



STATE OF
COLORADO

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

M-1977-410 AM2 Adequacy Review Response #3

DPollock@nedmining.com <DPollock@nedmining.com>

Fri, Jan 21, 2022 at 3:34 PM

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

Cc: "Cunningham - DNR, Michael" <michaela.cunningham@state.co.us>

Amy,

Attached is GIR's Response to DRMS's Adequacy Review #3. Please contact me at your earliest convenience to discuss.

Thank you,

Daniel Pollock

Grand Island Resources

Nederland Mining Consultants

720.207.5154 – Office

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2 attachments



M-1977-410 AM-02 Cover Letter 1-21-2022.pdf

170K



M-1977-410 AM2 Adequacy Review3 Response 1-21-21.pdf

5689K



January 21, 2022

Division of Reclamation, Mining & Safety
Room 215, (c/o Ms Amy Eschberger)
1001 E 62nd Ave
Denver, CO 80216
Submitted via email

RE: Cross Gold Mine, Permit No. M-1977-410, 110(2) Hard Rock Permit Amendment Application (AM-02), Adequacy Review No. 3

Ms Eschberger,

Enclosed for your review is Grand Island Resources, LLC (GIR) response to The Division of Reclamation, Mining and Safety (Division) adequacy response for Amendment No. 02 (AM-02) dated December 29, 2021.

Per your request, GIR has provided responses in-line with the Divisions request for additional information along with updated tables and maps.

If additional information is required, GIR is prepared to respond expeditiously.

Sincerely,

Daniel Pollock
Grand Island Resources, LLC

Grand Island Resources Cross Mine (M1977-410) Amendment #2 Response to DRMS Comments Dated December 29, 2021

Issue Date:
January 21, 2022

Prepared by:



Global Resource Engineering, Ltd.

Application Form:

DRMS Comment1

On page 2, under Item 9 – Correspondence Information, the Applicant/Operator contact is listed as “Alfred F. Gerriets II”. This is a change from the current Applicant/Operator contact, which is Richard Mittasch. This means that after AM-02 approval, Mr. Gerriets would receive all important correspondence from our office regarding this permit. If this is correct, then no change is required to this section.

GIR Response

GIR submitted a Change of Contact Form to DRMS on 1/19/2021 and revised the application to reflect the requested changes. A copy of the revised application is attached.

Exhibit C – Mining Plan (Rule 6.3.3):

DRMS Comment 2

On page 5 of this exhibit, the application states “The waste rock pile by the Cross Ore Building is an ore pile and it will remain an ore pile for the life of mine. It will have a maximum size of 1,000 yards. It will be exhausted then reclaimed at the end of mine.” Please be advised, until the operator has provided sufficient demonstration that mined material derived from both the Cross and Caribou mines does not have the potential to cause acid mine drainage or to release toxic- or acid-forming materials, all ore must be stored inside of the designated ore storage building. Therefore, please remove all ore material stored on the ground surface and provide photographic evidence this has been done. Additionally, please revise this exhibit to remove any language referring to continued ore storage outside of the Cross Ore Building. It should be noted, the question of whether this mine should be considered a designated mining operation will be explored outside of the AM-02 review process, during which, the Division will inform the operator of any additional information or testing required.

GIR Response

This section was removed as requested. Also, please see attached photographic material of removal.

DRMS Comment 3

On page 5 of this exhibit, the application states the existing Caribou waste rock area will continue to be used for all waste rock generated on site. However, on Map 4, it appears the proposed new internal road and fill material associated with the road will cover the majority of the existing waste rock pile. Additionally, it appears the existing waste rock pile could not be expanded to the north or east given its proximity to the permit boundary in these areas, or to the south given the proposed new road. Therefore, please explain how this existing waste rock pile will continue to be used by the operation for all waste rock generated on site. Will the storage area be expanded to the west? Please ensure the approximate location of the proposed storage area is accurately shown on all applicable maps.

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GIR Response

The construction schedule for the Internal Road has not yet been set by GIR; therefore, the Waste Rock Pile as currently approved, will continue to be used as permitted; the reclamation plan identifies both options, i.e., Waste Rock Pile and Internal Road. The Internal Road will be constructed with waste rock and no expansion of the existing Waste Rock Pile is anticipated. The following sentence was added to this section: "If the new road is permitted by Boulder County, most of the waste rock will be used to construct the road."

Please see text in Exhibit C, Section 1.6 Waste Rock Pile.

DRMS Comment 4

The Division has the following comments regarding Table 1 – Disturbance Table:

The square feet and acreage values for several of the facilities listed do not correlate with the approximate dimensions provided. Some of these discrepancies lead to fairly large differences in the acreage amounts. For example, the acreage provided for "New Roadway Between Cross and Caribou Mines" is 0.653; however, the dimensions of 875 feet x 40 feet would result in 0.803 acre. The acreage provided for "Waste Rock Storage Area" is 0.277; however, the dimensions of 174 feet x 189 feet would result in 0.755 acre. The acreage provided for "Pond 3A, 3B, 3C (entire area)" is 0.1982; however, the dimensions of 93 feet x 157 feet would result in 0.335 acre. Just these three discrepancies alone would change the total disturbed area by 0.77 acre, which is fairly significant for a permit area of this size. Please ensure all disturbance values are correct and correlate with the corresponding values provided for that facility. The total disturbed area may need to be updated accordingly.

GIR Response

Table 1 was revised and is included below. Duplicates were removed and values corrected as necessary. The "Area That Will be Reclaimed That is not Associated with a Reclamation Feature" was removed from Exhibit C, Table 1 because it is the areas between facilities that are not currently disturbed but we anticipate may be disturbed as part of the reclamation activities. This area is included in Exhibit D, Table 1.

Approximate dimensions are included for rectangular shapes only because length x width for irregular shapes does not produce an accurate square footage.

All calculations were rerun using the most recent site LIDAR data. (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 from the existing ground and all features that contain fill material using the most recent LiDAR data, dated July 2021. The fill material surfaces include the berms built to construct Ponds 3A, 3B, and 3C; the fill for the new road; and the waste rock.

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The volume between the existing ground and the final surface was then calculated in Civil3D, with an inclusion perimeter polyline utilized to demarcate the boundary of the feature.

The Internal Road length is 804.23 feet; the reclamation slope for the road fill outboard slopes is 2:1; the estimated footprint under the road at 2:1 fill slopes is ~53,000 square feet (1.446 acres), this includes the area under the Coon Track Creek crossing culverts.

The revised Exhibit C, Table 1 is shown below.

Exhibit C, Table 1 Disturbance			
Facility	Square ft	Acres	Approximate Dimensions
New Roadway Between Cross and Caribou Mines	59,395	1.364	875x40
Ventilation Shaft and Escapeway	64	0.0014	5x5
Cross Mine Adit	64	0.0014	8x8
Idaho Tunnel Portal	144	0.0033	12x12
Caribou 300 Level Portal	64	0.0014	8x8
Potosi Shaft	36	0.0008	6x6
Disturbed Hillside Around Idaho Tunnel Portal	6,052	0.1389	NA
Cross Mine Decline Area (will not be built)	NA	NA	NA
Waste Rock Storage Area*	31,584	0.7251	NA
Waste Rock Storage Area That Does Not Overlap with Road	12,068	0.2770	NA
Cross Ore Building	3,200	0.0735	80x40
Pond 1	2,118	0.0486	NA
Pond 2	7,074	0.1624	NA
Pond 3A, 3B, 3C (entire area)	8,636	0.1982	NA
Caribou Management Office	420	0.0096	420x10
Cross Snow Shed	160	0.0036	16x10
Caribou Water Treatment Shed (Danny's Den)	112	0.0025	10x11
Caribou Parking Area	33,485	0.7687	317x100
Subsurface Drinking Water Supply Line	NA	NA	NA
Offices and Dry Room	5,093	0.1169	NA
Historic Cabin	924	0.0212	NA
Cross Shop and Adit Access	4,037	0.0927	NA
Weather Monitoring Shed	194	0.0045	16x12
Fuel/Oil Shed	461	0.0106	28x16.5
Cross Parking Area	10,010	0.2298	NA
Septic Tank and Leach Field	2,628	0.0603	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

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Exhibit C, Table 1 Disturbance			
Facility	Square ft	Acres	Approximate Dimensions
Unstable Hillside**	8,623	0.198	NA
Explosives Storage Area	100	0.0023	10x10
Total Disturbed Area*	165,270	3.7945	NA
Total Undisturbed Area	269,897	6.1956	NA

**The full extent of Waste Storage Area is not included in Total Disturbed Area because a portion of the Waste Storage Area overlaps with the Proposed New Road. If the Proposed New Road is not approved by Boulder County the square footage of the Waste Storage Area is 31,584 ft² or 0.7251 acres.*

***The unstable hillside includes the Cross Mine Decline area.*

DRMS Comment 4b

Please describe the “Land That Will be Reclaimed That Is Not Associated With a Reclamation Feature (includes *)”, which is attributed 2.692 acres. Which types of disturbances are included in this acreage? The only facility listed in this table with an asterisk symbol is the “Cross Mine Decline Area”. Does that mean only this feature is included in the 2.692 acres?

GIR Response

The “Land That Will be Reclaimed That is Not Associated with a Reclamation Feature” is the disturbed area between facilities that is not accounted for in other reclamation areas.

Please see Exhibit E, Map 5.

DRMS Comment 4c

For “Cross Mine Decline Area (will not be built)*” no disturbance values are provided. Is this because the disturbance associated with this area is included in the “Land That Will be Reclaimed That Is Not Associated With a Reclamation Feature”? If not, please provide a disturbance acreage for this feature. Regardless of whether or not the decline will be built, the hillside disturbance already created in association with this feature will require reclamation, and must be included in the total disturbance acreage for the site

GIR Response

Cross Mine Decline Area is included in the Unstable Hillside listed in Exhibit C, Table 1 and Exhibit D, Table 1.

DRMS Comment 5

On page 7 of this exhibit, the application states Coon Track Creek will be routed underneath the new internal road using twin 5 feet x 4 feet box concrete pre-cast culverts. According to Map 4, the new road

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would cross the existing creek channel three times. Does the operator intend to install twin box culverts at each of these locations?

GIR Response

The Coon Track Creek is routed under the Internal Road at one single locations (i.e., the Internal Road crosses Coon Track Creek at a single point); the twin box culverts will be installed at this single location; the inlet center point coordinates are: 1,234,953.856 North, 2979814.198 East.

DRMS Comment 6

In Table 2 – New Road Design Parameters, it states the surfacing thickness will be 24 inches. Please describe the type of surfacing anticipated.

GIR Response

The internal road surfacing material will be crushed rock.

DRMS Comment 7

On page 8 of this exhibit, the application states “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.” According to Maps 3 and 7, this new road will be located outside of the proposed permit area for the Caribou 300 Level Portal. Please be advised, all proposed affected lands, including any existing roads that will be substantially upgraded to support the mining operation, or new roads, must be included in the proposed permit area. The permit area does not need to include off-site roads which existed prior to the date the application was made to the Division and which were constructed for purposes unrelated to the proposed mining operation and which will not be substantially upgraded to support the mining operation. Therefore, please remove this new road from consideration under AM-02 and modify this exhibit accordingly. The road may be added into the permit area under a subsequent Amendment application.

GIR Response

This road was removed from the text and maps. Please see Exhibit C, Section 1.8, New Roads.

DRMS Comment 8

On page 8 of this exhibit, under the Operational Water section, the application states “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.” There appears to be missing text in this section, as no explanation of the “required changes in permitting” was provided. Please describe any changes in permitting with regard to operational water, or if there are no changes, remove the confusing language which implies there are.

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GIR Response

There will be no changes to water operations. This text was removed. Please see Exhibit C, Section 1.9.1 Water Sources and Volumes, Operational Water.

DRMS Comment 9

On pages 8 and 9 of this exhibit, the application discusses analyses conducted by Core Laboratories in 1994 on two composite samples from the Cross mine, indicating these results demonstrate the ore and waste rock from each of the two mines should not produce acid rock drainage. The application also states “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.” Please be advised, the Division does not accept the information provided thus far as sufficient demonstration that any material exposed by mining, placed in on-site solution containment systems or facilities, stockpiled, or disposed of on the affected land, does not have the potential to cause acid mine drainage or to release toxic- or acid-forming materials, per Rule 6.4.21(14). In fact, the recent water quality issues at the site resulting from the increased activities, including exceedances in discharge standards for zinc, cadmium, lead, copper, and silver, indicate the mine does have the potential to release toxic-forming materials. While no additional characterization is required for this application, this matter will be explored further outside of the AM02 review process.

GIR Response

The quoted sentence was removed as requested and the following statement was added.

GIR acknowledges DRMS is requesting further discussion regarding potential for acid rock drainage after the AM2 process.

Please see Exhibit C, Section 1.9.1, Operational Groundwater Quality Impacts, Potential for Acid Rock Drainage.

DRMS Comment 10

On page 9 of this exhibit, the application states “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”. As you are aware, the WQCD, CDPHE has recently issued a Notice of Violation and Cease and Desist Order for violations of this operation’s discharge permit, including exceedances in lead, cadmium, zinc, silver, and copper, some of which go back to May of 2020. The Mined Land Reclamation Board (Board) also found a violation related to the water quality issues at this site during the December 15, 2021 enforcement hearing. Therefore, the statement referenced above is not accurate. Please remove this statement, or replace it with an acknowledgement that the previous water treatment system is insufficient, and that a new treatment system will be proposed to the Division in a subsequent revision in accordance with the Board’s requirements.

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GIR Response

This sentence was replaced with the following “Appropriate water treatment is designed and implemented in accordance with WQCD requirements.”

The currently CDPES approved water treatment system for groundwater discharges via the mine portals to Coon Track Creek consists exclusively of lime addition to precipitate metals, no pH adjustments or the addition of chemical is authorized; GIR has communicated frequently with CDPHE regarding the need for alternative and effective water treatment options to treat the effluent. GIR has tested two alternative technologies over the last 2 years and currently is performing pilot scale testing of 5 micron filtration and adsorptive media; the results are positive in terms of effective removal of elements of interest and effluent is compliant with CDPES permit limits.

DRMS Comment 11

On page 10 of this exhibit, the application states “As with groundwater, surface water quality impacts are not expected”. As described above, this statement is not accurate. Therefore, please remove this sentence or replace it with an acknowledgement of the recent exceedances observed at the discharge location, and that a new treatment system will be proposed to the Division in a subsequent revision in accordance with the Board’s requirements.

GIR Response

The sentence was removed as requested. Please see Exhibit C, Surface Water Quality Impacts.

DRMS Comment 12

On page 10 of this exhibit, the application states “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”. Also, on page 11 of this exhibit, the application states “The Groundwater Monitoring Plan for this facility will be submitted to DRMS by December 31, 2021”. As of the date of this letter, the Division has not received the information described above. However, per the enforcement hearing held on December 15, 2021, the Board requires the operator to submit, by February 28, 2022, a Technical Revision to modify the water management and treatment program for the site to sufficiently address all water quality issues, and provide a surface water and groundwater monitoring program that meets all applicable requirements of Rules 3.1.6, 3.1.7, 6.3.3, and 6.3.4. Therefore, the surface water and groundwater monitoring plan should be submitted in the Board-Ordered Technical Revision, and not through AM-02.

GIR Response

This paragraph was modified as follows:

Permit conditions including numeric protection levels for unclassified groundwater uses and points of compliance will be provided to DRMS by February 28, 2022 in a Technical Revision to The Technical Revision will detail the current water treatment system, including (but not limited) to, engineering designs, filtration studies, bench test results, filtration design, adsorption media and mechanical

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specifications, new infrastructure, flow diagrams and recent analytics. In addition to the physical treatment system, the TR will include all requirements to modify the water management and treatment program for the site to sufficiently address all water quality issues, and provide a surface water and groundwater monitoring program that meets all applicable requirements of Rules 3.1.6, 3.1.7, 6.3.3, and 6.3.4.

Please see Exhibit C, Water Quantity.

Exhibit D – Reclamation Plan (Rule 6.3.4):

DRMS Comment 13a

The Division has the following questions regarding Table 1 – Site Components for Reclamation:

Please ensure the acreages provided in this table correlate with the acreages provided in the Table 1 - Disturbance Table in Exhibit C (after they have been corrected as requested above). For example, the acreage provided for “New Roadways between Cross and Caribou Mines” is 0.6534; however, in the Exhibit C Table 1, the approximate dimensions for this feature are 875 feet x 40 feet, which would be equal to 0.803 acre. After all acreages in this table have been verified, please ensure the total disturbed acreage in this table (currently 4.4 acres) is also updated, if needed.

GIR Response

All calculations were rerun and corrected as necessary. A revised Exhibit D, Table 1 is shown below.

Exhibit D, Table1 Site Components for Reclamation		
Site Component	Square Feet Approximate	Acres
Cross Mine Adit*	522	0.0120
Cross Ventilation Shaft and Escapeway**	550	0.0126
Idaho Tunnel Portal	144	0.0033
Caribou 300 Level Portal*	595	0.0136
Potosi Shaft*	624	0.0143
Waste Rock Area (that does not overlap with proposed internal road)	12,068	0.2770
Pond 1	2,118	0.0486
Pond 2	7,074	0.1623
Ponds 3A, 3B, 3C	8,636	0.1982
Proposed New Road	59,395	1.3635
Disturbed Hillside Around Idaho Tunnel Portal	6,052	0.1389
Danny’s Den	112	0.0025
Munitions Bunker South	56	0.0013
Land That Will be Reclaimed That Is Not Associated With a Reclamation Feature*	75,024	1.7223

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Exhibit D, Table1 Site Components for Reclamation		
Site Component	Square Feet Approximate	Acres
Flow Shed 1	60	0.0014
Flow Shed 2	36	0.0008
Unstable Hillside**	8,623	0.198
Explosives Storage Area	100	0.0023
Caribou Management Office	420	0.0096
Cross Ore Building	3,200	0.0735
TOTAL	185,409	4.256

**The surface area of these components is larger than the surface areas presented in Exhibit C, Table 1 because GIR factored in disturbance that will occur as part of reclamation activities into this table and the reclamation cost estimate.*

DRMS Comment 13b

Please explain what is included in the acreage (2.692 acres) for “Land That Will be Reclaimed That is Not Associated With a Reclamation Feature”. Does this acreage include disturbance associated with the New Cross Mine Decline?

GIR Response

The “Land That Will be Reclaimed That is Not Associated with a Reclamation Feature” includes areas that may be disturbed by reclamation activities. Please see Map 5.

The New Cross Mine Decline is not included in the “Land That Will be Reclaimed That is Not Associated with a Reclamation Feature” but it is included in the “unstable hillside” listed in Exhibit C, Table 1 and Exhibit D, Table 1.

DRMS Comment 13c

If the Caribou water treatment shed (Danny’s Den) will be reclaimed as shown on Map 6, please add it to this table. (Otherwise, Map 6 will need to be revised to show this structure will remain.)

GIR Response

Danny's Den was added to Exhibit D, Table 1.

DRMS Comment 13d

If the Munitions Bunker (South) will be reclaimed as shown on Map 6, please add it to this table. (Otherwise, Map 6 will need to be revised to show this structure will remain.)

GIR Response

The South Munitions Bunker was added to Exhibit D, Table 1.

DRMS Comment 14

On page 3 of this exhibit, the application discusses closure plans for the Cross Mine Adit and Idaho Tunnel Portal, specifying the concrete block wall closure proposed for the Idaho Tunnel Portal will include installation of a 2 foot x 2 foot x 0.25 foot grated access door to provide for water inspection. Because the Cross Mine Adit is also a draining mine opening, will a similar grated access door be installed on its concrete block wall closure? If so, please add this language to the Cross Mine Adit reclamation plan.

GIR Response

Text was added to Exhibit D, Section 1.2.1, Cross Mine Adit, to state that a grated access door will be installed in the Cross Mine Adit block wall.

DRMS Comment 15

On page 8 of this exhibit, the application states the rock pile by the Cross Ore Building is actually an ore pile which will have a maximum size of 1,000 cubic yards, it will remain an ore pile for the life of mine, and at closure, all ore will have been removed from the site and the ore pile footprint (approximately 0.106 acre) will be reclaimed. As stated above, the Division does not authorize this location to be used for continued ore storage, and the existing ore material must be removed from the ground surface and placed inside the ore storage building (or hauled off site). While the footprint of the existing stockpile will need to be reclaimed as described in this exhibit, please remove any language indicating ore material will continue to be stored on the ground surface.

GIR Response

This section was removed. Please see attached photographic evidence of removal.

DRMS Comment 16

On page 9 of this exhibit, the application states ‘The two-track road to the Caribou 300 Level Portal will be reclaimed’ and that it “will be ripped, tilled, and regraded prior to revegetation”. According to Maps 3 and 7, this new road (25 feet x 12 feet) would be located outside of the proposed permit area. As noted above, all proposed affected lands, including any existing roads that will be substantially upgraded to support the mining operation, or new roads, must be included in the proposed permit area. Therefore, please remove this new road from consideration under AM-02 and modify this exhibit accordingly. The road may be added into the permit area under a subsequent Amendment application.

GIR Response

This road was removed from text and maps. Please see the text in Exhibit D, Section 1.8 Roads.

DRMS Comment 17

On page 9 of this exhibit, the application states there is no available soil on site for reclamation, and that topsoil will be sourced locally in Nederland, CO [approximately 155,250 cubic feet (5,750 cubic yards)]. The operator is proposing to replace 8-12 inches of topsoil on most disturbed areas, with 2 feet of

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topsoil to be placed on areas such as the waste rock storage footprint. In Table 1 – Site Components for Reclamation, the operator estimates a total of 4.4 acres will require reclamation. Therefore, it would appear the estimated 5,750 cubic yards of topsoil to be imported for reclamation is based on a topsoil replacement depth of just less than 10 inches. Because some areas will require much more topsoil (2 feet), the Division believes it would be more appropriate to estimate approximately 7,099 cubic yards of topsoil will need to be imported for reclamation (based on an average replacement depth of 12 inches on 4.4 acres). Please adjust this language accordingly. (This estimated topsoil volume may need to be modified if the proposed disturbance amount changes.)

GIR Response

The creation of the road from the Cross mine to the Caribou mine will result in approximately 1,300 cubic yards of stockpiled topsoil. This topsoil generated will be moved to a berm near the toe of the newly constructed road for future reclamation use.

Topsoil volumes were recalculated.

Approximately 156,573 ft³ (5,799 yd³) are estimated to be required.

DRMS Comment 18

On page 10 of this exhibit, the application states topsoil will be replaced at a depth of 8-12 inches in areas with thin and rocky soils (approximately 0.178 acre) and replaced at a depth of 2 feet in other areas such as the waste rock area footprint (approximately 1.25 acre). These estimated acreages total 1.428 acre, which is far less than the estimated 4.4 acres of disturbance which will require reclamation. Please explain and/or correct this discrepancy. What is the estimated total disturbed acreage which will be retopsoiled (and revegetated) for reclamation?

GIR Response

Topsoil replacement was recalculated. The text was changed to the following: Topsoil will be replaced to a depth of 8 to 12 inches in most areas (approximately 3.5439 acres [Costs in Appendix III reflect soil to 12 inches.]). This includes the Cross-Caribou mine, Potosi Shaft, and Caribou 300 Portal areas. Soil will need to be deep enough to encourage root growth. The waste rock area footprint topsoil will be placed to a depth of 2 feet (approximately 0.725 acres).

Please see Exhibit D, Section 1.9 Soil Preparation and Revegetation.

DRMS Comment 19

On pages 12 and 13 of this exhibit (and in Table 6 – Slopes Steeper Than 2:1 and 3:1), the application discusses existing slopes at the site (approximately 0.777 acres horizontal surface and 0.955 acres slope surface) which are steeper than 2:1, and indicates these slopes will be reconfigured to Approximate Original Contour (AOC) or less and will blend in with the surrounding topography or match the AOC. Please be advised, no disturbed land shall be left at a slope steeper than 2H:1V for reclamation. Therefore, please be sure any language in this exhibit (and the reclamation plan maps) reflects that all disturbed land will be graded to 2H:1V or flatter.

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GIR Response

Text was changed as requested A revised Table 6 is shown below and please see the text in Exhibit D, Section 1.11, Slopes.

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)	124,783.3	2.865	126,359.1	2.901	67.9	12.6%
2 (between 3:1 and 2:1)	21,477.7	0.483	23,219.7	0.533	11.7	40.8%
3 (everything that is steeper than 2:1)	37,603.8	0.863	46,517.5	1.068	20.5	71.0%
Total	183,864.8	4.221	196,096.3	4.360		

DRMS Comment 20

On page 13 of this exhibit, the application states the New Cross Decline Portal is not going to be constructed, and that a geotechnical assessment of the current slope stability will be performed to determine whether the slope requires stabilization or can be revegetated as-is (with the details of the proposed stabilization/reclamation plan to be provided to the Division in a Technical Revision). Please be advised, the Division will not accept leaving this disturbed hillside at its current steep gradient. Additionally, a reclamation plan for this disturbance and costs for implementing the plan must be provided with this application. Therefore, please provide a reclamation plan for the New Cross Decline Portal area which would ensure the disturbed slopes are left no steeper than 2H:1V and are adequately stabilized and revegetated. If the operator wishes to revise this plan later, it can be done through the submittal of a Technical Revision.

GIR Response

The New Cross Decline Portal slope will be regraded at reclamation to the prescribe 2:1 overall slope. The Geotechnical Slope Stability Analysis indicated in Amendment #2 refers to an evaluation of the existing slope and assess slope failure risks as well as implementation of stabilization methods if necessary to reduce the probability of slope failures pre-reclamation.

DRMS Comment 21

On pages 13 and 14 of this exhibit, the application includes a list of mine components that will remain after reclamation. Please ensure this list correlates with the reclamation plan map(s) provided in the application. For example, the approximate location of some of the features in the list, including the Septic Tank and Leach Field, are not shown on Map 6. Additionally, some features in this list are shown to be reclaimed on Map 6, such as the Caribou Water Treatment Shed (Danny's Den) and Munitions Shed 2 (also called Munitions Bunker South).

GIR Response

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This list was updated.

DRMS Comment 22

The Division is currently reviewing the revised Reclamation Costs provided on page 15 of this exhibit and in Appendix III, and will inform the operator if additional information is required in order for the Division to calculate the required bond amount for AM-02 approval.

GIR Response

Acknowledged.

Exhibit E –Maps (Rule 6.3.5):

DRMS Comment 23 a and b

For Map 1, the Division has the following comments:

- a. Please add “Exhibit E” to the map title.
- b. The “Current Permit Boundary” indicated on the map (with a blue line) and stated in the legend to be 9.36 acres, is not accurate. The current permit area is 8.95 acres, as of the Division’s approval of Acreage Reduction No. 1 on November 12, 2020. Please correct this boundary on the map and correct the acreage in the legend.

GIR Response

Changes made as requested.

DRMS Comment 24

For Map 2, the Division has the following comments:

- a. Please add “Exhibit E” and “Mining Plan Map” to the map title.
- b. The “Current Permit Boundary” indicated on the map (with a blue line) and stated in the legend to be 9.36 acres, is not accurate. The current permit area is 8.95 acres, as of the Division’s approval of Acreage Reduction No. 1 on November 12, 2020. Please correct this boundary on the map and correct the acreage in the legend.
- c. Please add the proposed permit acreage (9.6 acres) for the Cross and Caribou mine area.
- d. Please include the names of all landowners within 200 feet of the proposed permit boundary.
- e. Please include the owners of record of all permanent or man-made structures located within 200 feet of the proposed permit boundary. Given the number of structures owned by GIR, the operator may choose to label only the non-GIR-owned structures, and add a feature to the legend explaining that all structures not labeled are owned by GIR. It is the Division’s understanding that Caribou Road, the power line, and the phone line shown on this map, are not owned by GIR.
- f. Please remove the “Ore Storage Area” shown in the Cross Mine area, as the Division does not authorize the operation to continue storing ore at this location (as described above).
- g. Please label the CDPHE discharge point. h. Please label the explosives storage area.

i. Please show all water infrastructure, including pipelines (infrastructure specifically related to the new water treatment system should be submitted in the Board-Ordered Technical Revision and not in this application).

GIR Response

- a. Changes made as requested*
- b. Changes made as requested*
- c. Changes made as requested*
- d. Changes made as requested*
- d. Changes made as requested*
- f. Changes made as requested*
- g. Changes made as requested*
- h. Changes made as requested*
- i. Changes made as requested*

Please see revised Map 2 in Exhibit E.

The Cross Ventilation Shaft was removed because it does not exist.

DRMS Comment 25

For Map 3, the Division has the following comments:

- a. Please add “Exhibit E” and “Mining Plan Map” to the map title.
- b. Please add the proposed permit acreage for the Potosi Shaft (0.06 acre) and Caribou 300 Level Portal (0.33 acre) areas.
- c. Please include the names of all landowners within 200 feet of the proposed permit boundaries.
- d. Please show all permanent or man-made structures located on and within 200 feet of the proposed permit area. For example, the Division is aware of some historic structures located within 200 feet of the proposed Potosi Shaft area, which are not shown on this map.
- e. Please include the owners of record of all permanent or man-made structures located within 200 feet of the proposed permit boundary. The operator may choose to label only the non-GIR-owned structures, and add a feature to the legend explaining that all structures not labeled are owned by GIR. It is the Division’s understanding that Caribou Road and Forest Service Road 505 shown on this map, are not owned by GIR.
- f. The Caribou 300 Level Portal map includes a short access road off of Forest Service Road 505 (not included in the proposed permit area) which, according to Map 7 (and the proposed reclamation plan), will be reclaimed when mining concludes. As stated above, all proposed affected lands must be included within the proposed permit area, including any existing roads which will be substantially upgraded to support the mining operation, or new roads. Therefore, please remove this new road from consideration under AM-02 and modify this map accordingly. The road may be added into the permit area under a subsequent Amendment application.

GIR Response

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- a. Changes made as requested*
- b. Changes made as requested*
- c. Changes made as requested*
- d. The abandoned building ruins, shown on Map 3, are owned by GIR*
- e. Changes made as requested. The Caribou Road is owned by Boulder County and The Forest Service Road is owned by the U.S. Forest Service. There are no utilities installed in the Caribou Level Portal or Potosi Shaft areas*
- f. This road was removed from the map, tables, and text.
Please see revised Map 3 in Exhibit E.*

DRMS Comment 26

For Map 4, the Division has the following comments:

- a. Please add “Exhibit E” and “Mining Plan Map” to the map title.
- b. The “Current Permit Boundary” indicated on the map (with a blue line) and stated in the legend to be 9.36 acres, is not accurate. The current permit area is 8.95 acres, as of the Division’s approval of Acreage Reduction No. 1 on November 12, 2020. Please correct this boundary on the map and correct the acreage in the legend.
- c. Please remove the “Ore Storage Area” shown in the Cross Mine area, as the Division does not authorize the operation to continue storing ore at this location (as described above).
- d. Please label the CDPHE discharge point.
- e. Please label the explosives storage area.
- f. Please show all water infrastructure, including pipelines (infrastructure specifically related to the new water treatment system should be submitted in the Board-Ordered Technical Revision and not in this application). How will water from the Cross and Caribou mines be directed to Pond 2 with the proposed new internal road to be constructed between these features?
- g. Please show the approximate location(s) for the box culverts to be installed beneath the proposed new internal road.
- h. This map shows the proposed new internal road covering the Munitions (South) structure. Will this structure be removed prior to construction of the road? (According to Map 6, the area where this structure is located will be reclaimed.)

GIR Response

- a. Changes made as requested*
- b. Changes made as requested*
- c. Changes made as requested*
- d. Changes made as requested*
- e. Changes made as requested*
- f. Discharge from Pond 3C would be directed under the new road and discharge from Pond 1 to Pond 2 is already routed south of the new road. The current treatment system does not require residence time in Pond 2.*
- g. Changes made as requested*
- h. This structure will either be removed or covered.*

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Grand Island Resources, LLC. Responses to DRMS Comments dated December 29, 2022

*The Cross Ventilation Shaft was removed because it does not exist.
Please see revised Map 2 in Exhibit E.*

DRMS Comment 27

For Map 5, the Division has the following comments:

- a. The Division does not believe Map 5 is necessary, since Map 6 seems to show how all disturbances at the Cross and Caribou mine area will be reclaimed. In fact, this map creates more confusion as it shows some areas to be backfilled (slope above Idaho Tunnel, Pond 3C, Ore Storage Area), but not others. This map seems to indicate the new internal road fill will remain in place for reclamation, while the reclamation plan indicates the road will be removed and the associated fill material graded to 3H:1V for reclamation. This map also creates confusion over which structures are proposed to remain for reclamation, since Map 6 shows several of the structures shown on this map to be “Reclaimed and Revegetated”. The Division recommends the operator remove Map 5 and ensure all reclamation details are included on Map 6.
- b. If the operator chooses to keep Map 5, the Division has the following comments: i. Please add “Exhibit E” and “Reclamation Plan Map” to the map title. ii. The “Current Permit Boundary” indicated on the map (with a blue line) and stated in the legend to be 9.36 acres, is not accurate. The current permit area is 8.95 acres, as of the Division’s approval of Acreage Reduction No. 1 on November 12, 2020. Please correct this boundary on the map and correct the acreage in the legend. iii. This map shows the proposed grading plan for the slope around the Idaho Tunnel Portal, Pond 3C, and the ore storage area. However, a grading plan is not provided for other disturbance features to be reclaimed such as Ponds 3A and 3B, Pond 1, Pond 2, the New Cross Mine Decline disturbance area, the new internal road, and the Caribou waste rock storage area. If the purpose of this map is to show the proposed slope grading for all disturbed areas, please be sure to include this information for all areas requiring backfilling and/or grading for reclamation.

GIR Response

Map 5 was removed, maps renumbered, and references to maps renumbered in text.

DRMS Comment 28

For Map 6, the Division has the following comments:

- a. Please add “Exhibit E” to the map title.
- b. The “Current Permit Boundary” indicated on the map (with a blue line) and stated in the legend to be 9.36 acres, is not accurate. The current permit area is 8.95 acres, as of the Division’s approval of Acreage Reduction No. 1 on November 12, 2020. Please correct this boundary on the map and correct the acreage in the legend.
- c. In the “Typical Top Soil Cover Detail, it shows that 24 inches of topsoil will be placed on reclaimed areas. However, the proposed reclamation plan indicates that 8-12 inches will be placed on the majority of the disturbed land, with 24 inches to be placed only on the waste rock storage area. If 24 inches of

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Grand Island Resources, LLC. Responses to DRMS Comments dated December 29, 2022

topsoil will be replaced on all disturbed lands, please be sure the reclamation plan and bond estimate are updated accordingly. Otherwise, please revise the Typical Top Soil Cover Detail on this map to reflect the actual proposed topsoil replacement depth for most disturbed areas.

d. Please remove the Cross Snowshed, since the proposed reclamation plan includes removing this structure.

e. The proposed reclamation plan includes three different seed mixes for the site (Tables 3-5). Please show the approximate locations on this map that will receive each of the proposed seed mixes.

f. If Map 5 is removed, as recommended above, please be sure to add the proposed slope gradients to this map.

GIR Response

a. Changes made as requested

b. Changes made as requested

c. Please see renumbered Map 5 and revised text

d. Changes made as requested

e. Shown on renumbered Map 8

f. Now shown on renumbered Map 5.

DRMS Comment 29

For Map 7, the Division has the following comments:

a. Please add “Exhibit E” to the map title.

b. The current map title is “Cross and Caribou Mine – General Facility Arrangement: Caribou 300 and Potosi”. However, the Division believes this is an error, as this map appears to be a reclamation plan map. Therefore, please change “General Facility Arrangement” to “Reclamation Plan Map”.

c. In the “Typical Top Soil Cover Detail, it shows that 24 inches of topsoil will be placed on reclaimed areas. However, the proposed reclamation plan indicates that 8-12 inches will be placed on the majority of the disturbed land, with 24 inches to be placed only on the waste rock storage area. If 24 inches of topsoil will be replaced on all disturbed lands, please be sure the reclamation plan is updated accordingly. Otherwise, please revise the Typical Top Soil Cover Detail on this map to reflect the actual proposed topsoil replacement depth for most disturbed areas.

d. The proposed reclamation plan includes three different seed mixes for the site (Tables 3 through 5). Please show the approximate locations on this map that will receive each of the proposed seed mixes.

e. The Caribou 300 Level Portal map includes a short access road off of Forest Service Road 505 (not included in the proposed permit area), which is shown to be reclaimed when mining concludes. As stated above, all proposed affected lands must be included within the proposed permit area, including any existing roads which will be substantially upgraded to support the mining operation, or new roads. Therefore, please remove this new road from consideration under AM-02 and modify this map accordingly. The road may be added into the permit area under a subsequent Amendment application.

GIR Response

a. Changes made as requested

b. Changes made as requested

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- c. Please see renumbered Map 5 and revised text*
- d. Now shown on renumbered Map 8.*
- e. This road was removed from the map, tables, and text.*

DRMS Comment 30

For Map 8, the Division has the following comments:

- a. Please add “Exhibit E” to the map title.
- b. The “Current Permit Boundary” indicated on the map (with a blue line) and stated in the legend to be 9.36 acres, is not accurate. The current permit area is 8.95 acres, as of the Division’s approval of Acreage Reduction No. 1 on November 12, 2020. Please correct this boundary on the map and correct the acreage in the legend.

GIR Response

- a. Changes made as requested*
- b. Changes made as requested*

Exhibit L – Permanent Man-Made Structures (Rule 6.3.12):

DRMS Comment 31

This exhibit identifies four permanent or man-made structures located within 200 feet of the affected land boundary which are not owned by GIR, including County Road 128/Caribou Road (owned by Boulder County), a power line (owned by Xcel Energy), a phone line (owned by Century Link/AT&T), and USFS Road 505 (owned by the USFS). Of these, the operator has provided a structure agreement only for County Road 128/Caribou Road. Please provide the requested structure agreements for the three other structures not owned by GIR. 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.

GIR Response

GIR has provided, under separate cover, structure agreements for Boulder County and Xcel Energy. GIR and the Division have determined that Century Link/AT&T do not own the lines on site and DRMS has stated that no structure agreement is needed (correspondence attached). GIR has contacted USFS (correspondence attached) and requested an updated structure agreement, but at the time of this document has not received a response. GIR will forward the requested document upon receipt.

Additional Item(s):

DRMS Comment 32

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.

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GIR Response

When the document is finalized, D. Pollock will forward notice to BOCO Clerk and Recorder and provide an email receipt.

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Attachments

Revised Application M-1977-410 Limited Impact Operation (110(2)) Reclamation Permit Application Form

Photographic Evidenced of Rock Pile Removal

DRMS email to GIR Regarding Structural Agreement

GIR email to U.S. Forest Service Regarding Structural Agreement

Exhibit E - Maps

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



HARD ROCK / METAL MINING LIMITED IMPACT OPERATION (110(2)) RECLAMATION PERMIT APPLICATION PACKAGE

APPLICABILITY:

This application package is for a mining operation that is NOT a Designated Mining Operation, affecting LESS than 10 acres and extracting LESS than 70,000 tons of mineral, overburden or combination of the two per calendar year. If you plan to conduct a mining operation which meets these criteria, please follow the instructions provided in this package, in the Mineral Rules and Regulations, and in the Mined Land Reclamation Act, as required. Please see Rule 1.1(12) for the definition of "Designated Mining" operation.

FILING REQUIREMENTS:

The Mineral Rules and Regulations (the Mined Land Reclamation Act, Section 34-32-101, et seq., C.R.S., and 2 CCR 407-1) of the Colorado Mined Land Reclamation Board (the "Board") regulate the permitting, operational and reclamation requirements for all non-coal mining operations in Colorado. It is your obligation to comply with the Act and Regulations. You are encouraged to obtain and review a copy of the Rules, available for \$8.00 from the Division of Reclamation, Mining, and Safety (the "Office") or at the Division's Web Page at www.mining.state.co.us. In order to submit your application properly, it is recommended that you review the Act, and;

- | | |
|-------------|---|
| Rule 1.1 | Definitions; |
| Rule 1.4 | Application Review and Consideration Process; |
| Rule 1.5 | Fees; |
| Rule 1.6 | Public Notice Procedures; |
| Rule 3.1 | Reclamation Performance Standards; |
| Rule 3.3.1 | Operating without a Permit - Penalty; |
| Rule 4 | Performance Warranties and Financial Warranties; |
| Rule 6 | Permit Application Exhibit Requirements; |
| Rule 6.2 | General Requirements of Exhibits; |
| Rule 6.3 | Specific Permit Application Exhibit Requirements; |
| Rule 6.4.19 | Exhibit S (as required); and, |
| Rule 6.5 | Geotechnical Stability Exhibit; |

To apply for a Reclamation Permit for a Limited Impact Operation, one (1) signed and notarized original and one (1) copy of the Limited Impact Operation (110(2)) Application Form, two (2) copies of Exhibits A-J, any required sections of Exhibit S and Geotechnical Stability Exhibit, as required, and outlined in Rules 6.1, 6.2, 6.3, 6.4.19 and 6.5, and an application fee MUST be submitted to the Office. The thirty (30) day period for review of the application and exhibits will NOT begin until all required information is submitted. The Office will then review the submitted information for adequacy.

It is recommended that you contact the agencies listed under "Compliance With Other Laws" prior to submitting the application to the Office. You must send a notice, on a form approved by the Board, to the local board of county commissioners and, if the mining operation is within the boundaries of a soil conservation district, to the board of supervisors of the soil conservation district, prior to filing the application. A copy of these "Notice of Filing Application" forms have been attached for your use. You must include proof of such mailings with the application at the time the application is submitted to the Office for filing (Rules 1.6.2 and 1.6.3).

Upon filing the application, place for public review a copy of the application, less confidential items, with the clerk and recorder of the county or counties in which the affected land is located. Any changes or additions made to an application following submittal must be filed with the county clerk and recorder. You must also provide the Office with an affidavit or receipt demonstrating that the change was filed with the county clerk and recorder no later than the close of business on the day the change was filed with the Office (Rule 1.8.1). The copy of the application and any changes or additions placed at the office of the county clerk and recorder shall not be recorded, but shall be retained there for at least sixty (60) days after a decision on the application by the Office and be available for inspection during this period. At the end of this period, the application may be reclaimed by the applicant or destroyed (Rule 1.6.2(2)).

Prior to the Office making an approval decision (consideration of the application), you must submit proof of publication and proof of all required notices. Proof of notice may be by submitting return receipts of a certified mailing or by proof of personal service (Rule 1.6.1(f)).

APPLICATION REVIEW PROCEDURES:

The Office shall approve or deny the application within thirty (30) days of filing unless the date for consideration by the Office is extended pursuant to Rule 1.8. The time for consideration shall not be extended beyond thirty (30) days after the last such change submitted. For complex applications, the review period may be extended an additional sixty (60) days. Please see Rule 1.1(9) for the definition of what may constitute a complex application.

If the requirements of the Act and Mineral Rules have been satisfied, the Office will approve the application. The Act also provides for automatic approval if no action is taken by the Office by the end of the review period.

If the Act and Regulation requirements have not been satisfied, the Office will deny the application. If the Office denies the application, you may appeal to the Board for a final determination by submitting a written request for administrative appeal to the Board within 60 days of the decision date. (Rule 1.4.7)

PERFORMANCE AND FINANCIAL WARRANTIES:

A performance warranty and a financial warranty, in an amount determined as a part of the application review, must be submitted and approved by the Office prior to permit issuance. If the applicant is a unit of state or county government, then only a performance warranty is required. Several different types of financial warranties are allowed by the law. Please review Rule 4.0 to determine which type of financial warranty you desire to use. You may obtain the appropriate forms from the Office during the application review period. A financial warranty should not be submitted until a decision on the application has been made. Please note that an application approval does not convey a right to begin operations. You must submit, and have approval of your performance and financial warranties, and receive your copy of the signed permit document prior to beginning on-site mining activity.

COMPLIANCE WITH OTHER LAWS:

Compliance with the Act and Rules and Regulations of the Mined Land Reclamation Board does not relieve you of your responsibility to comply with all other applicable state and federal laws (Sections 34-32-115(4)(c) and 34-32-109(5), C.R.S. 1984, as amended). At a minimum, you MUST contact the following agencies to determine whether you need to comply with their legal requirements:

- The Colorado State Historical Preservation Office regarding properties of historical significance including the need for an archeological survey, procedures for requesting a file search, and inventory forms to identify structures.
- Colorado Division of Water Resources with regard to the administration of water rights;
- Colorado Department of Public Health and the Environment, Water Quality Control Division, with regard to the discharge of pollutants into the waters of the State;
- Colorado Department of Public Health and the Environment, Air Pollution Control Division, with regard to the need for a fugitive dust permit;
- U.S. Bureau of Land Management or the U.S. Forest Service if the proposed operation will occur on federal lands;
- U. S. Army Corps of Engineers regarding a dredge and fill (404) permit; and
- The County Planning Department for the county or counties in which your proposed operation is located. Section 34-32-109(6), C.R.S. requires a mining operator to be responsible for assuring that the mining operation and the post-mining land use comply with local land use regulations and any master plan for extraction adopted pursuant to Section 34-1-304, C.R.S.

PERMIT APPROVAL:

An applicant will not be issued a reclamation permit until notified by the Office that this application and the required performance and financial warranties have been approved. Alternatively, an automatic approval will occur where the Office fails to notify the applicant/operator that the application has been denied. This decision must be made thirty (30) calendar days from the date the application was submitted. However, the performance and financial warranties must be submitted and approved by the Office before the permit will be issued even if you receive an automatic approval. **NO MINING OPERATIONS SHALL BEGIN UNTIL A PERMIT IS ISSUED** (Rule 4.1(2)).

NOTICE REQUIREMENTS:

Within ten (10) days after filing, mail or personally serve a copy of the notice described in Rule 1.6.2(1)(c) to all owners of record of surface rights to the affected land and all owners of record of lands that are within 200 feet of the boundary of the affected land (Rule 1.6.2(1)(d)(i) and (ii)). In addition, you must publish once in a newspaper of general circulation, in the locality of the proposed mining operation, the notice described in Rule 1.6.2(1)(c). A copy of a form which includes all required information for the notice has been attached for your use. You will need to provide the Office proof of notice prior to the decision date. Proof of notice may be by submitting return receipts of a certified mailing or by proof of personal service (Rules 1.4.1(4), 1.4.2(4)(c) and 1.6.2(1)(d)).

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.

COMPLETION OF MINING:

Upon completion of any phase of reclamation, you should consult Rule 3.1 for reclamation standards and 4.16 for details on how to request a reclamation responsibility release from the Board.

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): 8.95 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: Daniel Takami Title: President
Company Name: Grand Island Resources, LLC
Street: 12567 West Cedar Drive P.O. Box: _____
City: Lakewood
State: CO Zip Code: 80228
Telephone Number: (501) - 256-4444
Fax Number: (N/A) -

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

Contact's Name: Daniel Pollock Title: Site Supervisor
Company Name: Grand Island Resources, LLC
Street: 4415 Caribou Road P.O. Box: 3395
City: Nederland
State: CO Zip Code: 80466
Telephone Number: (720) - 207-5154
Fax Number: (N/A) -

INSPECTION CONTACT:

Contact's Name: Richard Mittasch Title: VP Operations
Company Name: Nederland Mining Consultants
Street: 4415 Caribou Road P.O. Box: 3395
City: Nederland
State: CO Zip Code: 80466
Telephone Number: (516) - 582-0833
Fax Number: (N/A) -

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 site is located 45 miles from the town of Nederland, CO. The portal is located at an elevation of 9,800'.

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):**

☐

Cropland(CR)

☐

Pastureland(PL)

☐

General Agriculture(GA)

☐

Rangeland(RL)

☒

Forestry(FR)

☐

Wildlife Habitat(WL)

☐

Residential(RS)

☐

Recreation(RC)

☐

Industrial/Commercial(IC)

☐

Developed Water Resources(WR)

☐

Solid Waste Disposal(WD)

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

☐

Cropland(CR)

☐

Pastureland(PL)

☐

General Agriculture(GA)

☐

Rangeland(RL)

☐

Forestry(FR)

☐

Wildlife Habitat(WL)

☐

Residential(RS)

☐

Recreation(RC)

☐

Industrial/Commercial(IC)

☐

Developed Water Resources(WR)

☒

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):

An increase in the approved disturbance zone from 8.95 to 9.99 acres. The addition of a road between the Cross Mine and Caribou Mine. Updated ground support and reclamation plan for the Idaho Tunnel Portal at the Caribou 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.

DOT

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;

DOT

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;

DOT

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;

DOT

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;

DOT

5. It is your responsibility to notify the Office of any changes in your address or phone number;

DOT

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.

DOT

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;

DOT

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.

DJT

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.

DJT

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 19 day of January, 2022.

Grand Island Resources, LLC (GIR)

Applicant/Operator

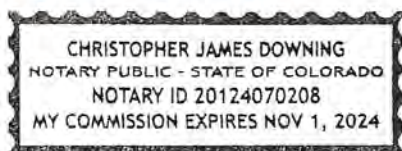
If Corporation Attest (Seal)

By: D. Takami
Title: President

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

State of COLORADO)
County of BOULDER) ss.

The foregoing instrument was acknowledged before me this 19TH day of JANUARY, 2022,
by DANIEL TAKAMI as PRESIDENT of GRAND ISLAND RESOURCES, LLC.



SIGNATURES MUST BE IN BLUE INK

Christopher Downing
Notary Public
My Commission expires: 11/01/2024









From DRMS\Succession of Operator
Email from Amy Eschberger - DNR: From
DRMS\Succession of Operator

AD

From: **Amy Eschberger - DNR**<amy.eschberger@state.co.us>

To Richard Mittasch **Copy** Daniel V. Pollock

Richard,

I appreciate your clarification on these structures. This means only the USFS 505 structure agreement is required now for AM-2. I'll go ahead and add your explanation to the permit file.

Best Regards,

Amy Eschberger
Environmental Protection Specialist

I am working remotely and can be reached at 303-945-9014.

O: 303.866.3567 x 8129 | F: 303.832.8106 | C: 303.945.9014

Physical Address: 1313 Sherman Street, Room 215, Denver, CO 80203

Mailing Address: Room 215, 1001 E 62nd Ave, Denver, CO 80216

Amy.Eschberger@state.co.us | <https://drms.colorado.go>

DRMS Amendment 2 Structure Agreement

Email from dpollock@nedmining.com: DRMS Amendment 2 Structure Agreement

From: **dpollock@nedmining.com**

To [Mike- FS Johnson](mailto:Mike-FS.Johnson@nedmining.com) Copy rmittasch@nedmining.com

Mr Johnson,

We are coming to the end of the review process with DRMS as it relates to the determination of the Cross/Caribou Amendment 2 Application package. I have forwarded you the complete package for review and or public comment back in December 2021.

One piece of documentation I need for the file, is a structure agreement between Grand Island Resources, LLC and United States Forest Service regarding the USFS Road 505. The Structure agreement states:

Exhibit L – Permanent Man-Made Structures (Rule 6.3.12):

31) This exhibit identifies four permanent or man-made structures located within 200 feet of the affected land boundary which are not owned by GIR, including County Road 128/Caribou Road (owned by Boulder County), a power line (owned by Xcel Energy), a phone line (owned by Century Link/AT&T), and USFS Road 505 (owned by the USFS). Of these, the operator has provided a structure agreement only for County Road 128/Caribou Road. Please provide the requested structure agreements for the three other structures not owned by GIR. 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.

Considering the disturbance area for the proposed Amendment is not on USFS land or USFS Road 505, can you please respond to this email with the language above, stating “that the mining and reclamation activities, as proposed, will have ‘no negative effect’ on the utility”.

If you wish to discuss this further, please contact me directly to discuss.

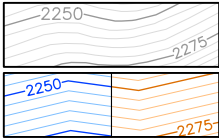
Thank you,
Daniel Pollock

Regulations and Permitting
Grand Island Resources
Nederland Mining Consultants
720.207.5154 – Office
312.342.6145 – Cell

Cross Mine (M1977-410) Amendment #2

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

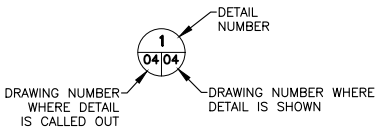
GENERAL LEGEND



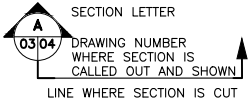
EXISTING GROUND TOPOGRAPHY
CONTOURS (IN FEET)

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

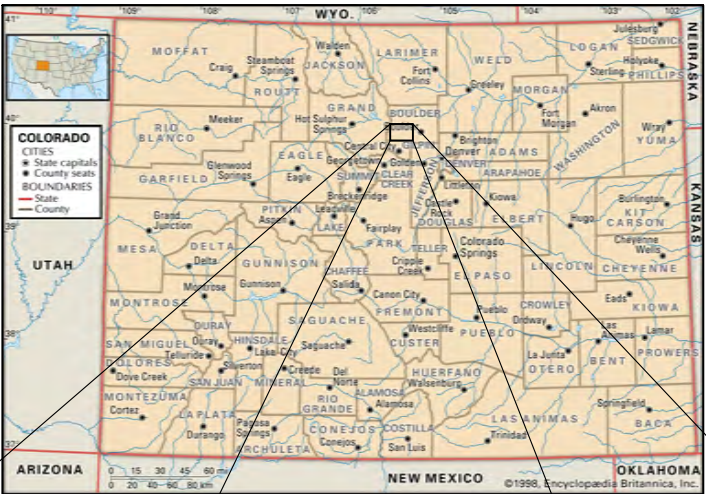
AVG.	AVERAGE
CL	CENTERLINE
DIA.	DIAMETER
EL.	ELEVATION
ID	INSIDE DIAMETER
MAX.	MAXIMUM
MIN.	MINIMUM
NOM.	NOMINAL
N.T.S.	NOT TO SCALE
OD	OUTSIDE DIAMETER
TYP.	TYPICAL
50ft	DIMENSION IN FEET
2.5:1	2.5 HORIZONTAL TO 1 VERTICAL SLOPE
°	DEGREE
~	APPROXIMATELY



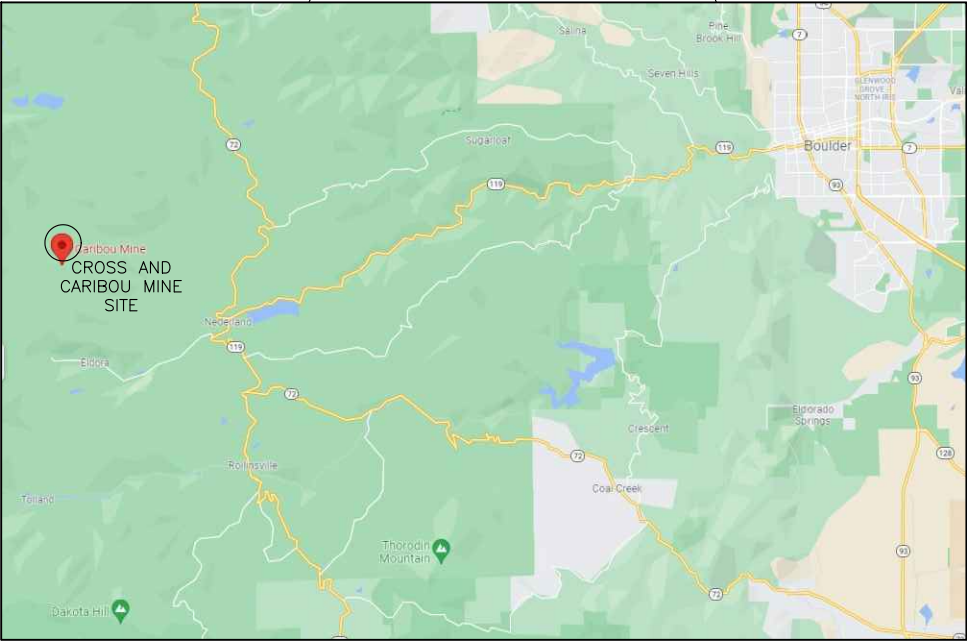
DETAIL OR SECTION CALL-OUT
(CALL-OUT NUMBERS CORRESPOND
TO THE FULL DRAWING NUMBERS)



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



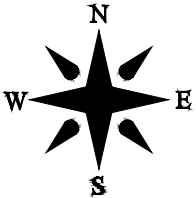
MAP OF COLORADO
NOT TO SCALE



PROJECT LOCATION
NOT TO SCALE

LIST OF DRAWINGS

00 – EXHIBIT E – TITLE, INDEX, GENERAL LEGEND AND PROJECT LOCATION MAP	REV 3
01 – EXHIBIT E – CROSS AND CARIBOU MINES – GENERAL ROADS MAP	REV 3
02 – EXHIBIT E – CROSS AND CARIBOU MINES – MINING PLAN MAP: CROSS/CARIBOU	REV 3
03 – EXHIBIT E – CROSS AND CARIBOU MINES – MINING PLAN MAP: POTOSI/CARIBOU300	REV 3
04 – EXHIBIT E – CROSS AND CARIBOU MINES – PROPOSED INTERNAL ROAD	REV 3
05 – EXHIBIT E – CROSS AND CARIBOU MINES – RECLAMATION PLAN MAP: CROSS/CARIBOU	REV 3
06 – EXHIBIT E – CROSS AND CARIBOU MINES – RECLAMATION PLAN MAP: POTOSI/CARIBOU 300	REV 3
07 – EXHIBIT E – CROSS AND CARIBOU MINES – PERMIT BOUNDARY SLOPE ZONES	REV 3
08 – EXHIBIT E – CROSS AND CARIBOU MINES – RECLAMATION MIX MAP	REV 3



LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20220121.dwg DATE: 1/21/2022 11:55 AM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON

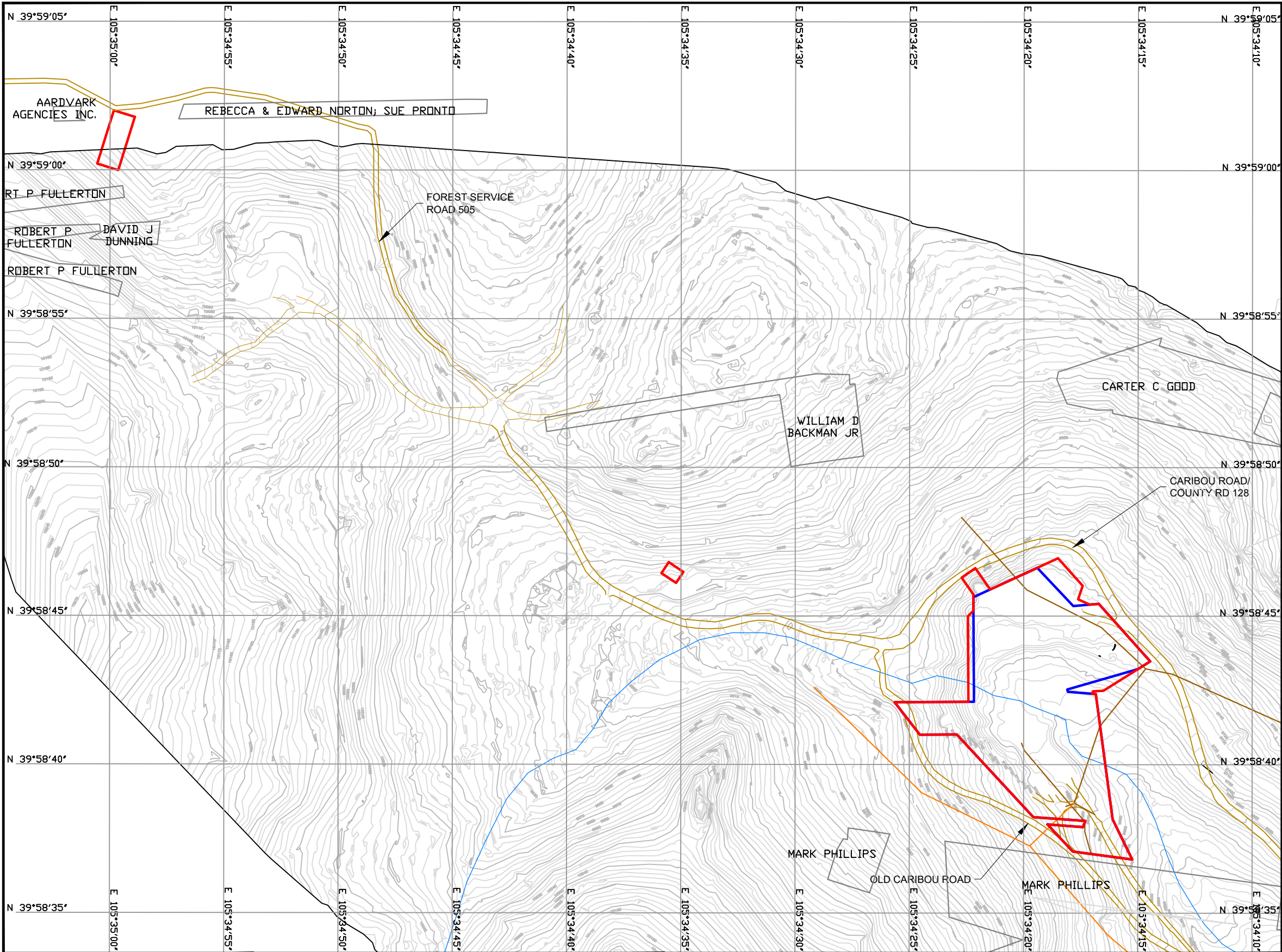
REFERENCE	REVISIONS
7	PROPOSED ROAD DESIGN RECEIVED OCTOBER 2021
6	WETLAND/PLANT SPECIES RECEIVED NOVEMBER 2021
5	MINE FEATURES RECEIVED NOVEMBER 2021
4	EXISTING ROADS RECEIVED APRIL 2021
3	POND BOUNDARIES RECEIVED NOVEMBER 2021
2	SITE FACILITIES RECEIVED NOVEMBER 2021
1	TOPO RECEIVED NOVEMBER 2021

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



EXHIBIT E TITLE, INDEX, GENERAL LEGEND AND PROJECT LOCATION MAP		3 REVISION
Project: CROSS AND CARIBOU MINE – AM 2 APPLICATION	Project No.: 21-1306	MAP
Location: NEDERLAND, COLORADO, USA	Date: JAN. 2022	00

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20220121.dwg DATE: 1/21/2022 11:56 AM 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 (8.95 ACRES)

NATURAL DRAINAGES

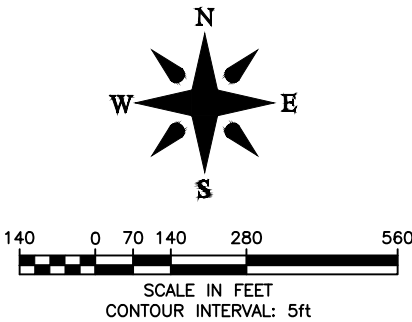
EXISTING ROADS

POWER LINE (OWNED BY XCEL ENERGY)

PHONE LINE (OWNED BY CENTURY LINK/AT&T)

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

2. COUNTY ROAD 128/CARIBOU ROAD IS OWNED BY BOULDER COUNTY. USFS ROAD 505 IS OWNED BY THE UNITED STATES FOREST SERVICE.



REFERENCE		REVISIONS			
		Rev	Description	By	Date
7	PROPOSED ROAD DESIGN RECEIVED OCTOBER 2021				
6	WETLAND/PLANT SPECIES RECEIVED NOVEMBER 2021				
5	MINE FEATURES RECEIVED NOVEMBER 2021	3	REVISED PER ADEQUACY REVIEW 3 COMMENTS	GRE	01/21/2022
4	EXISTING ROADS RECEIVED APRIL 2021	2	SUBMITTED TO DRMS	GRE	11/22/2021
3	POND BOUNDARIES RECEIVED NOVEMBER 2021	1	REVISED PER CLIENT'S COMMENTS	GRE	11/19/2021
2	SITE FACILITIES RECEIVED NOVEMBER 2021	0	ISSUED TO CLIENT FOR REVIEW	GRE	11/12/2021
1	TOPO RECEIVED NOVEMBER 2021				

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

Prepared by:

Prepared for:

EXHIBIT E
CROSS AND CARIBOU MINES
GENERAL ROADS MAP

Project:
CROSS AND CARIBOU MINE – AM 2 APPLICATION

Location:
NEDERLAND, COLORADO, USA

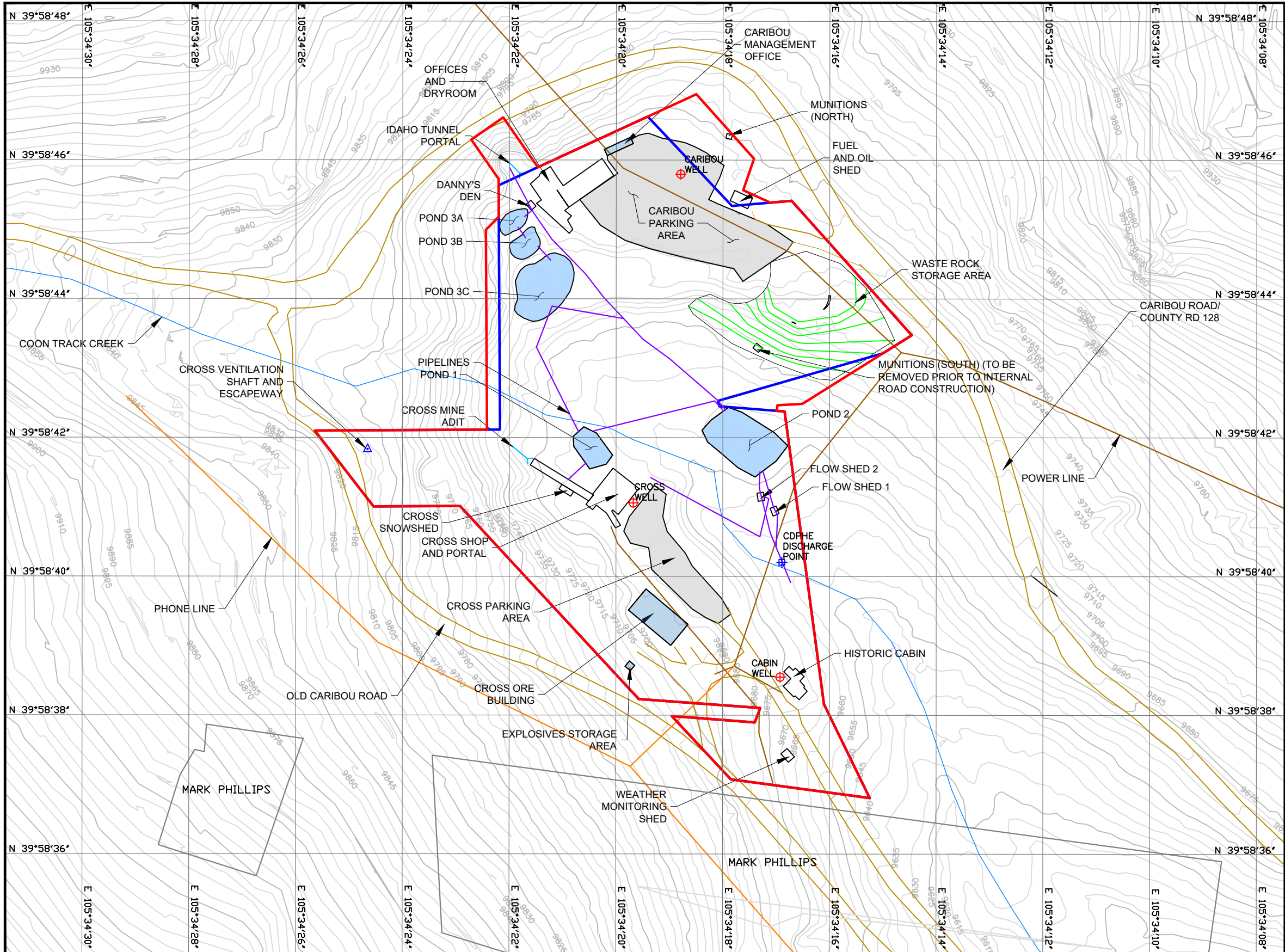
Project No.:
21–1306

Date:
JAN. 2022

3
REVISION

MAP
01

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20220121.dwg DATE: 1/21/2022 11:57 AM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON

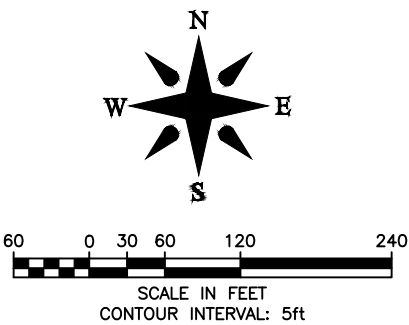


LEGEND

- EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
- SITE GRADING CUT AND FILL SURFACES, RESPECTIVELY
- SITE FACILITIES
- PROPOSED PERMIT BOUNDARY (9.6 ACRES)
- CURRENT PERMIT BOUNDARY (8.95 ACRES)
- POWER LINE (OWNED BY XCEL ENERGY)
- PHONE LINE (OWNED BY CENTURY LINK/AT&T)
- PIPELINES
- NATURAL DRAINAGES
- EXISTING ROADS
- MINE PORTAL
- MINE SHAFT
- WELL
- GROUNDWATER WELL
- DISCHARGE
- CHPHE DISCHARGE POINT

NOTES

- THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
- MAP DISPLAYS SURFACE FEATURES ONLY.
- COUNTY ROAD 128/CARIBOU ROAD IS OWNED BY BOULDER COUNTY. USFS 505 IS OWNED BY THE UNITED STATES FOREST SERVICE.



Rev	Description	By	Date
7	PROPOSED ROAD DESIGN RECEIVED OCTOBER 2021		
6	WETLAND/PLANT SPECIES RECEIVED NOVEMBER 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 NOVEMBER 2021		
	REFERENCE		

Rev	Description	By	Date
3	REVISED PER ADEQUACY REVIEW 3 COMMENTS	GRE	01/21/2022
2	SUBMITTED TO DRMS	GRE	11/22/2021
1	REVISED PER CLIENT'S COMMENTS	GRE	11/19/2021
0	ISSUED TO CLIENT FOR REVIEW	GRE	11/12/2021

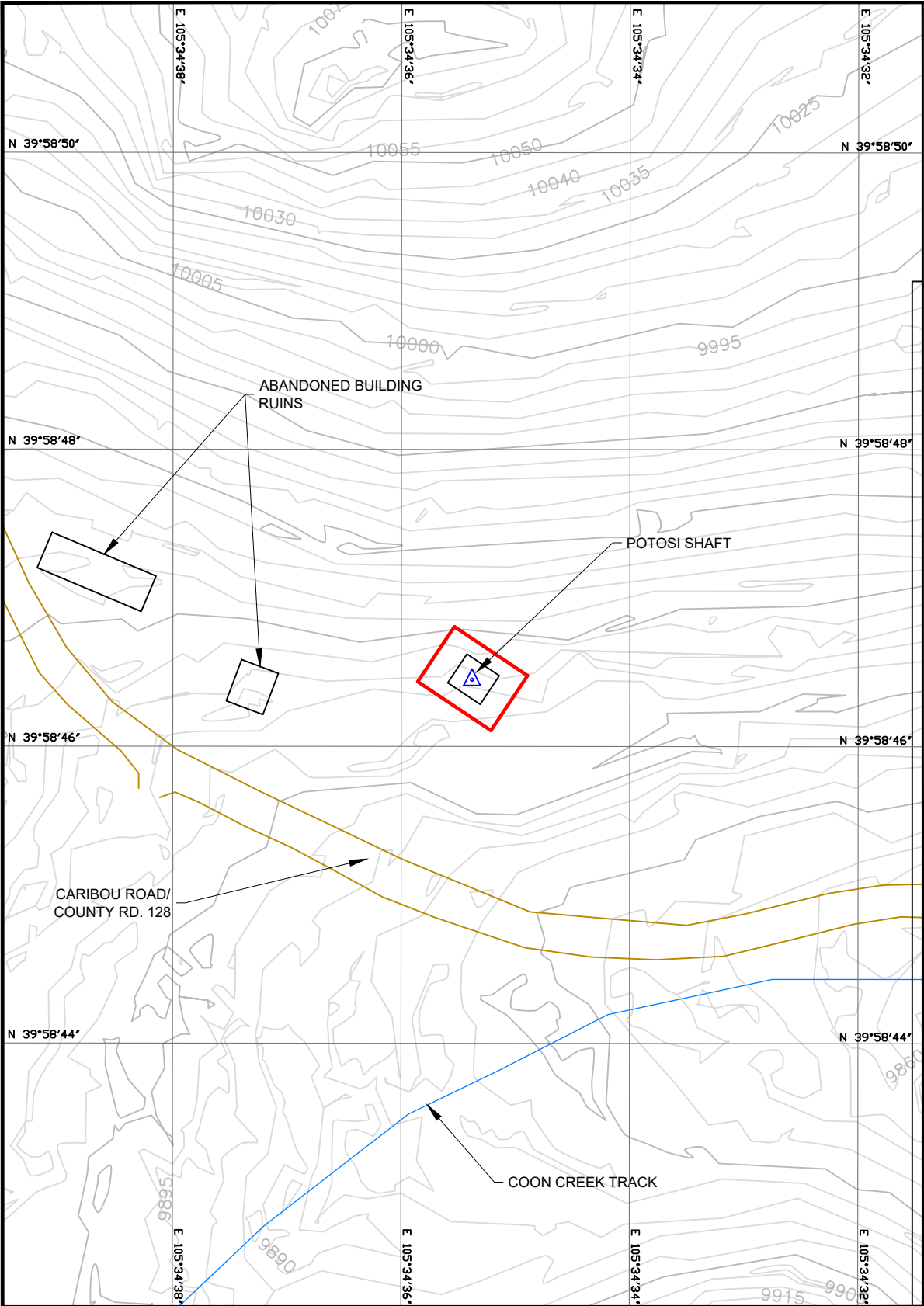
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Designed by: --
Drawn by: GRE
Checked by: GIR
Approved by: GIR



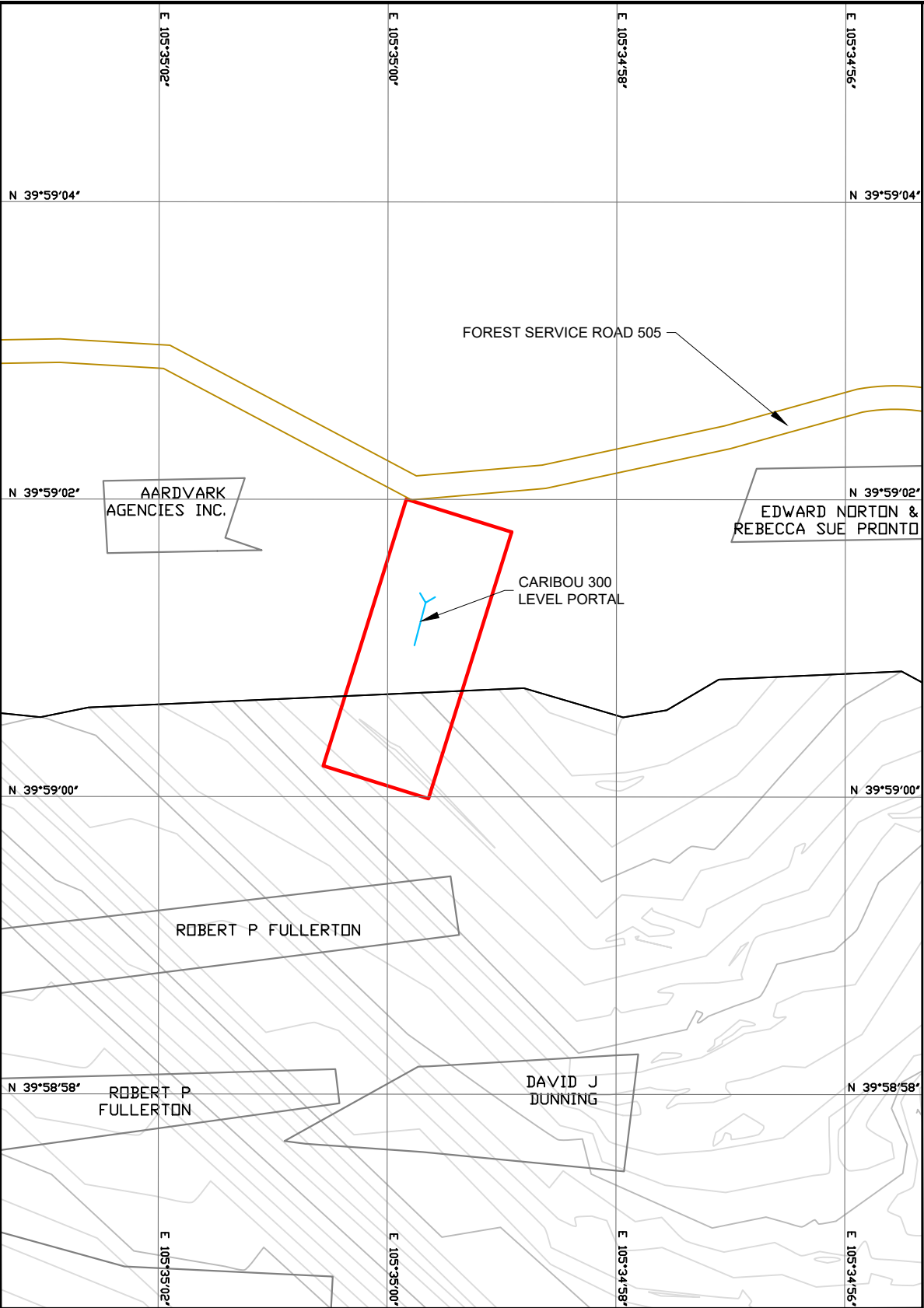
EXHIBIT E - CROSS AND CARIBOU MINES MINING PLAN MAP: CROSS MINE AND CARIBOU MINE	
Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306
Location: NEDERLAND, COLORADO, USA	Date: JAN. 2022

3
REVISION
MAP
02

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20220121.dwg DATE: 1/21/2022 11:58 AM PLOT SCALE = 1:50.8 PLOT BY: SOPHIE SWANSON

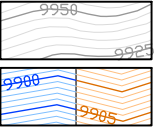


POTOSI SHAFT



CARIBOU 300 LEVEL

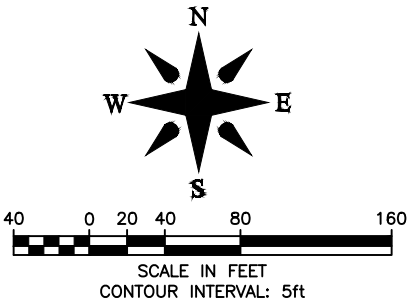
LEGEND



- EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
- SITE GRADING CUT AND FILL SURFACES, RESPECTIVELY
- SITE FACILITIES
- PROPOSED PERMIT BNDRY (NOTE 3)
- NATURAL DRAINAGES
- EXISTING ROADS
- MINE PORTAL
- MINE SHAFT

NOTES

- THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
- ALL STRUCTURES THAT ARE NOT LABELED ARE OWNED BY GIR.
- THE PROPOSED PERMIT ACREAGE FOR THE POTOSI SHAFT IS 0.06 ACRES; THE PROPOSED PERMIT ACREAGE FOR THE CARIBOU 300 LEVEL PORTAL IS 0.33 ACRES.



REFERENCE		REVISIONS			
		Rev	Description	By	Date
7	PROPOSED ROAD DESIGN RECEIVED OCTOBER 2021				
6	WETLAND/PLANT SPECIES RECEIVED NOVEMBER 2021				
5	MINE FEATURES RECEIVED NOVEMBER 2021	3	REVISED PER ADEQUACY REVIEW 3 COMMENTS	GRE	01/21/2022
4	EXISTING ROADS RECEIVED APRIL 2021	2	SUBMITTED TO DRMS	GRE	11/22/2021
3	POND BOUNDARIES RECEIVED NOVEMBER 2021	1	REVISED PER CLIENT'S COMMENTS	GRE	11/19/2021
2	SITE FACILITIES RECEIVED NOVEMBER 2021	0	ISSUED TO CLIENT FOR REVIEW	GRE	11/12/2021
1	TOPO RECEIVED NOVEMBER 2021				

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

Prepared by:



Prepared for:

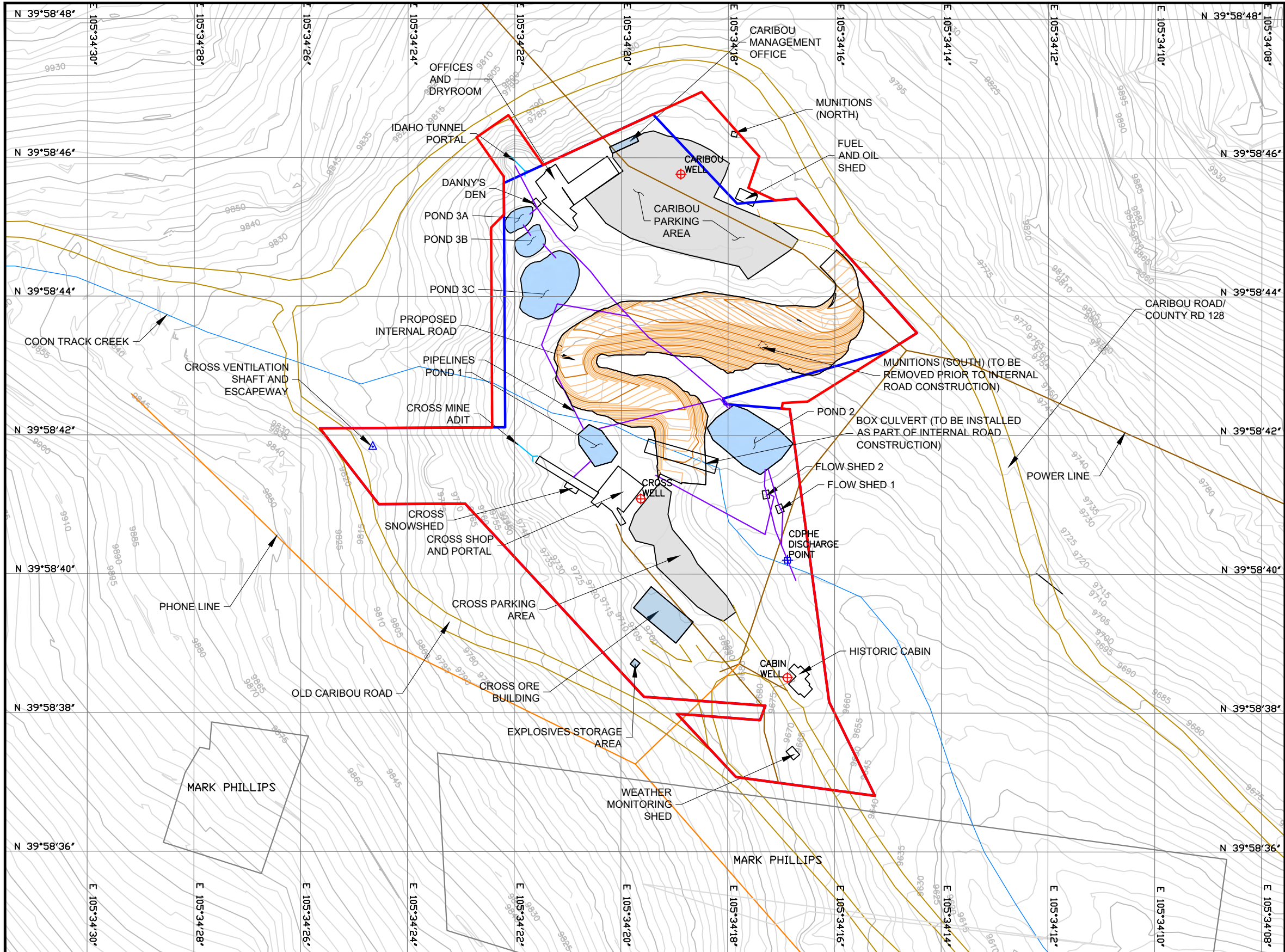


EXHIBIT E - CROSS AND CARIBOU MINES MINING PLAN MAP: CARIBOU 300 AND POTOSI

Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306	MAP
Location: NEDERLAND, COLORADO, USA	Date: JAN. 2022	03

3
REVISION

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20220121.dwg DATE: 1/21/2022 11:59 AM 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 (8.95 ACRES)

POWER LINE (OWNED BY XCEL ENERGY)

PHONE LINE (OWNED BY CENTURY LINK/AT&T)

PIPELINES

NATURAL DRAINAGES

EXISTING ROADS

MINE PORTAL

MINE VENTILATION SHAFT

GROUNDWATER WELL

CHPHE DISCHARGE POINT

NOTES

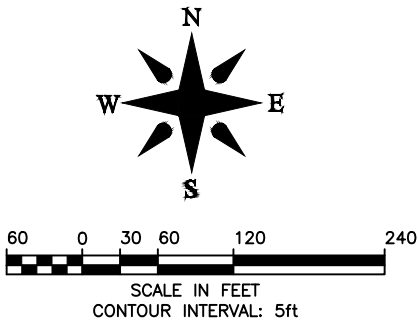
1. THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.

2. PROPOSED ACCESS ROAD ALIGNMENT IS PRELIMINARY DUE TO ONGOING DESIGN.

3. BOX CULVERT ALIGNMENT IS APPROXIMATE.

4. MUNITIONS (SOUTH) IS SHOWN ON MAP DUE TO PRELIMINARY NATURE OF ROAD DESIGN. MUNITIONS (SOUTH) WILL BE REMOVED PRIOR TO CONSTRUCTION OF THE ROAD.

5. THE MAJORITY OF THE WASTE ROCK DUMP WILL BE CONSUMED DURING THE CONSTRUCTION OF THE ROAD.



Rev	Description	By	Date
7	PROPOSED ROAD DESIGN RECEIVED OCTOBER 2021		
6	WETLAND/PLANT SPECIES RECEIVED NOVEMBER 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 NOVEMBER 2021		
	REFERENCE		

Rev	Description	By	Date
3	REVISED PER ADEQUACY REVIEW 3 COMMENTS	GRE	01/21/2022
2	SUBMITTED TO DRMS	GRE	11/22/2021
1	REVISED PER CLIENT'S COMMENTS	GRE	11/19/2021
0	ISSUED TO CLIENT FOR REVIEW	GRE	11/12/2021
	REVISIONS		

Scale: As Shown

Designed by: --

Drawn by: GRE

Checked by: GIR

Approved by: GIR

Prepared by:

Prepared for:

EXHIBIT E: CROSS AND CARIBOU MINES MINING PLAN MAP PROPOSED INTERNAL ROAD

Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION

Location: NEDERLAND, COLORADO, USA

Project No.: 21-1306

Date: JAN. 2022

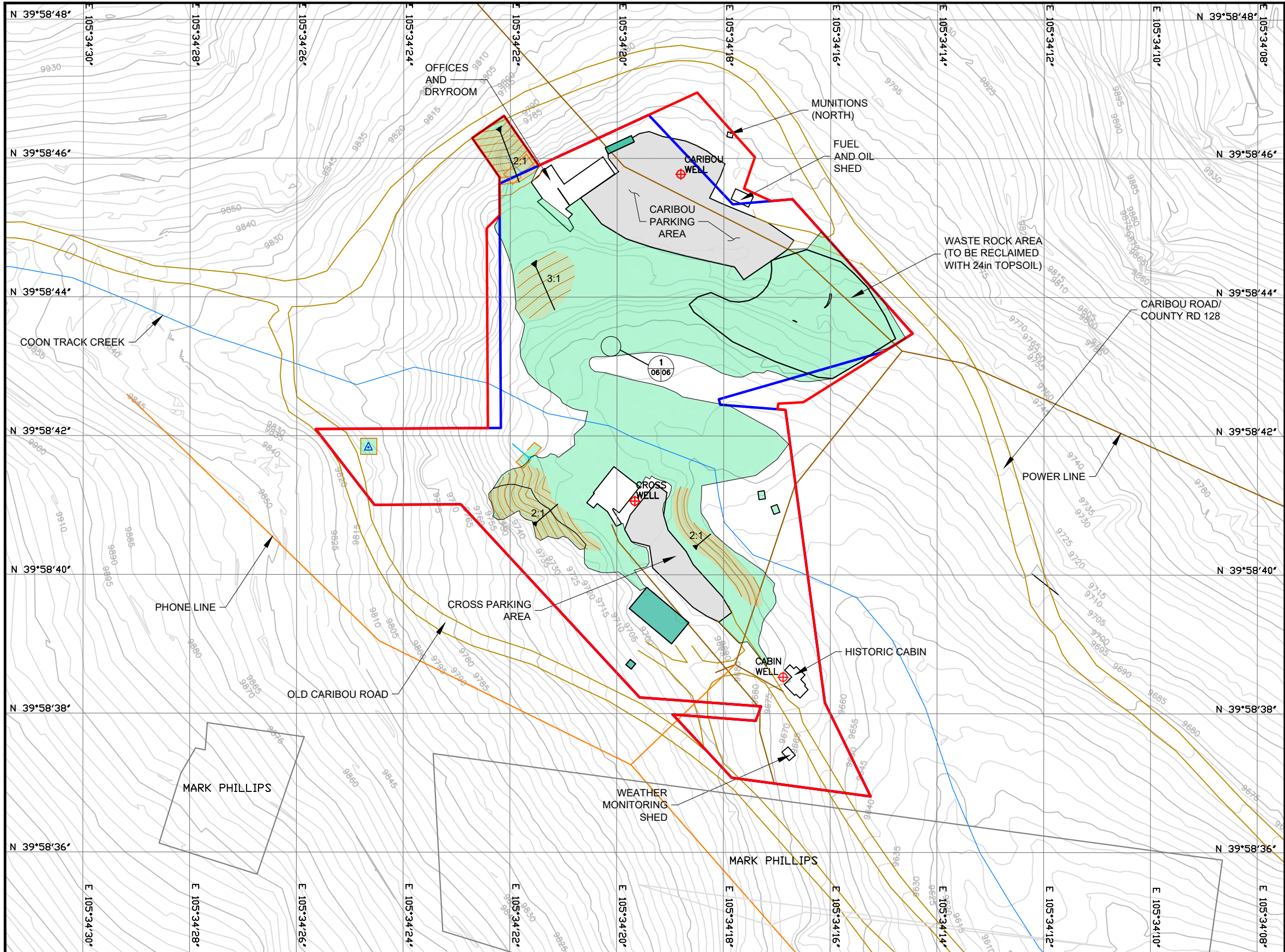
MAP

04

3

REVISION

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20220121.dwg DATE: 1/21/2022 12:00 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 (8.95 ACRES)

POWER LINE (OWNED BY XCEL ENERGY)

PHONE LINE (OWNED BY CENTURY LINK/AT&T)

NATURAL DRAINAGES

EXISTING ROADS

MINE PORTAL

MINE VENTILATION SHAFT

GROUNDWATER WELL

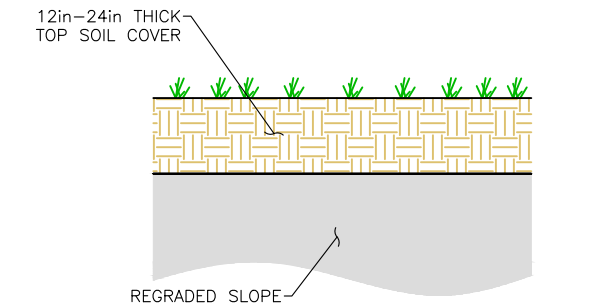
FENCING (RECLAMATION)

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

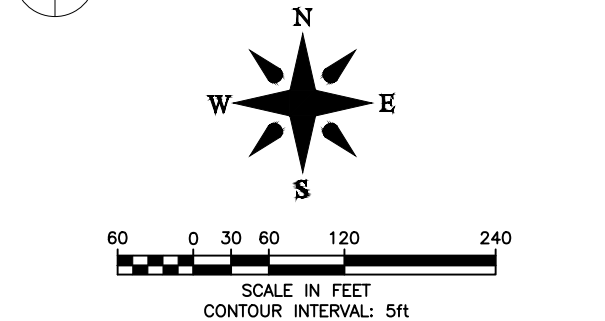
2. PORTALS AND ADITS WILL BE CLOSED ACCORDING TO RECLAMATION PLAN. THEY ARE SHOWN AFTER RECLAMATION BECAUSE SURFACE FEATURES WILL STILL EXIST.

3. 12 INCHES OF TOPSOIL WILL BE PLACED ON ALL RECLAIMED AREAS. 24 INCHES OF TOPSOIL WILL BE PLACED ON THE WASTE ROCK STORAGE AREA.
- 12in THICK TOPSOIL COVER: 152,380.9 sq ft, 3.498 acres

24in THICK TOPSOIL COVER: 31,583.8 sq ft, 0.725 acres



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



Rev	Description	By	Date
7	PROPOSED ROAD DESIGN RECEIVED OCTOBER 2021		
6	WETLAND/PLANT SPECIES RECEIVED NOVEMBER 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 NOVEMBER 2021		
	REFERENCE		

Rev	Description	By	Date
3	REVISED PER ADEQUACY REVIEW 3 COMMENTS	GRE	01/21/2022
2	SUBMITTED TO DRMS	GRE	11/22/2021
1	REVISED PER CLIENT'S COMMENTS	GRE	11/19/2021
0	ISSUED TO CLIENT FOR REVIEW	GRE	11/12/2021
	REVISIONS		

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



EXHIBIT E - CROSS AND CARIBOU MINES RECLAMATION PLAN MAP CROSS/CARIBOU

Project: CROSS AND CARIBOU MINE – AM 2 APPLICATION

Location: NEDERLAND, COLORADO, USA

Project No.: 21-1306

Date: JAN.2022

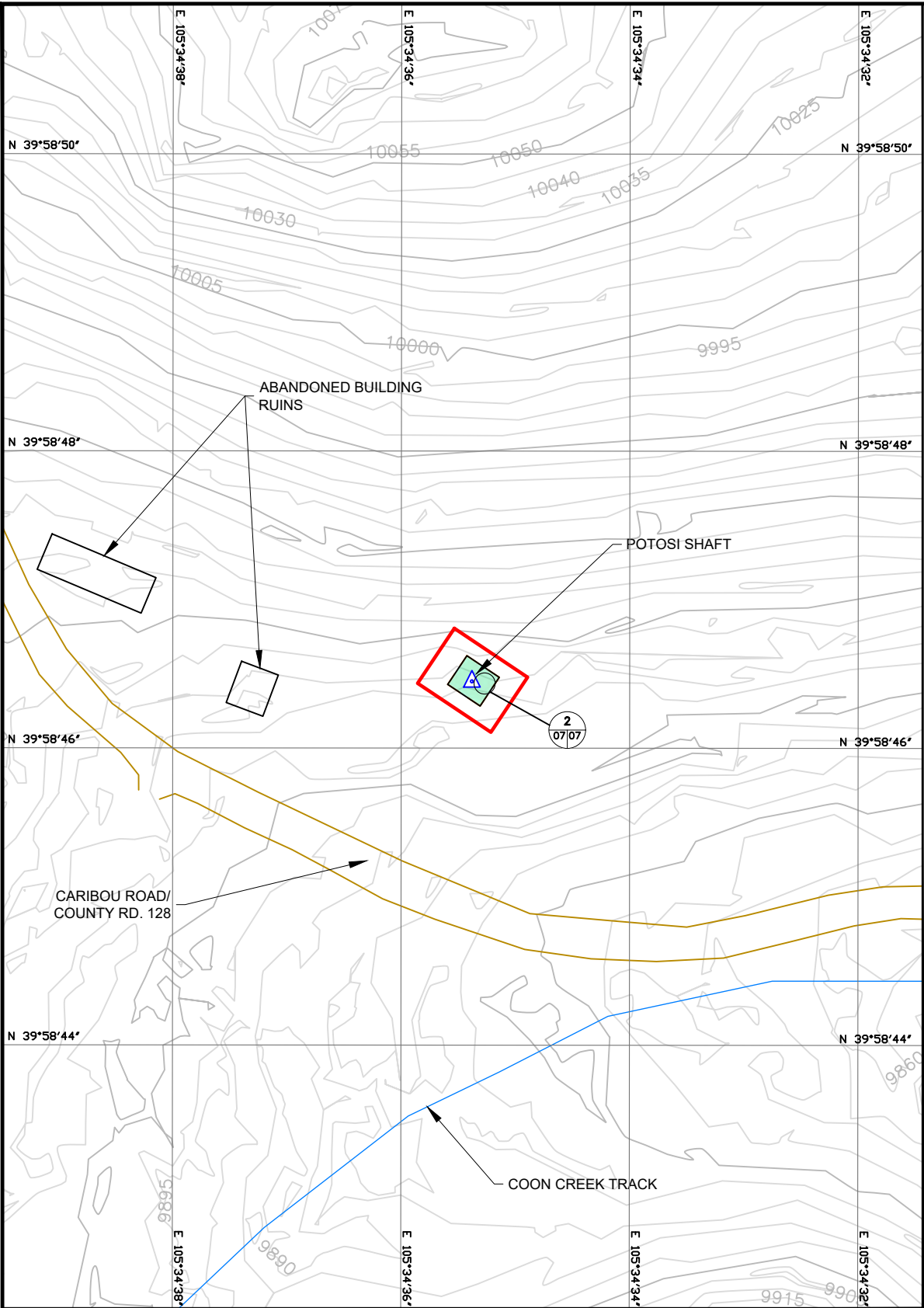
MAP

05

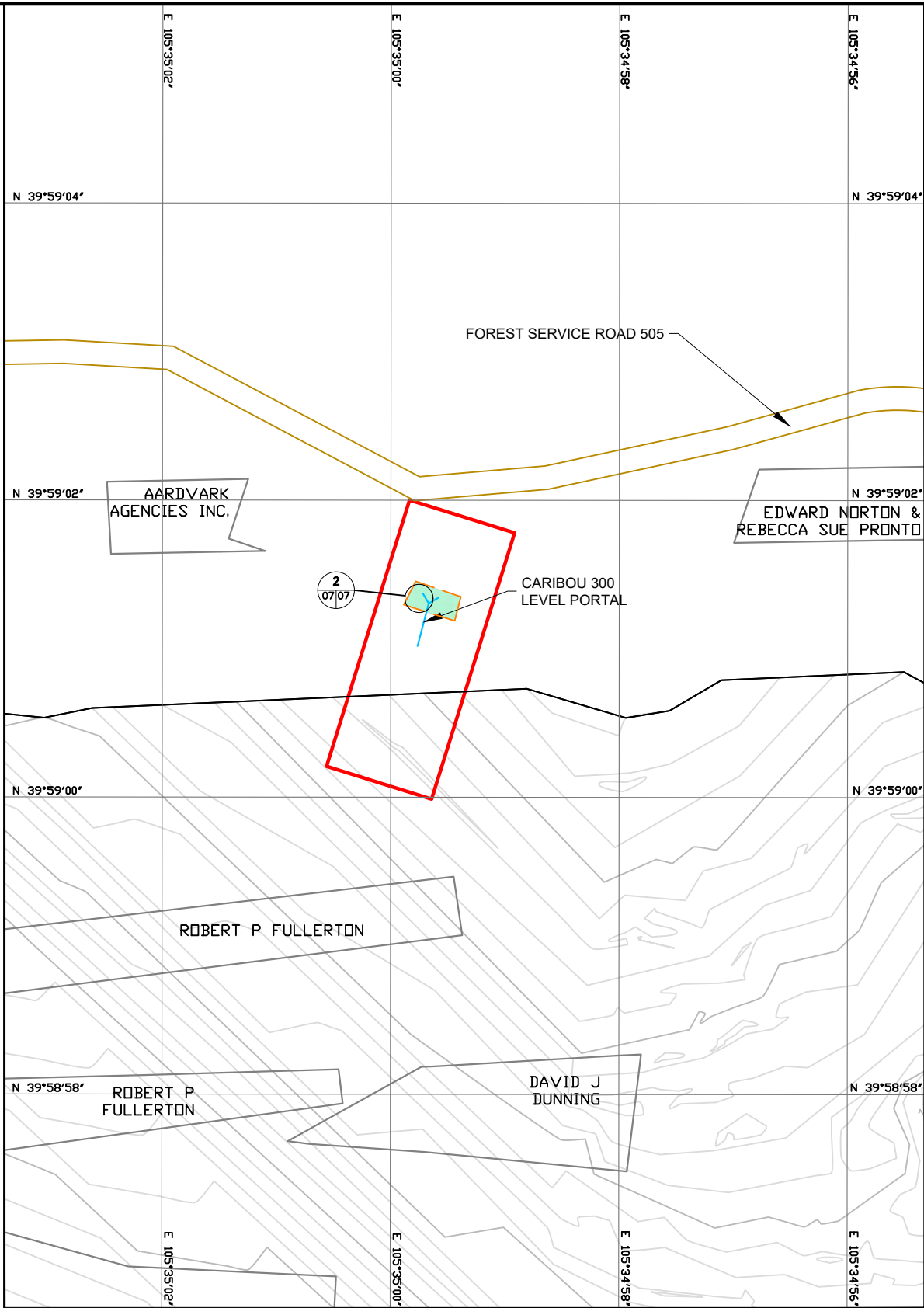
3

REVISION

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20220121.dwg DATE: 1/21/2022 12:01 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON



POTOSI SHAFT

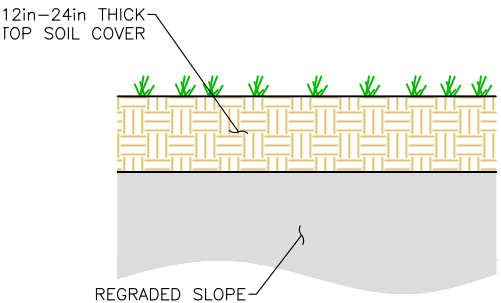


CARIBOU 300 LEVEL

LEGEND

- EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
- SITE GRADING CUT AND FILL SURFACES, RESPECTIVELY
- RECLAIMED AND REVEGETATED
- SITE FACILITIES
- PROPOSED PERMIT BNDRY (NOTE 2)
- NATURAL DRAINAGES
- EXISTING ROADS
- MINE PORTAL
- MINE VENTILATION SHAFT
- FENCING (RECLAMATION)

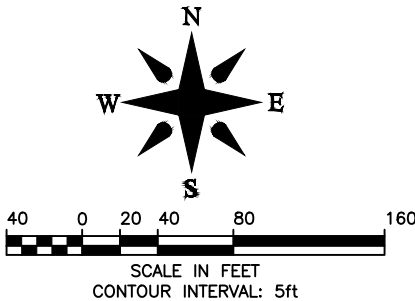
12in THICK TOPSOIL COVER: 1,189 sq ft, 0.0279 acres



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

NOTES

- THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
- THE PROPOSED PERMIT ACREAGE FOR THE POTOSI SHAFT IS 0.06 ACRES; THE PROPOSED PERMIT ACREAGE FOR THE CARIBOU 300 LEVEL PORTAL IS 0.33 ACRES.



Rev	Description	By	Date
7	PROPOSED ROAD DESIGN RECEIVED OCTOBER 2021		
6	WETLAND/PLANT SPECIES RECEIVED NOVEMBER 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 NOVEMBER 2021		
	REFERENCE		

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

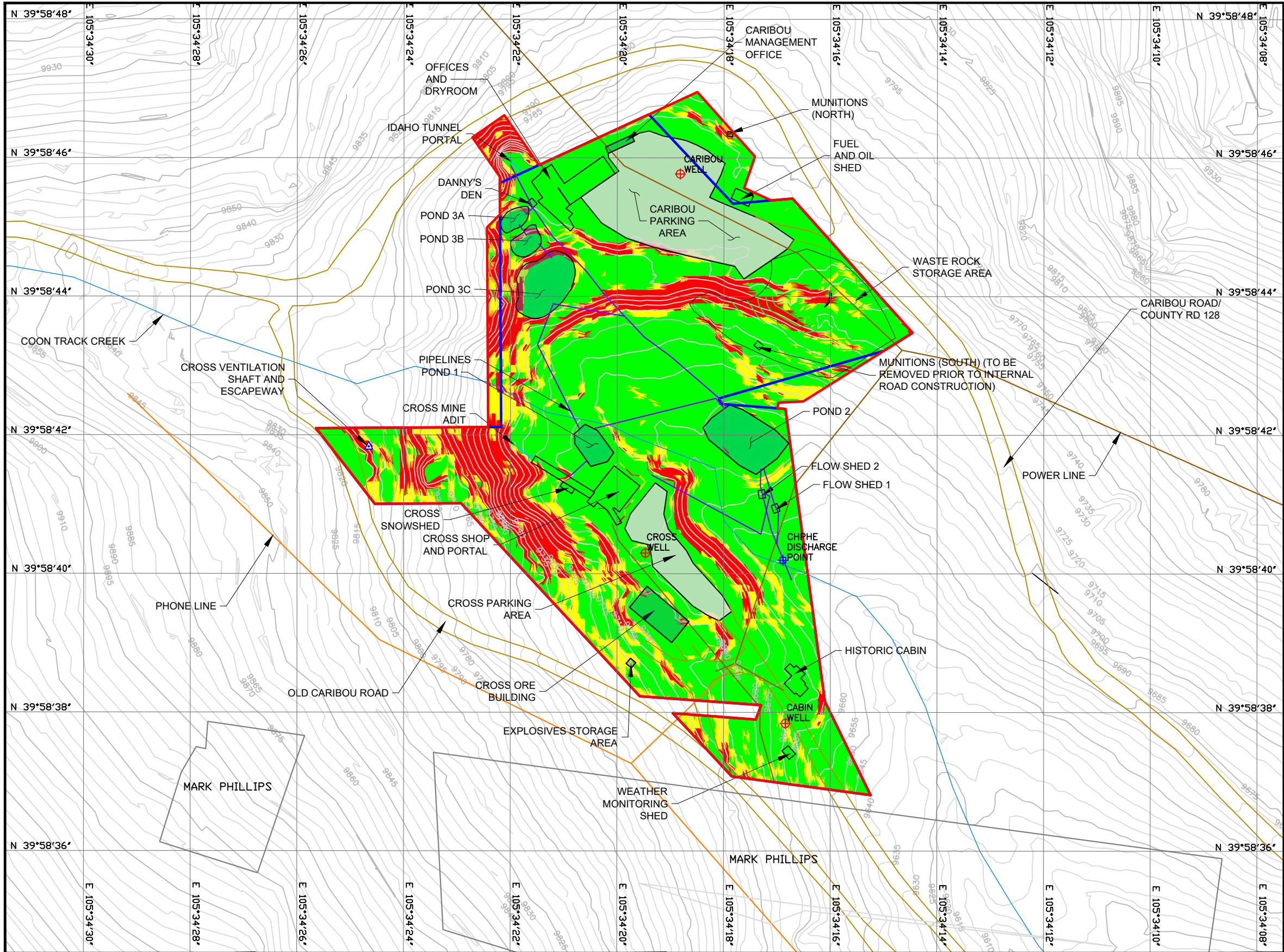


EXHIBIT E - CROSS AND CARIBOU MINES RECLAMATION PLAN MAP: CARIBOU 300 AND POTOSI	
Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306
Location: NEDERLAND, COLORADO, USA	Date: JAN. 2022

3
REVISION

MAP
06

LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20220121.dwg DATE: 1/21/2022 12:01 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON

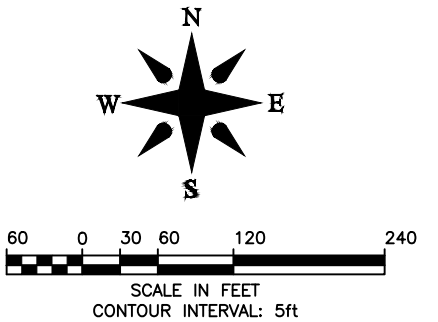


LEGEND

- EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
- EXISTING GROUND \leq 3H:1V
- EXISTING GROUND $>3H:1V$ AND $<2H:1V$
- EXISTING GROUND $\geq 2H:1V$
- SITE FACILITIES
- PROPOSED PERMIT BOUNDARY (9.99 ACRES)
- CURRENT PERMIT BOUNDARY (8.95 ACRES)
- PIPELINES
- POWER LINE (OWNED BY XCEL ENERGY)
- PHONE LINE (OWNED BY CENTURY LINK/AT&T)
- NATURAL DRAINAGES
- EXISTING ROADS
- MINE PORTAL
- MINE SHAFT
- GROUNDWATER WELL
- CHPHE DISCHARGE POINT

NOTES

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



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

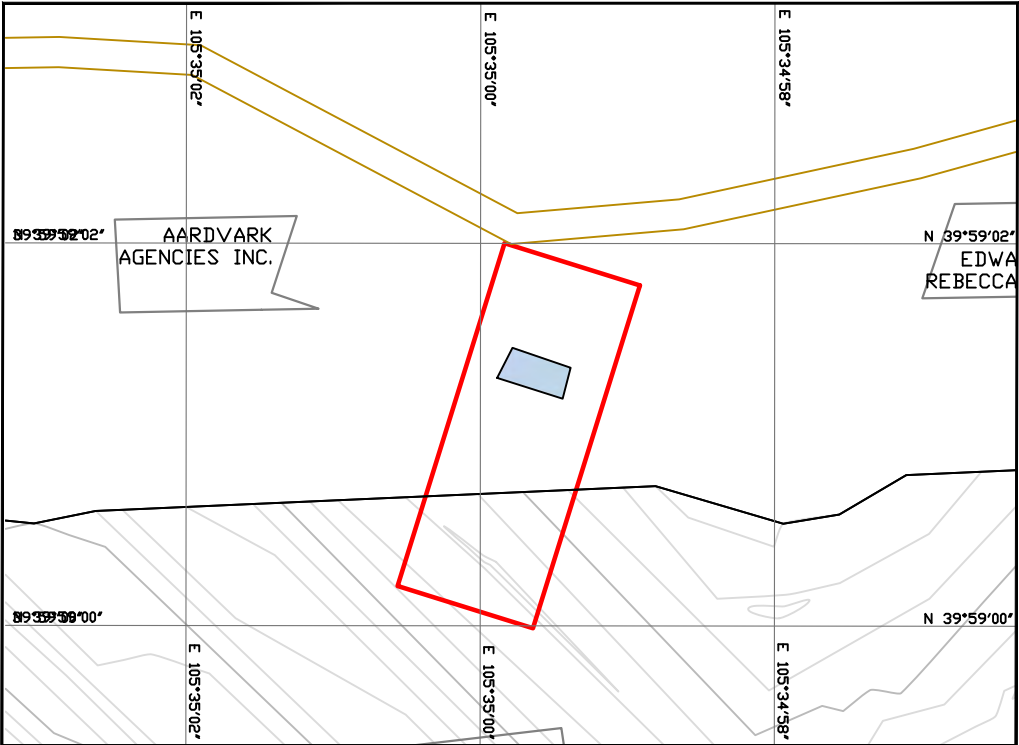
Rev	Description	By	Date
3	REVISED PER ADEQUACY REVIEW 3 COMMENTS	GRE	01/21/2022
2	SUBMITTED TO DRMS	GRE	11/22/2021
1	REVISED PER CLIENT'S COMMENTS	GRE	11/19/2021
0	ISSUED TO CLIENT FOR REVIEW	GRE	11/12/2021

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

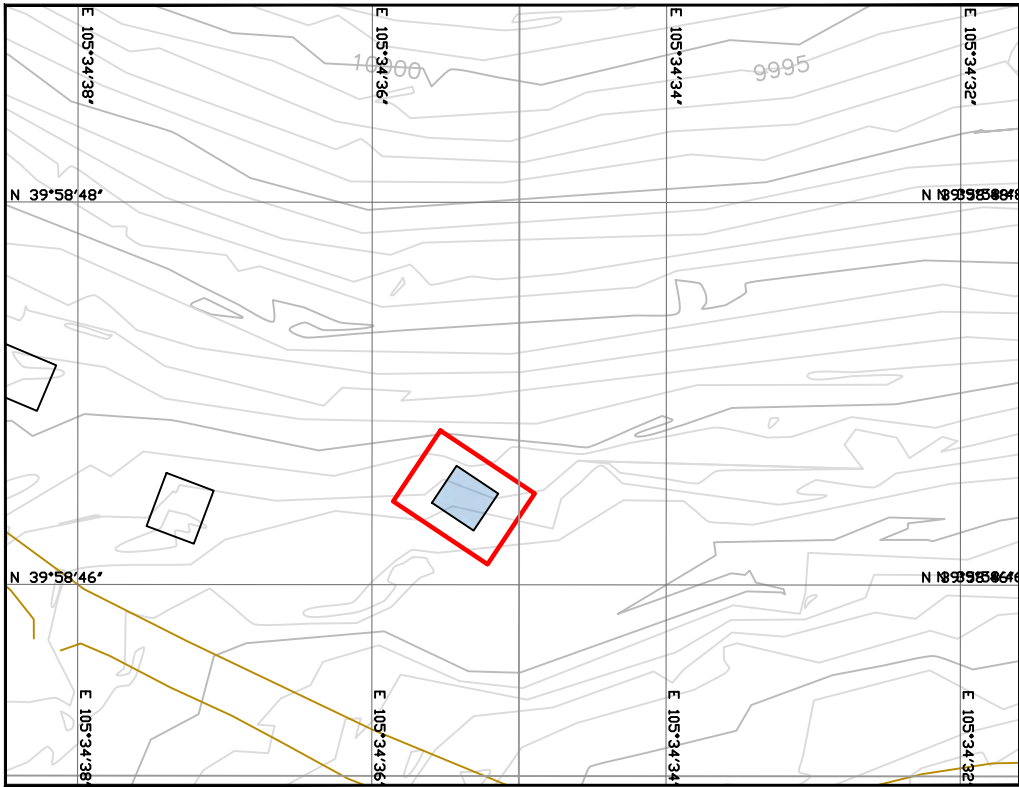


EXHIBIT E - CROSS AND CARIBOU MINES SLOPE ZONE ANALYSIS (EXISTING GROUND)			3 REVISION
Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306	MAP 07	
Location: NEDERLAND, COLORADO, USA	Date: JAN. 2022		

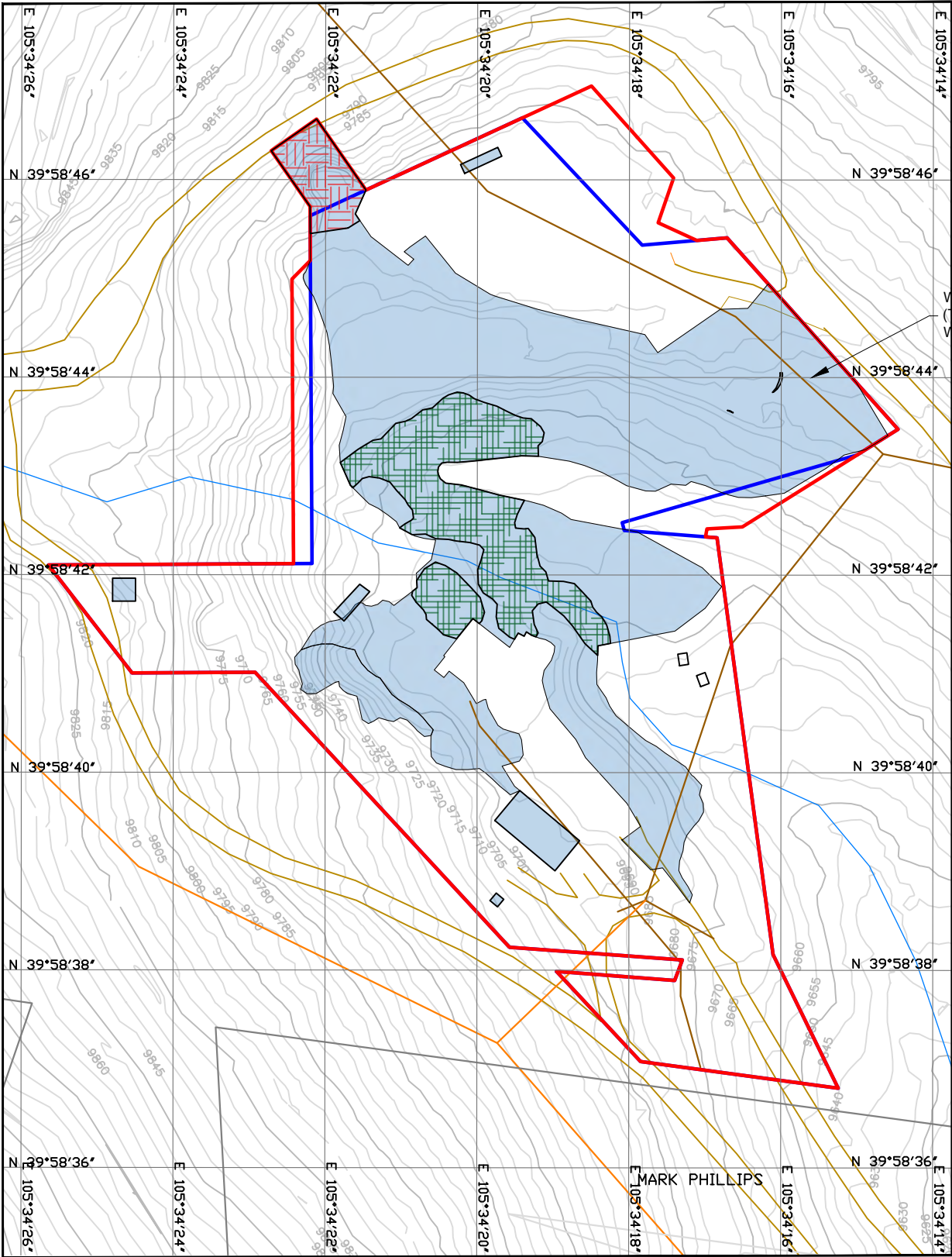
LOCATION: Z:\Projects\21-1306 Cross and Caribou Permitting\ACAD\21-1306_Cross and Caribou_20220121.dwg DATE: 1/21/2022 12:05 PM PLOT SCALE = 1:50.8 PLOTTED BY: SOPHIE SWANSON



CARIBOU 300 LEVEL



POTOSI SHAFT



CROSS/CARIBOU

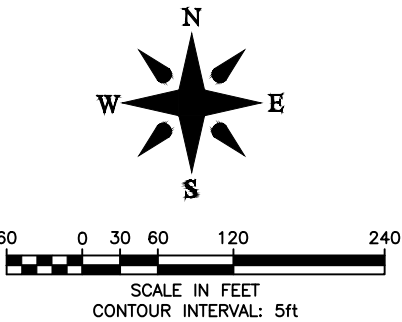
LEGEND

- EXISTING 5ft TOPOGRAPHY CONTOURS (REF. 1)
- SEED MIX: SUBALPINE VEGETATION AREAS (9,000' to TREE LINE)
- RECLAMATION MIX: WETLAND
- RECLAMATION MIX: UPLAND TREE AND SHRUB
- PROPOSED PERMIT BOUNDARY (9.99 ACRES)
- CURRENT PERMIT BOUNDARY (8.95 ACRES)
- NATURAL DRAINAGES
- EXISTING ROADS
- POWER LINE (OWNED BY XCEL ENERGY)
- PHONE LINE (OWNED BY CENTURY LINK/AT&T)

NOTES

- THIS MAP IS A VISUAL REPRESENTATION OF LEGAL DESCRIPTIONS AND SURVEYED SITE FEATURES.
- THE SUB-ALPINE VEGETATION MIX WILL BE APPLIED TO ALL DISTURBED AREAS. THE DISTURBED WETLAND AREAS WILL BE SUPPLEMENTED WITH A WETLAND RECLAMATION MIX. THE DISTURBED IDAHO TUNNEL SLOPE WILL BE SUPPLEMENTED WITH AN UPLAND TREE AND SHRUB RECLAMATION MIX.

SUBALPINE SEED MIX: 185,153.7 sq ft, 4.249 acres
WETLAND RECLAMATION MIX: 28,351.8 sq ft, 0.651 acres
UPLAND TREE & SHRUB RECLAMATION MIX: 6,051.8 sq ft, 0.139 acres



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1	TOPO RECEIVED NOVEMBER 2021		
	REFERENCE		

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

Prepared by:

Prepared for:

EXHIBIT E CROSS AND CARIBOU MINES RECLAMATION MIX MAP	
Project: CROSS AND CARIBOU MINE - AM 2 APPLICATION	Project No.: 21-1306
Location: NETHERLAND, COLORADO, USA	Date: JAN. 2022

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REVISION

MAP
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