load (80 drums, 25 cy (m3), 18 tons)	02110-300-1260/1270	mile			\$5.88				\$5.88	
Dump site solid disposal fee	02110-300-6000/6020	ton			\$288.50				\$288.50	
NOTES:										
Solid Handling Cost Source	R.S. Means Heavy Construction (2019 Q2).									
Solid Disposal Fee Source	2019 Q2 R.S. Means Heavy Const. ave. 02 81									
Hazardous Material Handling - Liquids										
Vacuum Truck Pickup (2200 gal/8300 L)	02110-300-3110	hr.			\$147.00				\$147.00	
Vacuum Truck Pickup (5000 gal/19000 L)	02110-300-3120	hr.			\$213.00				\$213.00	
Dump site liquid disposal fee	02110-300-6000/6020	ton			\$288.50				\$288.50	
NOTES:										
Liquid Handling Cost Source	R.S. Means Heavy Construction (2020 Q2).									
Liquid Disposal Fee Source	2020 Q2 R.S. Means Heavy Const. ave. 02 81									
Hydrocarbon Contaminated Soils (HCS)										
In situ Biotreatment	02115-200-2020/2021	C.Y.			\$17.64				\$17.64	
HCS disposal fee	02115-200-2050/2055	C.Y.			\$278.50				\$278.50	
NOTES:										
In situ Treatment Cost Source	2020 Q2 R.S. Means Heavy Const., ave. 02 65									
HCS Disposal Fee Source	2020 Q2 R.S. Means Heavy Const., ave. 02 65									

**Closure Cost Estimate
Misc. Unit Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Concrete Structure Installation										
Weekly dumpster rental rates from Means Heavy Construction 2005 Edition with permission by R.S.Means/Reed Construction Data . Weekly dumpster rental rates include haul to off-site disposal site and disposal fees										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Reinforced Concrete Bulkheads and Shaft Covers										
Grade walls - 15 in (400mm) thick, 8 ft (2.5m) high	03310-240-4300	C.Y.	C-14D	80.02	\$163.00	\$136.84	\$10.57		\$310.41	includes reinforcing
Grade walls - 15 in (400mm) thick, 12 ft (3.7m) high	03310-240-4350	C.Y.	C-14D	26.2	\$163.00	\$417.95	\$32.27		\$613.22	includes reinforcing
Elevated conc, 1-way beam & slab - 15ft (4.6m) span	03310-240-2700	C.Y.	C-14B	20.59	\$278.00	\$535.87	\$41.06		\$854.93	includes reinforcing
Elevated conc, 1-way beam & slab - 25ft (7.5m) span	03310-240-2750	C.Y.	C-14B	28.36	\$265.00	\$389.06	\$29.81		\$683.87	includes reinforcing
Bat Gate/Foam Plug Installation										
Bat Gate (5)		ea.			\$3,367.61					materials \$/ea. Installed
Culvert Gate (5)		ea.			\$6,735.21					materials \$/ea. Installed
Adit Foam Plug (6)		ea./C.Y.			\$336.76					materials \$/cy placed
Production Opening Foam Plug (6)		ea./C.Y.			\$336.76					materials \$/cy placed
NOTES:										
(5) Bat Gate Source:	NV BLM, 2/2006: 8 hr + 1hr mob/demob + 1hr setup per gate (adjusted to 2020)									
(6) Foam Plug Source:	NV BLM, 2/2006: 8 hr+ 1hr mob/demob + 1hr setup per adit; 16 hrs per production opening (adjusted to 2020)									

**Closure Cost Estimate
Misc. Unit Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Misc. Linear Projects										
Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Fencing Installation										
Barbed 3-strand	02820-170-1650	L.F.	B-80A	760	\$0.51	\$1.28	\$0.30		\$2.09	
Barbed 4-strand	extrapolated	L.F.	B-80A	570	\$0.68	\$1.71	\$0.40		\$2.79	
Barbed 5-strand	02820-130-0920	L.F.	B-80A	456	\$0.85	\$2.14	\$0.51		\$3.50	
Chain link 8-10ft (2.5-3m) Install	02820-130-0920	L.F.	B-80C	180	\$38.00	\$5.42	\$1.28		\$44.70	
Wood stockade fence 6 ft (2 m) high - Install	02820-510-1240	L.F.	B-80C	150	\$16.00	\$6.50	\$1.54		\$24.04	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
Fencing Removal										
Barbed 3-strand Removal	02220-220-1600	L.F.	2 Clab	430		\$1.51	\$0.54		\$2.05	
Barbed 4-strand Removal	extrapolated	L.F.	2 Clab	355		\$1.83	\$0.65		\$2.48	
Barbed 5-strand Removal	02220-220-1650	L.F.	2 Clab	280		\$2.32	\$0.82		\$3.14	
Chain link 8-10 ft (2.5-3 m) Removal	02220-220-1700	L.F.	B-6	445		\$2.70	\$0.99		\$3.69	
Wood, all types 4-6 ft ("1.5-2 m) high - Removal	02220-220-1775	L.F.	2 Clab	430		\$1.51	\$0.54		\$2.05	
	user	L.F.								
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
Culvert Removal										
12 in (300 mm) Diameter	02220-220-2900	L.F.	B-6	175		\$6.88	\$2.52		\$9.40	
18 in (450 mm) Diameter	02220-220-2930	L.F.	B-6	150		\$8.02	\$2.94		\$10.96	
24 in (600 mm) Diameter	02220-220-2960	L.F.	B-6	120		\$10.03	\$3.68		\$13.71	
36 in (1m) Diameter	02220-220-3000	L.F.	B-6	90		\$13.37	\$4.90		\$18.27	
Pipeline Removal										
0.75 in (20mm) - 4 in (100 mm) diameter	02220-381-1600	L.F.	B-20	700		\$1.97	\$0.33		\$2.30	
6 in (150 mm) - 8 in (200 mm)	02220-381-1700	L.F.	B-20	500		\$2.76	\$0.46		\$3.22	
10 in (250 mm) - 18 in (450 mm)	02220-381-1800	L.F.	B-20	300		\$4.59	\$0.77		\$5.36	
20 in (500 mm) - 36 in (1 m)	02220-381-1900	L.F.	B-20	200		\$6.89	\$1.15		\$8.04	
Pipe and Drainpipe Installation										
Water 4in (100mm) 40ft (12m) length, welded HDPE	02510-760-0100	L.F.	B-22A	400	\$2.70	\$5.24	\$4.71		\$12.65	
Water 6in (150mm) 40ft (12m) length, welded HDPE	02510-760-0200	L.F.	B-22A	380	\$5.85	\$5.51	\$4.96		\$16.32	
Water 12in (300mm) 40ft (12m) length, welded HDPE	02510-760-0500	L.F.	B-22A	260		\$8.06	\$7.24		\$15.30	
Drain 4in (100mm) perforated PVC	02620-630-2100	L.F.	B-14	315	\$1.74	\$8.21	\$1.55		\$11.50	
Drain 6in (150mm) perforated PVC	02620-630-2110	L.F.	B-14	300	\$4.22	\$8.62	\$1.63		\$14.47	
Drain 4in (100mm) corrugated, perf or plain	02620-660-0040	L.F.	2 Clab	1200	\$0.78	\$0.54	\$0.19		\$1.51	
Drain 6in (150mm) corrugated, perf or plain	02620-660-0060	L.F.	2 Clab	900	\$2.18	\$0.72	\$0.26		\$3.16	

**Closure Cost Estimate
Misc. Unit Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Drain Rock Preparation											
Crushing		C.Y.								\$0.50	
Screening		C.Y.								\$0.50	
TOTAL										\$1.00	
Misc.											
Backhoe work	02210-700-0120	C.Y.	B-11M	28		\$20.05	\$9.18			\$29.23	
Powerline and Transformer Removal											
Single Pole		mile								\$46,803.69	
Double Pole		mile								\$53,489.93	
Transformer (9)		ea.								\$58,997.31	
NOTES:											
(7) Single Pole Source:	NV Energy estimate (2009) Adjusted to 2020										
(8) Double Pole Source:	NV Energy estimate (2009) Adjusted to 2020										
(9) Transformer Source:	NV Energy estimate (2018) adjusted to 2020										
Erosion and Sedimentation Control											
Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets											
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes	
Rip-Rap & Rock Lining											
Rip-Rap 3/8 to 1/4 CY (m3) pieces, grouted	02370-450-0110	S.Y.	B-13	80	\$25.00	\$32.32	\$8.33		\$65.65	assumes on-site source of rip-rap	
Rip-Rap 18 in (450 mm) min thick, no grout	02370-450-0200	S.Y.	B-13	53	\$7.65	\$48.78	\$12.57		\$69.00	assumes on-site source of rip-rap	
Gabions, 6 in (150 mm) deep	02370-450-0400	S.Y.	B-13	200	\$7.05	\$12.93	\$3.33		\$23.31	assumes on-site source rock fill for gabions	
Gabions, 9 in (250 mm) deep	02370-450-0500	S.Y.	B-13	163	\$9.85	\$15.86	\$4.09		\$29.80	assumes on-site source rock fill for gabions	
Gabions, 12 in (300 mm) deep	02370-450-0200	S.Y.	B-13	153	\$14.30	\$16.90	\$4.36		\$35.56	assumes on-site source rock fill for gabions	
Gabions, 18 in (450 mm) deep	02370-450-0200	S.Y.	B-13	102	\$18.35	\$25.35	\$6.53		\$50.23	assumes on-site source rock fill for gabions	
Gabions, 36 in (1m) deep	02370-450-0200	S.Y.	B-13	60	\$31.00	\$43.09	\$11.11		\$85.20	assumes on-site source rock fill for gabions	
HDEP Liner Installation											
Finish grading large area	2310-100-0100	S.F.	B-11L	18000		\$0.05	\$0.06		\$0.11		
Compaction-riding, vibrating roller - 12in (300mm) lifts	2315-310-5100	C.Y.	B-10Y	2600		\$0.34	\$0.18		\$0.52		
60 mil HDPE	2660-610-0010	S.F.	3 Skwk	1600	\$0.57	\$0.97	\$0.46		\$2.00		
80 mil HDPE	user	S.F.	3 Skwk	149		\$10.41	\$4.91		\$15.32		
40 mil VLDPE	user	S.F.	3 Skwk	150		\$10.34	\$4.87		\$15.21		
	user	S.F.	3 Skwk	149		\$10.41	\$4.91		\$15.32		
	user	S.F.	3 Skwk	149		\$10.41	\$4.91		\$15.32		

**Closure Cost Estimate
Misc. Unit Costs**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

Construction Management Support											
Office Trailer, Furnished, no hook-ups	0150-500-0250	mo.					\$198.00			\$198.00	
Toilet Portable, chemical	1590-400-6410	mo.					\$214.20			\$214.20	
TOTAL							\$412.20			\$412.20	
Pump and Casing Removal											
	Pump Type	Measurement	Unit				Labor	Equipment		Total	Notes
Pump Removal											
	Submersible	ft to pump	L.F.				\$7.65	\$18.86		\$26.51	
	Line Shaft	ft to pump	L.F.				\$7.65	\$18.86		\$26.51	
NOTES:											
(10) Pump Removal Source: Boart Longyear Quote: June 2020											

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
RIPPING					
Rip road Waste rock dumps, heaps, tails - rip flat surfaces Surface preparation Scarify					
Small Dozer w/ multi-shank					
D7R		1	\$101.58	\$69.16	\$170.74
	Totals		\$101.58	\$69.16	\$170.74
Medium Dozer w/ multi-shank					
D9R		1	\$240.92	\$69.16	\$310.08
	Totals		\$240.92	\$69.16	\$310.08
Large Dozer w/ multi-shank					
D10R		1	\$328.39	\$69.16	\$397.55
	Totals		\$328.39	\$69.16	\$397.55
Grader w/ multi-shank					
16G/H		1	\$192.00	\$70.17	\$262.17
	Totals		\$192.00	\$70.17	\$262.17
GRADING					
Grading storage and structure areas Grading waste rock dumps and heaps Grading landfills Constructing pit safety berms					
Small Dozer Fleet					
D7R		1	\$101.58	\$69.16	\$170.74
	Totals		\$101.58	\$69.16	\$170.74
Medium Dozer Fleet					
D9R		1	\$240.92	\$69.16	\$310.08
	Totals		\$240.92	\$69.16	\$310.08
Large Dozer Fleet					
D10R		1	\$328.39	\$69.16	\$397.55
	Totals		\$328.39	\$69.16	\$397.55
EXPLORATION GRADING					
Backfilling and grading exploration trenches Grading flat exploration roads					
Small Dozer Fleet					
D6R		1	\$92.78	\$69.16	\$161.94
	Totals		\$92.78	\$69.16	\$161.94
Medium Dozer Fleet					
D7R		1	\$101.58	\$69.16	\$170.74
	Totals		\$101.58	\$69.16	\$170.74
Large Dozer Fleet					
D8R		1	\$177.16	\$69.16	\$246.32
	Totals		\$177.16	\$69.16	\$246.32

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
EXCAVATING					
Earthen Berms Diversion ditch excavation and backfill Underground openings backfill - excavate and place Pit berm construction (excavator option)					
Small Excavator					
325C		1	\$78.07	\$70.17	\$148.24
Totals			\$78.07	\$70.17	\$148.24
Medium Excavator					
345B		1	\$128.52	\$70.17	\$198.69
Totals			\$128.52	\$70.17	\$198.69
Large Excavator					
385BL		1	\$201.71	\$70.17	\$271.88
Totals			\$201.71	\$70.17	\$271.88
EXCAVATE AND RECONTOUR					
Recontour large roads (haul roads, access roads, etc.) Ponds - Excavate and pull liner and bury					
Small Excavator + Dozer					
325C		1	\$78.07	\$70.17	\$148.24
D7R		1	\$101.58	\$69.16	\$170.74
Total Equipment			\$179.65	\$139.33	\$318.98
Medium Excavator + Dozer					
345B		1	\$128.52	\$70.17	\$198.69
D9R		1	\$240.92	\$69.16	\$310.08
Totals			\$369.44	\$139.33	\$508.77
Large Excavator + Dozer					
385BL		1	\$201.71	\$70.17	\$271.88
D10R		1	\$328.39	\$69.16	\$397.55
Totals			\$530.10	\$139.33	\$669.43
EXPLORATION ROAD/PAD RECONTOUR					
Recontour small roads (exploration roads, service roads, etc.) Cut and Fill reclamation on slopes Drill pad recontour Drill sump backfill					
Small Dozer					
D6R		1	\$92.78	\$69.16	\$161.94
Totals			\$92.78	\$69.16	\$161.94
Large Dozer					
D8R		1	\$177.16	\$69.16	\$246.32
Totals			\$177.16	\$69.16	\$246.32
Grader					
14G/H		1	\$131.45	\$70.17	\$201.62
Totals			\$131.45	\$70.17	\$201.62
Small Excavator					
320C		1	\$57.97	\$70.17	\$128.14
Totals			\$57.97	\$70.17	\$128.14
Medium Excavator					
325C		1	\$78.07	\$70.17	\$148.24
Totals			\$78.07	\$70.17	\$148.24

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
LOAD, HAUL AND PLACE MATERIAL					
Rock placement Haul overburden for backfill Haul borrow for backfill Haul cover or growth media					
Small Truck/Loader Fleet					
725		Calculated	\$132.14	\$41.41	\$173.55
966G	Loader	1	\$105.47	\$70.17	\$175.64
D7R		1	\$101.58	\$69.16	\$170.74
Totals			\$339.19	\$180.74	\$519.93
Medium Truck/Loader Fleet					
740		Calculated	\$147.73	\$41.41	\$189.14
988G	Loader	1	\$211.42	\$70.17	\$281.59
D8R		1	\$177.16	\$69.16	\$246.32
Totals			\$536.31	\$180.74	\$717.05
Large Truck/Loader Fleet					
769D		Calculated	\$172.54	\$41.41	\$213.95
988G	Loader	1	\$211.42	\$70.17	\$281.59
D7R		1	\$101.58	\$69.16	\$170.74
Totals			\$485.54	\$180.74	\$666.28
Extra Large Truck/Loader Fleet					
777D		Calculated	\$419.10	\$41.41	\$460.51
992G	Loader	1	\$515.51	\$70.17	\$585.68
D7R		1	\$101.58	\$69.16	\$170.74
Totals			\$1,036.19	\$180.74	\$1,216.93
Scraper/Dozer Fleet					
631G		Calculated	\$221.03	\$69.16	\$290.19
D10R		1	\$328.39	\$69.16	\$397.55
D7R		1	\$101.58	\$69.16	\$170.74
Totals			\$651.00	\$207.48	\$858.48
Tandem Scraper Fleet					
637G		2	\$308.16	\$70.17	\$378.33
D7R		1	\$101.58	\$69.16	\$170.74
Totals			\$409.74	\$139.33	\$549.07
MISC. LOAD AND HAUL AND EARTHWORKS					
Sludge removal Drainage controls					
Misc. - Cat 325B Excavator / 10-12 yd3 Truck					
325C		1	\$78.07	\$70.17	\$148.24
Dump Truck (10-12 yd3)		1	\$86.26	\$41.41	\$127.67
Totals			\$164.33	\$111.58	\$275.91
Misc. - Cat D9R Dozer/ Loader (5 yd3) / 10-12 yd3 Truck					
D9R		1	\$240.92	\$69.16	\$310.08
966G		1	\$105.47	\$70.17	\$175.64
Dump Truck (10-12 yd3)		1	\$86.26	\$41.41	\$127.67
Totals			\$432.65	\$180.74	\$613.39
Misc. - Cat D6 Dozer / Cat 966 Loader / 10-12 yd3 Truck					
D6R		1	\$92.78	\$69.16	\$161.94
966G		1	\$105.47	\$70.17	\$175.64
Dump Truck (10-12 yd3)		1	\$86.26	\$41.41	\$127.67
Totals			\$284.51	\$180.74	\$465.25

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
CONCRETE BREAKING					
Slab demolition Footing demolition Wall demolition					
Small - Cat 325B Excavator w/ H140D s Hammer					
325C		1	\$78.07	\$70.17	\$148.24
H-120 (fits 325)		1	\$41.93	\$0.00	\$41.93
D9R		1	\$240.92	\$69.16	\$310.08
Totals			\$360.92	\$139.33	\$500.25
Medium - Cat 345B Excavator w/ H180D s Hammer					
345B		1	\$128.52	\$70.17	\$198.69
H-160 (fits 345)		1	\$87.48	\$0.00	\$87.48
D9R		1	\$240.92	\$69.16	\$310.08
Totals			\$456.92	\$139.33	\$596.25
Large - Cat 385B Excavator w/ H180D s Hammer					
385BL		1	\$201.71	\$70.17	\$271.88
H-180 (fits 365/385)		1	\$116.26	\$0.00	\$116.26
D9R		1	\$240.92	\$69.16	\$310.08
Totals			\$558.89	\$139.33	\$698.22
DRILL HOLE ABANDONMENT					
Drill Hole - Grout or Cement					
Pump (plugging) Drill Rig		1	\$226.91	\$69.16	\$296.07
Driller's Helper		2	\$0.00	\$81.90	\$81.90
Totals			\$226.91	\$151.06	\$377.97
Drill Hole - Inert Media (Means Crew B-11M+ 1 Laborer)					
420D 4WD Backhoe		1	\$32.14	\$70.17	\$102.31
General Laborer		1	\$0.00	\$40.65	\$40.65
Totals			\$32.14	\$110.82	\$142.96
Drill Hole - Casing Perforation or Removal					
Heavy Duty Drill Rig		1	\$231.29	\$69.16	\$300.45
Driller's Helper		2	\$0.00	\$81.90	\$81.90
Totals			\$231.29	\$151.06	\$382.35
MAINTENANCE FLEET					
Road Grading, Dust Suppression, Clean Up					
Maintenance - Small Water Truck and Cat 14G Grader					
613E (5,000 gal) Water Wagon		1	\$63.51	\$41.41	\$104.92
120H		1	\$90.99	\$70.17	\$161.16
Totals			\$154.50	\$111.58	\$266.08
Maintenance - Medium Water Truck and Cat 16G Grader					
613E (5,000 gal) Water Wagon		1	\$63.51	\$41.41	\$104.92
14G/H		1	\$131.45	\$70.17	\$201.62
Totals			\$194.96	\$111.58	\$306.54
Maintenance - Large Water Truck and Cat 16G Grader					
621E (8,000 gal) Water Wagon		1	\$109.33	\$41.41	\$150.74
16G/H		1	\$192.00	\$70.17	\$262.17
Totals			\$301.33	\$111.58	\$412.91
PROJECT SUPERVISION					
Foreman		1	\$0.00	\$90.38	\$90.38
Supervisor's Truck		1	\$25.18	\$0.00	\$25.18
Totals			\$25.18	\$90.38	\$115.56

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
MEANS CREW DEFINITIONS					
Crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . For use with misc. unit costs where Means is the source for productivity					
1 Clab - Seeding Planting/Block Wall Demolition					
General Laborer		1	\$0.00	\$40.65	\$40.65
Totals			\$0.00	\$40.65	\$40.65
2 Clab - Barbed Wire/Wood Fence Removal, Drainpipe Installation, Pumping, Evaporation					
General Laborer		2	\$0.00	\$81.30	\$81.30
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$28.83	\$81.30	\$110.13
2 Clab + Excavator - Pond Liner Cut and Fold					
General Laborer		2	\$0.00	\$81.30	\$81.30
325C		1	\$78.07	\$70.17	\$148.24
Totals			\$78.07	\$151.47	\$229.54
2 Clab + Welder - Bat Gates					
General Laborer		2	\$0.00	\$81.30	\$81.30
Welding Equipment		1	\$23.36	\$70.17	\$93.53
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$52.19	\$151.47	\$203.66
3 Clab - Foam Adit Plugs					
General Laborer		2	\$0.00	\$81.30	\$81.30
420D 4WD Backhoe		1	\$32.14	\$70.17	\$102.31
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$60.97	\$151.47	\$212.44
3 Clab + Welder - Culvert Bat Gate					
General Laborer		2	\$0.00	\$81.30	\$81.30
Welding Equipment		1	\$23.36	\$70.17	\$93.53
420D 4WD Backhoe		1	\$32.14	\$70.17	\$102.31
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$84.33	\$221.64	\$305.97
3 Clab D - 3 Laborers + Foreman - Decontamination					
General Laborer		3	\$0.00	\$121.95	\$121.95
Foreman		1	\$0.00	\$90.38	\$90.38
Supervisor's Truck		1	\$25.18	\$0.00	\$25.18
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$54.01	\$212.33	\$266.34
3 SKWK - Liner Installation					
Skilled Laborer		3	\$0.00	\$123.75	\$123.75
HDEP Welder (pipe or liner)		1	\$59.24	\$0.00	\$59.24
420D 4WD Backhoe		1	\$32.14	\$70.17	\$102.31
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
Totals			\$91.38	\$193.92	\$285.30

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-10Y - General Compaction					
General Laborer		1	\$0.00	\$40.65	\$40.65
CS533E Vibratory Roller		1	\$59.09	\$68.46	\$127.55
Totals			\$59.09	\$109.11	\$168.20
B-11L - Fine Grading for Evaporation Pond Liner Base					
General Laborer		1	\$0.00	\$40.65	\$40.65
14G/H		1	\$131.45	\$70.17	\$201.62
Totals			\$131.45	\$110.82	\$242.27
B-11M - Backhoe Work					
420D 4WD Backhoe		1	\$32.14	\$70.17	\$102.31
Totals			\$32.14	\$70.17	\$102.31
B-12G - Rip-Rap Machine Placed (Modified)					
966G		1	\$105.47	\$70.17	\$175.64
325C		1	\$78.07	\$70.17	\$148.24
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$212.37	\$140.34	\$352.71
B-13 - Grouted Rip-Rap & Gabion Baskets					
General Laborer		4	\$0.00	\$162.60	\$162.60
Foreman		1	\$0.00	\$90.38	\$90.38
20 Ton Crane		1	\$83.29	\$70.17	\$153.46
Totals			\$83.29	\$323.15	\$406.44
B-14 PVC Drain Pipe Installation					
Foreman		1	\$0.00	\$90.38	\$90.38
General Laborer		4	\$0.00	\$162.60	\$162.60
420D 4WD Backhoe		1	\$32.14	\$70.17	\$102.31
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$60.97	\$323.15	\$384.12
B-20 - Remove Pipelines					
Foreman		1	\$0.00	\$90.38	\$90.38
Skilled Laborer		1	\$0.00	\$41.25	\$41.25
General Laborer		1	\$0.00	\$40.65	\$40.65
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$28.83	\$172.28	\$201.11
B-22A - HDEP Installation - Pipe or Liner					
Skilled Laborer		1	\$0.00	\$41.25	\$41.25
General Laborer		2	\$0.00	\$81.30	\$81.30
D7R		1	\$101.58	\$69.16	\$170.74
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
420D 4WD Backhoe		1	\$32.14	\$70.17	\$102.31
Generator 5KW		1	\$13.61	\$0.00	\$13.61
HDEP Welder (pipe or liner)		1	\$59.24	\$0.00	\$59.24
Totals			\$235.40	\$261.88	\$497.28
B-80A - Install Barbed Wire Fence					
General Laborer		3	\$0.00	\$121.95	\$121.95
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$28.83	\$121.95	\$150.78

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Cross and Caribou Reclamation Estimator - Reclamation Plan
 Date of Submittal: November 23 2021
 File Name: RND2_Cross And Caribou Reclamation Cost Estimator_REVB.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_Data_File_1_12_Std_2020.xlsm
 Cost Estimate Type: Surety Cost Basis: Northern Nevada

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-80C - Install Chain Link Fence (Flatbed truck has small crane)					
General Laborer		3	\$0.00	\$121.95	\$121.95
Light Truck - 1.5 Ton		1	\$28.83	\$0.00	\$28.83
Totals			\$28.83	\$121.95	\$150.78
C-14B - Elevated Concrete Slabs (Reinforced Concrete Shaft Covers)					
Foreman		1	\$0.00	\$90.38	\$90.38
Supervisor's Truck		1	\$25.18	\$0.00	\$25.18
Carpenter		16	\$0.00	\$894.56	\$894.56
General Laborer		2	\$0.00	\$81.30	\$81.30
Rodmen (reinforcing concrete)		4	\$0.00	\$162.60	\$162.60
Cement finisher		2	\$0.00	\$81.90	\$81.90
Gas Engine Vibrator		1	\$5.66	\$68.46	\$74.12
Concrete Pump		1	\$74.84	\$0.00	\$74.84
Totals			\$105.68	\$1,379.20	\$1,484.88
C-14D - Concrete Walls Formed in Place (Reinforced Concrete Adit Bulkheads)					
Foreman		1	\$0.00	\$90.38	\$90.38
Supervisor's Truck		1	\$25.18	\$0.00	\$25.18
Carpenter		18	\$0.00	\$1,006.38	\$1,006.38
General Laborer		2	\$0.00	\$81.30	\$81.30
Rodmen (reinforcing concrete)		2	\$0.00	\$81.30	\$81.30
Cement finisher		1	\$0.00	\$40.95	\$40.95
Gas Engine Vibrator		1	\$5.66	\$68.46	\$74.12
Concrete Pump		1	\$74.84	\$0.00	\$74.84
Totals			\$105.68	\$1,368.77	\$1,474.45

Closure Cost Estimate Productivity

Productivity - Bulldozers

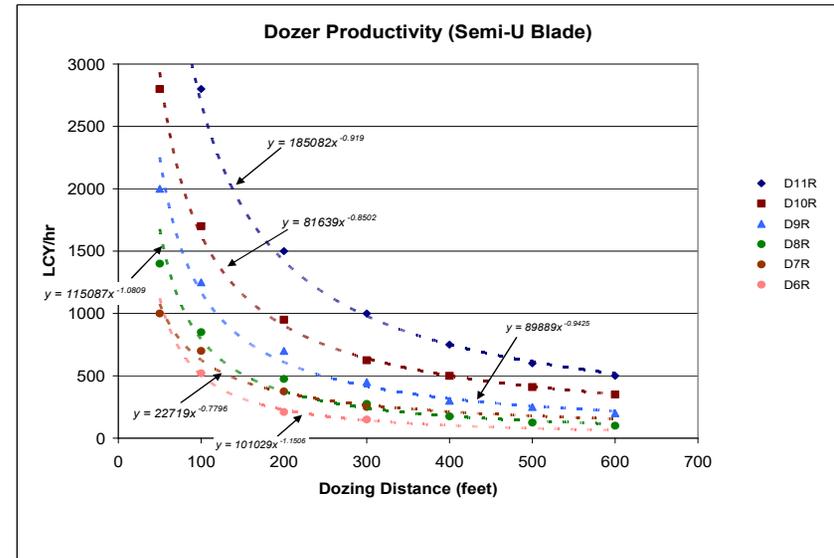
Dozer Specifications						
Description	D11R	D10R	D9R	D8R	D7R	D6R
Blade Width (SU) (ft)	18.33	15.92	14.17	12.92	12.08	10.67
Shank Guage (3 shanks) (ft)	9.83	8.67	7.67	7.08	6.5	6.5
Pocket Spacing (ft)	4.75	4.33	3.87	3.58	3.25	3.25
Ripping Width (Ripper + 1 Pocket) (ft)	14.58	13	11.54	10.66	9.75	9.75
Ripping Speed (mph)	1	1	1	1	1	1
Ripping Maneuver (turn) Time (min)	0.25	0.25	0.25	0.25	0.25	0.25
Altitude Deration Factor	0.93	1	0.93	0.93	1	1
Ripping Hourly Production (excluding maneuvering time) (ft)	4,910	5,280	4,910	4,910	5,280	5,280

Source: Caterpillar Performance Handbook Edition 35

Dozer Productivity vs. Grading Distance						
Average Dozing Distance (feet)	Production (LCY/hr)					
	D11R	D10R	D9R	D8R	D7R	D6R
50	4,800	2,800	2,000	1,400	1,000	
100	2,800	1,700	1,250	850	700	520
200	1,500	950	700	475	375	210
300	1,000	625	450	275	250	150
400	750	500	300	175		
500	600	410	250	125		
600	500	350	200	100		

Source: Caterpillar Performance Handbook Edition 35

dozer productivity = k x Dozing Distance ^p (see graph)						
k =	185082	81639	89889	115087	22719	101029
p =	-0.919	-0.8502	-0.9425	-1.0809	-0.7796	-1.1506

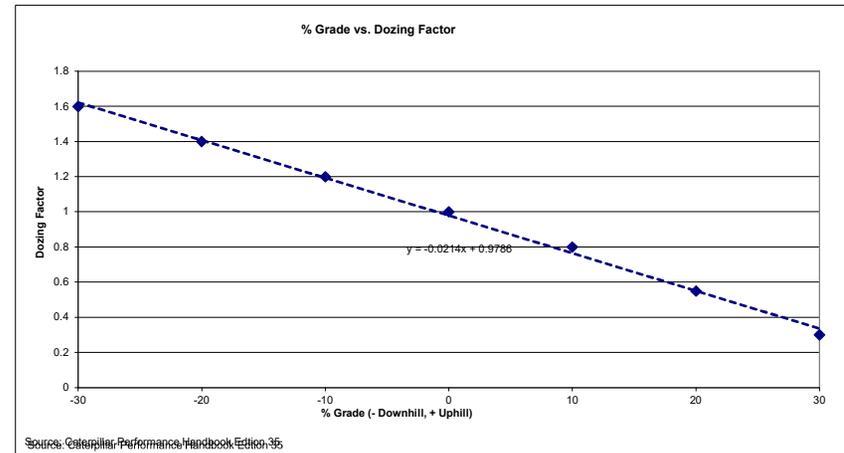


Closure Cost Estimate Productivity

Productivity - Bulldozers (cont.)

% Grade vs. Dozing Factor	
% Grade	Dozing Factor
-30	1.6
-20	1.4
-10	1.2
0	1
10	0.8
20	0.55
30	0.3

Source: Caterpillar Performance Handbook Edition 35
% Grade Dozing Factor = $-0.0214x + 0.9786$
(see graph)



Job Condition Correction Factors - Bulldozers	
OPERATOR	
Average	0.75
MATERIAL (1)	
Loose stockpile	1.2
Normal	1
Hard to cut; frozen — with tilt cylinder	0.8
Hard to drift; "dead" (dry, non-cohesive material) or very sticky material	0.8
Rock, ripped or blasted	0.6
SLOT DOZING OR SIDE BY SIDE (1)	1.2
VISIBILITY	
Good conditions	1
JOB EFFICIENCY	
50 min/hr	0.83

(1) Selected in facility worksheets.
Other factors included as standard factors.
Source: Caterpillar Performance Handbook Edition 35

Material Densities(1)		
Material	lb/cy	kg/m ³
Alluvium	2,900	1,720
Basalt	3,300	1,960
Clay - Dry	2,500	1,480
Granite - broken	2,800	1,660
Gravel	2,550	1,510
LS - broken	2,600	1,540
LS - crushed	2,600	1,540
Sandstone	2,550	1,510
Shale	2,100	1,250
Stone - crushed	2,700	1,600
Tailings - Coarse (dry, loose sand)	2,400	1,420
Tailings - Slimes (loose sand & clay)	2,700	1,600
Topsoil	1,600	950

(1) Source: Caterpillar Performance Handbook Edition 35

Note: uses Sand & Gravel - Dry from Caterpillar Handbook

**Closure Cost Estimate
Productivity**

Productivity - Scrapers

Scraper Specifications		
Description	631G	637G
Empty Weight	100,600	112,760
Payload Capacity (cy)		
Struck	24	24
Heaped	34	34
Average	29	29
Loaded by	One D10R	Self*
Load Time (min)	1	1
Maneuver and Spread (min)	1	1
Job Efficiency	1	1
Rolling Resistance**	3	3
Altitude Deration Factor	1	1
* Requires pair		
**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered		
Source: Caterpillar Performance Handbook Edition 35		

Weight of Materials			Downhill Scraper Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)											
Material	lb/cy	Scraper Load lb	631G					637G PP						
			Loaded Weight (lbs)	22	16	10	5	1	Loaded Weight (lbs)	25	15	10	5	1
Alluvium	2,900	84,100	184,700	7.5	10	13	33	33	196,860	7	10	18.5	34	34
Basalt	3,300	95,700	196,300	7.5	10	13	24.5	33	208,460	7	10	18.5	25	34
Clay - Dry	2,500	72,500	173,100	7.5	10	13	33	33	185,260	7	10	18.5	34	34
Granite - broken	2,800	81,200	181,800	7.5	10	13	33	33	193,960	7	10	18.5	34	34
Gravel	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
LS - broken	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
LS - crushed	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
Sandstone	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
Shale	2,100	60,900	161,500	7.5	10	18	33	33	173,660	10	13.5	18.5	34	34
Stone - crushed	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Tailings - Coarse (dry, loose sand)	2,400	69,600	170,200	7.5	10	13	33	33	182,360	7	10	18.5	34	34
Tailings - Slimes (loose sand & clay)	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Topsoil	1,600	46,400	147,000	7.5	10	18	33	33	159,160	10	13.5	18.5	34	34
			Empty	10	18	24.5	33	33	Empty	10	13.5	18.5	34	34

Source: Caterpillar Performance Handbook Edition 34

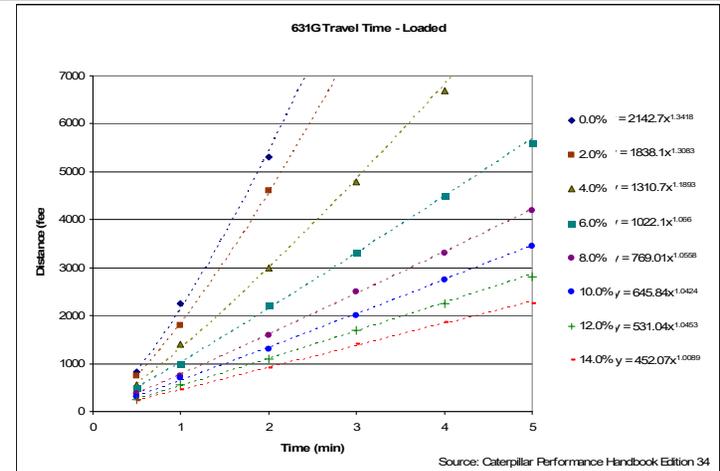
Closure Cost Estimate Productivity

Productivity - Scrapers (cont.)

631G Scraper Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	825	2,250	5,300				2142.7	1.3418
2	750	1,800	4,600				1838.1	1.3083
4	550	1,400	3,000	4,800	6,700		1310.7	1.1893
6	490	1,000	2,200	3,300	4,500	5,600	1022.1	1.066
8	375	750	1,600	2,500	3,300	4,200	769.01	1.0558
10	300	700	1,300	2,000	2,750	3,450	645.84	1.0424
12	250	550	1,100	1,700	2,250	2,800	531.04	1.0453
14	225	450	900	1,400	1,850	2,250	452.07	1.0089

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

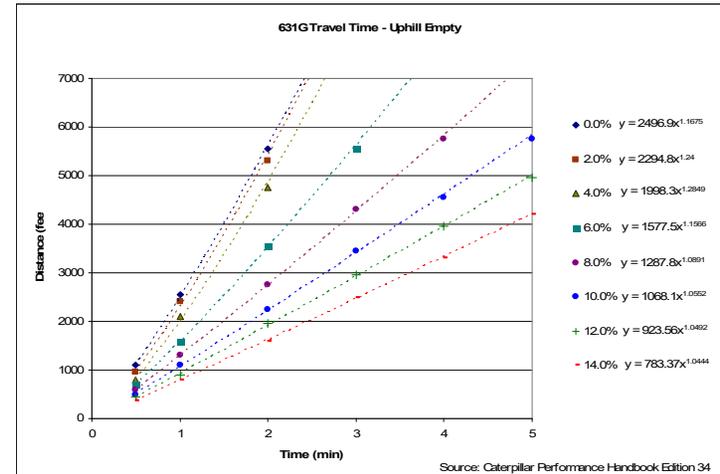
Source: Caterpillar Performance Handbook Edition 35



631G Scraper Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,100	2,550	5,550				2496.9	1.1675
2	950	2,400	5,300				2294.8	1.24
4	800	2,100	4,750				1998.3	1.2849
6	700	1,600	3,550	5,550			1557.5	1.1566
8	600	1,300	2,750	4,300	5,750		1287.8	1.0891
10	500	1,100	2,250	3,450	4,550	5,750	1068.1	1.0552
12	450	900	1,950	2,950	3,950	4,950	923.56	1.0492
14	375	800	1,600	2,500	3,300	4,200	783.37	1.0444

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



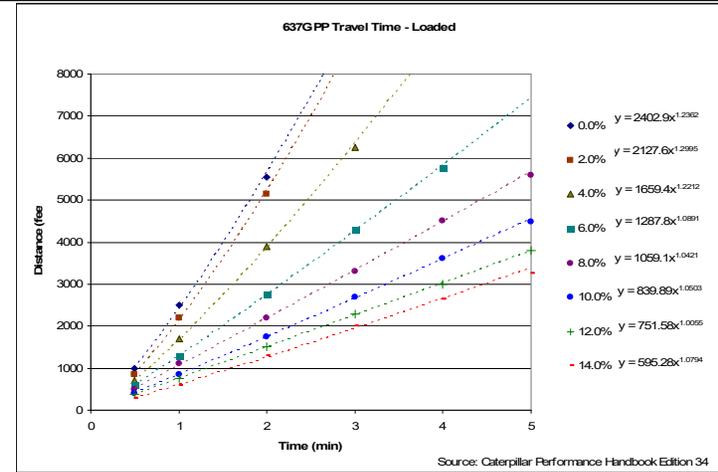
Closure Cost Estimate Productivity

Productivity - Scrapers (cont.)

637G Push-Pull Scraper Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,000	2,500	5,550				2402.9	1.2362
2	850	2,200	5,150				2127.6	1.2995
4	700	1,700	3,900	6,250			1659.4	1.2212
6	600	1,300	2,750	4,300	5,750		1287.8	1.0891
8	500	1,100	2,200	3,300	4,500	5,600	1059.1	1.0421
10	400	850	1,750	2,700	3,600	4,475	839.89	1.0503
12	375	750	1,500	2,300	3,000	3,800	751.58	1.0055
14	275	600	1,300	2,000	2,650	3,250	595.28	1.0794

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

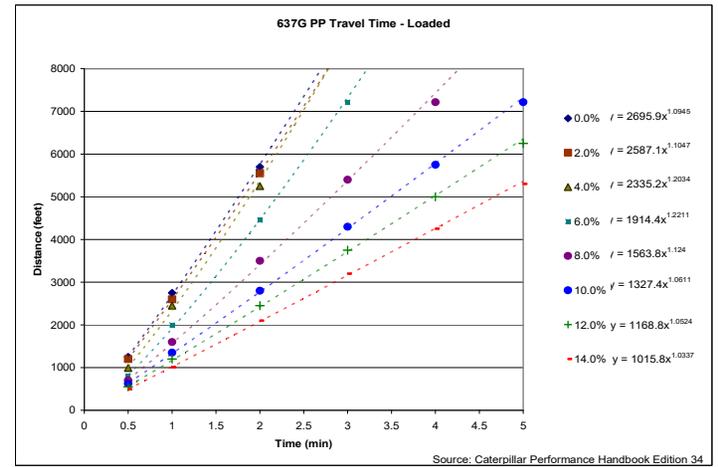
Source: Caterpillar Performance Handbook Edition 35



637G Push-Pull Scraper Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,250	2,750	5,700				2695.9	1.0945
2	1,200	2,600	5,550				2587.1	1.1047
4	990	2,450	5,250				2335.2	1.0234
6	800	2,000	4,450	7,216			1914.4	1.2211
8	700	1,600	3,500	5,400	7,216		1563.8	1.124
10	625	1,350	2,800	4,300	5,750	7,216	1327.4	1.0611
12	550	1,200	2,450	3,750	5,000	6,250	1168.8	1.0524
14	495	1,010	2,100	3,200	4,250	5,300	1015.8	1.0337

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



**Closure Cost Estimate
Productivity**

Productivity - Haul Trucks

Haul Truck Specifications						
Description	769D	773E	777D	785C	793C	797B
Chassis Weight (lb)	53,506	70,330	113,160	170,000	259,500	473,600
Body Weight (lb)	17,350	20,300	34,785	36,788	70,785	104,200
Standard Liner Weight (lb)	7,000	8,600	12,040	16,846	24,418	8,800
Total Truck Weight (lb)	77,856	99,230	159,985	223,634	354,703	586,600
Payload Capacity (cy)						
Struck	21.6	34.8	55	78.5	126	228
Heaped	31.7	46	78.6	102	169	290
Average	26.65	40.4	66.8	90.25	147.5	259
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5
Altitude Deration Factor	0.93	1	1	0.93	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)															
Material	lb/cy	Truck (769D) Load lb	Truck (773E) Load lb	Truck (777D) Load lb	769D				773E				777D						
					Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	77,285	117,160	193,720	155,141	11	11	15	26	216,390	7	7	13	23	353,705	7	9	12	29
Basalt	3,300	87,945	133,320	220,440	165,801	11	11	11	20	232,550	7	7	13	23	380,425	7	7	12	21
Clay - Dry	2,500	66,625	101,000	167,000	144,481	11	11	15	26	200,230	7	9	13	23	326,985	7	9	16	29
Granite - broken	2,800	74,620	113,120	187,040	152,476	11	11	15	26	212,350	7	7	13	23	347,025	7	9	12	29
Gravel	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
LS - broken	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
LS - crushed	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
Sandstone	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
Shale	2,100	55,965	84,840	140,280	133,821	11	11	15	26	184,070	7	9	13	31	300,265	7	9	16	29
Stone - crushed	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Tailings - Coarse (dry, loose sand)	2,400	63,960	96,960	160,320	141,816	11	11	15	26	196,190	7	9	13	23	320,305	7	9	16	29
Tailings - Slimes (loose sand & clay)	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Topsoil	1,600	42,640	64,640	106,880	120,496	11	11	15	26	163,870	7	9	17	31	266,865	9	12	16	29
					Empty	15	15	26	36	Empty	13	17	23	42	Empty	16	16	29	39

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)															
Material	lb/cy	Truck (785C) Load lb	Truck (793C) Load lb	Truck (797B) Load lb	785C				793C				797B						
					Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	261,725	427,750	751,100	485,359	8	8	14	27	782,453	7	7	10	17	1,337,700	7	7	9	17
Basalt	3,300	297,825	486,750	854,700	521,459	8	8	14	27	841,453	7	7	10	17	1,441,300	7	7	9	17
Clay - Dry	2,500	225,625	368,750	647,500	449,259	8	11	14	36	723,453	7	7	10	25	1,234,100	7	7	9	23
Granite - broken	2,800	252,700	413,000	725,200	476,334	8	8	14	27	767,703	7	7	10	17	1,311,800	7	7	9	17
Gravel	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	1,247,050	7	7	9	23
LS - broken	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	1,260,000	7	7	9	23
LS - crushed	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	1,260,000	7	7	9	23
Sandstone	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	1,247,050	7	7	9	23
Shale	2,100	189,525	309,750	543,900	413,159	8	11	14	36	664,453	7	7	10	25	1,130,500	7	7	13	23
Stone - crushed	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	1,285,900	7	7	9	23
Tailings - Coarse (dry, loose sand)	2,400	216,600	354,000	621,600	440,234	8	11	14	36	708,703	7	7	10	25	1,208,200	7	7	9	23
Tailings - Slimes (loose sand & clay)	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	1,285,900	7	7	9	23
Topsoil	1,600	144,400	236,000	414,400	368,034	8	11	19	36	590,703	7	10	13	25	1,001,000	7	9	13	23
					Empty	14	19	36	36	Empty	10	13	17	33	Empty	13	17	23	42

Source: Caterpillar Performance Handbook Edition 35

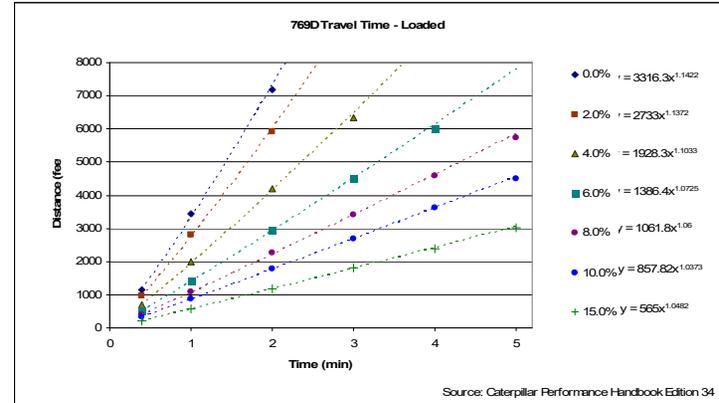
Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

769D Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.4	1	2	3	4			5
0	1,148	3,428	7,183			3316.3	1.1422	
4	689	1,984	4,198	6,330		1928.3	1.1033	
6	508	1,427	2,952	4,510	6,002	1386.4	1.0725	
8	394	1,082	2,263	3,411	4,592	5,740	1,061.8	
10	328	869	1,771	2,690	3,608	4,510	857.82	
15	213	574	1,181	1,804	2,394	3,018	1.0482	

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

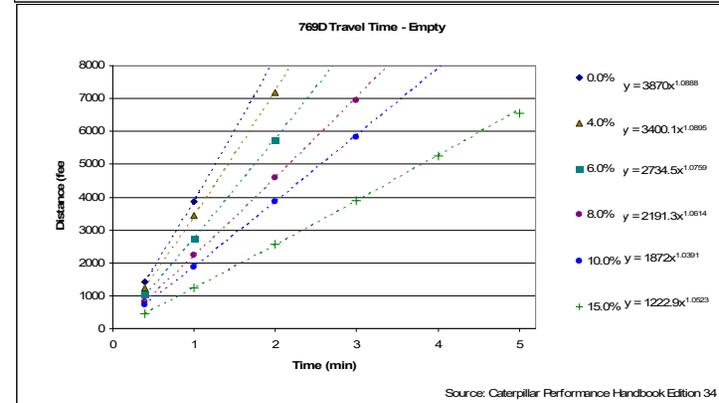
Source: Caterpillar Performance Handbook Edition 35



769D Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.4	1	2	3	4			5
0	1,427	3,870				3870	1.0888	
4	1,246	3,444	7,183			3400.1	1.0895	
6	1,017	2,755	5,740			2734.5	1.0759	
8	820	2,230	4,592	6,954		2191.3	1.0614	
10	722	1,870	3,870	5,838		1872	1.0391	
15	459	1,246	2,558	3,903	5,248	6,560	1222.9	

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

773E Haul Truck Travel Time - Uphill Loaded									
Total Resistance (%) (rolling + grade)	Time (min)					k	p		
	0.4	1	2	3	4				
0	1,066	3,117	6,496			3027.4	1.1254		
4	656	1,952	4,035	6,168		1863.1	1.1109		
6	492	1,312	2,756	4,167	5,577	6,955	1304.2	1.0507	
8	394	1,017	2,100	3,182	4,265	5,315	1018.2	1.0326	
10	328	853	1,804	2,690	3,609	4,528	856.36	1.041	
15	226	525	1,083	1,673	2,231	2,789	549.25	1.0038	

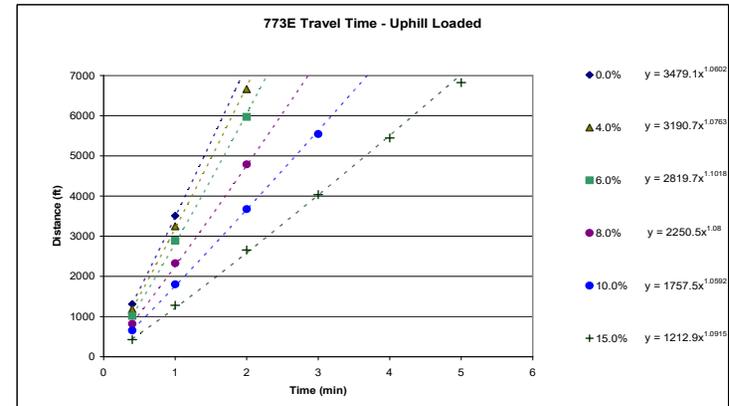
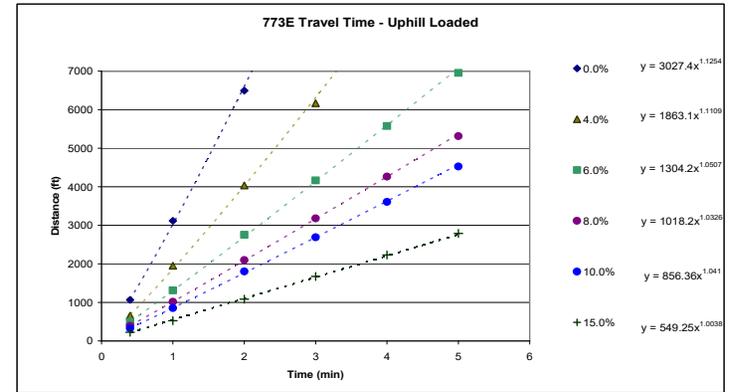
$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

773E Haul Truck Travel Time - Uphill Empty									
Total Resistance (%) (rolling + grade)	Time (min)					k	p		
	0.4	1	2	3	4				
0	1,312	3,510	7,218			3479.1	1.0602		
4	1,181	3,248	6,660			3190.7	1.0763		
6	1,017	2,887	5,971			2819.7	1.1018		
8	820	2,329	4,790	7,218		2250.5	1.08		
10	656	1,804	3,675	5,545		1757.5	1.0592		
15	427	1,280	2,657	4,035	5,446	6,824	1212.9	1.0915	

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

777D Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.4	1	2	3	4			5
0	656	2,558	6,068			2403.1	1.3876	
4	459	1,509	3,313	5,215	7,085	1412	1.1863	
6	394	1,148	2,460	3,706	5,018	6,298	1,0949	
8		918	1,886	2,837	3,772	4,756	922.57	
10		722	1,443	2,165	2,919	3,608	721.44	
15		525	1,017	1,558	2,034	2,591	520.56	

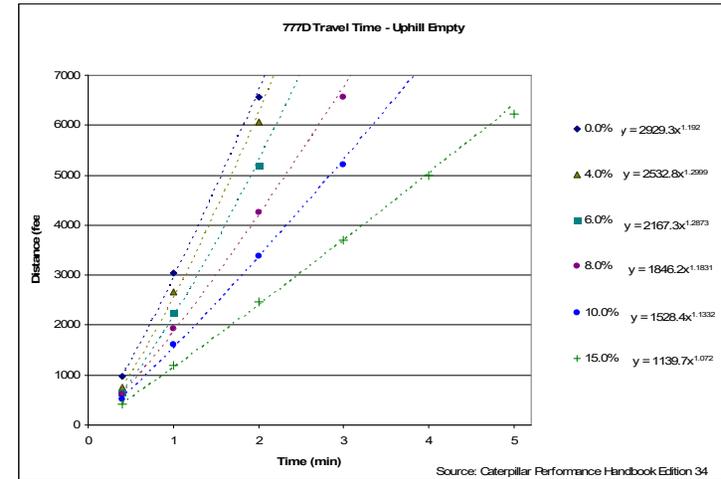
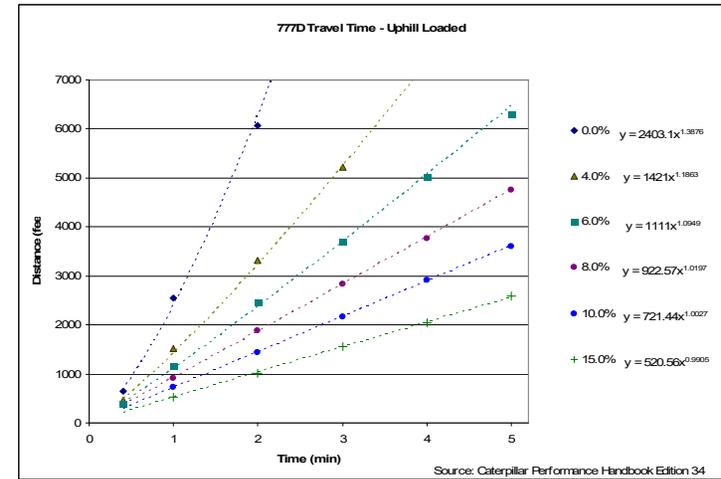
$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

777D Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.4	1	2	3	4			5
0	968	3,034	6,560			2929.3	1.192	
4	754	2,657	6,068			2532.8	1.2999	
6	656	2,247	5,182			2167.3	1.2873	
8	607	1,935	4,248	6,560		1846.2	1.1831	
10	525	1,607	3,378	5,215	7,282	1528.4	1.1332	
15	410	1,197	2,460	3,706	4,986	6,232	1139.7	

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

785C Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.4	1	2	3	4			5
0	820	2,630	5,500			2491.1	1.1872	
4	530	1,600	3,370	5,040		1524.4	1.1206	
6	300	1,000	2,180	3,270	4,400	923	1.1469	
8	240	790	1,610	2,480	3,380	4,200	1.1233	
10	190	630	1,400	2,180	2,920	3,650	1.1678	
15	40	370	770	1,200	1,590	2,000	1.4863	

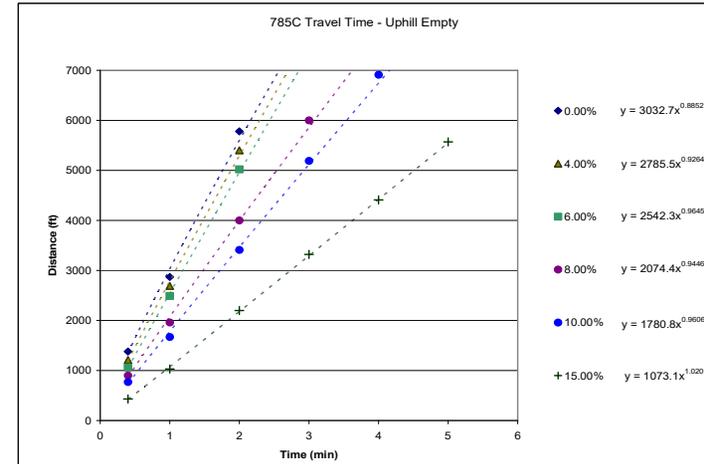
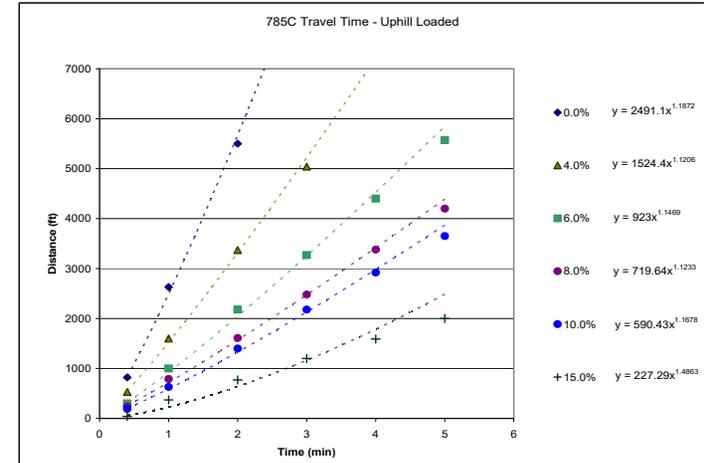
$$\text{Travel Time (min)} = \sqrt{\frac{p \cdot \text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

785C Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.4	1	2	3	4			5
0	1,380	2,870	5,780			3032.7	0.8852	
4	1,210	2,690	5,400			2785.5	0.9264	
6	1,060	2,490	5,020			2542.3	0.9645	
8	900	1,960	4,000	6,000		2074.4	0.9446	
10	770	1,670	3,410	5,190	6,910	1780.8	0.9606	
15	430	1,030	2,200	3,320	4,410	5,570	1.0209	

$$\text{Travel Time (min)} = \sqrt{\frac{p \cdot \text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



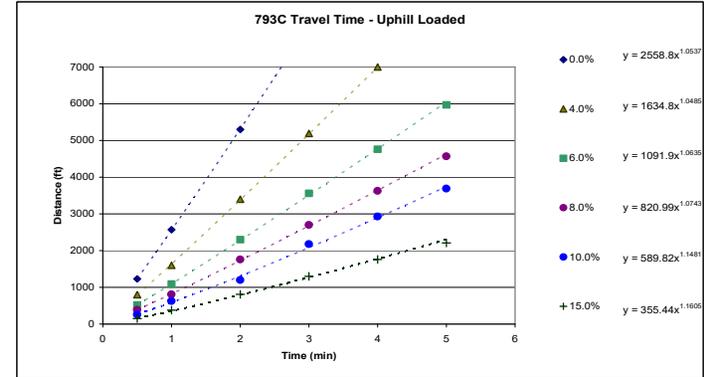
Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

793C Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	1,230	2,570	5,300				2558.8	1.0537
4	800	1,600	3,400	5,190	7,000		1634.8	1.0485
6	520	1,090	2,300	3,560	4,760	5,970	1091.9	1.0635
8	390	810	1,760	2,700	3,630	4,570	820.99	1.0743
10	260	630	1,200	2,180	2,930	3,690	589.82	1.1481
15	150	380	810	1,300	1,760	2,210	355.44	1.1605

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

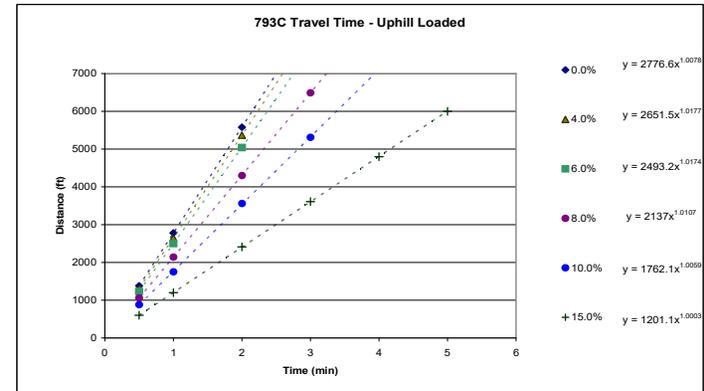
Source: Caterpillar Performance Handbook Edition 35



793C Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	1,380	2,780	5,580				2776.6	1.0078
4	1,310	2,650	5,370				2651.5	1.0177
6	1,230	2,500	5,040				2493.2	1.0174
8	1,060	2,140	4,300	6,490			2137	1.0107
10	880	1,750	3,560	5,310			1762.1	1.0059
15	600	1,200	2,410	3,610	4,800	6,000	1201.1	1.0003

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



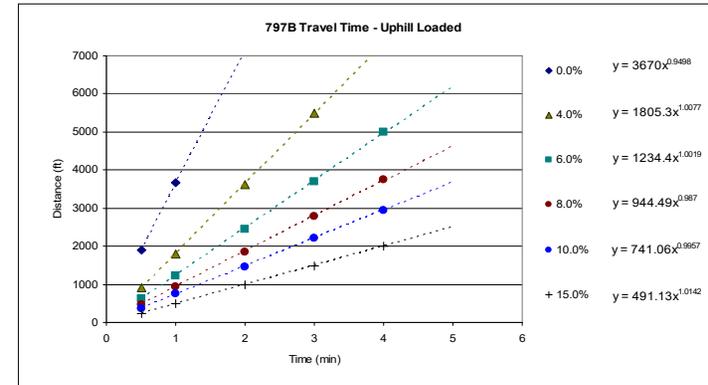
Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

797B Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	1,900	3,670				3670	0.9498	
4	900	1,800	3,620	5,480		1805.3	1.0077	
6	620	1,230	2,450	3,700	5,000	1234.4	1.0019	
8	480	940	1,850	2,790	3,750	944.49	0.987	
10	370	750	1,460	2,220	2,950	741.06	0.9957	
15	240	500	1,000	1,480	2,000	491.13	1.0142	

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

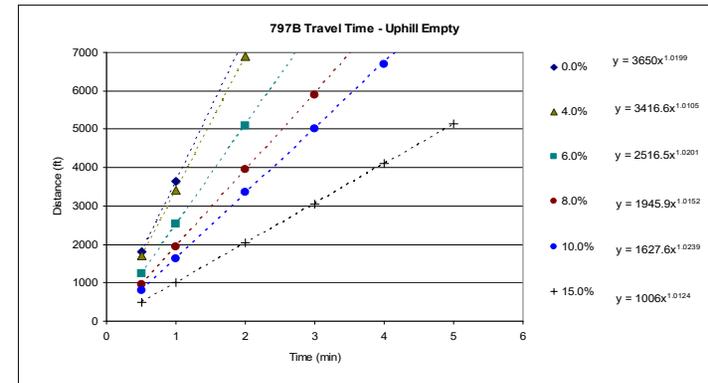
Source: Caterpillar Performance Handbook Edition 35



797B Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	1,800	3,650				3650	1.0199	
4	1,700	3,400	6,900			3416.6	1.0105	
6	1,240	2,520	5,100			2516.5	1.0201	
8	960	1,950	3,960	5,900		1945.9	1.0152	
10	800	1,620	3,350	5,000	6,700	1627.6	1.0239	
15	500	1,000	2,040	3,050	4,100	1006	1.0124	

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



**Closure Cost Estimate
Productivity**

Productivity - Articulated Trucks

Articulated Truck Specifications				
Description	725	730	735	740
Chassis Weight (lb)				
Body Weight (lb)				
Standard Liner Weight (lb)				
Operating Weight (Empty) (lb)	50,120	51,220	65,830	72,070
Payload Capacity (cy)				
Struck	14.5	17.1	19.3	23.3
Heaped	18.8	22.1	31.8	30.2
Average	16.65	19.6	25.55	26.75
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
Material	lb/cy	Truck (725) Load lb	Truck (730) Load lb	725				730					
				Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	48,285	56,840	98,405	9	9	13	30	108,060	5	8	13	29
Basalt	3,300	54,945	64,680	105,065	5	9	13	22	115,900	5	8	13	29
Clay - Dry	2,500	41,625	49,000	91,745	9	13	13	30	100,220	8	8	13	29
Granite - broken	2,800	46,620	54,880	96,740	9	13	13	30	106,100	5	8	13	29
Gravel	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
LS - broken	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
LS - crushed	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
Sandstone	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
Shale	2,100	34,965	41,160	85,085	9	13	22	30	92,380	8	13	13	29
Stone - crushed	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Tailings - Coarse (dry, loose sand)	2,400	39,960	47,040	90,080	9	13	13	30	98,260	8	8	13	29
Tailings - Slimes (loose sand & clay)	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Topsoil	1,600	26,640	31,360	76,760	9	13	22	30	82,580	8	13	22	35
				Empty	13	13	22	30	Empty	13	13	22	35

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
Material	lb/cy	Truck (735) Load lb	Truck (740) Load lb	735				740					
				Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	74,095	77,575	139,925	7	9	13	27	149,645	7	9	17	23
Basalt	3,300	84,315	88,275	150,145	7	9	13	27	160,345	7	9	13	23
Clay - Dry	2,500	63,875	66,875	129,705	7	9	13	27	138,945	9	13	17	31
Granite - broken	2,800	71,540	74,900	137,370	7	9	13	27	146,970	7	9	17	23
Gravel	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
LS - broken	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
LS - crushed	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
Sandstone	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
Shale	2,100	53,655	56,175	119,485	9	9	18	27	128,245	7	13	17	31
Stone - crushed	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Tailings - Coarse (dry, loose sand)	2,400	61,320	64,200	127,150	7	9	13	27	136,270	9	13	17	31
Tailings - Slimes (loose sand & clay)	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Topsoil	1,600	40,880	42,800	106,710	9	13	18	36	114,870	9	13	17	31
				Empty	13	18	27	42	Empty	17	17	23	31

Source: Caterpillar Performance Handbook Edition 35

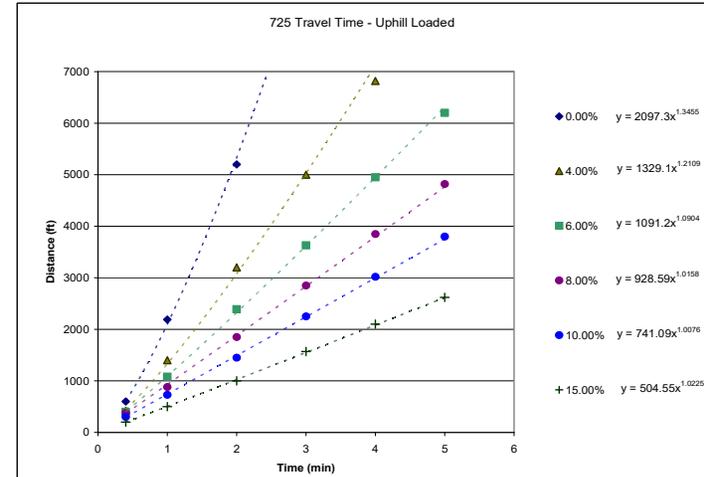
Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

725 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	600	2,190	5,200				2097.3	1.3455
4	420	1,400	3,200	5,000	6,820		1329.1	1.2109
6	400	1,080	2,390	3,630	4,950	6,200	1091.2	1.0904
8	380	880	1,850	2,850	3,850	4,820	928.59	1.0158
10	300	729	1,450	2,250	3,020	3,800	741.09	1.0076
15	200	500	1,000	1,570	2,100	2,620	504.55	1.0225

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

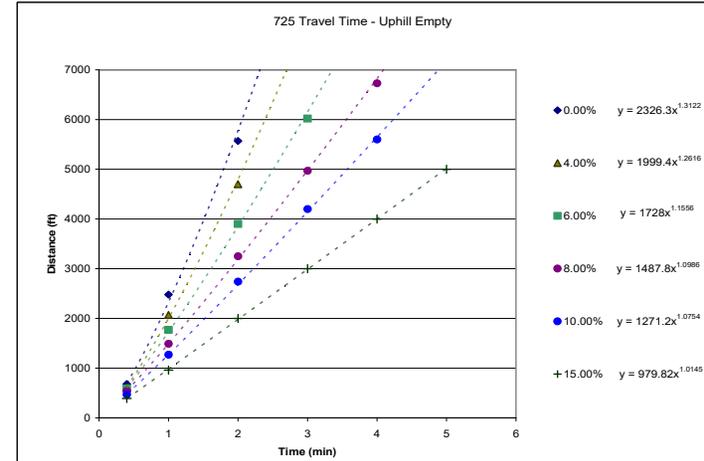
Source: Caterpillar Performance Handbook Edition 35



725 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	680	2,480	5,570				2326.3	1.3122
4	620	2,070	4,700				1999.4	1.2616
6	590	1,770	3,900	6,020			1728	1.1556
8	540	1,490	3,250	4,970	6,730		1487.8	1.0986
10	470	1,270	2,740	4,200	5,600	7,050	1271.2	1.0754
15	390	960	2,000	3,000	4,000	5,000	979.82	1.0145

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



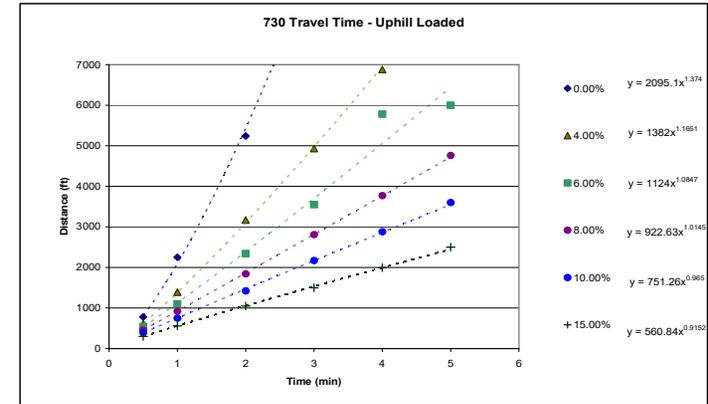
Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

730 Articulated Truck Travel Time - Uphill Loaded									
Total Resistance (%) (rolling + grade)	Time (min)					k	p		
	0.5	1	2	3	4				
0	780	2,250	5,240					2095	1.374
4	610	1,390	3,170	4,930	6,880			1382	1.1651
6	540	1,100	2,340	3,550	5,780	6,000		112	1.0847
8	460	920	1,840	2,810	3,770	4,760	922.63		1.0145
10	390	750	1,420	2,170	2,880	3,600	751.26		0.965
15	300	560	1,050	1,500	1,995	2,500	560.84		0.9152

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

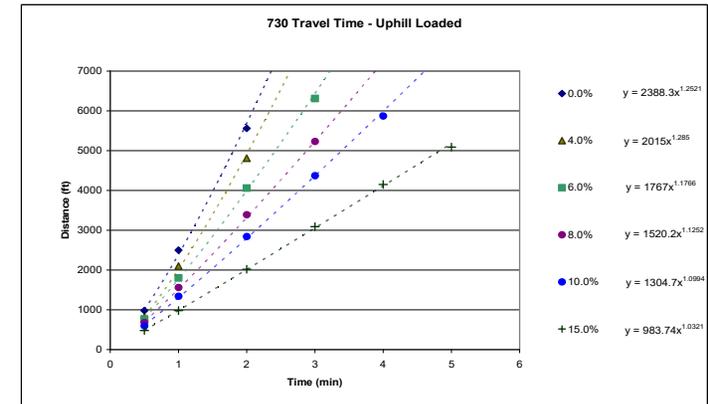
Source: Caterpillar Performance Handbook Edition 35



730 Haul Truck Travel Time - Uphill Empty									
Total Resistance (%) (rolling + grade)	Time (min)					k	p		
	0.5	1	2	3	4				
0	980	2,500	5,560					2388	1.25621
4	810	2,100	4,810					2015	1.285
6	770	1,800	4,060	6,310				1767	1.1766
8	680	1,560	3,390	5,230	7,070			1520.2	1.1252
10	595	1,340	2,840	4,370	5,870			1304.7	1.0994
15	480	980	2,020	3,090	4,150	5,090		983.74	1.0321

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



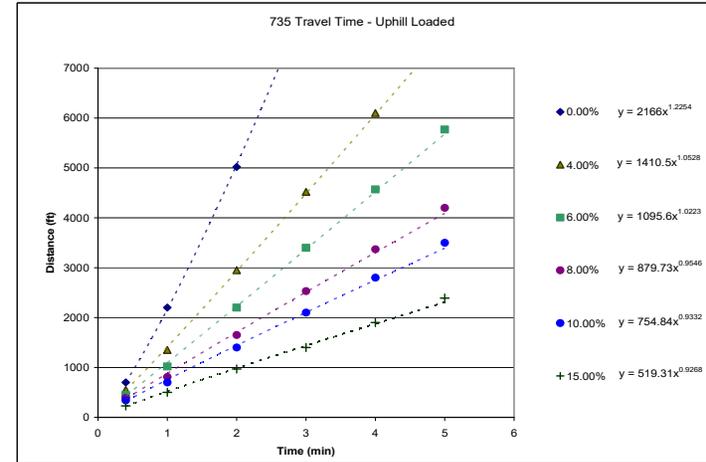
Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

735 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	700	2,200	5,020			2166	1.2254	
4	550	1,350	2,950	4,520	6,100	1410.5	1.0528	
6	450	1,020	2,200	3,400	4,570	1095.6	1.0223	
8	390	810	1,650	2,530	3,370	879.73	0.9546	
10	340	700	1,400	2,100	2,800	754.84	0.9332	
15	230	500	970	1,400	1,900	519.31	0.9268	

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

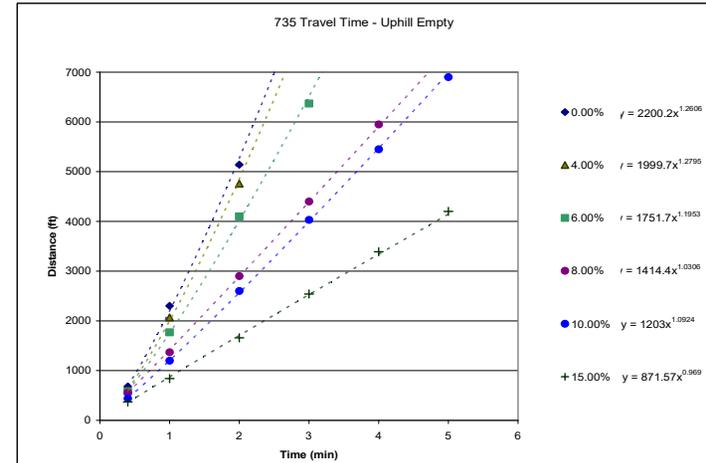
Source: Caterpillar Performance Handbook Edition 35



735 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	680	2,300	5,140			2200.2	1.2606	
4	610	2,070	4,760			1999.7	1.2795	
6	580	1,770	4,100	6,370		1751.7	1.1953	
8	560	1,370	2,900	4,400	5,950	1414.4	1.0306	
10	440	1,200	2,600	4,030	5,450	6,900	1203	1.0924
15	370	840	1,660	2,540	3,390	4,200	871.57	0.969

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



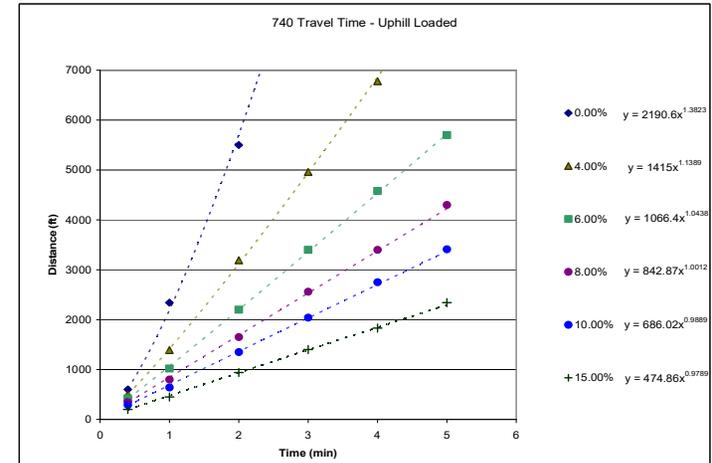
Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

740 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	600	2,340	5,500			2190.6	1.3823	
4	500	1,390	3,190	4,960	6,780	1415	1.1389	
6	420	1,020	2,200	3,400	4,580	1066.4	1.0438	
8	350	800	1,650	2,560	3,400	842.87	1.0012	
10	290	640	1,350	2,040	2,750	686.02	0.9889	
15	200	450	940	1,400	1,830	474.86	0.9789	

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

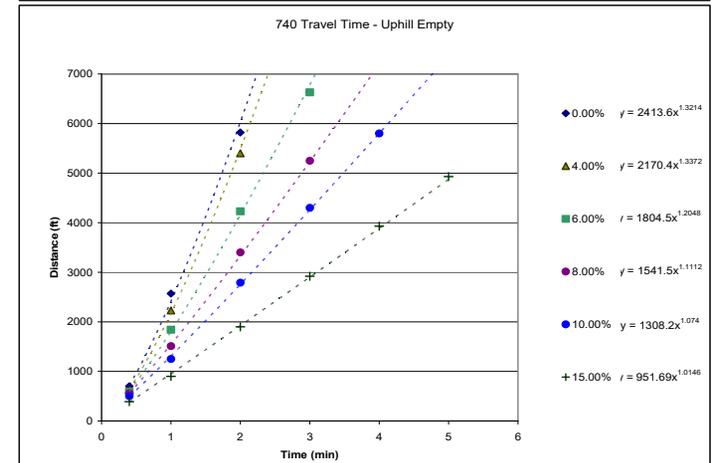
Source: Caterpillar Performance Handbook Edition 35



740 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			5
0	700	2,570	5,820			2413.6	1.3214	
4	630	2,230	5,400			2170.4	1.3372	
6	590	1,840	4,230	6,630		1804.5	1.2048	
8	560	1,510	3,400	5,250	7,120	1541.5	1.1112	
10	500	1,250	2,790	4,300	5,800	1308.2	1.074	
15	390	900	1,900	2,920	3,930	951.69	1.0146	

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



**Closure Cost Estimate
Productivity**

Productivity - Wheel Loaders

Wheel Loader Specifications														
Description	924G	928G	950G	966G	972G	972G (2)	980G	988G	988G(2)	990	992G	992G(2)	994D	L2350
Payload Capacity (cy)														
Struck	2.2	2.5	3.46	4.46	4.71	4.71	6.34	6.9	6.9	9.5	13.2	13.2	18	
Heaped	2.7	3.25	4	5.25	5.5	5.5	7.25	8.33	8.33	11.25	16	16	22.5	
Average	2.45	2.875	3.73	4.855	5.105	5.105	6.795	7.615	7.615	10.375	14.6	14.6	20.25	53
Matched Truck	N/A	N/A	N/A	725	730	735	N/A	740	769D	773D	777D	785C	793C	797B
Average Cycle Time (min)	0.45	0.45	0.5	0.5	0.5	0.5	0.55	0.55	0.55	0.55	0.6	0.6	0.6	0.75
Passes to Fill Truck	N/A	N/A	N/A	3	4	5	N/A	4	3	4	5	6	7	5
Altitude Deration Factor	1	1	1	1	0.84	0.84	1	0.95	0.95	1	1	1	1	1
Operator Efficiency	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	N/A	N/A	N/A	1.5	1.68	2.1	N/A	2.09	1.57	2.2	3	3.6	4.2	3.75
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Loader matched to small truck fleet
 Loader matched to medium truck fleet
 Loader matched to large truck fleet
 Loader matched to extra large truck fleet

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered
 992G (2) - can be used to load 785 with 6 passes

Source: Caterpillar Performance Handbook Edition 35; LeTourneau/actual Chilean mine operating data for L2350.

Wheeled Loaders	General Purpose	Spade Nose-Rock
928G	3.25 cubic yard	not available
966G	5.0 cubic yard	not available
972G	5.5 cubic yard	not available
988G	not available	8.3 cubic yard
992G	not available	16.0 cubic yard

note: capacities are 2:1 heaped, SAE standards

NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECO & available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators

Bucket capacity and width dictated by material weight and configuration, ie., shot, loose, tight bank, stockpile, rock, etc. Typical Nevada applications were used to determine above bucket capacities as related to materials & densities. Job site specifics may alter specific bucket requirements. (Cashman Equipment, Elko, Nevada - February 21, 2005)

Productivity - Shovels

Shovel Specifications (Komatsu equivalent)					
Description	PC2000	PC3000	PC4000	PC5500	PC8000
Payload Capacity (cy)					
Struck	10.46	18.84	26.16	33.48	47.09
Heaped	14.39	25.9	35.97	46.04	64.75
Average	12.43	22.37	31.07	39.76	55.92
Matched Truck	740	777D	785C	793C	797B
Average Cycle Time (min)	0.49	0.49	0.59	0.59	0.69
Passes to Fill Truck	2.05	2.84	3.38	4.69	5.11
Altitude Deration Factor	1	1	0.9	1	1
Operator Efficiency	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	1.68	2.33	3.32	4.61	5.86
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5

Shovel matched to small truck fleet
 Shovel matched to medium truck fleet
 Shovel matched to large truck fleet
 Shovel matched to extra large truck fleet

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered
 992G (2) - can be used to load 785 with 6 passes

Source: Caterpillar Performance Handbook Edition 35; Komatsu actual Peruvian mine (Lagunas Norte) operating data for PC4000.

**Closure Cost Estimate
Productivity**

Productivity - Motor Graders

Motor Grader Specifications				
Description	120H	14G/H	16G/H	24M
Grader Width (ft)	8	9.25	10.08	14.04
Blade Width (ft)	12	14	16	16
Ripper Width (7 shanks) (ft)	7.6	8.5	9.75	12.83
Road Maintenance Speed (mph)				
Minimum	3	3	3	3
Maximum	9.5	9.5	9.5	9.5
Average	6.25	6.25	6.25	6.25
Hourly Production	33,000	33,000	33,000	33,000
Ripping Speed (mph)	1	1	1	1
Minimum	0	0	0	0
Maximum	3	3	3	3
Average	1.5	1.5	1.5	1.5
Altitude Deration Factor	1	1	1	1
Hourly Production (with job efficiency correction & altitude deration factors) (excluding maneuver time)	6,574	6,574	6,574	6,574
Maneuver time per pass (min)	0.5	0.5	0.5	0.5
Operator Efficiency	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83

Source: Caterpillar Performance Handbook Edition 35

**Closure Cost Estimate
Productivity**

Productivity - Excavators

Track Excavator Specifications							
Description	312C	320C	325C	330C	345B	365BL	385BL
Bucket Capacity (cy)	0.68	1.57	2.22	2.22	3	4.6	7.3
Fill Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Average Bucket Load (cy)	0.612	1.413	1.998	1.998	2.7	4.14	6.57
Soil Type	packed earth	hard clay					
Job Condition	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard
Cycle Times (minutes) - based on hard clay							
Load Bucket	0.07	0.09	0.09	0.09	0.13	0.1	0.19
Swing Loaded	0.06	0.06	0.06	0.07	0.07	0.09	0.06
Dump Bucket	0.03	0.03	0.04	0.04	0.02	0.04	0.03
Swing Empty	0.05	0.05	0.06	0.07	0.06	0.07	0.07
Total Cycle Time	0.21	0.23	0.25	0.27	0.28	0.3	0.35
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Operator Efficiency	1	1	1	1	1	1	1
Altitude Deration Factor	0.83	0.87	1	1	1	0.86	0.93
Corrected Productivity (LCY/hr)	120	266	398	369	480	591	869
Exploration Road Cycle Time ⁽¹⁾ (min)	N/A	0.38	0.4	N/A	0.42	N/A	N/A
Exploration Road Corr Prod (LCY/hr)	N/A	161	249	N/A	320	N/A	N/A
Track Width (ft)	8.17	9.17	9.83	10.5	11.42	11.5	11.5
Ditch/Trench Excavation							
Bucket Capacity (cy)	0.42	0.58	0.88	0.89	2.09	3.27	2.75
Fill Factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Corrected Productivity (LCY/hr)	41	55	88	82	186	233	182

Source: Caterpillar Performance Handbook Edition 35

Track Excavators	Hvy Duty Rock	Extreme Service Exc (e.g. haulroad recontour)	Hvy Duty Trench
312C	30", 0.68 cubic yd	47", 0.94 cubic yd	22", .42 cubic yd
320C	30", 0.90 cubic yd	55.1", 1.57 cubic yd	23.6", .58 cubic yd
325C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .88 cubic yd
330C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .89 cubic yd
345B	43.2", 1.69 cubic yd	65", 3.0 cubic yd	48", 2.09 cubic yd
365BL	60", 3.25 cubic yd	82", 4.6 cubic yd	59", 3.27 cubic yd
385BL	85", 6.30 cubic yd	96.0, 7.30 cubic yd	57", 2.75 cubic yd

Note: capacities are 2:1 heaped, SAE standards

NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECO &

available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR

PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators

Bucket capacity and width dictated by material weight and configuration, i.e., shot, loose,

tight bank, stockpile, rock, etc. Typical Nevada applications were used to determine above

bucket capacities as related to materials & densities. Job site specifics may alter specific

bucket requirements (Cashman Equipment, Elko, Nevada - February 21, 2005)

(1) Exploration cycle time assumes feathering/smoothing performed by excavator

Concrete Breaking Production

Track Excavator w/Hammer Specifications			
Description	325C	345B	385BL
Hydraulic Hammer	H120D s	H160D s	H180D s
Material	reinforced concrete		
Min Shift Production (yd3/8hr)	160	300	350
Max Shift Production (yd3/8hr)	300	850	1,550
Avg Shift Production (8hr)	230	575	950
Job Efficiency	0.83	0.83	0.83
Altitude Deration Factor	1	1	0.93

Source: Caterpillar Performance Handbook Edition 35

**Closure Cost Estimate
Productivity**

Drill Hole Plugging Productivity

Drill Hole Plugging Productivity		
Description	Drill Rig	Pump Rig
Move-to-hole, set-up, tear-down ⁽¹⁾	2	2
Trip in tremmie pipe ⁽¹⁾	500	
Pulling casing (threaded, not	200	
Single-pass perforating (water wells)	Productivity(all d	Passes
4	60	4
6	60	4
8	50	4
12	45	6
18	40	9
24	28	12
Perforation setup, trip in/out, tear-down	2	
Perforation tool cost (wear cost) ⁽²⁾	2.5	
Inert Material Placement (backfill)		
Grouting/Cement ⁽³⁾ (cy/hr)		5.33
Cuttings (see below) (cy/hr)		3.5
<p>1. Drillers daily logs from Newmont, Barrick, New West Gold, Agnico Eagle, Idaho General Mines Inc.</p> <p>2. Drillers daily logs from Newmont, Barrick, Target Minerals</p> <p>3. Drillers daily logs from Newmont</p> <p>4. WDC Exploration, Dec 2005</p> <p style="text-align: right; font-size: small;">Source: WDC Exploration, Dec 2005</p>		
Cuttings Placement Productivity		
Shift productivity (Means 02210-700-0120; Crew B11M)	28	cy / shift
Shift length	8	hours
Estimated Hourly Productivity	3.5	cy / hour

**Closure Cost Estimate
Productivity**

Altitude Deration Table

MODEL	Elevation											
	0-760 m (0-2500')		760-1500 m (2500-5000')		1500-2300 m (5000-7000')		2300-3000 m (7500-10,000')		3000-3800 m (10,000-12,000')		3800-4600 m (12,500-15,000')	
	CAT	User	CAT	User	CAT	User	CAT	User	CAT	User	CAT	User
Bulldozers												
D6R	100		100		100		100		92		84	
D6R w/ Winch	100		100		100		100		92		84	
D7R	100		100		100		100		100		96	
D8R	100		100		100		93		85		77	
D9R	100		100		100		93		85		77	
D10R	100		100		100		100		97		89	
D11R	100		100		100		93		85		77	
Wheeled Dozers												
824G	100		100		100		100		92		84	
834G	100		100		100		100		92		84	
844	100		100		100		100		100		96	
854G	100		100		100		93		85		77	
Graders												
120H	100		100		100		100		96		93	
14G/H	100		100		100		100		98		96	
16G/H	100		100		100		100		98		96	
24M	100		100		100		100		98		96	
Excavators												
312C	100		100		100		83		78		73	
320C	100		100		90		87		83		76	
325C	100		100		100		100		100		100	
330C	100		100		100		100		100		100	
345B	100		100		100		100		93		93	
365BL	100		100		100		86		86		86	
385BL	100		100		100		93		85		78	
Scrapers												
631G	100		100		100		100		97		90	
637G	100		100		100		95		87		80	
Loaders												
924G	100		100		100		100		97		89	
928G	100		100		100		100		92		85	
950G	100		100		100		100		100		100	
966G	100		100		100		100		96		88	
972G	100		100		92		84		77		70	
980G	100		100		100		100		96		88	
988G	100		100		100		95		85		75	
990	100		100		100		100		92		85	
992G	100		100		100		100		93		87	
994D	100		100		100		100		96		88	
L2350	100		100		100		100		96		90	
Shovels												
PC2000	100		100		100		100		96		90	
PC3000	100		100		100		100		96		90	
PC4000	100		100		100		100		96		90	
PC5500	100		100		100		100		96		90	
PC8000	100		100		100		100		96		90	
Other Equipment												
420D 4WD Backhoe	99		97		95		91		91		91	
428D 4WD Backhoe	99		97		95		91		91		91	
CS533E Vibratory Roller	100		100		98		95		91		86	
CS633E Vibratory Roller	100		100		100		100		91		86	
CP533E Sheepsfoot Compactor	100		100		98		95		91		100	
CP633E Sheepsfoot Compactor	100		100		100		100		91		86	
Light Truck - 1.5 Ton												
Supervisor's Truck												
Flatbed Truck												
Air Compressor + tools												
Welding Equipment												
Heavy Duty Drill Rig												
Pump (plugging) Drill Rig												
Concrete Pump												
Gas Engine Vibrator												
Generator 5KW												
HDEP Welder (pipe or liner)												
5 Ton Crane												
20 Ton Crane												
50 Ton Crane												
120 Ton Crane												

**Closure Cost Estimate
Productivity**

Trucks											
725	100		100		100		100		100		95
730	100		100		100		100		100		95
735	100		100		100		100		99		91
740	100		100		100		100		99		91
769D	100		100		100		93		88		82
773E	100		100		100		100		93		85
777D	100		100		100		100		93		87
785C	100		100		100		93		86		80
793C	100		100		100		100		100		93
797B	100		100		100		100		100		93
613E (5,000 gal) Water Wagon	100		100		100		100		95		87
621E (8,000 gal) Water Wagon	100		100		100		100		97		90
777D Water Truck	100		100		100		100		93		87
785C Water Truck	100		100		100		93		86		80
Dump Truck (10-12 yd ³) (5)											

Notes:
 User entered deration value will override values from CAT Performance Handbook, except L2350 Loader: data from actual mine performance in Chile.
 Komatsu altitude deration assumed from LeTourneau L2350

Attachment I

USACE No Permit Required Verification

Corps File No. NWO-2021-00388-DEN



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
DENVER REGULATORY OFFICE, 9307 SOUTH WADSWORTH BOULEVARD
LITTLETON, COLORADO 80128-6901

March 3, 2021

SUBJECT: No Permit Required Verification – Corps File No. NWO-2021-00388-DEN, Planned Road Project in Boulder County

Greg Miller
Grand Island Resources, LLC
P.O. Box 3395
Nederland, CO 80466

Dear Mr. Miller:

Reference is made to the above-mentioned proposed project located at approximately 39.978682°N, -105.572736, in Boulder County, Colorado. The work as described in your submittal would consist of constructing a temporary mining road crossing near the headwaters of Coon Track Creek to facilitate the trucking of mined material offsite. The road would be removed and reclaimed once the mining area is exhausted.

This project has been reviewed in accordance with Section 404 of the Clean Water Act under which the U.S. Army Corps of Engineers regulates the discharge of dredge and fill material and certain excavation activities in waters of the United States. Waters of the U.S. includes ephemeral, intermittent and perennial streams, their surface connected wetlands and adjacent wetlands and certain lakes, ponds, drainage ditches and irrigation ditches that have a nexus to interstate commerce. Based on the information provided, a Department of the Army permit will not be required for this activity.

Although a Department of the Army permit will not be required for this activity, this does not eliminate the requirements that other applicable federal, state, tribal, and local permits are obtained if needed. Please be advised that deviations from the original plans and specifications of this project could require additional authorization from this office.

If there are any questions please feel free to contact Nicholas Franke at (303) 979-4120 or by e-mail at Nicholas.A.Franke@usace.army.mil, and reference **Corps File No. NWO-2021-00388-DEN**.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Downing', with a stylized flourish at the end.

Kiel Downing
Chief, Denver Regulatory Office

Attachment II
Humidity Cell Test



CORE LABORATORIES

CORE LABORATORIES
ANALYTICAL REPORT

Job Number: 941802

Prepared For:

HENDRICKS MINING CO, INC.
THOMAS HENDRICKS
P. O. BOX 653-CARIBOU
NEDERLAND, CO 80466-0653

Date: 03/09/95

Signature

Patrick J. McEntee

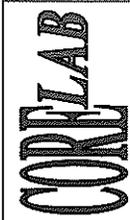
Date:

3-9-95

Name: Patrick J. McEntee

Core Laboratories
10703 East Bethany Drive
Aurora, CO 80014

Title: Laboratory Supervisor



CORE LABORATORIES

SUMMARY OF DATA GENERATED FROM HUMIDITY CELL TESTING
 HENDRICKS MINING CO., INC.
 March 9, 1995

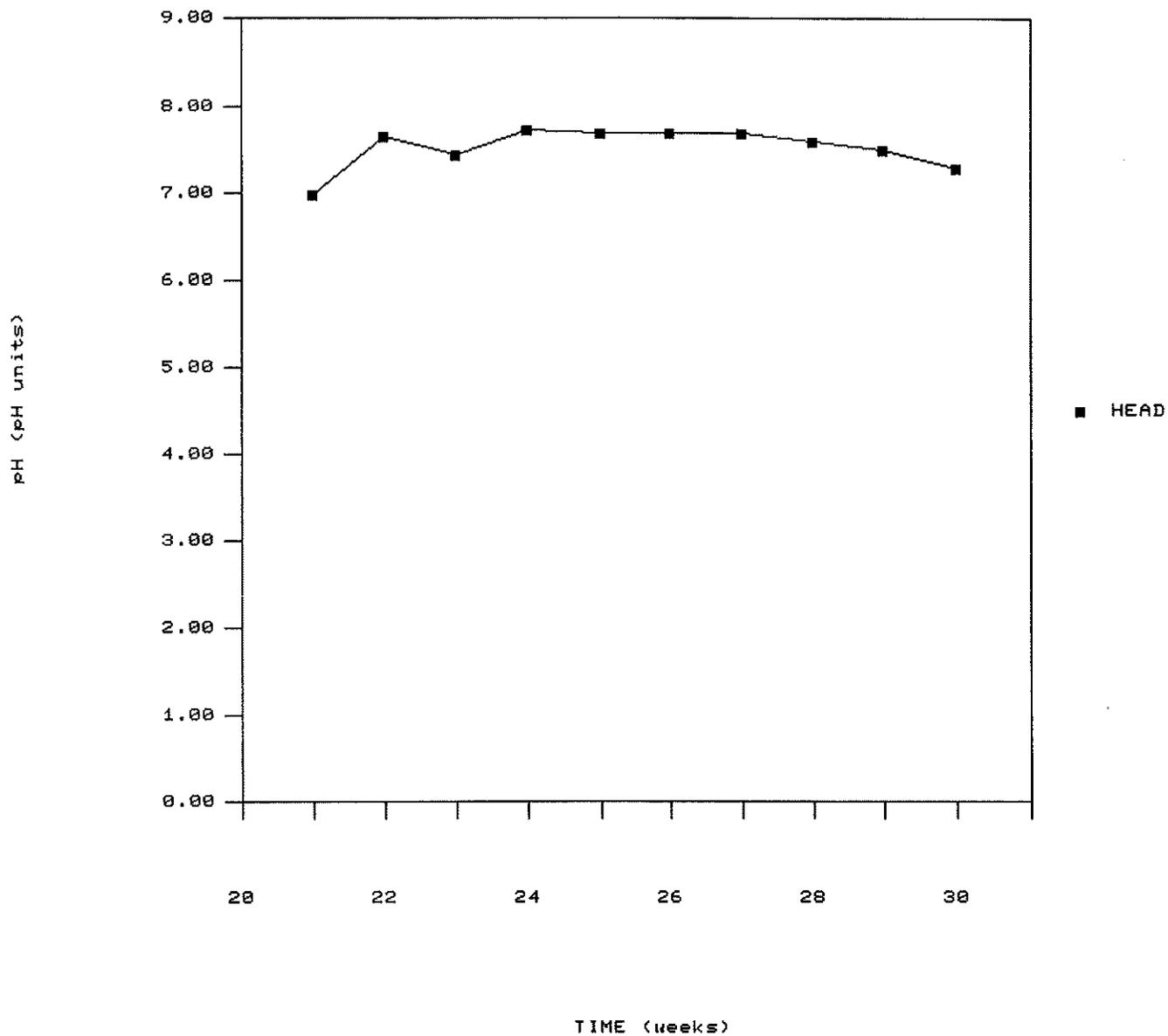
CLIENT SAMPLE I.D.: HEAD
 LAB SAMPLE I.D.: 941802-1

PARAMETER	UNITS									
	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26	Week 27	Week 28	Week 29	Week 30
Leachate Quantity	175	168	163	166	169	158	179	168	170	166
pH	6.97	7.64	7.43	7.72	7.68	7.69	7.69	7.59	7.49	7.29
Conductivity	54	54	66	52	57	65	53	55	48	49
Sulfate	11	<10	13	<10	<10	15	<10	10	<10	11
Cumulative Sulfate	2	2	4	4	4	6	6	8	8	10
Acidity	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cumulative Acidity	0	0	0	0	0	0	0	0	0	0
Iron (Diss.)	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Cumulative Iron	0	0	0	0	0	0	0	0	0	0
Alkalinity	15	19	14	17	15	16	13	20	12	14
Cumulative Alkalinity	3	6	8	11	13	16	18	22	24	26
pH of DI H2O	5.33	5.50	5.22	6.63	5.86	6.15	5.57	6.01	6.21	5.25

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.

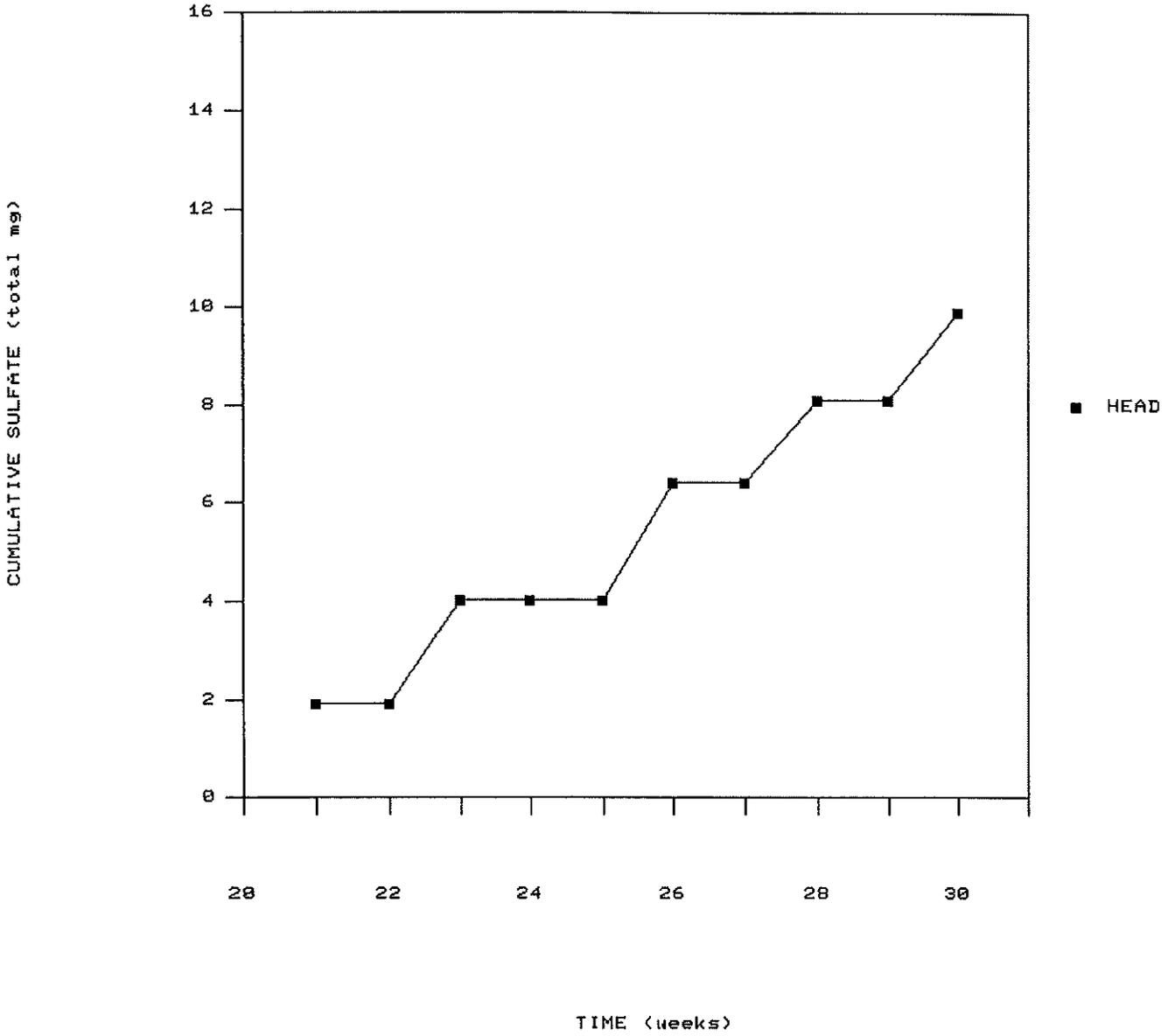
HUMIDITY CELL TESTS

pH of sample leachates



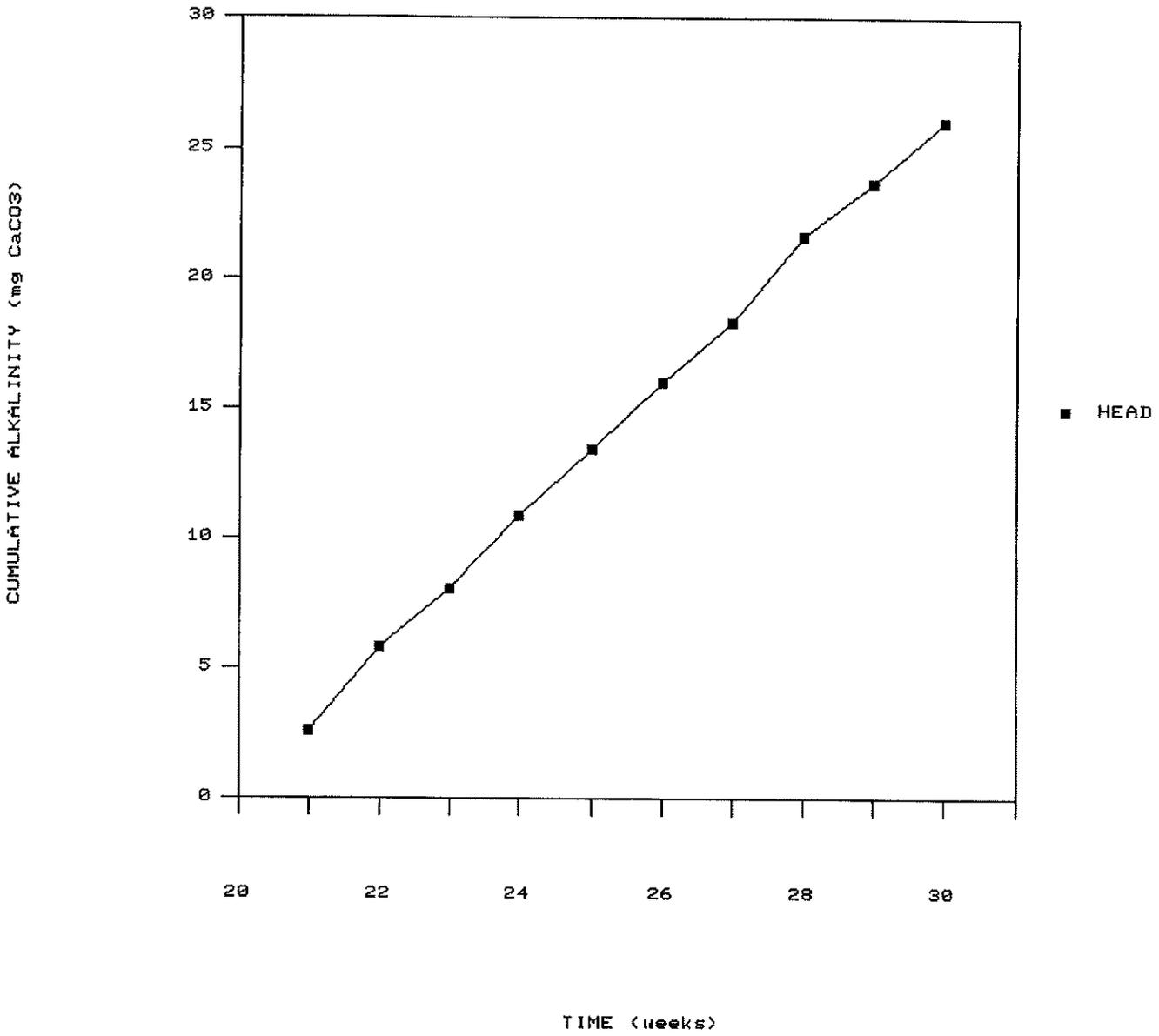
HUMIDITY CELL TESTS

Cumulative Sulfate from Samples



HUMIDITY CELL TESTS

Cumulative Alkalinity from Samples





CORE LABORATORIES

LABORATORY TESTS RESULTS 03/09/95

JOB NUMBER: 941802

CUSTOMER: HENDRICKS MINING CO, INC.

ATTN: THOMAS HENDRICKS

CLIENT I.D.....: CROSS GOLD MINE HCT
DATE SAMPLED.....: 10/10/94
TIME SAMPLED.....: 09:00
WORK DESCRIPTION...: HEAD

LABORATORY I.D....: 941802-0011
DATE RECEIVED....: 07/21/94
TIME RECEIVED....: 12:30
REMARKS.....: WK 10

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Arsenic, Diss. (As)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Cadmium, Diss. (Cd)	<0.005	0.005	mg/L	6010 (2)	03/06/95	GAG
Copper, Diss. (Cu)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Lead, Diss. (Pb)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Mercury, Diss. (Hg)	<0.002	0.002	mg/L	7470 (2)	03/03/95	BPB
Silver, Diss. (Ag)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Zinc, Diss. (Zn)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780



CORE LABORATORIES

LABORATORY TESTS RESULTS 03/09/95

JOB NUMBER: 941802

CUSTOMER: HENDRICKS MINING CO, INC.

ATTN: THOMAS HENDRICKS

CLIENT I.D.....: CROSS GOLD MINE HCT
DATE SAMPLED.....: 12/19/94
TIME SAMPLED.....: 09:00
WORK DESCRIPTION...: HEAD

LABORATORY I.D....: 941802-0021
DATE RECEIVED....: / /
TIME RECEIVED....: :
REMARKS.....: WK-20

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Arsenic, Diss. (As)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Cadmium, Diss. (Cd)	<0.005	0.005	mg/L	6010 (2)	03/06/95	GAG
Copper, Diss. (Cu)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Lead, Diss. (Pb)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Mercury, Diss. (Hg)	<0.002	0.002	mg/L	7470 (2)	03/03/95	BPB
Silver, Diss. (Ag)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Zinc, Diss. (Zn)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780



CORE LABORATORIES

LABORATORY TESTS RESULTS 03/09/95

JOB NUMBER: 941802

CUSTOMER: HENDRICKS MINING CO, INC.

ATTN: THOMAS HENDRICKS

CLIENT I.D.....: CROSS GOLD MINE HCT
DATE SAMPLED.....: 02/27/95
TIME SAMPLED.....: 09:00
WORK DESCRIPTION...: COMP. HEAD

LABORATORY I.D....: 941802-0031
DATE RECEIVED....: / /
TIME RECEIVED....: :
REMARKS.....: WK-30

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Arsenic, Diss. (As)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Cadmium, Diss. (Cd)	<0.005	0.005	mg/L	6010 (2)	03/06/95	GAG
Copper, Diss. (Cu)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Lead, Diss. (Pb)	<0.05	0.05	mg/L	6010 (2)	03/06/95	GAG
Mercury, Diss. (Hg)	<0.002	0.002	mg/L	7470 (2)	03/03/95	BPB
Silver, Diss. (Ag)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG
Zinc, Diss. (Zn)	<0.01	0.01	mg/L	6010 (2)	03/06/95	GAG

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 08/22/94 07:15 QC BATCH NUMBER: 305732
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: SLS

BLANK	MB	940822	<5							
STANDARD	LCS	G940805A	166			167	99			
DUPLICATE	MD	940765-274	<5	<5	NC					
DUPLICATE	MD	940765-283	22	21	1					
DUPLICATE	MD	940936-46	12	12	0					
DUPLICATE	MD	941802-3	17	17	0					
DUPLICATE	MD	940925-60	17	16	1					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 08/22/94 07:15 QC BATCH NUMBER: 305737
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: SLS

BLANK	MB	940822	<10							
DUPLICATE	MD	940765-274	406	408	0					
DUPLICATE	MD	940765-283	<10	<10	NC					
DUPLICATE	MD	940936-46	<10	<10	NC					
DUPLICATE	MD	941802-3	<10	<10	NC					
DUPLICATE	MD	940925-60	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 08/22/94 07:15 QC BATCH NUMBER: 305739
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: SLS

STANDARD	ICV	G940711C	4.06			4.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	7.05			7.00	101			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	7.06			7.00	101			
DUPLICATE	MD	940765-274	3.28	3.27	0					
DUPLICATE	MD	940765-283	7.62	7.50	2					
DUPLICATE	MD	940936-46	6.52	6.59	1					
DUPLICATE	MD	941802-3	6.74	6.75	0					
DUPLICATE	MD	940925-60	7.01	6.97	1					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 08/23/94 10:50 QC BATCH NUMBER: 305935
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	10.6			10.0	106			
STANDARD	ICV	0524F	2.06			2.00	103			
STANDARD	CCV	0714D	10.9			10.0	109			
STANDARD	ISA	0609A	185			200	92			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 08/23/94 10:50 QC BATCH NUMBER: 305935
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

STANDARD	CCV	0714D	10.5			10.0	105			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0714D	9.97			10.0	100			
STANDARD	ISA	0609A	178			200	89			
STANDARD	ISB	0710A	172			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
SPIKE	PDS	941974-002	1.99					0.07	2.00	96
DUPLICATE	MD	941974-001	0.09	0.08	0.01					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 08/26/94 12:00 QC BATCH NUMBER: 306137
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dc METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
BLANK	CCB	940825	<1							
STANDARD	ICV/LCS	941319	99			98	101			
STANDARD	CCV	G940711B	151			147	103			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	148			147	101			
STANDARD	CCV	G940711B	147			147	100			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	146			147	99			
STANDARD	CCV	G940711B	144			147	98			
DUPLICATE	MD	941113-32	2850	2850	0					
DUPLICATE	MD	940673-410	85	85	0					
DUPLICATE	MD	940673-420	26	26	0					
DUPLICATE	MD	940765-284	150	150	0					
DUPLICATE	MD	940765-294	670	670	0					
DUPLICATE	MD	940765-304	1310	1310	0					
DUPLICATE	MD	940925-65	35	35	0					
DUPLICATE	MD	941875-9	242	242	0					
DUPLICATE	MD	941875-19	233	231	1					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802

CUSTOMER: HENDRICKS MINING CO, INC.

ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES			
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	
PARAMETER: Sulfate (Filt.)				DATE/TIME ANALYZED: 08/25/94 12:48				QC BATCH NUMBER: 306204			
REPORTING LIMIT/DF: 10 UNITS: mg/L				METHOD REFERENCE : 300.0 (1)				TECHNICIAN: SLS			
BLANK	ICB	940825	<10								
BLANK	CCB	940825	<10								
BLANK	CCB	940825	<10								
BLANK	CCB	940825	<10								
BLANK	CCB	940825	<10								
BLANK	CCB	940825	<10								
STANDARD	ICV/LCS	G940415A	76			75	101				
STANDARD	CCV	S100	99			100	99				
STANDARD	CCV	S100	99			100	99				
STANDARD	CCV	S100	97			100	97				
STANDARD	CCV	S100	97			100	97				
STANDARD	CCV	S100	98			100	98				
SPIKE	MS	940765-277	47					22	25	100	
SPIKE	MS	940767-103	27					<10	25	108	
SPIKE	MS	940767-108	25					<10	25	100	
SPIKE	MS	940765-272	56					33	25	92	
SPIKE	MS	940765-273	42					19	25	92	
DUPLICATE	MD	940765-277	22	22	0						
DUPLICATE	MD	940767-103	<10	<10	NC						
DUPLICATE	MD	940767-108	<10	<10	NC						
DUPLICATE	MD	940765-272	33	33	0						
DUPLICATE	MD	940765-273	19	18	1						

PARAMETER: Iron, Diss. (Fe)				DATE/TIME ANALYZED: 08/31/94 12:37				QC BATCH NUMBER: 306639			
REPORTING LIMIT/DF: 0.03 UNITS: mg/L				METHOD REFERENCE : 6010 (2)				TECHNICIAN: GEF			
BLANK	ICB	0822N	<0.03								
BLANK	CCB	0822N	<0.03								
BLANK	CCB	0822N	<0.03								
BLANK	CCB	0822N	<0.03								
BLANK	CCB	0822N	<0.03								
BLANK	CCB	0822N	<0.03								
STANDARD	CCV	0714D	9.68			10.0	97				
STANDARD	ICV	0524F	2.04			2.00	102				
STANDARD	CCV	0714D	9.66			10.0	97				
STANDARD	ISA	0609A	179			200	90				
STANDARD	CCV	0714D	9.64			10.0	96				
STANDARD	ISB	0710A	169			200	84				
STANDARD	CCV	0714D	9.64			10.0	96				
STANDARD	ISA	0609A	173			200	86				
STANDARD	ISB	0710A	165			200	82				
STANDARD	CCV	0714D	9.47			10.0	95				
SPIKE	PDS	942139-012	1.98					0.03	2.00	98	
SPIKE	PDS	942139-022	1.98					<0.03	2.00	99	
SPIKE	PDS	942139-002	2.01					0.03	2.00	99	
SPIKE	PDS	941691-004	1.96					<0.03	2.00	98	

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 08/31/94 12:37 QC BATCH NUMBER: 306639
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

DUPLICATE	MD	942139-021	<0.03	<0.03	NC					
DUPLICATE	MD	941691-004	<0.03	<0.03	NC					
DUPLICATE	MD	942139-011	<0.03	<0.03	NC					
DUPLICATE	MD	942139-001	0.05	0.03	0.02					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 09/04/94 09:00 QC BATCH NUMBER: 306972
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	G940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
DUPLICATE	MD	940765-308	3.54	3.53	0					
DUPLICATE	MD	940767-120	7.83	7.82	0					
DUPLICATE	MD	940925-70	7.98	7.90	1					
DUPLICATE	MD	940936-56	3.24	3.25	0					
DUPLICATE	MD	941391-60	7.34	7.33	0					
DUPLICATE	MD	941875-20	8.96	8.97	0					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 09/04/94 09:00 QC BATCH NUMBER: 306973
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: KDS

BLANK	MB	940904	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940765-308	<5	<5	NC					
DUPLICATE	MD	940767-120	26	26	0					
DUPLICATE	MD	940925-70	20	19	1					
DUPLICATE	MD	940936-56	<5	<5	NC					
DUPLICATE	MD	941391-60	17	16	1					
DUPLICATE	MD	941875-20	62	61	2					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 09/04/94 09:00 QC BATCH NUMBER: 306975
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: KDS

BLANK	MB	940904	<10							
DUPLICATE	MD	940765-308	500	500	0					
DUPLICATE	MD	940767-120	<10	<10	NC					
DUPLICATE	MD	940925-70	<10	<10	NC					
DUPLICATE	MD	941391-60	<10	<10	NC					
DUPLICATE	MD	941875-20	<10	<10	NC					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 09/12/94 12:35 QC BATCH NUMBER: 307417
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	ICV	0524F	2.00			2.00	100			
STANDARD	CCV	0714D	9.83			10.0	98			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISA	0609A	167			200	84			
STANDARD	CCV	0714D	9.47			10.0	95			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ISA	0609A	184			200	92			
STANDARD	ISB	0710A	180			200	90			
STANDARD	CCV	0714D	9.32			10.0	93			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	ISB	0710A	180			200	90			
SPIKE	PDS	940495-042	2.40					0.55	2.00	92
SPIKE	PDS	941922-004	1.89					<0.03	2.00	94
SPIKE	PDS	941875-030	1.99					0.03	2.00	98
SPIKE	PDS	941391-064	1.51					<0.03	2.00	76
DUPLICATE	MD	941875-030	0.03	0.03	0.00					
DUPLICATE	MD	941391-064	<0.03	<0.03	NC					
DUPLICATE	MD	940495-042	0.55	0.52	6					
DUPLICATE	MD	941922-004	<0.03	<0.03	NC					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 09/12/94 06:30 QC BATCH NUMBER: 307487
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: SLS

BLANK	MB	940912	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-65	14	14	0					
DUPLICATE	MD	941391-64	6	6	0					
DUPLICATE	MD	940881-40	<5	<5	NC					
DUPLICATE	MD	940936-60	<5	<5	NC					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 09/12/94 06:30 QC BATCH NUMBER: 307488
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: SLS

BLANK	MB	940912	<10							
-------	----	--------	-----	--	--	--	--	--	--	--

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER:Acidity (Filt.) DATE/TIME ANALYZED:09/12/94 06:30 QC BATCH NUMBER:307488
 REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3 METHOD REFERENCE :305.1 (1) TECHNICIAN:SLS

DUPLICATE	MD	941391-65	<10	<10	NC					
DUPLICATE	MD	941391-64	<10	<10	NC					
DUPLICATE	MD	940881-40	79	79	0					
DUPLICATE	MD	940936-60	243	241	1					

PARAMETER:pH (Filt.) DATE/TIME ANALYZED:09/12/94 06:30 QC BATCH NUMBER:307489
 REPORTING LIMIT/DF: 0.01 UNITS:pH Units METHOD REFERENCE :150.1 (1) TECHNICIAN:SLS

STANDARD	ICV	6940711C	4.00			4.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	7.03			7.00	100			
STANDARD	CCV	S7.00	7.04			7.00	101			
DUPLICATE	MD	941391-65	7.20	7.19	0					
DUPLICATE	MD	941391-64	6.49	6.52	0					
DUPLICATE	MD	940881-40	4.76	4.79	1					
DUPLICATE	MD	940936-60	3.12	3.11	0					

PARAMETER:Sulfate (Filt.) DATE/TIME ANALYZED:09/12/94 08:28 QC BATCH NUMBER:307516
 REPORTING LIMIT/DF: 10 UNITS:mg/L METHOD REFERENCE :300.0 (1) TECHNICIAN:SLS

BLANK	ICB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
BLANK	CCB	940912	<10							
STANDARD	ICV/LCS	6940415A	73			75	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	98			100	98			
SPIKE	MS	940416-101	40					14	25	104
SPIKE	MS	940767-114	27					<10	25	108
SPIKE	MS	940925-65	27					<10	25	108
SPIKE	MS	941875-15	47					21	25	104
DUPLICATE	MD	940416-101	14	15	1					
DUPLICATE	MD	940767-114	<10	<10	NC					
DUPLICATE	MD	940925-65	<10	<10	NC					
DUPLICATE	MD	941875-15	21	22	1					

PARAMETER:Conductivity (Filt.) DATE/TIME ANALYZED:09/15/94 10:20 QC BATCH NUMBER:307844
 REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC METHOD REFERENCE :120.1 (1) TECHNICIAN:LM

BLANK	ICB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802

CUSTOMER: HENDRICKS MINING CO, INC.

ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 09/15/94 10:20 QC BATCH NUMBER: 307844
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE :120.1 (1) TECHNICIAN: LM

BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
BLANK	CCB	940915	<1							
STANDARD	ICV/LCS	940584	987			987	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1410			1410	100			
STANDARD	CCV	G940901A	1400			1410	99			
STANDARD	CCV	G940901A	1420			1410	101			
DUPLICATE	MD	940416-108	123	122	1					
DUPLICATE	MD	940767-124	65	65	0					
DUPLICATE	MD	941802-5	151	150	1					
DUPLICATE	MD	941875-27	104	104	0					
DUPLICATE	MD	942095-14	134	134	0					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 09/18/94 11:00 QC BATCH NUMBER: 308099
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE :150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	G940711C	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941391-70	7.23	7.16	1					
DUPLICATE	MD	941875-30	9.03	8.92	1					
DUPLICATE	MD	942074-30	7.32	7.34	0					
DUPLICATE	MD	942074-38	3.60	3.60	0					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 09/18/94 11:00 QC BATCH NUMBER: 308100
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE :310.1 (1) TECHNICIAN: KDS

BLANK	MB	940918	<5							
STANDARD	LCS	G940805A	163			167	98			
DUPLICATE	MD	941391-70	14	12	2					
DUPLICATE	MD	941875-30	59	59	0					
DUPLICATE	MD	942074-30	22	22	0					
DUPLICATE	MD	942074-38	<5	<5	NC					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 09/18/94 11:00 QC BATCH NUMBER: 308101
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE :305.1 (1) TECHNICIAN: KDS

BLANK	MB	940918	<10							
-------	----	--------	-----	--	--	--	--	--	--	--

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER:Acidity (Filt.) DATE/TIME ANALYZED:09/18/94 11:00 QC BATCH NUMBER:308101
 REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3 METHOD REFERENCE :305.1 (1) TECHNICIAN:KDS

DUPLICATE	MD	941391-70	<10	<10	NC					
DUPLICATE	MD	941875-30	<10	<10	NC					
DUPLICATE	MD	942074-30	25	24	1					
DUPLICATE	MD	942074-38	250	250	0					

PARAMETER:Sulfate (Filt.) DATE/TIME ANALYZED:09/19/94 08:30 QC BATCH NUMBER:308159
 REPORTING LIMIT/DF: 10 UNITS:mg/L METHOD REFERENCE :375.2 (1) TECHNICIAN:OME

BLANK	ICB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
BLANK	CCB	940919	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S160	162			160	101			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	159			160	99			
STANDARD	CCV	S160	158			160	99			
SPIKE	MS	941875-22	81					30	50	102
SPIKE	MS	942200-2	70					20	50	100
SPIKE	MS	942210-1	151					103	50	96
SPIKE	MS	940936-60	113					62	50	102
DUPLICATE	MD	941875-22	30	30	0					
DUPLICATE	MD	942200-2	20	20	0					
DUPLICATE	MD	942210-1	103	103	0					
DUPLICATE	MD	940936-60	62	66	6					

PARAMETER:Sulfate (Filt.) DATE/TIME ANALYZED:09/20/94 07:43 QC BATCH NUMBER:308394
 REPORTING LIMIT/DF: 10 UNITS:mg/L METHOD REFERENCE :300.0 (1) TECHNICIAN:SL5

BLANK	ICB	940920	<10							
BLANK	CCB	940920	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	103			100	103			
SPIKE	MS	941802-6	66					42	25	96
DUPLICATE	MD	941802-6	42	41	1					

PARAMETER:Iron, Diss. (Fe) DATE/TIME ANALYZED:09/21/94 09:54 QC BATCH NUMBER:308462
 REPORTING LIMIT/DF: 0.03 UNITS:mg/L METHOD REFERENCE :6010 (2) TECHNICIAN:WGL

BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 09/21/94 09:54 QC BATCH NUMBER: 308462
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0714D	9.87			10.0	99			
STANDARD	ICV	0914E	1.98			2.00	99			
STANDARD	CCV	0714D	9.62			10.0	96			
STANDARD	ISA	0609A	171			200	86			
STANDARD	CCV	0714D	9.98			10.0	100			
STANDARD	ISB	0710A	176			200	88			
STANDARD	CCV	0714D	9.80			10.0	98			
STANDARD	CCV	0714D	10.3			10.0	103			
STANDARD	CCV	0714D	9.46			10.0	95			
STANDARD	CCV	0714D	9.49			10.0	95			
STANDARD	ISA	0609A	180			200	90			
STANDARD	ISA	0609A	176			200	88			
STANDARD	ISB	0710A	178			200	89			
STANDARD	CCV	0714D	9.76			10.0	98			
STANDARD	ISB	0710A	181			200	90			
SPIKE	PDS	942332-011	2.02					<0.03	2.00	101
SPIKE	PDS	942332-001	2.10					<0.03	2.00	105
SPIKE	PDS	942332-021	2.26					<0.03	2.00	113
SPIKE	PDS	942332-031	2.41					0.07	2.00	117
SPIKE	PDS	942140-003	2.02					0.05	2.00	98
SPIKE	PDS	942332-041	2.01					<0.03	2.00	100
SPIKE	PDS	940925-081	2.11					<0.03	2.00	106
DUPLICATE	MD	942332-011	<0.03	<0.03	NC					
DUPLICATE	MD	942332-021	<0.03	<0.03	NC					
DUPLICATE	MD	942332-031	0.07	0.07	0.00					
DUPLICATE	MD	942140-003	0.05	0.03	0.02					
DUPLICATE	MD	942332-041	<0.03	<0.03	NC					
DUPLICATE	MD	940925-081	<0.03	<0.03	NC					
DUPLICATE	MD	942332-001	<0.03	<0.03	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 09/25/94 07:00 QC BATCH NUMBER: 308719
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	G940711C	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940925-85	6.98	7.20	3					
DUPLICATE	MD	942074-42	5.96	5.96	0					
DUPLICATE	MD	942074-50	6.72	6.73	0					
DUPLICATE	MD	942074-57	3.95	3.95	0					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 09/25/94 07:00 QC BATCH NUMBER: 308720
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: KDS

BLANK	MB	940925	<5							
STANDARD	LCS	G940805A	162			167	97			
DUPLICATE	MD	940925-85	17	17	0					
DUPLICATE	MD	942074-42	<5	<5	NC					
DUPLICATE	MD	942074-50	22	22	0					
DUPLICATE	MD	942074-57	<5	<5	NC					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 09/25/94 07:00 QC BATCH NUMBER: 308721
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: KDS

BLANK	MB	940925	<10							
DUPLICATE	MD	940925-85	<10	<10	NC					
DUPLICATE	MD	942074-42	31	31	0					
DUPLICATE	MD	942074-50	19	29	10					
DUPLICATE	MD	942074-57	320	302	6					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 09/23/94 15:15 QC BATCH NUMBER: 308752
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: LM

BLANK	ICB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
BLANK	CCB	940923	<1							
STANDARD	ICV/LCS	940584	985			987	100			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	146			147	99			
STANDARD	CCV	G940901B	145			147	99			
STANDARD	CCV	G940901B	145			147	99			
DUPLICATE	MD	940925-66	35	35	0					
DUPLICATE	MD	942074-41	1020	1010	1					
DUPLICATE	MD	942074-50	831	829	0					
DUPLICATE	MD	942074-57	1720	1710	1					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 09/27/94 08:00 QC BATCH NUMBER: 309042
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: RPK

BLANK	MB	940927	<5							
STANDARD	LCS	G940711C	163			167	98			
DUPLICATE	MD	940936-71	39	47	19					
DUPLICATE	MD	941802-8	16	18	2					
DUPLICATE	MD	942074-67	25	25	0					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 09/27/94 08:00 QC BATCH NUMBER: 309044
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: RPK

STANDARD	ICV	G940711C	3.99			4.00	100			
----------	-----	----------	------	--	--	------	-----	--	--	--

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 09/27/94 08:00 QC BATCH NUMBER: 309044
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: RPK

STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940936-71	4.36	4.30	1					
DUPLICATE	MD	941802-8	6.79	6.85	1					
DUPLICATE	MD	942074-67	6.99	7.29	4					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 09/27/94 08:00 QC BATCH NUMBER: 309047
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: RPK

BLANK	MB	940927	<10							
DUPLICATE	MD	940936-71	39	47	8					
DUPLICATE	MD	941802-8	<10	<10	NC					
DUPLICATE	MD	942074-67	<10	<10	NC					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 09/27/94 17:55 QC BATCH NUMBER: 309114
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
STANDARD	CCV	0831F	5.20			5.00	104			
STANDARD	ISB	0710A	182			200	91			
STANDARD	CCV	0831F	5.16			5.00	103			
STANDARD	CCV	0831F	5.11			5.00	102			
STANDARD	CCV	0831F	5.23			5.00	105			
STANDARD	ICV	0914E	1.86			2.00	93			
STANDARD	CCV	0831F	5.21			5.00	104			
STANDARD	CCV	0831F	5.14			5.00	103			
STANDARD	CCV	0831F	5.28			5.00	106			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISA	09260	203			200	101			
STANDARD	ISB	0710A	202			200	101			
SPIKE	PDS	941391-076	5.40					3.37	2.00	102
SPIKE	PDS	941113-037	2.38					<0.03	2.00	119
SPIKE	PDS	942074-046	2.04					<0.03	2.00	102
SPIKE	PDS	942074-054	2.31					<0.03	2.00	116
SPIKE	PDS	940936-067	7.10					5.09	2.00	100
DUPLICATE	MD	941802-008	<0.03	<0.03	NC					
DUPLICATE	MD	941113-035	<0.03	<0.03	NC					
DUPLICATE	MD	942074-045	<0.03	<0.03	NC					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802

CUSTOMER: HENDRICKS MINING CO, INC.

ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 09/27/94 17:55 QC BATCH NUMBER: 309114
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

DUPLICATE	MD	940936-066	0.03	<0.03	0.03					
DUPLICATE	MD	942074-053	<0.03	<0.03	NC					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 09/28/94 10:57 QC BATCH NUMBER: 309125
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 300.0 (1) TECHNICIAN: SLS

BLANK	ICB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
BLANK	CCB	940928	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	100			100	100			
STANDARD	CCV	S100	101			100	101			
SPIKE	MS	940936-61	25					<10	25	100
SPIKE	MS	942332-18	40					14	25	104
SPIKE	MS	942332-25	44					19	25	100
SPIKE	MS	942332-28	38					13	25	100
DUPLICATE	MD	940936-61	<10	<10	NC					
DUPLICATE	MD	942332-18	14	14	0					
DUPLICATE	MD	942332-25	19	19	0					
DUPLICATE	MD	942332-28	13	14	1					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 09/28/94 10:45 QC BATCH NUMBER: 309160
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: MLM

BLANK	ICB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
BLANK	CCB	940928	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 09/28/94 10:45 QC BATCH NUMBER: 309160
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: MLM

STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
STANDARD	CCV	G940926A	1420			1410	101			
DUPLICATE	MD	940925-90	40	40	0					
DUPLICATE	MD	940936-72	719	717	0					
DUPLICATE	MD	941391-78	512	510	0					
DUPLICATE	MD	941691-9	546	545	0					
DUPLICATE	MD	942074-58	918	919	0					
DUPLICATE	MD	942074-67	879	876	0					
DUPLICATE	MD	942074-76	663	660	0					
DUPLICATE	MD	942074-85	508	507	0					
DUPLICATE	MD	942074-95	599	597	0					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 09/29/94 08:00 QC BATCH NUMBER: 309251
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: RPK

BLANK	MB	940929	<5							
STANDARD	LCS	G940805A	160			167	96			
DUPLICATE	MD	941691-9	15	14	1					
DUPLICATE	MD	942074-79	20	24	4					
DUPLICATE	MD	942074-83	18	20	2					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 09/29/94 08:00 QC BATCH NUMBER: 309304
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: RPK

STANDARD	ICV	G940711C	4.01			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941691-9	6.76	6.56	3					
DUPLICATE	MD	942074-79	6.60	6.33	4					
DUPLICATE	MD	942074-83	6.57	6.77	3					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 09/29/94 08:00 QC BATCH NUMBER: 309314
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: RPK

BLANK	MB	940929	<10							
DUPLICATE	MD	941691-9	<10	<10	NC					
DUPLICATE	MD	942074-79	<10	<10	NC					
DUPLICATE	MD	942074-83	<10	<10	NC					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 10/03/94 07:54 QC BATCH NUMBER: 309563
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 300.0 (1) TECHNICIAN: SLS

BLANK	ICB	941003	<10							
-------	-----	--------	-----	--	--	--	--	--	--	--

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 10/03/94 07:54 QC BATCH NUMBER: 309563
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 300.0 (1) TECHNICIAN: SLS

BLANK	CCB	941003	<10							
STANDARD	ICV/LCS	G940415A	80			75	107			
STANDARD	CCV	S100	96			100	96			
SPIKE	MS	941802-9	53					29	25	96
DUPLICATE	MD	941802-9	29	29	0					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 10/06/94 14:50 QC BATCH NUMBER: 309882
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: MLM

BLANK	ICB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
BLANK	CCB	941006	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1410			1410	100			
STANDARD	CCV	G940926A	1400			1410	99			
STANDARD	CCV	G940926A	1400			1410	99			
DUPLICATE	MD	940925-100	34	34	0					
DUPLICATE	MD	941391-90	203	203	0					
DUPLICATE	MD	941875-48	98	98	0					
DUPLICATE	MD	942074-101	450	448	0					
DUPLICATE	MD	942074-110	490	489	0					
DUPLICATE	MD	942074-114	332	331	0					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 10/10/94 15:09 QC BATCH NUMBER: 310114
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	ICB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							
BLANK	CCB	0822N	<0.03							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802

CUSTOMER: HENDRICKS MINING CO, INC.

ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 10/10/94 15:09 QC BATCH NUMBER: 310114
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

STANDARD	ICV	0914E	1.81			2.00	90			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	ISA	09260	181			200	90			
STANDARD	CCV	0831F	4.95			5.00	99			
STANDARD	CCV	0831F	4.89			5.00	98			
STANDARD	CCV	0831F	5.01			5.00	100			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0831F	4.98			5.00	100			
STANDARD	CCV	0831F	5.05			5.00	101			
STANDARD	CCV	0831F	5.04			5.00	101			
STANDARD	CCV	0831F	4.96			5.00	99			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1004A	184			200	92			
STANDARD	CCV	0831F	4.97			5.00	99			
STANDARD	CCV	0831F	4.92			5.00	98			
SPIKE	PDS	941802-009	2.02					<0.03	2.00	101
SPIKE	PDS	941391-081	6.54					4.58	2.00	98
SPIKE	PDS	940936-073	2.09					<0.03	2.00	104
DUPLICATE	MD	941802-009	<0.03	<0.03	NC					
DUPLICATE	MD	941391-081	4.58	4.60	0					
DUPLICATE	MD	940936-073	<0.03	<0.03	NC					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 10/14/94 15:00 QC BATCH NUMBER: 310852
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: KDS

BLANK	MB	941014	<5							
STANDARD	LCS	G941007A	163			167	98			
DUPLICATE	MD	941875-46	13	12	1					
DUPLICATE	MD	941691-10	17	18	1					
DUPLICATE	MD	941802-10	21	22	1					
DUPLICATE	MD	941922-10	12	12	0					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 10/14/94 15:00 QC BATCH NUMBER: 310853
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.93			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941875-46	6.94	6.97	0					
DUPLICATE	MD	941691-10	7.18	7.20	0					
DUPLICATE	MD	941802-10	7.23	7.32	1					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 10/14/94 15:00 QC BATCH NUMBER: 310853
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

DUPLICATE	MD	941922-10	7.21	7.22	0					
-----------	----	-----------	------	------	---	--	--	--	--	--

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 10/14/94 15:00 QC BATCH NUMBER: 310854
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: KDS

BLANK	MB	941014	<10							
DUPLICATE	MD	941875-46	<10	<10	NC					
DUPLICATE	MD	941922-10	<10	<10	NC					
DUPLICATE	MD	941691-10	<10	<10	NC					
DUPLICATE	MD	941802-10	<10	<10	NC					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 10/14/94 08:00 QC BATCH NUMBER: 311082
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
BLANK	CCB	941014	<1							
STANDARD	ICV/LCS	G940926A	1420			1410	101			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	150			147	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	152			147	103			
STANDARD	CCV	G940926B	147			147	100			
DUPLICATE	MD	940416-13	58	58	0					
DUPLICATE	MD	940936-82	26	26	0					
DUPLICATE	MD	941875-51	22	21	5					
DUPLICATE	MD	942074-117	364	367	1					
DUPLICATE	MD	942074-127	399	399	0					
DUPLICATE	MD	942074-133	69	69	0					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 10/18/94 13:30 QC BATCH NUMBER: 311126
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	941018	<1							
BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 10/18/94 13:30 QC BATCH NUMBER: 311126
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	CCB	941018	<1							
BLANK	CCB	941018	<1							
STANDARD	ICV/LCS	G940926A	1440			1410	102			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	148			147	101			
STANDARD	CCV	G940926B	148			147	101			
DUPLICATE	MD	941875-58	93	93	0					
DUPLICATE	MD	942074-140	290	290	0					
DUPLICATE	MD	942074-150	324	324	0					
DUPLICATE	MD	942074-152	77	77	0					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 10/26/94 13:15 QC BATCH NUMBER: 312242
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: RPK

BLANK	MB	941026	<5							
STANDARD	LCS	G941007A	162			167	97			
DUPLICATE	MD	941802-12	14	15	1					
DUPLICATE	MD	940881-55	<5	<5	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 10/26/94 13:15 QC BATCH NUMBER: 312243
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: RPK

STANDARD	ICV	G941001A	3.96			4.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-12	7.19	7.42	3					
DUPLICATE	MD	940881-55	5.33	5.36	1					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 10/26/94 13:15 QC BATCH NUMBER: 312244
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: RPK

BLANK	MB	941026	<10							
DUPLICATE	MD	941802-12	<10	<10	NC					
DUPLICATE	MD	940881-55	46	44	2					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 10/27/94 15:30 QC BATCH NUMBER: 312298
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

BLANK	ICB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 10/27/94 15:30 QC BATCH NUMBER: 312298
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
BLANK	CCB	1021D	<0.03							
STANDARD	ISA	09260	174			200	87			
STANDARD	ISB	1004A	175			200	88			
STANDARD	CCV	0714D	9.72			10.0	97			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.42			10.0	94			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.16			10.0	92			
STANDARD	ICV	0405J	1.91			2.00	96			
STANDARD	CCV	0714D	9.36			10.0	94			
STANDARD	CCV	0714D	9.54			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	ISA	09260	174			200	87			
STANDARD	CCV	0714D	9.91			10.0	99			
STANDARD	CCV	0714D	9.71			10.0	97			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	169			200	84			
SPIKE	PDS	941802-011	1.10					<0.03	1.00	110
SPIKE	PDS	941391-092	3.37					1.27	2.00	105
SPIKE	PDS	941391-069	2.80					0.45	2.00	117
SPIKE	PDS	941875-053	2.16					<0.03	2.00	108
DUPLICATE	MD	941922-006	<0.03	<0.03	NC					
DUPLICATE	MD	941391-091	5.64	5.48	3					
DUPLICATE	MD	941875-052	<0.03	<0.03	NC					
DUPLICATE	MD	941802-011	<0.03	<0.03	NC					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 10/27/94 12:56 QC BATCH NUMBER: 312453
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 300.0 (1) TECHNICIAN: SLS

BLANK	ICB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
BLANK	CCB	941027	<10							
STANDARD	ICV/LCS	G940415A	75			75	100			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	99			100	99			
STANDARD	CCV	S100	100			100	100			
SPIKE	MS	940881-50	60					37	25	92
SPIKE	MS	941392-49	29					<10	25	116

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 10/27/94 12:56 QC BATCH NUMBER: 312453
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 300.0 (1) TECHNICIAN: SLS

SPIKE	MS	941875-48	49					24	25	100
SPIKE	MS	941875-50	41					16	25	100
SPIKE	MS	941875-49	30					11	25	76
DUPLICATE	MD	940881-50	37	39	2					
DUPLICATE	MD	941392-49	<10	<10	NC					
DUPLICATE	MD	941875-48	24	24	0					
DUPLICATE	MD	941875-50	16	16	0					
DUPLICATE	MD	941875-49	11	16	5					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 10/28/94 13:00 QC BATCH NUMBER: 312489
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: MLM

BLANK	ICB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
BLANK	CCB	941028	<1							
STANDARD	ICV/LCS	941319	98			98	100			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
DUPLICATE	MD	941391-103	438	436	0					
DUPLICATE	MD	941875-35	172	172	0					
DUPLICATE	MD	941875-64	152	151	1					
DUPLICATE	MD	942332-82	50	50	0					
DUPLICATE	MD	942332-91	72	72	0					
DUPLICATE	MD	942332-100	106	106	0					
DUPLICATE	MD	942332-109	1670	1660	1					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 10/31/94 13:00 QC BATCH NUMBER: 312590
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

BLANK	ICB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
BLANK	CCB	941031	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	81			80	101			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 11/01/94 12:38 QC BATCH NUMBER: 312767
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.53			10.0	95			
STANDARD	ISA	09260	175			200	88			
STANDARD	CCV	0714D	9.69			10.0	97			
STANDARD	ISB	09260	168			200	84			
STANDARD	CCV	0714D	9.82			10.0	98			
STANDARD	CCV	0714D	9.58			10.0	96			
STANDARD	CCV	0714D	9.70			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	ISB	1004A	178			200	89			
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	CCV	0714D	9.39			10.0	94			
STANDARD	CCV	0714D	9.40			10.0	94			
STANDARD	CCV	0714D	9.17			10.0	92			
STANDARD	CCV	0714D	9.84			10.0	98			
STANDARD	CCV	0714D	9.05			10.0	90			
STANDARD	ICV	0914E	1.96			2.00	98			
STANDARD	CCV	0714D	9.50			10.0	95			
STANDARD	ISA	09260	170			200	85			
STANDARD	ISB	1004A	169			200	84			
STANDARD	CCV	0714D	9.50			10.0	95			
SPIKE	PDS	942332-102	2.22					<0.03	2.00	111
SPIKE	PDS	942332-112	2.27					0.05	2.00	111
SPIKE	PDS	941691-011	2.02					<0.03	2.00	101
SPIKE	PDS	941922-013	2.13					<0.03	2.00	106
SPIKE	PDS	942332-081	2.45					<0.03	2.00	123
SPIKE	PDS	942332-122	2.18					<0.03	2.00	109
SPIKE	PDS	942332-132	2.20					<0.03	2.00	110
SPIKE	PDS	941875-032	2.09					<0.03	2.00	104
SPIKE	PDS	942332-092	2.18					<0.03	2.00	109
SPIKE	PDS	941391-107	4.59					2.71	2.00	94
DUPLICATE	MD	942332-111	<0.03	<0.03	NC					
DUPLICATE	MD	941691-011	<0.03	<0.03	NC					
DUPLICATE	MD	941922-013	<0.03	<0.03	NC					
DUPLICATE	MD	942332-101	<0.03	<0.03	NC					
DUPLICATE	MD	942332-121	0.11	0.11	0.00					
DUPLICATE	MD	942332-131	<0.03	<0.03	NC					
DUPLICATE	MD	942332-141	<0.03	<0.03	NC					
DUPLICATE	MD	942332-091	0.03	0.04	0.01					
DUPLICATE	MD	941875-031	0.10	0.10	0.00					
DUPLICATE	MD	941391-106	9.06	9.05	0					
DUPLICATE	MD	942332-081	<0.03	<0.03	NC					

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES			
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	
PARAMETER: Conductivity (Filt.)				DATE/TIME ANALYZED: 11/02/94 15:00				QC BATCH NUMBER: 312910			
REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC				METHOD REFERENCE : 120.1 (1)				TECHNICIAN: MLM			
BLANK	ICB	941102	<1								
BLANK	CCB	941102	<1								
BLANK	CCB	941102	<1								
BLANK	CCB	941102	<1								
STANDARD	ICV/LCS	941319	105			98	107				
STANDARD	CCV	G940926B	146			147	99				
STANDARD	CCV	G940926B	146			147	99				
STANDARD	CCV	G940926B	146			147	99				
DUPLICATE	MD	941875-69	145	144	1						
DUPLICATE	MD	942332-143	568	565	1						
DUPLICATE	MD	942332-150	408	407	0						

PARAMETER: Sulfate (Filt.)				DATE/TIME ANALYZED: 11/02/94 08:00				QC BATCH NUMBER: 312959			
REPORTING LIMIT/DF: 10 UNITS: mg/L				METHOD REFERENCE : 375.2 (1)				TECHNICIAN: DME			
BLANK	ICB	941102	<10								
BLANK	CCB	941102	<10								
BLANK	CCB	941102	<10								
BLANK	CCB	941102	<10								
BLANK	CCB	941102	<10								
BLANK	CCB	941102	<10								
STANDARD	ICV/LCS	G940415A	158			150	105				
STANDARD	CCV	S80	79			80	99				
STANDARD	CCV	S80	76			80	95				
STANDARD	CCV	S80	74			80	92				
STANDARD	CCV	S80	73			80	91				
STANDARD	CCV	S80	78			80	98				
SPIKE	MS	940881-53	97					46	50	102	
SPIKE	MS	940881-54	94					54	50	80	
SPIKE	MS	940881-56	86					40	50	92	
SPIKE	MS	941802-13	64					22	50	84	
SPIKE	MS	941922-10	131					88	50	86	
DUPLICATE	MD	940881-53	46	44	2						
DUPLICATE	MD	940881-54	54	60	11						
DUPLICATE	MD	940881-56	40	41	1						
DUPLICATE	MD	941802-13	22	22	0						
DUPLICATE	MD	941922-10	88	88	0						

PARAMETER: pH (Filt.)				DATE/TIME ANALYZED: 11/04/94 10:30				QC BATCH NUMBER: 313162			
REPORTING LIMIT/DF: 0.01 UNITS: pH Units				METHOD REFERENCE : 150.1 (1)				TECHNICIAN: MLM			
STANDARD	ICV	G941001A	3.98			4.00	100				
STANDARD	CCV	S7.00	7.01			7.00	100				
STANDARD	CCV	S7.00	7.01			7.00	100				
STANDARD	CCV	S7.00	7.02			7.00	100				
STANDARD	CCV	S7.00	7.02			7.00	100				

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES			
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	
PARAMETER:pH (Filt.) REPORTING LIMIT/DF: 0.01 UNITS:pH Units				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :150.1 (1)				QC BATCH NUMBER:313162 TECHNICIAN:MLM			
DUPLICATE	MD	942074-168	7.34	7.34	0						
DUPLICATE	MD	941802-14	7.36	7.30	1						
DUPLICATE	MD	941922-13	7.25	7.20	1						
PARAMETER:Alkalinity, Total (Filt.) REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :310.1 (1)				QC BATCH NUMBER:313163 TECHNICIAN:MLM			
BLANK	MB	941104	<5								
STANDARD	LCS	G941007A	153			167	92				
DUPLICATE	MD	942074-168	15	16	1						
DUPLICATE	MD	941802-14	17	17	0						
DUPLICATE	MD	941922-13	15	14	1						
PARAMETER:Acidity (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3				DATE/TIME ANALYZED:11/04/94 10:30 METHOD REFERENCE :305.1 (1)				QC BATCH NUMBER:313164 TECHNICIAN:KDS			
BLANK	MB	941104	<10								
DUPLICATE	MD	942074-168	<10	<10	NC						
DUPLICATE	MD	941802-14	<10	<10	NC						
DUPLICATE	MD	941922-13	<10	<10	NC						
PARAMETER:Sulfate (Filt.) REPORTING LIMIT/DF: 10 UNITS:mg/L				DATE/TIME ANALYZED:11/04/94 11:00 METHOD REFERENCE :375.2 (1)				QC BATCH NUMBER:313178 TECHNICIAN:DME			
BLANK	ICB	941104	<10								
BLANK	CCB	941104	<10								
BLANK	CCB	941104	<10								
BLANK	CCB	941104	<10								
BLANK	CCB	941104	<10								
BLANK	CCB	941104	<10								
BLANK	CCB	941104	<10								
BLANK	CCB	941104	<10								
STANDARD	ICV/LCS	G940415A	139			150	93				
STANDARD	CCV	S80	85			80	106				
STANDARD	CCV	S80	87			80	109				
STANDARD	CCV	S80	86			80	108				
STANDARD	CCV	S80	88			80	110				
STANDARD	CCV	S80	88			80	110				
STANDARD	CCV	S80	88			80	110				
STANDARD	CCV	S80	87			80	109				
STANDARD	CCV	S80	86			80	108				
SPIKE	MS	941922-13	173					121	50	104	
SPIKE	MS	942332-107	78					23	50	110	
SPIKE	MS	942332-108	79					29	50	100	
SPIKE	MS	942332-116	115					24	100	91	

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 11/04/94 11:00 QC BATCH NUMBER: 313178
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE: 375.2 (1) TECHNICIAN: DME

SPIKE	MS	942332-125	186					134	50	104
SPIKE	MS	942332-132	68					18	50	100
SPIKE	MS	941391-110	94					45	50	98
SPIKE	MS	941802-14	77					27	50	100
DUPLICATE	MD	941922-13	121	128	6					
DUPLICATE	MD	942332-107	23	27	4					
DUPLICATE	MD	942332-108	29	30	1					
DUPLICATE	MD	942332-116	23	24	1					
DUPLICATE	MD	942332-125	134	138	3					
DUPLICATE	MD	942332-132	18	17	1					
DUPLICATE	MD	941391-110	45	45	0					
DUPLICATE	MD	941802-14	29	27	2					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 11/08/94 08:00 QC BATCH NUMBER: 313374
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dc METHOD REFERENCE: 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
BLANK	CCB	941108	<1							
STANDARD	ICV/LCS	941319	107			99	108			
STANDARD	CCV	G940926B	147			147	100			
STANDARD	CCV	G940926B	146			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	145			147	99			
STANDARD	CCV	G940926B	144			147	98			
DUPLICATE	MD	941391-112	541	543	0					
DUPLICATE	MD	941875-71	21	21	0					
DUPLICATE	MD	942074-195	437	439	0					
DUPLICATE	MD	942074-205	273	273	0					
DUPLICATE	MD	942074-207	198	198	0					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 11/09/94 12:42 QC BATCH NUMBER: 313633
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE: 6010 (2) TECHNICIAN: GEF

BLANK	ICB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							
BLANK	CCB	10210	<0.03							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 11/09/94 12:42 QC BATCH NUMBER: 313633
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

BLANK	CCB	10210	<0.03							
STANDARD	CCV	0714D	9.65			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	0714D	9.63			10.0	96			
STANDARD	ISB	1004A	171			200	86			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	CCV	0714D	9.94			10.0	99			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	9.92			10.0	99			
STANDARD	ISA	09260	177			200	88			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1004A	179			200	90			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISB	1004A	169			200	84			
STANDARD	ICV	0914E	1.90			2.00	95			
SPIKE	PDS	940495-048	2.57					0.42	2.00	108
SPIKE	PDS	940881-046	2.09					0.04	2.00	102
SPIKE	PDS	942799-001	2.16					0.29	2.00	94
SPIKE	PDS	941875-074	2.13					0.22	2.00	96
SPIKE	PDS	941802-015	2.05					<0.03	2.00	102
DUPLICATE	MD	942658-001	0.70	0.68	3					
DUPLICATE	MD	940881-045	<0.03	<0.03	NC					
DUPLICATE	MD	941691-015	<0.03	<0.03	NC					
DUPLICATE	MD	941875-038	0.06	0.05	0.01					
DUPLICATE	MD	940495-046	1.28	1.29	1					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 11/09/94 11:00 QC BATCH NUMBER: 313681
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: MLM

BLANK	MB	941109	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941802-15	18	18	0					
DUPLICATE	MD	941875-75	29	29	0					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 11/09/94 11:00 QC BATCH NUMBER: 313682
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: MLM

BLANK	MB	941109	<10							
DUPLICATE	MD	941802-15	<10	<10	NC					
DUPLICATE	MD	941875-75	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 11/09/94 11:00 QC BATCH NUMBER: 313683
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: MLM

STANDARD	ICV	G941001A	3.99			4.00	100			
----------	-----	----------	------	--	--	------	-----	--	--	--

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES			
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	
PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:11/09/94 11:00				QC BATCH NUMBER:313683				
REPORTING LIMIT/DF: 0.01 UNITS:pH Units			METHOD REFERENCE :150.1 (1)				TECHNICIAN:MLM				

STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.96			7.00	99			
DUPLICATE	MD	941802-15	7.40	7.35	1					
DUPLICATE	MD	941875-75	8.41	8.52	1					

PARAMETER:Sulfate (Filt.) DATE/TIME ANALYZED:11/10/94 13:10 QC BATCH NUMBER:313760
 REPORTING LIMIT/DF: 10 UNITS:mg/L METHOD REFERENCE :375.2 (1) TECHNICIAN:DME

BLANK	ICB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
BLANK	CCB	941110	<10							
STANDARD	ICV/LCS	G940415A	144			150	96			
STANDARD	CCV	S80	87			80	109			
STANDARD	CCV	S80	85			80	106			
STANDARD	CCV	S80	80			80	100			
STANDARD	CCV	S80	88			80	110			
SPIKE	MS	940495-46	72					21	50	102
SPIKE	MS	940881-59	87					42	50	90
SPIKE	MS	940881-60	100					50	50	100
SPIKE	MS	941392-55	51					<10	50	102
DUPLICATE	MD	940495-46	21	22	1					
DUPLICATE	MD	940881-59	42	40	2					
DUPLICATE	MD	940881-60	50	51	1					
DUPLICATE	MD	941392-55	<10	<10	NC					

PARAMETER:Sulfate (Filt.) DATE/TIME ANALYZED:11/15/94 10:00 QC BATCH NUMBER:314157
 REPORTING LIMIT/DF: 10 UNITS:mg/L METHOD REFERENCE :375.2 (1) TECHNICIAN:DME

BLANK	ICB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
BLANK	CCB	941115	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S160	161			160	101			
STANDARD	CCV	S160	165			160	103			
STANDARD	CCV	S160	160			160	100			
STANDARD	CCV	S160	160			160	100			
SPIKE	MS	940416-117	84					36	50	96
SPIKE	MS	940416-118	80					35	50	90
SPIKE	MS	940416-120	76					30	50	92
SPIKE	MS	940881-62	82					36	50	92
DUPLICATE	MD	940416-117	36	38	2					
DUPLICATE	MD	940416-118	35	33	2					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 11/15/94 10:00 QC BATCH NUMBER: 314157
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

DUPLICATE	MD	940416-120	30	28	2					
DUPLICATE	MD	940881-62	36	36	0					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 11/16/94 08:00 QC BATCH NUMBER: 314222
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dc METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
BLANK	CCB	941116	<1							
STANDARD	ICV/LCS	941319	105			99	106			
STANDARD	CCV	G940926B	143			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	142			147	97			
STANDARD	CCV	G940926B	141			147	96			
DUPLICATE	MD	941802-16	74	73	1					
DUPLICATE	MD	942074-213	110	111	1					
DUPLICATE	MD	942074-223	586	585	0					
DUPLICATE	MD	942074-228	16	16	0					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 11/16/94 13:56 QC BATCH NUMBER: 314240
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	ICB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	ICV	0914E	2.01			2.00	100			
STANDARD	CCV	0714D	10.2			10.0	102			
STANDARD	ISA	09260	182			200	91			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	ISB	1004A	185			200	92			
STANDARD	CCV	0714D	10.0			10.0	100			
STANDARD	CCV	0714D	10.4			10.0	104			
STANDARD	ISA	09260	188			200	94			
STANDARD	ISB	1004A	188			200	94			
STANDARD	CCV	0714D	10.1			10.0	101			
STANDARD	CCV	0714D	10.2			10.0	102			
SPIKE	PDS	940416-117	2.12					<0.03	2.00	106
SPIKE	PDS	941391-116	17.9					15.9	2.00	100
SPIKE	PDS	941113-053	2.09					<0.03	2.00	104
DUPLICATE	MD	941391-116	15.9	15.9	0					
DUPLICATE	MD	941113-053	<0.03	<0.03	NC					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 11/16/94 13:56 QC BATCH NUMBER: 314240
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

DUPLICATE	MD	940416-117	<0.03	<0.03	NC					
-----------	----	------------	-------	-------	----	--	--	--	--	--

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 11/17/94 08:45 QC BATCH NUMBER: 314312
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: SLS

BLANK	MB	941117	<5							
STANDARD	LCS	G941007A	168			167	101			
DUPLICATE	MD	941875-80	28	27	4					
DUPLICATE	MD	941875-79	53	52	2					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 11/17/94 08:45 QC BATCH NUMBER: 314313
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: SLS

BLANK	MB	941117	<10							
DUPLICATE	MD	941875-80	<10	<10	NC					
DUPLICATE	MD	941875-79	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 11/17/94 08:45 QC BATCH NUMBER: 314315
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: SLS

STANDARD	ICV	G941001A	4.00			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
DUPLICATE	MD	941875-80	7.93	8.04	1					
DUPLICATE	MD	941875-79	9.37	9.32	1					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 11/22/94 08:00 QC BATCH NUMBER: 314689
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: RPK

BLANK	MB	941122	<5							
STANDARD	LCS	G941007A	169			167	101			
DUPLICATE	MD	941802-17	18	17	1					
DUPLICATE	MD	941922-16	12	13	1					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 11/22/94 08:00 QC BATCH NUMBER: 314692
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: RPK

STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.95			7.00	99			
DUPLICATE	MD	941802-17	7.78	7.67	1					
DUPLICATE	MD	941922-16	7.43	7.42	0					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 11/22/94 08:00 QC BATCH NUMBER: 314694
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: RPK

BLANK	MB	941122	<10							
-------	----	--------	-----	--	--	--	--	--	--	--

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER:Acidity (Filt.) DATE/TIME ANALYZED:11/22/94 08:00 QC BATCH NUMBER:314694
 REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3 METHOD REFERENCE :305.1 (1) TECHNICIAN:RPK

DUPLICATE	MD	941802-17	<10	<10	NC					
DUPLICATE	MD	941922-16	<10	<10	NC					

PARAMETER:Sulfate (Filt.) DATE/TIME ANALYZED:11/22/94 13:29 QC BATCH NUMBER:314788
 REPORTING LIMIT/DF: 10 UNITS:mg/L METHOD REFERENCE :300.0 (1) TECHNICIAN:SL5

BLANK	ICB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
BLANK	CCB	941122	<10							
STANDARD	ICV/LCS	G940415A	76			75	101			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	98			100	98			
STANDARD	CCV	S100	97			100	97			
STANDARD	CCV	S100	97			100	97			
SPIKE	MS	940881-64	63					37	25	104
SPIKE	MS	941391-125	47					23	25	96
SPIKE	MS	941802-17	35					11	25	96
SPIKE	MS	941875-81	25					<10	25	100
DUPLICATE	MD	940881-64	37	38	1					
DUPLICATE	MD	941391-125	23	23	0					
DUPLICATE	MD	941802-17	11	10	1					
DUPLICATE	MD	941875-81	<10	<10	NC					

PARAMETER:Conductivity (Filt.) DATE/TIME ANALYZED:11/22/94 15:50 QC BATCH NUMBER:314791
 REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dc METHOD REFERENCE :120.1 (1) TECHNICIAN:MLM

BLANK	ICB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
BLANK	CCB	941122	<1							
STANDARD	ICV/LCS	941319	103			98	105			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1390			1410	99			
DUPLICATE	MD	941391-125	87	86	1					
DUPLICATE	MD	942074-230	258	256	1					
DUPLICATE	MD	942074-238	352	351	0					
DUPLICATE	MD	942074-242	570	568	0					

PARAMETER:Iron, Diss. (Fe) DATE/TIME ANALYZED:11/23/94 09:18 QC BATCH NUMBER:314820
 REPORTING LIMIT/DF: 0.03 UNITS:mg/L METHOD REFERENCE :6010 (2) TECHNICIAN:WGL

BLANK	ICB	1115A	<0.03							
-------	-----	-------	-------	--	--	--	--	--	--	--

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 11/23/94 09:18 QC BATCH NUMBER: 314820
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	5.19			5.00	104			
STANDARD	ICV	0914E	2.07			2.00	103			
STANDARD	CCV	1114H	5.07			5.00	101			
STANDARD	ISA	09260	177			200	88			
STANDARD	CCV	1114H	4.95			5.00	99			
STANDARD	ISB	1004A	170			200	85			
STANDARD	CCV	1114H	4.91			5.00	98			
STANDARD	ISA	09260	173			200	86			
STANDARD	ISB	1004A	168			200	84			
STANDARD	CCV	1114H	4.95			5.00	99			
SPIKE	PDS	942074-240	2.14					<0.03	2.00	107
SPIKE	PDS	942892-001	1.94					0.06	2.00	94
SPIKE	PDS	941691-017	2.05					<0.03	2.00	102
SPIKE	PDS	942074-230	2.24					<0.03	2.00	112
DUPLICATE	MD	942074-240	<0.03	<0.03	NC					
DUPLICATE	MD	941691-017	<0.03	<0.03	NC					
DUPLICATE	MD	942074-230	<0.03	<0.03	NC					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 11/28/94 17:30 QC BATCH NUMBER: 314995
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: KDS

BLANK	ICB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
BLANK	CCB	941128	<1							
STANDARD	ICV/LCS	941319	104			98	106			
STANDARD	CCV	6941117A	1420			1410	101			
STANDARD	CCV	6941117A	1400			1410	99			
STANDARD	CCV	6941117A	1400			1410	99			
STANDARD	CCV	6941117A	1380			1410	98			
DUPLICATE	MD	941391-130	89	89	0					
DUPLICATE	MD	941875-90	68	69	1					
DUPLICATE	MD	942074-250	132	133	1					
DUPLICATE	MD	942074-260	275	276	0					
DUPLICATE	MD	942074-266	11	11	0					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 11/29/94 14:00 QC BATCH NUMBER: 315087
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	ICB	1115A	<0.03							
-------	-----	-------	-------	--	--	--	--	--	--	--

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802

CUSTOMER: HENDRICKS MINING CO, INC.

ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES			
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	
PARAMETER: Iron, Diss. (Fe)				DATE/TIME ANALYZED: 11/29/94 14:00				QC BATCH NUMBER: 315087			
REPORTING LIMIT/DF: 0.03 UNITS: mg/L				METHOD REFERENCE : 6010 (2)				TECHNICIAN: WGL			
BLANK	CCB	1115A	<0.03								
BLANK	CCB	1115A	<0.03								
BLANK	CCB	1115A	<0.03								
BLANK	CCB	1115A	<0.03								
BLANK	CCB	1115A	<0.03								
BLANK	CCB	1115A	<0.03								
BLANK	CCB	1115A	<0.03								
STANDARD	CCV	1114H	4.86			5.00	97				
STANDARD	ISB	1123J	176			200	88				
STANDARD	CCV	1114H	4.99			5.00	100				
STANDARD	CCV	1114H	5.01			5.00	100				
STANDARD	CCV	1114H	5.04			5.00	101				
STANDARD	ICV	0914E	1.93			2.00	96				
STANDARD	CCV	1114H	5.02			5.00	100				
STANDARD	CCV	1114H	5.10			5.00	102				
STANDARD	CCV	1114H	5.06			5.00	101				
STANDARD	ISA	09260	181			200	90				
STANDARD	ISA	09260	175			200	88				
STANDARD	ISB	1123J	168			200	84				
STANDARD	CCV	1114H	5.15			5.00	103				
SPIKE	PDS	941875-082	1.81					<0.03	2.00	90	
SPIKE	PDS	942977-003	2.48					0.96	2.00	76	
SPIKE	PDS	941391-127	4.26					2.62	2.00	82	
DUPLICATE	MD	941875-082	<0.03	<0.03	NC						
DUPLICATE	MD	942977-003	0.96	0.98	2						
DUPLICATE	MD	941391-127	2.62	2.60	1						

PARAMETER: Sulfate (Filt.)				DATE/TIME ANALYZED: 11/29/94 09:07				QC BATCH NUMBER: 315136			
REPORTING LIMIT/DF: 10 UNITS: mg/L				METHOD REFERENCE : 300.0 (1)				TECHNICIAN: SLS			
BLANK	ICB	941129	<10								
BLANK	CCB	941129	<10								
BLANK	CCB	941129	<10								
BLANK	CCB	941129	<10								
BLANK	CCB	941129	<10								
STANDARD	ICV/LCS	6940415A	75			75	100				
STANDARD	CCV	S100	99			100	99				
STANDARD	CCV	S100	98			100	98				
STANDARD	CCV	S100	102			100	102				
STANDARD	CCV	S100	97			100	97				
SPIKE	MS	942969-1	54					29	25	100	
SPIKE	MS	942969-2	72					48	25	96	
SPIKE	MS	940881-66	73					47	25	104	
SPIKE	MS	941875-90	29					<10	25	116	
DUPLICATE	MD	942969-1	29	29	0						

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 11/29/94 09:07 QC BATCH NUMBER: 315136
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 300.0 (1) TECHNICIAN: SLS

DUPLICATE	MD	942969-2	48	48	0					
DUPLICATE	MD	940881-66	47	47	0					
DUPLICATE	MD	941875-90	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 11/29/94 16:30 QC BATCH NUMBER: 315385
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	G941001A	3.95			4.00	99			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	940881-65	5.67	5.41	5					
DUPLICATE	MD	940881-66	4.99	5.03	1					
DUPLICATE	MD	941113-59	7.48	7.52	1					
DUPLICATE	MD	941922-17	7.38	7.41	0					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 11/29/94 16:30 QC BATCH NUMBER: 315387
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: KDS

BLANK	MB	941129	<5							
STANDARD	LCS	G941007A	167			167	100			
DUPLICATE	MD	940881-65	<5	<5	NC					
DUPLICATE	MD	940881-66	<5	<5	NC					
DUPLICATE	MD	941113-59	16	16	0					
DUPLICATE	MD	941922-17	14	13	1					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 11/29/94 16:30 QC BATCH NUMBER: 315388
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: KDS

BLANK	MB	941129	<10							
DUPLICATE	MD	940881-65	46	46	0					
DUPLICATE	MD	940881-66	44	44	0					
DUPLICATE	MD	941113-59	<10	<10	NC					
DUPLICATE	MD	941922-17	<10	<10	NC					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 12/05/94 14:15 QC BATCH NUMBER: 315647
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

BLANK	ICB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
BLANK	CCB	1104C	<0.03							
STANDARD	CCV	1017J	5.12			5.00	102			
STANDARD	ICV	1122D	1.91			2.00	96			
STANDARD	CCV	1017J	5.04			5.00	101			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES			
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	
PARAMETER: Iron, Diss. (Fe)			DATE/TIME ANALYZED: 12/05/94 14:15				QC BATCH NUMBER: 315647				
REPORTING LIMIT/DF: 0.03 UNITS: mg/L			METHOD REFERENCE : 6010 (2)				TECHNICIAN: GER				
STANDARD	ISA	09260	182			200	91				
STANDARD	ISA	09260	172			200	86				
STANDARD	ISB	1123J	163			200	82				
STANDARD	CCV	1017J	4.90			5.00	98				
STANDARD	ISB	1123J	177			200	88				
SPIKE	PDS	941802-012	1.96					<0.03	2.00	98	
DUPLICATE	MD	941802-012	<0.03	<0.03	NC						

PARAMETER: Sulfate (Filt.)			DATE/TIME ANALYZED: 12/08/94 11:18				QC BATCH NUMBER: 316012				
REPORTING LIMIT/DF: 10 UNITS: mg/L			METHOD REFERENCE : 300.0 (1)				TECHNICIAN: SLS				
BLANK	ICB	941208	<10								
BLANK	CCB	941208	<10								
BLANK	CCB	941208	<10								
BLANK	CCB	941208	<10								
BLANK	CCB	941208	<10								
STANDARD	ICV/LCS	G940415A	75			75	100				
STANDARD	CCV	S100	105			100	105				
STANDARD	CCV	S100	100			100	100				
STANDARD	CCV	S100	100			100	100				
STANDARD	CCV	S100	101			100	101				
SPIKE	MS	940881-68	71					45	25	104	
SPIKE	MS	941875-93	32					10	25	88	
SPIKE	MS	941875-95	28					<10	25	112	
SPIKE	MS	941875-94	27					<10	25	108	
DUPLICATE	MD	940881-68	45	46	1						
DUPLICATE	MD	941875-93	10	10	0						
DUPLICATE	MD	941875-95	<10	<10	NC						
DUPLICATE	MD	941875-94	<10	<10	NC						

PARAMETER: Alkalinity, Total (Filt.)			DATE/TIME ANALYZED: 12/09/94 09:15				QC BATCH NUMBER: 316091				
REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3			METHOD REFERENCE : 310.1 (1)				TECHNICIAN: SLS				
BLANK	MB	941209	<5								
STANDARD	LCS	G941027A	168			167	101				
DUPLICATE	MD	941113-61	19	19	0						
DUPLICATE	MD	941802-19	18	17	1						
DUPLICATE	MD	942332-156	27	28	4						
DUPLICATE	MD	942866-9	23	23	0						

PARAMETER: Acidity (Filt.)			DATE/TIME ANALYZED: 12/09/94 09:15				QC BATCH NUMBER: 316092				
REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3			METHOD REFERENCE : 305.1 (1)				TECHNICIAN: SLS				
BLANK	MB	941209	<10								
DUPLICATE	MD	941113-61	<10	<10	NC						
DUPLICATE	MD	941802-19	<10	<10	NC						

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 12/09/94 09:15 QC BATCH NUMBER: 316092
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: SLS

DUPLICATE	MD	942332-156	<10	<10	NC					
DUPLICATE	MD	942866-9	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 12/09/94 09:15 QC BATCH NUMBER: 316093
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: SLS

STANDARD	ICV	G941001A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	941113-61	7.14	7.24	1					
DUPLICATE	MD	941802-19	7.37	7.31	1					
DUPLICATE	MD	942332-156	7.62	7.71	1					
DUPLICATE	MD	942866-9	7.50	7.43	1					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 12/09/94 13:36 QC BATCH NUMBER: 316154
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	ICB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
BLANK	CCB	1115A	<0.03							
STANDARD	CCV	1114H	5.18			5.00	104			
STANDARD	CCV	1114H	5.12			5.00	102			
STANDARD	CCV	1114H	5.27			5.00	105			
STANDARD	ICV	0914E	1.80			2.00	90			
STANDARD	CCV	1114H	5.37			5.00	107			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	ISA	09260	169			200	84			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	4.86			5.00	97			
STANDARD	CCV	1114H	4.76			5.00	95			
STANDARD	CCV	1114H	4.80			5.00	96			
STANDARD	CCV	1114H	5.15			5.00	103			
STANDARD	ISA	09260	162			200	81			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES			
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	
PARAMETER: Iron, Diss. (Fe) REPORTING LIMIT/DF: 0.03 UNITS:mg/L				DATE/TIME ANALYZED:12/09/94 13:36 METHOD REFERENCE :6010 (2)				QC BATCH NUMBER:316154 TECHNICIAN:WGL			
STANDARD	ISB	1123J	164			200	82				
STANDARD	CCV	1114H	4.92			5.00	98				
STANDARD	ISB	1123J	166			200	83				
SPIKE	PDS	943101-001	2.32					0.28	2.00	102	
SPIKE	PDS	941802-019	2.50					0.42	2.00	104	
SPIKE	PDS	942953-001	1.14					0.03	1.00	111	
SPIKE	PDS	942866-010	1.90					<0.03	2.00	95	
SPIKE	PDS	943070-004	2.67					0.78	2.00	94	
SPIKE	PDS	942332-164	1.53					<0.03	2.00	76	
DUPLICATE	MD	942332-164	<0.03	<0.03	NC						
DUPLICATE	MD	943101-001	0.28	0.28	0						
DUPLICATE	MD	942866-010	<0.03	<0.03	NC						
DUPLICATE	MD	942953-001	0.03	<0.03	0.03						
DUPLICATE	MD	943070-004	0.78	0.79	1						

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED:12/13/94 09:00 QC BATCH NUMBER:316287
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC METHOD REFERENCE :120.1 (1) TECHNICIAN:SL5

BLANK	ICB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
BLANK	CCB	941213	<1							
STANDARD	ICV/LCS	941319	104			99	105			
STANDARD	CCV	S147	147			147	100			
STANDARD	CCV	S147	146			147	99			
STANDARD	CCV	S147	145			147	99			
STANDARD	CCV	S147	144			147	98			
DUPLICATE	MD	941691-19	238	236	1					
DUPLICATE	MD	942332-153	107	108	1					
DUPLICATE	MD	942332-163	59	58	2					
DUPLICATE	MD	942332-165	288	284	1					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED:12/15/94 14:29 QC BATCH NUMBER:316605
REPORTING LIMIT/DF: 0.03 UNITS:mg/L METHOD REFERENCE :6010 (2) TECHNICIAN:WGL

BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 12/15/94 14:29 QC BATCH NUMBER: 316605
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1114H	5.06			5.00	101			
STANDARD	ICV	0914E	1.91			2.00	96			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.12			5.00	102			
STANDARD	CCV	1114H	5.22			5.00	104			
STANDARD	ISA	09260	199			200	100			
STANDARD	CCV	1114H	5.22			5.00	104			
STANDARD	CCV	1114H	5.09			5.00	102			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	ISB	1123J	191			200	96			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1123J	185			200	92			
STANDARD	CCV	1114H	4.78			5.00	96			
STANDARD	CCV	1114H	5.04			5.00	101			
SPIKE	PDS	940495-049	2.84					0.90	2.00	97
SPIKE	PDS	942332-099	3.88					1.91	2.00	98
SPIKE	PDS	941875-096	2.29					0.46	2.00	92
DUPLICATE	MD	940495-049	0.90	0.89	1					
DUPLICATE	MD	941875-096	0.46	0.54	16					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 12/22/94 15:00 QC BATCH NUMBER: 317117
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: KDS

BLANK	MB	941222	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	940881-69	<5	<5	NC					
DUPLICATE	MD	940881-70	<5	<5	NC					
DUPLICATE	MD	941802-20	16	16	0					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 12/22/94 15:00 QC BATCH NUMBER: 317118
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: KDS

BLANK	MB	941222	<10							
DUPLICATE	MD	940881-69	39	42	3					
DUPLICATE	MD	940881-70	50	49	1					
DUPLICATE	MD	941802-20	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 12/22/94 15:00 QC BATCH NUMBER: 317119
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 12/22/94 15:00 QC BATCH NUMBER: 317119
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	940881-69	5.35	5.34	0					
DUPLICATE	MD	940881-70	4.94	4.89	1					
DUPLICATE	MD	941802-20	7.33	7.34	0					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 12/29/94 07:00 QC BATCH NUMBER: 317405
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: KDS

BLANK	MB	941229	<5			167	101			
STANDARD	LCS	G941027A	168							
DUPLICATE	MD	940881-72	<5	<5	NC					
DUPLICATE	MD	941113-65	19	18	1					
DUPLICATE	MD	941802-21	18	19	1					
DUPLICATE	MD	942866-28	13	13	0					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 12/29/94 07:00 QC BATCH NUMBER: 317406
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: KDS

BLANK	MB	941229	<10							
DUPLICATE	MD	940881-72	46	44	2					
DUPLICATE	MD	941113-65	<10	<10	NC					
DUPLICATE	MD	942866-22	<10	<10	NC					
DUPLICATE	MD	941802-21	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 12/29/94 07:00 QC BATCH NUMBER: 317407
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	G941219A	4.00			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	940881-72	4.80	4.78	0					
DUPLICATE	MD	941113-65	7.58	7.55	0					
DUPLICATE	MD	941802-21	7.55	7.59	1					
DUPLICATE	MD	942866-25	7.33	7.31	0					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 12/28/94 15:40 QC BATCH NUMBER: 317542
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: FK

BLANK	ICB	941228	<1							
BLANK	CCB	941228	<1							
BLANK	CCB	941228	<1							
BLANK	CCB	941228	<1							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802

CUSTOMER: HENDRICKS MINING CO, INC.

ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES			
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	
PARAMETER: Conductivity (Filt.)		DATE/TIME ANALYZED: 12/28/94 15:40				QC BATCH NUMBER: 317542					
REPORTING LIMIT/DF: 1		UNITS: umhos/cm @25dC				METHOD REFERENCE : 120.1 (1)		TECHNICIAN: FK			
BLANK	CCB	941228	<1								
STANDARD	ICV/LCS	941850	100			99	101				
STANDARD	CCV	G941117B	146			147	99				
STANDARD	CCV	G941117B	146			147	99				
STANDARD	CCV	G941117B	145			147	99				
STANDARD	CCV	G941117B	144			147	98				
DUPLICATE	MD	941391-141	471	469	0						
DUPLICATE	MD	941391-150	82	82	0						
DUPLICATE	MD	941691-21	336	336	0						
DUPLICATE	MD	941802-22	54	54	0						

PARAMETER: Sulfate (Filt.)		DATE/TIME ANALYZED: 12/30/94 15:26				QC BATCH NUMBER: 317573					
REPORTING LIMIT/DF: 10		UNITS: mg/L				METHOD REFERENCE : 300.0 (1)		TECHNICIAN: SLS			
BLANK	ICB	941230	<10								
BLANK	CCB	941230	<10								
BLANK	CCB	941230	<10								
BLANK	CCB	941230	<10								
BLANK	CCB	941230	<10								
STANDARD	ICV/LCS	G940415A	75			75	100				
STANDARD	CCV	S100	96			100	96				
STANDARD	CCV	S100	97			100	97				
STANDARD	CCV	S100	97			100	97				
STANDARD	CCV	S100	96			100	96				
SPIKE	MS	941875-101	24					<10	25	96	
SPIKE	MS	941875-105	26					<10	25	104	
SPIKE	MS	941875-104	27					<10	25	108	
SPIKE	MS	941875-103	36					14	25	88	
DUPLICATE	MD	941875-101	<10	<10	NC						
DUPLICATE	MD	941875-105	<10	<10	NC						
DUPLICATE	MD	941875-104	<10	<10	NC						
DUPLICATE	MD	941875-103	14	14	0						

PARAMETER: Iron, Diss. (Fe)		DATE/TIME ANALYZED: 12/30/94 13:01				QC BATCH NUMBER: 317616					
REPORTING LIMIT/DF: 0.03		UNITS: mg/L				METHOD REFERENCE : 6010 (2)		TECHNICIAN: GEF			
BLANK	ICB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								
BLANK	CCB	1212H	<0.03								

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 12/30/94 13:01 QC BATCH NUMBER: 317616
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

STANDARD	CCV	1117K	9.59			10.0	96			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	9.57			10.0	96			
STANDARD	CCV	1117K	9.75			10.0	98			
STANDARD	CCV	1117K	10.4			10.0	104			
STANDARD	ICV	0914E	1.99			2.00	100			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	9.75			10.0	98			
STANDARD	CCV	1117K	9.72			10.0	97			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	1117K	9.34			10.0	93			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISA	09260	172			200	86			
STANDARD	ISB	1123J	161			200	80			
STANDARD	CCV	1117K	10.7			10.0	107			
STANDARD	ISB	1123J	162			200	81			
SPIKE	PDS	943122-001	1.96					0.09	2.00	94
SPIKE	PDS	943233-002	1.85					0.09	2.00	88
SPIKE	PDS	941875-101	1.78					0.06	2.00	86
SPIKE	PDS	941113-067	1.96					<0.03	2.00	98
DUPLICATE	MD	943233-001	<0.03	<0.03	NC					
DUPLICATE	MD	941802-021	<0.03	<0.03	NC					
DUPLICATE	MD	943122-001	0.09	0.09	0.00					
DUPLICATE	MD	941113-065	<0.03	<0.03	NC					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 01/04/95 10:15 QC BATCH NUMBER: 317805
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: SLS

BLANK	MB	950104	<5							
STANDARD	LCS	G941027A	166			167	99			
DUPLICATE	MD	941802-22	15	15	0					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 01/04/95 10:15 QC BATCH NUMBER: 317806
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: SLS

BLANK	MB	950104	<10							
DUPLICATE	MD	941802-22	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 01/04/95 10:15 QC BATCH NUMBER: 317807
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: SLS

STANDARD	ICV	G941027A	3.99			4.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941802-22	6.97	7.08	2					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 01/04/95 09:00 QC BATCH NUMBER: 317854
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

BLANK	ICB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
BLANK	CCB	950104	<10							
STANDARD	ICV/LCS	G940415A	153			150	102			
STANDARD	CCV	S200	200			200	100			
STANDARD	CCV	S200	200			200	100			
STANDARD	CCV	S200	180			200	90			
STANDARD	CCV	S200	180			200	90			
STANDARD	CCV	S200	194			200	97			
STANDARD	CCV	S200	212			200	106			
STANDARD	CCV	S200	217			200	108			
SPIKE	MS	940416-121	73					24	50	98
SPIKE	MS	940881-69	82					34	50	96
SPIKE	MS	941691-21	173					118	50	110
SPIKE	MS	941802-21	68					15	50	106
SPIKE	MS	941113-67	142					93	50	98
SPIKE	MS	942866-17	56					<10	50	112
SPIKE	MS	941391-150	65					23	50	84
DUPLICATE	MD	940416-121	24	25	1					
DUPLICATE	MD	940881-69	34	35	1					
DUPLICATE	MD	941691-21	118	125	6					
DUPLICATE	MD	941802-21	15	14	1					
DUPLICATE	MD	941113-67	93	90	3					
DUPLICATE	MD	942866-17	<10	<10	NC					
DUPLICATE	MD	941391-150	23	21	2					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 01/04/95 15:48 QC BATCH NUMBER: 317897
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	ICV	0914E	1.96			2.00	98			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 01/04/95 15:48 QC BATCH NUMBER: 317897
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

STANDARD	CCV	1117K	9.87			10.0	99			
STANDARD	CCV	1117K	9.87			10.0	99			
STANDARD	ISA	09260	176			200	88			
STANDARD	CCV	1117K	9.56			10.0	96			
STANDARD	ISB	1123J	173			200	86			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	ISA	09260	183			200	92			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1117K	10.3			10.0	103			
STANDARD	CCV	1117K	10.2			10.0	102			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	CCV	1117K	10.4			10.0	104			
STANDARD	ISA	09260	178			200	89			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1117K	10.1			10.0	101			
SPIKE	PDS	943257-010	1.80					0.06	2.00	87
SPIKE	PDS	943251-003	1.83					<0.03	2.00	92
SPIKE	PDS	941802-023	2.09					<0.03	2.00	104
SPIKE	PDS	941875-107	2.06					<0.03	2.00	103
SPIKE	PDS	943243-001	1.84					0.03	2.00	90
SPIKE	PDS	941391-153	3.88					1.95	2.00	96
DUPLICATE	MD	943251-001	0.16	0.16	0					
DUPLICATE	MD	943257-005	0.07	0.07	0.00					
DUPLICATE	MD	943243-001	0.03	<0.03	0.03					
DUPLICATE	MD	941691-024	<0.03	<0.03	NC					
DUPLICATE	MD	943242-010	0.25	0.27	8					
DUPLICATE	MD	941922-022	<0.03	<0.03	NC					
DUPLICATE	MD	941391-153	1.95	1.95	0					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 01/06/95 12:54 QC BATCH NUMBER: 318126
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: DME

BLANK	ICB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
BLANK	CCB	950106	<1							
STANDARD	ICV/LCS	941849	1030			1000	103			
STANDARD	CCV	S147	154			147	105			
STANDARD	CCV	S147	149			147	101			
STANDARD	CCV	S147	150			147	102			
STANDARD	CCV	S147	148			147	101			
DUPLICATE	MD	940881-76	84	83	1					
DUPLICATE	MD	941875-111	14	14	0					
DUPLICATE	MD	942074-347	134	135	1					
DUPLICATE	MD	942074-357	126	126	0					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 01/06/95 12:54 QC BATCH NUMBER: 318126
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: DME

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 01/10/95 10:10 QC BATCH NUMBER: 318362
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: KDS

BLANK	MB	950110	<5							
STANDARD	LCS	6941027A	166			167	99			
DUPLICATE	MD	941875-113	12	11	1					
DUPLICATE	MD	942866-42	10	10	0					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 01/10/95 10:10 QC BATCH NUMBER: 318363
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: KDS

BLANK	MB	950110	<10							
DUPLICATE	MD	941875-113	<10	<10	NC					
DUPLICATE	MD	942866-42	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 01/10/95 10:10 QC BATCH NUMBER: 318364
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	6941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941875-113	7.24	7.29	1					
DUPLICATE	MD	942866-42	7.19	7.15	1					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 01/10/95 08:00 QC BATCH NUMBER: 318366
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
BLANK	CCB	950110	<1							
STANDARD	ICV/LCS	941849	1030			1000	103			
STANDARD	CCV	6941117B	150			147	102			
STANDARD	CCV	6941117B	149			147	101			
STANDARD	CCV	6941117B	148			147	101			
STANDARD	CCV	6941117B	148			147	101			
STANDARD	CCV	6941117B	148			147	101			
STANDARD	CCV	6941117B	146			147	99			
DUPLICATE	MD	941875-116	17	17	0					
DUPLICATE	MD	942074-366	146	147	1					
DUPLICATE	MD	942074-376	144	143	1					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 01/10/95 08:00 QC BATCH NUMBER: 318366
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

DUPLICATE	MD	942332-171	89	89	0					
DUPLICATE	MD	942866-43	850	850	0					
DUPLICATE	MD	943080-5	234	234	0					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 01/11/95 13:20 QC BATCH NUMBER: 318455
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	ICB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
BLANK	CCB	1212H	<0.03							
STANDARD	CCV	1114H	5.19			5.00	104			
STANDARD	ISB	1123J	193			200	96			
STANDARD	CCV	1114H	5.10			5.00	102			
STANDARD	CCV	1114H	5.07			5.00	101			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	167			200	84			
STANDARD	CCV	1114H	5.11			5.00	102			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.09			5.00	102			
STANDARD	CCV	1114H	5.13			5.00	103			
STANDARD	CCV	1114H	5.15			5.00	103			
STANDARD	CCV	1114H	5.03			5.00	101			
STANDARD	ICV	0914E	2.09			2.00	104			
STANDARD	CCV	1114H	5.02			5.00	100			
STANDARD	CCV	1114H	5.24			5.00	105			
STANDARD	ISA	09260	175			200	88			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	1114H	5.18			5.00	104			
STANDARD	ISA	09260	204			200	102			
SPIKE	PDS	942074-362	2.10					<0.03	2.00	105
SPIKE	PDS	950052-001	2.21					<0.03	2.00	110
SPIKE	PDS	941875-116	2.04					<0.03	2.00	102
SPIKE	PDS	941802-024	2.04					<0.03	2.00	102
SPIKE	PDS	941391-160	2.01					0.03	2.00	99
SPIKE	PDS	942332-170	1.91					<0.03	2.00	96
SPIKE	PDS	942074-371	2.00					<0.03	2.00	100

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 01/11/95 13:20 QC BATCH NUMBER: 318455
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

DUPLICATE	MD	941802-024	<0.03	<0.03	NC					
DUPLICATE	MD	941875-116	<0.03	<0.03	NC					
DUPLICATE	MD	941391-160	0.03	0.03	0.00					
DUPLICATE	MD	942074-362	<0.03	<0.03	NC					
DUPLICATE	MD	942332-170	<0.03	<0.03	NC					
DUPLICATE	MD	950052-001	<0.03	<0.03	NC					
DUPLICATE	MD	942074-371	<0.03	<0.03	NC					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 01/16/95 10:20 QC BATCH NUMBER: 318767
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 300.0 (1) TECHNICIAN: SLS

BLANK	ICB	950116	<10							
BLANK	CCB	950116	<10							
BLANK	CCB	950116	<10							
BLANK	CCB	950116	<10							
BLANK	CCB	950116	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	103			100	103			
STANDARD	CCV	S100	104			100	104			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	102			100	102			
SPIKE	MS	940881-77	71					45	25	104
SPIKE	MS	940881-78	60					35	25	100
SPIKE	MS	941802-24	36					13	25	92
SPIKE	MS	941875-116	24					<10	25	96
DUPLICATE	MD	940881-77	45	45	0					
DUPLICATE	MD	940881-78	35	35	0					
DUPLICATE	MD	941802-24	13	13	0					
DUPLICATE	MD	941875-116	<10	<10	NC					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 01/17/95 08:30 QC BATCH NUMBER: 318802
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: SLS

BLANK	ICB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
BLANK	CCB	950117	<1							
STANDARD	ICV/LCS	941850	104			99	105			
STANDARD	CCV	S147	149			147	101			
STANDARD	CCV	S147	146			147	99			
STANDARD	CCV	S147	145			147	99			
STANDARD	CCV	S147	144			147	98			
STANDARD	CCV	S147	143			147	97			
DUPLICATE	MD	942074-390	445	444	0					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 01/17/95 08:30 QC BATCH NUMBER: 318802
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: SLS

DUPLICATE	MD	941691-24	242	244	1					
DUPLICATE	MD	941391-165	90	90	0					
DUPLICATE	MD	942866-53	36	36	0					
DUPLICATE	MD	950020-7	20	22	10					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 01/17/95 07:35 QC BATCH NUMBER: 318897
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: KDS

BLANK STANDARD	MB	950117	<5							
	LCS	G941027A	168			167	101			
DUPLICATE	MD	941691-24	18	18	0					
DUPLICATE	MD	941802-24	14	16	2					
DUPLICATE	MD	941922-23	31	32	3					
DUPLICATE	MD	941875-116	10	10	0					
DUPLICATE	MD	941875-117	26	26	0					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 01/17/95 07:35 QC BATCH NUMBER: 318898
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
STANDARD	CCV	S7.00	7.02			7.00	100			
DUPLICATE	MD	941691-24	7.66	7.66	0					
DUPLICATE	MD	941802-24	7.43	7.48	1					
DUPLICATE	MD	941922-23	7.58	7.58	0					
DUPLICATE	MD	941875-116	6.94	6.90	1					
DUPLICATE	MD	941875-117	8.05	8.04	0					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 01/17/95 07:35 QC BATCH NUMBER: 318899
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: KDS

BLANK	MB	950117	<10							
DUPLICATE	MD	941691-24	<10	<10	NC					
DUPLICATE	MD	941802-24	<10	<10	NC					
DUPLICATE	MD	941922-23	<10	<10	NC					
DUPLICATE	MD	941875-116	<10	<10	NC					
DUPLICATE	MD	941875-117	<10	<10	NC					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 01/17/95 17:21 QC BATCH NUMBER: 318920
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

BLANK	ICB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 01/17/95 17:21 QC BATCH NUMBER: 318920
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
STANDARD	CCV	0112D	5.15			5.00	103			
STANDARD	ICV	1122D	1.91			2.00	96			
STANDARD	CCV	0112D	4.83			5.00	97			
STANDARD	CCV	0112D	5.07			5.00	101			
STANDARD	CCV	0112D	4.86			5.00	97			
STANDARD	ISA	09260	182			200	91			
STANDARD	CCV	0112D	4.89			5.00	98			
STANDARD	CCV	0112D	5.14			5.00	103			
STANDARD	CCV	0112D	5.23			5.00	105			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	0112D	5.33			5.00	107			
STANDARD	ISA	09260	185			200	92			
STANDARD	ISB	1123J	186			200	93			
STANDARD	CCV	0112D	5.34			5.00	107			
STANDARD	CCV	0112D	5.32			5.00	106			
SPIKE	PDS	943080-006	2.24					<0.03	2.00	112
SPIKE	PDS	941391-165	2.38					<0.03	2.00	119
DUPLICATE	MD	941391-164	<0.03	<0.03	NC					
DUPLICATE	MD	941691-025	<0.03	<0.03	NC					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 01/20/95 12:00 QC BATCH NUMBER: 319284
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: KDS

BLANK	MB	950120	<5							
STANDARD	LCS	6941027A	168			167	101			
DUPLICATE	MD	941391-165	10	11	1					
DUPLICATE	MD	943080-6	17	17	0					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 01/20/95 12:00 QC BATCH NUMBER: 319285
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: KDS

BLANK	MB	950120	<10							
DUPLICATE	MD	941391-165	<10	<10	NC					
DUPLICATE	MD	943080-6	<10	<10	NC					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES			
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	
PARAMETER: pH (Filt.)				DATE/TIME ANALYZED: 01/20/95 12:00				QC BATCH NUMBER: 319286			
REPORTING LIMIT/DF: 0.01 UNITS: pH Units				METHOD REFERENCE : 150.1 (1)				TECHNICIAN: KDS			
STANDARD	ICV	G941219A	3.98			4.00	100				
STANDARD	CCV	S7.00	7.01			7.00	100				
STANDARD	CCV	S7.00	7.01			7.00	100				
DUPLICATE	MD	941391-165	7.29	7.28	0						

PARAMETER: Sulfate (Filt.)				DATE/TIME ANALYZED: 01/23/95 09:34				QC BATCH NUMBER: 319524			
REPORTING LIMIT/DF: 10 UNITS: mg/L				METHOD REFERENCE : 300.0 (1)				TECHNICIAN: SLS			
BLANK	ICB	950123	<10								
BLANK	CCB	950123	<10								
BLANK	CCB	950123	<10								
BLANK	CCB	950123	<10								
STANDARD	ICV/LCS	G940415A	75			75	100				
STANDARD	CCV	S100	101			100	101				
STANDARD	CCV	S100	100			100	100				
STANDARD	CCV	S100	101			100	101				
SPIKE	MS	941802-25	29					<10	25	116	
SPIKE	MS	942332-171	39					16	25	92	
SPIKE	MS	942866-49	72					46	25	104	
DUPLICATE	MD	941802-25	<10	<10	NC						
DUPLICATE	MD	942332-171	16	16	0						
DUPLICATE	MD	942866-49	46	47	1						

PARAMETER: Iron, Diss. (Fe)				DATE/TIME ANALYZED: 01/24/95 00:20				QC BATCH NUMBER: 319726			
REPORTING LIMIT/DF: 0.03 UNITS: mg/L				METHOD REFERENCE : 6010 (2)				TECHNICIAN: GEF			
BLANK	ICB	0112C	<0.03								
BLANK	CCB	0112C	<0.03								
BLANK	CCB	0112C	<0.03								
BLANK	CCB	0112C	<0.03								
BLANK	CCB	0112C	<0.03								
BLANK	CCB	0112C	<0.03								
BLANK	CCB	0112C	<0.03								
STANDARD	ISB	1123J	168			200	84				
STANDARD	CCV	1117K	9.72			10.0	97				
STANDARD	ISA	09260	180			200	90				
STANDARD	CCV	1117K	9.42			10.0	94				
STANDARD	ISB	1123J	173			200	86				
STANDARD	CCV	1117K	9.71			10.0	97				
STANDARD	CCV	1117K	10.2			10.0	102				
STANDARD	CCV	1117K	9.64			10.0	96				
STANDARD	ICV	0914E	1.98			2.00	99				
STANDARD	ISA	09260	176			200	88				
STANDARD	ISB	1123J	168			200	84				
STANDARD	CCV	1117K	9.80			10.0	98				
STANDARD	ISA	09260	186			200	93				

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 01/24/95 00:20 QC BATCH NUMBER: 319726
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

SPIKE	PDS	941391-169	2.03					<0.03	2.00	101
SPIKE	PDS	941691-026	1.88					<0.03	2.00	94
DUPLICATE	MD	943080-007	<0.03	<0.03	NC					
DUPLICATE	MD	941802-026	<0.03	<0.03	NC					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 01/24/95 08:00 QC BATCH NUMBER: 319742
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	950124	<1							
BLANK	CCB	950124	<1							
BLANK	CCB	950124	<1							
STANDARD	ICV/LCS	G941850	102			99	103			
STANDARD	CCV	G941117B	145			147	99			
STANDARD	CCV	G941117B	146			147	99			
DUPLICATE	MD	941922-25	217	217	0					
DUPLICATE	MD	941922-2	28	29	4					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 01/25/95 11:50 QC BATCH NUMBER: 319754
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: SLS

BLANK	MB	950125	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941922-25	18	17	1					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 01/25/95 11:50 QC BATCH NUMBER: 319755
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: SLS

BLANK	MB	950125	<10							
DUPLICATE	MD	941922-25	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 01/25/95 11:50 QC BATCH NUMBER: 319756
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: SLS

STANDARD	ICV	G941219A	3.97			4.00	99			
STANDARD	CCV	S7.00	6.97			7.00	100			
DUPLICATE	MD	941922-25	7.44	7.36	1					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 01/25/95 14:30 QC BATCH NUMBER: 319776
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

BLANK	ICB	950125	<10							
BLANK	CCB	950125	<10							
BLANK	CCB	950125	<10							
BLANK	CCB	950125	<10							
STANDARD	ICV/LCS	G940415A	155			150	103			
STANDARD	CCV	S160	154			160	96			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 01/25/95 14:30 QC BATCH NUMBER: 319776
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

STANDARD	CCV	S160	144			160	90			
STANDARD	CCV	S160	154			160	96			
SPIKE	MS	941391-170	70					18	50	104
SPIKE	MS	942866-63	87					42	50	90
SPIKE	MS	950161-1	77					30	50	94
DUPLICATE	MD	941391-170	18	21	3					
DUPLICATE	MD	942866-63	42	41	1					
DUPLICATE	MD	950161-1	30	34	4					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 01/30/95 21:28 QC BATCH NUMBER: 320234
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

BLANK	ICB	12121	<0.03							
BLANK	CCB	12121	<0.03							
BLANK	CCB	12121	<0.03							
BLANK	CCB	12121	<0.03							
BLANK	CCB	12121	<0.03							
STANDARD	CCV	0111B	9.45			10.0	94			
STANDARD	ICV	1101U	1.97			2.00	98			
STANDARD	CCV	0111B	9.35			10.0	94			
STANDARD	ISA	09260	184			200	92			
STANDARD	CCV	0111B	9.53			10.0	95			
STANDARD	ISB	1123J	179			200	90			
STANDARD	CCV	0111B	9.60			10.0	96			
STANDARD	ISA	09260	181			200	90			
STANDARD	ISA	09260	180			200	90			
STANDARD	ISB	1123J	175			200	88			
STANDARD	CCV	0111B	9.48			10.0	95			
STANDARD	ISB	1123J	177			200	88			
SPIKE	PDS	941875-133	2.03					<0.03	2.00	101
SPIKE	PDS	950164-008	1.98					<0.03	2.00	99
SPIKE	PDS	950069-013	2.02					<0.03	2.00	101
SPIKE	PDS	941691-027	2.06					<0.03	2.00	103
DUPLICATE	MD	942866-064	9.18	9.25	1					
DUPLICATE	MD	950069-016	<0.03	<0.03	NC					
DUPLICATE	MD	950164-007	<0.03	<0.03	NC					
DUPLICATE	MD	941875-131	0.03	0.04	0.01					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 01/31/95 08:00 QC BATCH NUMBER: 320318
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	950131	<1							
BLANK	CCB	950131	<1							
BLANK	CCB	950131	<1							
BLANK	CCB	950131	<1							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 01/31/95 08:00 QC BATCH NUMBER: 320318
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	CCB	950131	<1							
STANDARD	ICV/LCS	941850	102			99	103			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1410			1410	100			
DUPLICATE	MD	941691-27	138	137	1					
DUPLICATE	MD	942866-70	105	105	0					
DUPLICATE	MD	950146-4	79	79	0					
DUPLICATE	MD	950146-6	69	69	0					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 01/31/95 08:45 QC BATCH NUMBER: 320323
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

BLANK	ICB	950131	<10							
BLANK	CCB	950131	<10							
BLANK	CCB	950131	<10							
BLANK	CCB	950131	<10							
STANDARD	ICV/LCS	G940415A	147			150	98			
STANDARD	CCV	S160	160			160	100			
STANDARD	CCV	S160	156			160	98			
STANDARD	CCV	S160	158			160	99			
SPIKE	MS	940881-84	84					34	50	100
SPIKE	MS	941922-26	121					74	50	94
SPIKE	MS	950164-7	78					29	50	98
DUPLICATE	MD	940881-84	34	34	0					
DUPLICATE	MD	941922-26	74	74	0					
DUPLICATE	MD	950164-7	29	29	0					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 01/31/95 08:00 QC BATCH NUMBER: 320342
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: RPK

BLANK	MB	950131	<5							
STANDARD	LCS	G941027A	168			167	101			
DUPLICATE	MD	941691-27	15	14	1					
DUPLICATE	MD	942866-70	11	11	0					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 01/31/95 08:00 QC BATCH NUMBER: 320345
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: RPK

STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	6.99			7.00	100			
STANDARD	CCV	S7.00	7.01			7.00	100			
DUPLICATE	MD	941691-27	7.18	7.45	4					
DUPLICATE	MD	942866-70	7.42	7.37	1					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER:Acidity (Filt.)			DATE/TIME ANALYZED:01/31/95 08:00			QC BATCH NUMBER:320346				
REPORTING LIMIT/DF: 10 UNITS:mg/L CaCO3			METHOD REFERENCE :305.1 (1)			TECHNICIAN:RPK				
BLANK	MB	950131	<10							
DUPLICATE	MD	941691-27	<10	<10	NC					
DUPLICATE	MD	942866-70	<10	<10	NC					

PARAMETER:Conductivity (Filt.)			DATE/TIME ANALYZED:02/07/95 08:00			QC BATCH NUMBER:320647				
REPORTING LIMIT/DF: 1 UNITS:umhos/cm @25dC			METHOD REFERENCE :120.1 (1)			TECHNICIAN:RPK				
BLANK	ICB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
BLANK	CCB	950207	<1							
STANDARD	ICV/LCS	941850	100			99	101			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
DUPLICATE	MD	941691-28	121	121	0					
DUPLICATE	MD	942866-77	102	102	0					
DUPLICATE	MD	950146-4	49	49	0					
DUPLICATE	MD	950146-14	602	602	0					
DUPLICATE	MD	950146-24	101	101	0					
DUPLICATE	MD	950146-34	157	157	0					
DUPLICATE	MD	950164-12	315	316	0					

PARAMETER:Alkalinity, Total (Filt.)			DATE/TIME ANALYZED:02/07/95 08:00			QC BATCH NUMBER:320696				
REPORTING LIMIT/DF: 5 UNITS:mg/L CaCO3			METHOD REFERENCE :310.1 (1)			TECHNICIAN:RPK				
BLANK	MB	950207	<5							
STANDARD	LCS	G951027A	165			167	99			
DUPLICATE	MD	941802-28	13	14	1					

PARAMETER:pH (Filt.)			DATE/TIME ANALYZED:02/07/95 08:00			QC BATCH NUMBER:320697				
REPORTING LIMIT/DF: 0.01 UNITS:pH Units			METHOD REFERENCE :150.1 (1)			TECHNICIAN:RPK				
STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941802-28	7.69	7.70	0					

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 02/07/95 08:00 QC BATCH NUMBER: 320698
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: RPK

BLANK DUPLICATE	MB MD	950207 941802-28	<10 <10	<10	NC					
-----------------	-------	---------------------	------------	-----	----	--	--	--	--	--

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 02/09/95 10:00 QC BATCH NUMBER: 320954
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

BLANK	ICB	950209	<10							
BLANK	CCB	950209	<10							
BLANK	CCB	950209	<10							
BLANK	CCB	950209	<10							
BLANK	CCB	950209	<10							
BLANK	CCB	950209	<10							
STANDARD	ICV/LCS	G940415A	146			150	97			
STANDARD	CCV	S160	165			160	103			
STANDARD	CCV	S160	171			160	107			
STANDARD	CCV	S160	164			160	102			
STANDARD	CCV	S160	159			160	99			
STANDARD	CCV	S160	163			160	102			
STANDARD	CCV	S160	161			160	101			
SPIKE	MS	950247-1	88					39	50	98
SPIKE	MS	950258-6	108					60	50	96
SPIKE	MS	950251-1	87					38	50	98
SPIKE	MS	942866-74	58					<10	50	116
SPIKE	MS	950164-10	87					34	50	106
SPIKE	MS	950164-12	168					114	50	108
DUPLICATE	MD	950164-12	114	119	4					
DUPLICATE	MD	950164-10	34	34	0					
DUPLICATE	MD	942866-74	<10	<10	NC					
DUPLICATE	MD	950258-6	60	59	2					
DUPLICATE	MD	950251-1	38	37	1					
DUPLICATE	MD	950247-1	39	40	1					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 02/14/95 11:36 QC BATCH NUMBER: 321263
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	ICB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 02/14/95 11:36 QC BATCH NUMBER: 321263
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE: 6010 (2) TECHNICIAN: WGL

STANDARD	ISA	0103A	197			200	98			
STANDARD	CCV	0112E	4.87			5.00	97			
STANDARD	ISB	0131A	187			200	94			
STANDARD	ISA	0103A	194			200	97			
STANDARD	ISB	0131A	179			200	90			
STANDARD	CCV	0112E	4.89			5.00	98			
STANDARD	CCV	0112E	4.82			5.00	96			
STANDARD	CCV	0112E	4.87			5.00	97			
STANDARD	ICV	0914E	2.06			2.00	103			
STANDARD	CCV	0112E	4.83			5.00	97			
STANDARD	ISA	0103A	193			200	96			
STANDARD	CCV	0112E	4.85			5.00	97			
STANDARD	ISB	0131A	180			200	90			
STANDARD	ISA	0103A	198			200	99			
STANDARD	ISB	0131A	195			200	98			
STANDARD	CCV	0112E	4.85			5.00	97			
STANDARD	CCV	0112E	5.04			5.00	101			
STANDARD	ISA	0103A	199			200	100			
STANDARD	ISB	0131A	200			200	100			
STANDARD	CCV	0112E	5.01			5.00	100			
SPIKE	PDS	950146-031	1.93					<0.03	2.00	96
SPIKE	PDS	941875-136	2.01					<0.03	2.00	100
SPIKE	PDS	941391-176	5.77					3.85	2.00	96
SPIKE	PDS	950146-043	1.96					<0.03	2.00	98
DUPLICATE	MD	941875-136	<0.03	<0.03	NC					
DUPLICATE	MD	950146-031	<0.03	<0.03	NC					
DUPLICATE	MD	950146-043	<0.03	<0.03	NC					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 02/14/95 08:00 QC BATCH NUMBER: 321271
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE: 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
BLANK	CCB	950214	<1							
STANDARD	ICV/LCS	941850	99			99	100			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1390			1410	99			
STANDARD	CCV	G941117A	1400			1410	99			
STANDARD	CCV	G941117A	1390			1410	99			
DUPLICATE	MD	941691-29	98	98	0					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 02/14/95 08:00 QC BATCH NUMBER: 321271
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE :120.1 (1) TECHNICIAN: RPK

DUPLICATE	MD	942332-183	94	94	0					
DUPLICATE	MD	942332-193	53	53	0					
DUPLICATE	MD	950069-24	17	17	0					
DUPLICATE	MD	950256-2	36	35	3					
DUPLICATE	MD	950287-1	12	12	0					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 02/14/95 11:05 QC BATCH NUMBER: 321315
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE :300.0 (1) TECHNICIAN: SLS

BLANK	ICB	950214	<10							
BLANK	CCB	950214	<10							
BLANK	CCB	950214	<10							
BLANK	CCB	950214	<10							
STANDARD	ICV/LCS	G940415A	74			75	99			
STANDARD	CCV	S100	101			100	101			
STANDARD	CCV	S100	102			100	102			
STANDARD	CCV	S100	102			100	102			
SPIKE	MS	941691-29	52					28	25	96
SPIKE	MS	941875-145	26					<10	25	104
SPIKE	MS	942332-191	51					28	25	92
DUPLICATE	MD	941691-29	28	28	0					
DUPLICATE	MD	941875-145	<10	<10	NC					
DUPLICATE	MD	942332-191	28	28	0					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 02/14/95 10:00 QC BATCH NUMBER: 321353
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE :310.1 (1) TECHNICIAN: KDS

BLANK	MB	950214	<5							
STANDARD	LCS	G950208B	167			167	100			
DUPLICATE	MD	941802-29	20	16	4					
DUPLICATE	MD	941922-28	18	18	0					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 02/14/95 10:00 QC BATCH NUMBER: 321354
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE :305.1 (1) TECHNICIAN: KDS

BLANK	MB	950214	<10							
DUPLICATE	MD	941802-29	<10	<10	NC					
DUPLICATE	MD	941922-28	<10	<10	NC					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 02/14/95 10:00 QC BATCH NUMBER: 321355
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE :150.1 (1) TECHNICIAN: KDS

STANDARD	ICV	G941219A	3.99			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 02/14/95 10:00 QC BATCH NUMBER: 321355
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: KDS

DUPLICATE	MD	941802-29	7.59	7.57	0					
DUPLICATE	MD	941922-28	7.69	7.69	0					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 02/17/95 10:40 QC BATCH NUMBER: 321584
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: WGL

BLANK	ICB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
STANDARD	CCV	0112E	5.12			5.00	102			
STANDARD	ICV	0914E	1.82			2.00	91			
STANDARD	CCV	0112E	5.06			5.00	101			
STANDARD	ISA	0103A	219			200	110			
STANDARD	ISB	0131A	202			200	101			
STANDARD	ISA	0103A	229			200	114			
STANDARD	ISB	0131A	220			200	110			
STANDARD	CCV	0112E	5.26			5.00	105			
SPIKE	PDS	950256-002	2.17					<0.03	2.00	108
DUPLICATE	MD	950256-002	<0.03	<0.03	NC					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 02/21/95 08:00 QC BATCH NUMBER: 321789
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	950221	<1							
BLANK	CCB	950221	<1							
BLANK	CCB	950221	<1							
BLANK	CCB	950221	<1							
BLANK	CCB	950221	<1							
STANDARD	ICV/LCS	941850	101			99	102			
STANDARD	CCV	950221	1410			1410	100			
STANDARD	CCV	950221	1410			1410	100			
STANDARD	CCV	950221	1400			1410	99			
STANDARD	CCV	950221	1400			1410	99			
DUPLICATE	MD	941391-190	85	85	0					
DUPLICATE	MD	942866-88	24	24	0					
DUPLICATE	MD	950146-82	56	56	0					
DUPLICATE	MD	950256-3	42	42	0					
DUPLICATE	MD	950287-1	12100	12100	0					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 02/21/95 09:00 QC BATCH NUMBER: 321799
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

BLANK	ICB	950221	<10							
BLANK	CCB	950221	<10							
BLANK	CCB	950221	<10							

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 02/21/95 09:00 QC BATCH NUMBER: 321799
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

BLANK	CCB	950221	<10							
STANDARD	ICV/LCS	G940415A	154			150	103			
STANDARD	CCV	S160	154			160	96			
STANDARD	CCV	S160	151			160	94			
STANDARD	CCV	S160	154			160	96			
SPIKE	MS	950379-2	58					12	50	92
SPIKE	MS	950379-3	59					13	50	92
SPIKE	MS	950069-25	101					58	50	86
DUPLICATE	MD	950379-2	12	12	0					
DUPLICATE	MD	950379-3	13	12	1					
DUPLICATE	MD	950069-25	58	57	2					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 02/21/95 08:00 QC BATCH NUMBER: 321818
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: RPK

BLANK	MB	950221	<5							
STANDARD	LCS	G941219A	166			167	99			
DUPLICATE	MD	941691-30	12	12	0					
DUPLICATE	MD	942866-91	10	10	0					
DUPLICATE	MD	950164-16	22	22	0					
DUPLICATE	MD	950256-3	11	10	1					

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 02/21/95 08:00 QC BATCH NUMBER: 321822
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: RPK

STANDARD	ICV	G941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
STANDARD	CCV	S7.00	7.00			7.00	100			
DUPLICATE	MD	941691-30	6.51	7.53	15					
DUPLICATE	MD	942866-91	7.00	7.02	0					
DUPLICATE	MD	950164-16	7.90	7.80	1					
DUPLICATE	MD	950256-3	7.06	6.99	1					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 02/21/95 08:00 QC BATCH NUMBER: 321823
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: RPK

BLANK	MB	950221	<10							
DUPLICATE	MD	941691-30	<10	<10	NC					
DUPLICATE	MD	942866-91	<10	<10	NC					
DUPLICATE	MD	950164-16	<10	<10	NC					
DUPLICATE	MD	950256-3	<10	<10	NC					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 02/21/95 14:11 QC BATCH NUMBER: 321871
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: LMT

BLANK	ICB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
BLANK	CCB	0112C	<0.03							
STANDARD	ISA	0103A	195			200	98			
STANDARD	ISB	0131A	195			200	98			
STANDARD	CCV	1117K	10.1			10.0	101			
STANDARD	ISB	0131A	191			200	96			
STANDARD	CCV	1117K	9.92			10.0	99			
STANDARD	CCV	1117K	9.92			10.0	99			
STANDARD	CCV	1117K	9.62			10.0	96			
STANDARD	CCV	1117K	10.0			10.0	100			
STANDARD	CCV	1117K	9.60			10.0	96			
STANDARD	CCV	1117K	9.52			10.0	95			
STANDARD	CCV	1117K	9.71			10.0	97			
STANDARD	ISA	0103A	195			200	98			
STANDARD	ISA	0103A	193			200	96			
STANDARD	ISB	0131A	201			200	100			
STANDARD	CCV	1117K	9.85			10.0	98			
STANDARD	ICV	0914E	1.92			2.00	96			
SPIKE	PDS	941691-030	2.32					<0.03	2.00	116
SPIKE	PDS	942866-088	2.02					0.04	2.00	99
SPIKE	PDS	950069-027	2.04					<0.03	2.00	102
SPIKE	PDS	942332-183	2.89					0.97	2.00	96
SPIKE	PDS	940881-086	1.99					<0.03	2.00	100
SPIKE	PDS	942332-194	1.86					<0.03	2.00	93
SPIKE	PDS	941391-182	10.2					7.77	2.00	121
DUPLICATE	MD	941691-030	<0.03	<0.03	NC					
DUPLICATE	MD	940881-085	<0.03	<0.03	NC					
DUPLICATE	MD	950069-025	<0.03	<0.03	NC					
DUPLICATE	MD	942866-085	8.15	8.03	1					
DUPLICATE	MD	942332-182	<0.03	<0.03	NC					
DUPLICATE	MD	942332-193	<0.03	<0.03	NC					
DUPLICATE	MD	941391-181	9.24	9.40	2					

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 02/28/95 08:00 QC BATCH NUMBER: 322269
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	ICB	950228	<1							
-------	-----	--------	----	--	--	--	--	--	--	--

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Conductivity (Filt.) DATE/TIME ANALYZED: 02/28/95 08:00 QC BATCH NUMBER: 322269
 REPORTING LIMIT/DF: 1 UNITS: umhos/cm @25dC METHOD REFERENCE : 120.1 (1) TECHNICIAN: RPK

BLANK	CCB	950228	<1							
BLANK	CCB	950228	<1							
BLANK	CCB	950228	<1							
STANDARD	ICV/LCS	951850	105			99	106			
STANDARD	CCV	G941117A	1420			1410	101			
STANDARD	CCV	G941117A	1410			1410	100			
STANDARD	CCV	G951117A	1400			1410	99			
DUPLICATE	MD	941391-192	520	520	0					
DUPLICATE	MD	941875-155	46	46	0					
DUPLICATE	MD	940142-7	85	86	1					

PARAMETER: Iron, Diss. (Fe) DATE/TIME ANALYZED: 02/28/95 23:55 QC BATCH NUMBER: 322374
 REPORTING LIMIT/DF: 0.03 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GEF

BLANK	ICB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0914H	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
BLANK	CCB	0112B	<0.03							
STANDARD	CCV	1215H	9.89			10.0	99			
STANDARD	CCV	1215H	9.24			10.0	92			
STANDARD	ICV	1122D	1.95			2.00	98			
STANDARD	ISA	0103A	191			200	96			
STANDARD	ISB	0131A	183			200	92			
STANDARD	CCV	1215H	9.34			10.0	93			
STANDARD	CCV	1215H	9.68			10.0	97			
STANDARD	CCV	1215H	9.22			10.0	92			
STANDARD	ISB	0131A	196			200	98			
STANDARD	ISA	0103A	187			200	94			
STANDARD	CCV	1215H	9.21			10.0	92			
STANDARD	CCV	1215H	9.32			10.0	93			
SPIKE	PDS	941802-031	1.98					<0.03	2.00	99
SPIKE	PDS	943080-012	2.04					0.05	2.00	100
DUPLICATE	MD	943080-012	0.05	0.05	0.00					
DUPLICATE	MD	941802-031	<0.03	<0.03	NC					

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 02/28/95 08:00 QC BATCH NUMBER: 322416
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: RPK

BLANK	MB	950228	<10							
DUPLICATE	MD	941691-31	<10	<10	NC					
DUPLICATE	MD	941875-153	<10	<10	NC					
DUPLICATE	MD	950256-4	<10	<10	NC					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Acidity (Filt.) DATE/TIME ANALYZED: 02/28/95 08:00 QC BATCH NUMBER: 322416
 REPORTING LIMIT/DF: 10 UNITS: mg/L CaCO3 METHOD REFERENCE : 305.1 (1) TECHNICIAN: RPK

DUPLICATE	MD	942866-98	<10	<10	NC					
-----------	----	-----------	-----	-----	----	--	--	--	--	--

PARAMETER: pH (Filt.) DATE/TIME ANALYZED: 02/28/95 08:00 QC BATCH NUMBER: 322417
 REPORTING LIMIT/DF: 0.01 UNITS: pH Units METHOD REFERENCE : 150.1 (1) TECHNICIAN: RPK

STANDARD	ICV	G941219A	3.98			4.00	100			
STANDARD	CCV	S7.00	6.97			7.00	100			
STANDARD	CCV	S7.00	6.98			7.00	100			
STANDARD	CCV	S7.00	6.96			7.00	99			
STANDARD	CCV	S7.00	6.98			7.00	100			
DUPLICATE	MD	941691-31	7.09	7.59	7					
DUPLICATE	MD	941875-153	7.39	7.33	1					
DUPLICATE	MD	942866-98	7.27	7.21	1					
DUPLICATE	MD	950256-4	6.81	6.85	1					

PARAMETER: Alkalinity, Total (Filt.) DATE/TIME ANALYZED: 02/28/95 08:00 QC BATCH NUMBER: 322422
 REPORTING LIMIT/DF: 5 UNITS: mg/L CaCO3 METHOD REFERENCE : 310.1 (1) TECHNICIAN: RPK

BLANK	MB	950228	<5			167	99			
STANDARD	LCS	G950208B	166							
DUPLICATE	MD	941691-31	15	14	1					
DUPLICATE	MD	941875-153	14	14	0					
DUPLICATE	MD	942866-98	11	12	1					
DUPLICATE	MD	950256-4	<5	<5	NC					

PARAMETER: Mercury, Diss. (Hg) DATE/TIME ANALYZED: 03/03/95 09:00 QC BATCH NUMBER: 322572
 REPORTING LIMIT/DF: 0.0002 UNITS: mg/L METHOD REFERENCE : 7470 (2) TECHNICIAN: BPP

BLANK	ICB	03035	<0.0002							
BLANK	CCB	03035	<0.0002							
BLANK	CCB	03035	<0.0002							
STANDARD	ICV	1121H	0.0040			0.0040	100			
STANDARD	CCV	1013P	0.0026			0.0025	104			
STANDARD	CCV	1013P	0.0027			0.0025	108			
SPIKE	MS	940881-092	0.0050					<0.0002	0.0050	100
DUPLICATE	MD	950881-091	<0.0002	<0.0002	NC					

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 03/02/95 10:00 QC BATCH NUMBER: 322673
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

BLANK	ICB	950302	<10							
BLANK	CCB	950302	<10							
BLANK	CCB	950302	<10							
STANDARD	ICV/LCS	G940415A	145			150	97			
STANDARD	CCV	S160	158			160	99			
STANDARD	CCV	S160	164			160	102			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Sulfate (Filt.) DATE/TIME ANALYZED: 03/02/95 10:00 QC BATCH NUMBER: 322673
 REPORTING LIMIT/DF: 10 UNITS: mg/L METHOD REFERENCE : 375.2 (1) TECHNICIAN: DME

SPIKE	MS	950423-3	156					104	50	104
SPIKE	MS	941391-194	113					66	50	94
DUPLICATE	MD	950423-3	104	108	4					
DUPLICATE	MD	941391-194	66	66	0					

PARAMETER: Silver, Diss. (Ag) DATE/TIME ANALYZED: 03/06/95 16:43 QC BATCH NUMBER: 322779
 REPORTING LIMIT/DF: 0.01 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

BLANK	ICB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
STANDARD	CCV	0302C	2.26			2.50	90			
STANDARD	ICV	0729L	1.93			2.00	96			
STANDARD	CCV	0302C	2.33			2.50	93			
STANDARD	ISB	0131A	0.87			1.00	87			
STANDARD	CCV	0302C	2.37			2.50	95			
STANDARD	CCV	0302C	2.45			2.50	98			
STANDARD	ISB	0131A	0.93			1.00	93			
STANDARD	CCV	0302C	2.47			2.50	99			
SPIKE	PDS	950400-001	0.79					<0.01	1.00	79
SPIKE	PDS	950459-003	0.84					<0.01	1.00	84
SPIKE	PDS	941802-021	0.83					<0.01	1.00	83
DUPLICATE	MD	950459-002	<0.01	<0.01	NC					
DUPLICATE	MD	950400-001	<0.01	<0.01	NC					
DUPLICATE	MD	941802-011	<0.01	<0.01	NC					

PARAMETER: Arsenic, Diss. (As) DATE/TIME ANALYZED: 03/06/95 16:43 QC BATCH NUMBER: 322781
 REPORTING LIMIT/DF: 0.05 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

BLANK	ICB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
STANDARD	CCV	0112E	2.50			2.50	100			
STANDARD	ICV	0302N	2.07			2.00	103			
STANDARD	CCV	0112E	2.54			2.50	102			
STANDARD	ISB	0131A	1.00			1.00	100			
STANDARD	CCV	0112E	2.62			2.50	105			
STANDARD	CCV	0112E	2.69			2.50	108			
STANDARD	ISB	0131A	1.06			1.00	106			
STANDARD	CCV	0112E	2.70			2.50	108			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Arsenic, Diss. (As) DATE/TIME ANALYZED: 03/06/95 16:43 QC BATCH NUMBER: 322781
 REPORTING LIMIT/DF: 0.05 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

SPIKE	PDS	950400-001	1.01					<0.05	1.00	101
SPIKE	PDS	950459-003	1.05					<0.05	1.00	105
SPIKE	PDS	941802-021	1.06					<0.05	1.00	106
DUPLICATE	MD	950459-002	<0.05	<0.05	NC					
DUPLICATE	MD	950400-001	<0.05	<0.05	NC					
DUPLICATE	MD	941802-011	<0.05	<0.05	NC					

PARAMETER: Cadmium, Diss. (Cd) DATE/TIME ANALYZED: 03/06/95 16:43 QC BATCH NUMBER: 322784
 REPORTING LIMIT/DF: 0.005 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

BLANK	ICB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
BLANK	CCB	0112C	<0.005							
STANDARD	CCV	0112E	0.926			1.00	93			
STANDARD	ICV	0302N	1.95			2.00	98			
STANDARD	CCV	0112E	0.934			1.00	93			
STANDARD	ISB	0131A	0.832			1.00	83			
STANDARD	CCV	0112E	0.972			1.00	97			
STANDARD	CCV	0112E	0.991			1.00	99			
STANDARD	ISB	0131A	0.873			1.00	87			
STANDARD	CCV	0112E	0.990			1.00	99			
SPIKE	PDS	950400-001	0.851					<0.005	1.00	85
SPIKE	PDS	950459-003	0.883					<0.005	1.00	88
SPIKE	PDS	941802-021	0.908					<0.005	1.00	91
DUPLICATE	MD	950459-002	<0.005	<0.005	NC					
DUPLICATE	MD	950400-001	<0.005	<0.005	NC					
DUPLICATE	MD	941802-011	<0.005	<0.005	NC					

PARAMETER: Copper, Diss. (Cu) DATE/TIME ANALYZED: 03/06/95 16:43 QC BATCH NUMBER: 322786
 REPORTING LIMIT/DF: 0.01 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

BLANK	ICB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
STANDARD	CCV	0112E	2.55			2.50	102			
STANDARD	ICV	0302N	2.08			2.00	104			
STANDARD	CCV	0112E	2.62			2.50	105			
STANDARD	ISB	0131A	0.50			0.50	100			
STANDARD	CCV	0112E	2.68			2.50	107			
STANDARD	CCV	0112E	2.64			2.50	106			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgment of Core Laboratories. Core Laboratories, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitability of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS-MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Copper, Diss. (Cu) DATE/TIME ANALYZED: 03/06/95 16:43 QC BATCH NUMBER: 322786
 REPORTING LIMIT/DF: 0.01 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

STANDARD	ISB	0131A	0.52			0.50	104			
STANDARD	CCV	0112E	2.65			2.50	106			
SPIKE	PDS	950400-001	0.97					<0.01	1.00	97
SPIKE	PDS	950459-003	1.07					0.03	1.00	104
SPIKE	PDS	941802-021	0.98					<0.01	1.00	98
DUPLICATE	MD	950459-002	0.02	0.02	0.00					
DUPLICATE	MD	950400-001	<0.01	<0.01	NC					
DUPLICATE	MD	941802-011	<0.01	<0.01	NC					

PARAMETER: Lead, Diss. (Pb) DATE/TIME ANALYZED: 03/06/95 16:43 QC BATCH NUMBER: 322792
 REPORTING LIMIT/DF: 0.05 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

BLANK	ICB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
BLANK	CCB	0112C	<0.05							
STANDARD	CCV	0112E	0.92			1.00	92			
STANDARD	ICV	0302N	1.90			2.00	95			
STANDARD	CCV	0112E	0.93			1.00	93			
STANDARD	ISB	0131A	0.81			1.00	81			
STANDARD	CCV	0112E	0.96			1.00	96			
STANDARD	CCV	0112E	0.98			1.00	98			
STANDARD	ISB	0131A	0.87			1.00	87			
STANDARD	CCV	0112E	0.98			1.00	98			
SPIKE	PDS	950400-001	0.88					<0.05	1.00	88
SPIKE	PDS	950459-003	0.90					<0.05	1.00	90
SPIKE	PDS	941802-021	0.92					<0.05	1.00	92
DUPLICATE	MD	950459-002	<0.05	<0.05	NC					
DUPLICATE	MD	950400-001	<0.05	<0.05	NC					
DUPLICATE	MD	941802-011	<0.05	<0.05	NC					

PARAMETER: Zinc, Diss. (Zn) DATE/TIME ANALYZED: 03/06/95 16:43 QC BATCH NUMBER: 322794
 REPORTING LIMIT/DF: 0.01 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

BLANK	ICB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
BLANK	CCB	0112C	<0.01							
STANDARD	CCV	0112E	2.56			2.50	102			
STANDARD	ICV	0302N	2.13			2.00	106			
STANDARD	CCV	0112E	2.59			2.50	104			
STANDARD	ISB	0131A	1.01			1.00	101			

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



CORE LABORATORIES

QUALITY CONTROL REPORT 03/09/95

JOB NUMBER: 941802 CUSTOMER: HENDRICKS MINING CO, INC. ATTN: THOMAS HENDRICKS

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY

PARAMETER: Zinc, Diss. (Zn) DATE/TIME ANALYZED: 03/06/95 16:43 QC BATCH NUMBER: 322794
 REPORTING LIMIT/DF: 0.01 UNITS: mg/L METHOD REFERENCE : 6010 (2) TECHNICIAN: GAG

STANDARD	CCV	0112E	2.71			2.50	108			
STANDARD	CCV	0112E	2.64			2.50	106			
STANDARD	ISB	0131A	1.03			1.00	103			
STANDARD	CCV	0112E	2.63			2.50	105			
SPIKE	PDS	950400-001	1.01					<0.01	1.00	101
SPIKE	PDS	950459-003	1.07					<0.01	1.00	107
SPIKE	PDS	941802-021	1.02					<0.01	1.00	102
DUPLICATE	MD	950459-002	<0.01	<0.01	NC					
DUPLICATE	MD	950400-001	<0.01	<0.01	NC					
DUPLICATE	MD	941802-011	<0.01	<0.01	NC					

10703 East Bethany Drive
 Aurora, CO 80014
 (303) 751-1780



QUALITY CONTROL FOOTER

METHOD REFERENCES

- (1) EPA 600/4-79-020, Methods For Chemical Analysis Of Water And Wastes, March 1983
(2) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, November 1986
(3) Standard Methods For The Examination Of Water And Wastewater, 17th Edition, 1989
(4) EPA 600/4-80-032, Prescribed Procedures For Measurement Of Radioactivity In Drinking Water, August 1980
(5) EPA 600/8-78-017, Microbiological Methods For Monitoring The Environment, December 1978
(6) Federal Register, July 1, 1990 (40 CFR Part 136)
(7) EPA 600/4-88-039, Methods For The Determination Of Organics Compounds In Drinking Water, December 1988
(8) U.S.G.S. Methods For The Determination Of Inorganic Substances In Water And Fluvial Sediments, Book 5, Chapter A1, 1985
(9) Federal Register, Friday, June 7, 1991, (40 CFR Parts 141 and 142)
(10) Standard Methods For The Examination Of Water And Wastewater, 16th Edition, 1985
(11) ASTM, Section 11 Water And Environmental Technology, Volume 11.01 Water (1), 1991
(12) Methods Of Soil Analysis, American Society Of Agronomy, Agronomy No. 9, 1965
(13) EPA SW-846, Test Methods For Evaluating Solid Waste, Third Edition, Revision 1, November 1990
(14) ASTM, Section 5, Petroleum Products, Lubricants, and Fossil Fuels, Volume 05.05, Gaseous Fuels, Coal and Coke
(15) EPA 600/2-78-054, Field and Laboratory Methods Applicable To Overburdens and Mine Soils, March 1978
(16) ASTM, Part 19, Soils and Rock; Building Stones, 1981

Comments: Data in QA report may differ from final results due to digestion and/or dilution of sample into analytical ranges. The "Time Analyzed" in the QA report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "Date Analyzed" is the actual date of analysis. Results for soil and sludge samples are reported on a wet weight basis (i.e. not corrected for percent moisture) unless otherwise indicated. NC = Not Calculable Due To Value(s) Lower Than The Detection Limit.

Blank QC Sample Identification

- MB Method Blank
ICB Initial Calibration Blank
CCB Continuing Calibration Blank

Reference Standard QC Sample Identification

- LCS Laboratory Control Standard
RS Reference Standard
ICV Initial Calibration Verification Standard
CCV Continuing Calibration Verification Standard
ISA/ISB ICP Interference Check Samples

Spike QC Sample Identification

- MS Method (Matrix) Spike
MSD Method (Matrix) Spike Duplicate
PDS Post Digestion Spike
SB Spiked Blank
SBD Spiked Blank Duplicate

Duplicate QC Sample Identification

- MD Method (Matrix) Duplicate
ED Extraction Duplicate
DD Digestion Duplicate

Analyses performed by a subcontract laboratory are indicated on the analytical and/or quality control reports under "Technician" using the following codes:

Table with 4 columns: Subcontract Laboratory, Code, Subcontract Laboratory, Code. Rows include Core Laboratories - Anaheim, CA (AN), Core Laboratories - Lake Charles, LA (LC), Core Laboratories - Casper, WY (CA), Core Laboratories - Long Beach, CA (LB), Core Laboratories - Corpus Christi, TX (CC), Other Subcontract Laboratories (XX), and Core Laboratories - Houston, TX (HP).

10703 East Bethany Drive
Aurora, CO 80014
(303) 751-1780

Attachment III

2012 Email from Boulder County

Re: Retaining Buildings

From: hlhumphries2@comcast.net
Sent: Tuesday, March 06, 2012 3:00 PM
To: Cunningham, Michael; Young, Dave
Subject: Fwd: Request for letter of approval

H B Humphries

From: "Kimberly Sanchez" <ksanchez@bouldercounty.org>
To: hlhumphries2@comcast.net
Cc: "Dave Young" <DYoung1619@aol.com>, "Denise Grimm" <dgrimm@bouldercounty.org>
Sent: Tuesday, March 6, 2012 2:41:07 PM
Subject: RE: Request for letter of approval

Dear Mr. Humphries and Mr. Young,
Denise Grimm (Senior Planner / Historic Preservation planner) and I reviewed your list, and we support retention of the structures on the list. It appears they are all uses that could be reused for purposes that meet our zoning code. Hopefully this email will suffice to pass on to the Division of Reclamation, Mining and Safety.

Best regards,
Kim Sanchez

KIM SANCHEZ | PLANNING DIVISION MANAGER
boulder county | land use department
2045 13th street | boulder, co 80302
303.441.3930 | ksanchez@bouldercounty.org

From: hlhumphries2@comcast.net [<mailto:hlhumphries2@comcast.net>]
Sent: Friday, March 02, 2012 2:12 PM
To: Sanchez, Kimberly
Cc: Young, Dave
Subject: Request for letter of approval

Ms. Sanchez - the Div of Reclamation, Mining and Safety (DRMS) has requested from Boulder County a letter which will allow Calais Resources to retain certain structures on site once mining is complete and the site reclaimed. The Land Owner, Calais Resources, would like the structures left for its post mining use. Below is the narrative which the DRMS wants us to address. Attached is a list of structures from Calais we requested be retained on site.

4. *The Applicant has submitted a letter from the landowner requesting that a number of structures remain after mining and reclamation are complete. The Division approved Technical Revision No.4 on June 21, 1999, which allowed structures which had the proper permits or were constructed prior to the issuance of permits to remain on the property once mining and reclamation are complete. It is the Permittee's responsibility to demonstrate to the Division that the structures which have been requested to remain onsite are compatible with local zoning ordinances. The Applicant may submit documentation from the Boulder County Land Use Department which demonstrates the structures may remain onsite. The Division must bond for the demolition of the structures until such documentation is received.*

We would very much appreciate Boulder County approval, or direction as to what will be required to secure Boulder County approval.

Thank you for your help.

H B Humphries

Attachment IV

Boulder County Land Use Code Article 4

Article 4



Zoning

Article 4 • Zoning Table

District	Lot Size		Setbacks			Height	Additional Restrictions
	Subdivided with Water & Sewer in a Community Service Area	Unsubdivided	Front	Side	Rear		
Forestry F	35 acres	35 acres	15'	25'	15'	30'	2 animal units/acre
Agricultural A	35 acres	35 acres	35'	7'	15'	30'/50'	4 animal units/acre
Rural Residential RR	1 acre	35 acres	25'	7'	15'	30'	2 animal units/acre
Estate Residential ER	1 acre	35 acres	35'	10'	25'	30'	2 animal units/acre
Suburban Residential SR	7,500 sq. ft.	35 acres	25'	7'	15'	30'	1 horse per one-half acre of pasturage See footnote^
Multifamily MF	7,500 sq. ft 15,500 sq. ft	35 acres	25'	7'	15'	50'	1 horse per one-half acre of pasturage
Manufactured Home Park MH	35 acres	35 acres	25'	7'	15'	30'	No animal units/acre
Transitional T	15,500 sq. ft	35 acres	25'	7'	15'	50'	Within Community Service Areas - Maximum dwelling units on subdivided land - 9/acre. No animal units/acre
Business B	No minimum requirement	35 acres	*60'	0' or 12'	20'	50'	Within Community Service Areas - Maximum dwelling units on subdivided land - 9/acre. No animal units/acre
Commercial C	No minimum requirement	35 acres	*60'	0' or 12'	20'	50'	Within Community Service Areas - Maximum dwelling units on subdivided land - 9/acre. No animal units/acre
Light Industrial LI	No minimum requirement	35 acres	*60'	0' or 12'	20'	50'	4 animal units/acre
General Industrial GI	No minimum requirement	35 acres	*60'	0' or 12'	20'	50'	4 animal units/acre
Mountain Institutional MI	35 acres	35 acres	15'	25'	15'	30'	2 animal units/acre

*From centerline of existing roadway. ^Residents in the SR zone may keep up to 8 hens and 2 bee colonies for their own use.

Article 4 • Zoning

From the Forward to the Boulder County Zoning Resolution, February 4, 1944:

A zoning ordinance imposes such reasonable limitations upon the right of a property owner to use his property as he pleases, as may be determined by considerations of public health, safety, and welfare. But he may not use his property as he pleases without regard for his neighbors, or the effect of his actions upon the welfare and prosperity of the whole community of which he is a part. Nor is a zoning ordinance merely a temporary matter. It is an integral part of public planning, which takes the long view. The use of land is a granted right, but the land itself remains long after individuals who have exercised such rights have passed away. Rural zoning contemplates not only benefits in the present, but also seeks to conserve our resources for future generations.

4-100 Zoning District Regulations

Zoning District Legend:	
(A)	Uses Permitted by Special Authorization of the Building Official (Article 2-500)
(I)	Uses Permitted by Limited Impact Special Review (Article 3 and Article 4-600)
(L)	Uses Permitted by Location & Extent Review (Article 8)
(R)	Uses Permitted by Review of Areas and Activities of State Interest (Article 8)
(S)	Uses Permitted by Special Review (Article 3 and Article 4-600)
(SPR)	Uses Permitted by Site Plan Review (Article 4-800)

Note: The uses listed in each zoning district are listed with the review process acronyms as shown in the legend above. Review processes are also triggered based on the intensity of the use, specific location of the development and extent of physical development on the property. Thus, even if a review process is not enumerated, a parcel may still require a process based on other Code requirements

4-101 Forestry (F) District

- A. Purpose: Rural areas established for the purpose of efficiently using land to conserve forest resources, protect the natural environment, and preserve open areas.
- B. Principal Uses Permitted
 1. Agri-business Uses (see 4-501)
 - a. Keeping of Nondomestic Animals (S)
 2. Agricultural Uses (see 4-502)
 - a. Equestrian Center (S)
 - b. Intensive Agricultural Uses (S)
 - c. Open Agricultural Uses
 3. Commercial/Business Service Uses (see 4-503)
 - a. Kennel (S)
 4. Community Uses (see 4-504)
 - a. Adaptive Reuse of a Historic Landmark (I)
 - b. Camp (I/S)
 - c. Membership Club (S)
 - d. Reception Halls and Community Meeting Facilities (S)
 - e. Use of Community Significance (I)
 5. Forestry Uses (see 4-505)
 - a. Forestry
 - b. Forestry Processing and Sort Yard (I)
 6. Industrial Uses (see 4-506)
 - a. Saw Mill (S)
 - b. Solid Waste Transfer Facility (S)

7. Lodging Uses (see 4-507)
 - a. Bed and Breakfast (I)
 - b. Campground (S)
 - c. Resort Lodge, Conference Center, or Guest Ranch (S)
 - d. Vacation Rental (I) (S)
8. Mining Uses (see 4-508)
 - a. Limited Impact Open Mining (I)
 - b. Oil and Gas Operations
 - c. Open Mining (S)
 - d. Subsurface Mining; (I) (S)
 - e. Subsurface Mining of Uranium (S)
9. Office Uses (see 4-509)
None Permitted
10. Recreation Uses (see 4-510)
 - a. Firing Range, Outdoor (S)
 - b. Livery or Horse Rental Operation (S)
 - c. Outdoor Recreation, for day use (S)
 - d. Outdoor Recreation, for night use (S)
 - e. Park and/or Playfield, for day use
 - f. Park and/or Playfield, for night use (S)
 - g. Public Recreation Center (S)
 - h. Ski Area (S)
11. Residential Uses (see 4-511)
 - a. Group Care or Foster Home (S)
 - b. Single Family Dwelling
12. Retail and Personal Service Uses (see 4-512)
 - a. Recycling Collection Center, Small (I)
 - b. Veterinary Clinic, without outdoor holding facilities (S)
13. Transportation Uses (see 4-513)
 - a. Heliport (S)
 - b. Helistop (S)
 - c. Multimodal Parking Facility (S) (I)
14. Utility and Public Service Uses (see 4-514)
 - a. Central Office Building of a Telecommunication Company (R)
 - b. Community Cistern (I)
 - c. Fire Barn (I)
 - d. Fire Station (S)
 - e. Major Facility of a Public Utility (R) (S) (L)
 - f. Public or Quasi-public Facility other than Listed (S)
 - g. Public Safety Telecommunication Facility (I)
 - h. Sewage or Water Transmission Line (R) (L)
 - i. Sewage Treatment Facility (R) (S) (L)
 - j. Small Wind-Powered Energy System
 - k. Solar Energy – Building-Mounted System
 - l. Solar Energy – Ground-Mounted System (SPR) (S) (I)
 - m. Solar Energy - Parking Canopy System (SPR)
 - n. Telecommunications Facility, existing structure meeting height requirements
 - o. Telecommunications Facility, new structure or not meeting height requirements (S)
 - p. Utility Service Facility
 - q. Water Reservoir (R) (S) (L)
 - r. Water Tank or Treatment Facility (R) (S) (L)
15. Warehouse Uses (see 4-515)
None Permitted

- C. Accessory Uses Permitted (see 4-516)
 - 1. Accessory Agricultural Sales
 - 2. Accessory Agricultural Structure
 - 3. Accessory Beekeeping
 - 4. Accessory Chicken Keeping
 - 5. Accessory Dwelling (I)
 - 6. Accessory Horse Keeping
 - 7. Accessory Meat or Poultry Processing
 - 8. Accessory Outside Storage
 - 9. Accessory Solar Energy System
 - 10. Accessory Structure
 - 11. Grading of more than 500 Cubic Yards (I)
 - 12. Home Events
 - 13. Home Occupation
 - 14. Household Pets
 - 15. Noncommercial Telecommunication Site, one structure which meets setback and height requirements
 - 16. Noncommercial Telecommunication Site, multiple structures and/or not meeting setback or height requirements (I)
 - 17. Parking
 - 18. Small Wind-Powered Energy System, Roof-Mounted
 - 19. Primary Dwelling Short-Term Rental
 - 20. Secondary Dwelling Short-Term Rental (I)
- D. Temporary Uses Permitted (see 4-517)
 - 1. Emergency Noncommercial Telecommunication Site (A)
 - 2. Garage Sales or Occasional Sales
 - 3. Group Gathering / Special Events (A)
 - 4. Temporary Batch Plant (A)
 - 5. Temporary Construction or Sales Office (A)
 - 6. Temporary Dwelling Unit (A)
 - 7. Temporary Fireworks and Christmas Tree Sales (I)
 - 8. Temporary Special Use (nonconforming use under Section 4-1004.A.2. (S))
 - 9. Temporary Weather Device Tower
 - 10. Educational Tour
- E. Lot, Building, and Structure Requirements
 - 1. Minimum lot size...35 acres
 - 2. Minimum setbacks
 - a. Front yard...15 feet
 - b. Side yard...25 feet
 - c. Rear yard...15 feet
 - d. From an irrigation ditch...50 feet from the centerline of the ditch. This requirement only affects structures built after October 10, 1996. The setback may -with County concurrence- be reduced in accordance with a letter from the applicable ditch company establishing a different setback, but in any event shall not be less than 20 feet from the ditch centerline.
 - e. Supplementary requirements may apply, refer to Article 7-1400.
 - 3. Maximum building height
 - a. On subdivided land with a final plat approved by the County prior to August 29, 1994, 35 feet unless a lower height was approved through the platting process.
 - b. On any other land, 30 feet unless, through a subdivided land approval or Site Plan Review approval, a lower or higher height is permitted due to the unique characteristics of the particular site; in no event, however, shall any residential structure exceed 35 feet.

F. Additional Requirements

1. Animal units...Two animal units per acre without going through Special Review
2. Special review is required for any use which:
 - a. generates traffic volumes in excess of 150 average daily trips per lot, as defined by the Institute of Transportation Engineers;
 - (i) Property with a Verified Established Farm Use may have up to 200 average daily trips per lot, as determined through the applicable review process, when there is an Agricultural Sales Structure in operation on the property.
 - b. has an occupant load greater than or equal to 100 persons per lot;
 - (i) Property with a Verified Established Farm Use may have an occupant load up to 150 persons per lot, as determined through the applicable review process, to accommodate Farm Events.
 - c. has a wastewater flow greater than or equal to 2,000 gallons per day per lot;
 - d. has a total floor area greater than 25,000 square feet; or
 - e. has a second Principal Use which does not increase density.
3. Limited Impact Special Review is required for any use which is:
 - a. a parking area associated with a trail of a governmental entity on publicly acquired open space land, which parking area is in accordance with an open space management plan approved by the Board of County Commissioners, and which generates traffic volumes in excess of 150 average daily trips per lot as defined by the Institute of Transportation Engineers;
 - b. grading involving the movement of more than 500 cubic yards of material as defined and provided in Section 4-516.
4. No parcel shall be used for more than one Principal Use, except for allowed Agricultural uses, Forestry uses, Mining uses, or any combination thereof; for multiple Principal Uses on properties that have been designated as historic landmarks by Boulder County where the Boulder County Commissioners and Historic Preservation Advisory Board determine that the multiple uses preserve the landmark; or for second Principal Uses approved through Special Review under 4-101.F.2.e, above
5. Small Wind-Powered Energy Collectors Systems and Solar Energy Systems may be approved without Special Review approval on parcels with existing Principal Uses; however, these uses shall be reviewed using the process and standards described in the Utility and Public Service Uses classification in this Code.