

Proposed Decision
and
Findings of Compliance
for the

Trapper Mine
C1981010

Permit Revision No. 11

18 April 2023



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Introduction

The Colorado Division of Reclamation, Mining and Safety (the Division), received an application for a permit revision to conduct surface coal mining and reclamation operations at the Trapper Mine Inc. The application was submitted by Trapper Mining, Inc. (TMI) who operates the mine. The Trapper mine is located on state and private lands within Moffat County, Colorado.

The review process for permit revisions as well as detailed information concerning the findings of compliance are described in the Colorado Surface Coal Mining Reclamation Act (C.R.S. 34-33-101 et seq.) and the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining. Rules referred to in this document are contained within those regulations. Specific information about TMI's mining and reclamation operations can be found in the permit application and permit revision applications on file with the Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, Colorado 80203 and, in DRMS's document management system at the following website:

<http://drmsweblink.state.co.us/drmsweblink/search.aspx?dbid=0>

This Findings document comprises the decision package prepared by the Colorado Division of Reclamation, Mining and Safety (the Division) for TMI, Permit Revision No. 11 (PR11), and includes:

1. The proposed decision to approve the permit revision application.
2. A summary constituting:
 - a. A history of the review of the permit revision application.
 - b. A description of the environment affected by the operation.
 - c. A description of the mining and reclamation plan.
3. The written findings of compliance the Division prepared as required by the Colorado Surface Coal Mining Reclamation Act.

This permit revision (PR11), application comprises an updated mining and reclamation plan for the new permit term. This permit revision proposes to disturb an additional 235.5 acres within the approved permit area during the 2023-2027 permit term and includes expanding the permitted mine area by 137.1 acres on the NW corner of the site.

In the L-Pit, additional dip-line as well as strike-line cuts will be completed. In the western portion of the mine, I Pit (Middle and East) and J-Pits (West) will continue to be opened towards the west in sections and highwall mined. C-Pit, will be opened down dip of previous mining and will be highwall mined. Mining associated with C-Pit are located in areas that were previously surface mined and Phase III released. The 137.1 acres of new permit area are located on the northwest side of the site. When PR11 was submitted, TMI proposed to open a new pit (I-Pit West) and highwall mine into the 137.1-acre expansion area. However, during the adequacy review process, TMI withdrew their proposal to mine I-Pit West. However, TMI still maintains the proposal to expand the permit area as originally proposed with PR11. New mining in the western portion of the site will require the construction and or modification of three sediment control structures. During the 2023-2027 permit term, continued reclamation of the site is proposed and will encompass finish grading, topsoil and

seeding of the D and E Pits, the portion of the Ash Pit that achieves fill elevation, as well as the majority of the active areas in C, I, J, L and N Pits. Out of pit spoil will be replaced once mining is complete and the affected land within this area will be reclaimed as rangeland for livestock grazing and wildlife habitat.

Proposed Decision

The Colorado Division of Reclamation, Mining and Safety Proposes to APPROVE the Application for Permit Revision No 11 (PR11).

The application was submitted by Trapper Mining, Inc. (“TMI”). This decision is based on a finding that the operations comply with all requirements of the Colorado State Program as found in the Colorado Surface Coal Mining Reclamation Act, C.R.S. 34-33-101 et seq., and the Regulations promulgated pursuant to the Act. If no request for a formal hearing is made within thirty (30) days of the first publication of the issuance of this proposed decision, then this decision becomes final. The permit revision will be finalized upon submittal to DRMS of acceptable surety by the applicant if necessary. The permit application, all supporting documentation and any stipulations or conditions become a binding part of the permit.

No coal mining operations may be conducted on any Federal surface or coal until the Assistant Secretary for Lands and Minerals Management (“ASLM”) with the U.S. Department of the Interior has approved any required federal mining plan or modification thereof. On January 3, 2023 the Office of Surface Mining, Reclamation and Enforcement (“OSMRE”) informed DRMS a mining plan modification from the ASLM is not required for PR11.

This proposed decision proposes an additional of 235.5 new acres of surface disturbance within the current permit boundary PR11, as well as a 137.1 acre expansion of the permit boundary in the NW corner of the site. In previous findings document, the Division did not make a distinction between disturbance acreage and affected acreage. However, upon review of these definitions (Rule 1.04(7) and (36)) the Division now finds this distinction is appropriate since surface disturbance is not associated with the underground activities associated with highwall/auger mining. The affected acreage at the Trapper Mine now includes the areas above the highwall/auger mine workings. Much of the affected area underlies the disturbance area at the Trapper Mine. The proposed decision form for PR11 reflects this distinction as the affected area will not equal the disturbance area.

Status of Stipulations

The stipulation history for the Trapper Mine was reviewed with this permit revision application. The review included an investigation of any stipulations imposed, and any responses to existing stipulations received, since the last permit renewal. Any stipulations associated with this permit and issued over the life of this operation which are not discussed in this findings document have been complied with or have been terminated.

New Stipulation:

Stipulation #23 attached with this permitting action comprises the following:

Prior to affecting the 25.4 acres located in the L pit and 4 acres near the J Pit as per the areas of interest shown on Map M45 “Cultural Resources Surveys Conducted on and Adjacent to the Trapper

Mine”, submitted as a revised map with this permitting action on 5 April 2023, TMI must submit the following:

1. A minor revision that includes the results of a cultural resources inventory conducted on the 25.4 acres located in the L pit and the 4 acres near the J Pit area as shown on permit map M45. These cultural survey results shall be submitted from the cultural resources specialist who conducted the inventory in the form of a full inventory report or a statement of findings. The inventory must be a class III cultural resource inventory completed by a cultural resource specialist who meets the Secretary of Interior’s Standards. The results must indicate if any cultural and historic resources listed or eligible to be listed on the National Register of Historic Places and any significant known archaeological sites were identified during the inventory per Rule 2.04.4. If any are identified, TMI must revise the permit to include the required information to satisfy Rule 2.05.6(4) prior to affecting this area. If no resources are identified, once the minor revision is approved and issued, TMI could proceed to affect this area.
2. If the minor revision discussed above only included a statement of findings describing the results of the inventory, TMI shall submit a separate minor revision that includes the full detailed inventory report prepared by the cultural resource specialist.

Appendix A, at the end of this document provides views depicting the locations of stipulated areas extracted from Trapper Mine’s Map 45, “*Cultural Resources Surveys Conducted on and Adjacent to the Trapper Mine*”, submitted with the PR11 permitting action.

Summary

Utah International Inc. began exploration drilling operations for Trapper Mine in 1954 to obtain geologic information on the structure of coalbeds and estimates of mineable coal reserves. In 1973, Utah International Inc. and four electric utilities signed a contract for delivery of coal to fuel the Craig Generating Station. This coal delivery obligation of approximately 111 million tons over a 52 year period required strip mining six to seven thousand acres of land since the mining activities began in 1976.

Environmental studies for the Trapper Mine began in 1972 and intensified in 1973 and 1974. Most of those studies will continue throughout the life of the project. Trapper Mine endeavors to reclaim disturbed lands to as good as or better condition than before mining. A high priority is attached to the reclamation programs, all of which are designed to protect wildlife, water, air quality and other environmental resources of the mine area.

The shop and warehouse buildings were completed in November 1975, while the office complex was completed in November of 1976. The construction of the first of three, 30 cubic yard walking draglines started in February 1976.

Actual mining operations began in May, 1977, and coal deliveries started in August 1978.

The original owner of Trapper Mine was Utah International, Inc. an international mining company. All initial permitting and mining efforts were performed by Utah International. In July 1982, Utah International formed the subsidiary, Trapper Mining Inc. to consolidate and hold the properties and

rights that make up Trapper Mine. The owners of the Craig Generating Station, the electric utility receiving its coal from Trapper Mine, purchased Trapper Mining Inc. in July of 1983.

This findings document replaces Trapper Mine's previous findings document associated with Permit Renewal RN8. Please note that much of the information in this document is derived from those previous documents.

The Review Process: Permit History and Revisions

No revisions have been approved since the last permit renewal (RN8) issued in February 2023. For details regarding the revision history please refer to the RN8 findings documents available on the Laserfiche weblink here:

<https://dnrweblink.state.co.us/drms/search.aspx?cr=1>

Enforcement Actions

No enforcement actions have been issued since the last midterm review.

The PR11 Review Chronology

- DRMS received TMI's application 14 October 2022.
- DRMS found the application complete 24 October 2022.
- TMI published its public notice weekly for four consecutive weeks beginning 2 November 2022.
- No objections or requests for informal conferences were received by DRMS during the public comment period.
- DRMS on 9 November 2022 requested a Section 7 consultation for the PR11 permit revision from the United States Fish and Wildlife Service (USFWS). On 7 December 2022 DRMS received an email from USFWS requesting additional information regarding jurisdictional questions and DRMS responded and USFWS provided concurrence on April 13, 2023.
- The State Historical Preservation officer, through History Colorado, provided letters to DRMS on 7 November 2022 and 3 February 2023 requesting additional cultural surveys to cover lands previously identified as possibly exhibiting cultural resources. As a result of this consultation, Stipulation 23 was added to the permit.
- Colorado Parks and Wildlife sent a comment letter dated 7 November 2022.
- The State Land Board provided a letter on 10 March 2022 stating that they had no objections to the application.
- OSMRE on 3 January 2023 deemed that a mine plan modification was not necessary and BLM concurred with the finding.
- DRMS reviewed the application and sent TMI preliminary adequacy questions 23 December 2022. DRMS received TMI's preliminary adequacy responses 20 January 2023. DRMS reviewed TMI's response to adequacy and sent a second adequacy letter on 29 February 2023. Adequacy specific to DRMS's cost estimate were finalized by DRMS 3 February 2023. Adequacy questions specific to Rules 2.05.6 and 4.05 were sent to TMI on 3 April 2023. On 5 April 2023 DRMS received TMI's response to DRMS's 29 February and 3 April 2023 adequacy. On 7 April 2023 DRMS found TMI's response to adequacy questions specific to Rules 2.05.6 and 4.05 to be adequate.

Description of the Environment

Location of Permit Area

With the PR11 permitting action, Trapper Mine expanded the permit boundary in the northwest portion of the mine. The legal description of the lands included within the permit area of the Trapper Mine follows:

Township 5 North, Range 90 West

Section 4 $W\frac{1}{2}NW\frac{1}{4}$, $W\frac{1}{2}SW\frac{1}{4}$, $SE\frac{1}{4}SW\frac{1}{4}$, $NE\frac{1}{4}SW\frac{1}{4}$ south west of Moffat County Road 33,
 $W\frac{1}{2}W\frac{1}{2}NE\frac{1}{4}NW\frac{1}{4}$, $W\frac{1}{2}W\frac{1}{2}SE\frac{1}{4}NW\frac{1}{4}$

Section 5 All

Section 6 $N\frac{1}{2}$, $N\frac{1}{2}S\frac{1}{2}$ Section 8 $N\frac{1}{2}NW\frac{1}{4}$, $N\frac{1}{2}NE\frac{1}{4}$

Section 9 $N\frac{1}{2}NW\frac{1}{4}$, $NW\frac{1}{4}NW\frac{1}{4}$ south west of Moffat County Road 33

Township 5 North, Range 91 West

Section 1 $N\frac{1}{2}$, $SW\frac{1}{4}$, $N\frac{1}{2}SE\frac{1}{4}$, $SW\frac{1}{4}SE\frac{1}{4}$

Section 2, Section 3 All

Section 4 $E\frac{1}{2}$, $E\frac{1}{2}E\frac{1}{2}SW\frac{1}{4}$, $E\frac{1}{2}SE\frac{1}{4}NW\frac{1}{4}$, $NE\frac{1}{4}NW\frac{1}{4}$

Section 5 $NE\frac{1}{4}$

Township 6 North, Range 90 West

Section 30 $SW\frac{1}{4}$

Section 31 All

Section 32 $S\frac{1}{2}$, $S\frac{1}{2}N\frac{1}{2}$, $NW\frac{1}{4}NW\frac{1}{4}$

Section 33 That portion which lies west of the ROW of Moffat County Road 33

Township 6 North, Range 91 West

Section 21 That portion containing Trapper Mining Inc. access

Section 25 $S\frac{1}{2}$, $S\frac{1}{2}N\frac{1}{2}$

Section 26 $S\frac{1}{2}$, $S\frac{1}{2}N\frac{1}{2}$

Section 27 $S\frac{1}{2}$, $S\frac{1}{2}N\frac{1}{2}$, $S\frac{1}{2}N\frac{1}{2}NE\frac{1}{4}$, $SE\frac{1}{4}NE\frac{1}{4}NW\frac{1}{4}$

Section 28 $S\frac{1}{2}$, $N\frac{1}{2}$ east of County Road 107 excluding the portion north of the Trapper Mine access road

Section 29 $SE\frac{1}{4}$, $E\frac{1}{2}SW\frac{1}{4}$, $E150'W\frac{1}{2}SW\frac{1}{4}$. Section 32 $E\frac{1}{2}$, $E\frac{1}{2}W\frac{1}{2}$, $E150'W\frac{1}{2}W\frac{1}{2}$

Section 33, Section 34. Section 35 and Section 36 All.

The Castor Gulch and Breeze Mountain USGS 7.5-minute quadrangle maps contain the location of the affected area.

Trapper Mine is located in northwest Colorado along the northern slope of the Williams Fork Mountains, approximately six miles southwest of the City of Craig. The boundaries of the permit area are about six miles long (east to west) by two miles wide (north to south) as shown on Map 1 below.



Map 1: *The 11294 acre Trapper Mine permit boundary and the area's typical pre mine dendritic drainage pattern as per the NHD Hydrology Dataset. The permit boundary expansion is shown in the northwest corner of the boundary.*

Physiographic Setting

Trapper Mine extends across the northern slope of the Williams Fork Mountains between elevations of 6,500 ft. and 7,800 ft. The crest of the Williams Fork Mountains forms a long ridge extending east/west at elevations between 7,400 and 7,800 ft. The Yampa River flows generally from east to west a short distance north of the permit area. The Williams Fork River skirts the south side of the mine site and flows into the Yampa River one mile west of the mine.

Geologic Setting

The bedrock at the ground surface in the Trapper permit area is an interbedded sequence of sandstones, siltstones, shale, and coals comprised of the Cretaceous-age Williams Fork Formation. The Williams Fork Formation forms part of the regionally extensive Mesa Verde Group. Younger unconsolidated alluvial deposits of Quaternary age form a thin mantle over the Williams Fork Formation in stream drainages. Structurally, the mine is situated on the south limb of the northwest-plunging Big Bottom syncline. Major faults extend across the region, but none have been found in the permit area.

Coal Seam Stratigraphy

The Williams Fork Formation is stratigraphically subdivided into three units or members. These, in ascending order are:

1. the lower Williams Fork
2. the Twentymile sandstone
3. the upper Williams Fork

with individual thicknesses of 920 ft. 100 ft. and 680ft. respectively. The coal seams being mined at Trapper Mine are all in the upper Williams Fork member and their nomenclature, in descending order, consists of:

- F
- G2
- H
- I
- L
- M
- Q and Q rider
- R and R rider.

Surface Water Hydrology

Drainages within and adjacent to the permit area (on the north facing slope) drain south to north in a dendritic pattern as illustrated in Map 1 above. Drainages flow primarily in response to snowmelt and /or heavy rains, eventually discharging to the Yampa River. Drainages in the southern portion of the permit area drain southward to the Williams Fork River. Natural surface waters are of a calcium-magnesium-sulfate type, with total dissolved solids content commonly greater than 1000 mg/l in the smaller streams, and less than 1000 mg/l in the largest streams. Total dissolved solids concentrations commonly peak during periods of low stream flows; during high flows, waters are diluted, resulting in low concentrations.

Ground Water Hydrology

Within the general area of the Trapper Mine, ground water exists in both bedrock and alluvial aquifers. Significant bedrock aquifers are the Trout Creek, Middle, Twentymile, and White sandstones. The Middle, Twentymile and White sandstones lie within the Williams Fork Formation; the Trout Creek sandstone is the uppermost member of the underlying Iles Formation. The major alluvial aquifers in the area are associated with the Yampa and Williams Fork Rivers. Many of the coal seams, discontinuous sandstones, siltstones and some of the smaller alluvial bodies in the area of the mine are also water bearing. These, however, characteristically contain insufficient quantities of water to be considered significant aquifers. Of the bedrock aquifers, the Twentymile sandstone produces the best quality ground water, a bicarbonate-type possessing a relatively low total dissolved solid content of less than 600 mg/l. Ground water in the White sandstone contains total dissolved solids generally greater than 600 mg/l due to high levels of sulfate and bicarbonate. Ground water in the coal-seam aquifers and interbedded sandstones and siltstones is commonly of poor quality with total dissolved solids greater than 1000 mg/l due to high levels of bicarbonate and sodium.

Regional Climate

The region has a highland continental climate characterized by low precipitation, large fluctuations in diurnal temperatures, low humidity, moderate wind speeds, and high levels of insolation (exposure to sunlight). The Craig area is in the rain/snow shadow of mountain ranges to the west and south and consequently has a high number of dry, clear days.

Local Climate

The climate of the Craig, Colorado area is characteristic of semi-arid steppe regions. Average annual precipitation for the town of Craig, six miles north of Trapper, is 13.5 inches, of which over one third is snowfall (averaging 66.5 inches/year). Trapper Mine's average annual precipitation is 16.7 inches. Mean annual temperature in Craig is 43°F, with recorded extremes of -45°F and 100°F. Winds predominate from the west, but are locally modified by topographic features. The growing

season for the area in the vicinity of Craig averages 77 frost-free days.

Soil Types, Characteristics and Distribution

Three soil orders are found in the permit area:

1. Aridisols
2. Entisols
3. Mollisols.

Characteristic of fairly steep, semi-arid regions of northwestern Colorado, they represent soils grading from recently developed soil bodies with minimum horizon development (Entisols) to older soils comprising well defined diagnostic horizons (Mollisols). Overall, the soils found in the permit area are relatively deep and well drained exhibiting effective rooting depth ranges from two to sixty inches. The deepest soils yielding the greatest rooting depths occur in valleys and on the leeward sides of ridges. Soil reaction is slightly acid to moderately alkaline over the permit area with the exception of inclusions of small scattered areas with saline substrata. These small areas have probably formed in place from weathered sodic shale.

Vegetation Distribution

Vegetation in the area grows largely in response to macro-climatic influences of the region. The north-facing slopes, having moderate to deep soils characterize a relatively mesic moisture regime and favorable levels of insolation throughout the year, exhibit well-developed mountain shrub communities. On colluvial toe slopes, communities dominated by sagebrush and grasses occur. On the south-facing slopes behind the ridgeline of the Williams Fork Mountains, vegetative communities are less developed with respect to cover, density, and production due to the less favorable soils, moisture regime, and increased solar insolation. The trend in these areas is toward communities dominated by juniper, pinon, mountain mahogany and xerophytes.

Historical farming and ranching within the current permit area modified, to varying degrees, natural vegetative communities. Much of the land along toe-slopes and valley bottoms was cleared of native vegetation and is currently used for dry land agriculture. Most of the north-facing slopes in the area have been historically used for the grazing of sheep and /or cattle. These activities produced a mosaic of vegetation communities in the permit area comprised of mountain shrub, sagebrush/grass, and pinon/juniper.

Wildlife

Fauna are diverse in and adjacent to the permit area due to the wide variety of habitat types and include: Antelope, Mule deer, Elk, Blue grouse, Columbian sharp-tail grouse, and sage grouse. All are residents or occasional residents of the permit area, as are numerous types of waterfowl, song birds and raptors. The area provides habitat and migration routes for antelope, elk and mule deer. Raptors, several species of game birds, and numerous smaller mammals are found in the Williams Fork Mountains and surrounding areas.

Land Uses

Land uses in the area are rangeland, wildlife habitat, and agriculture. Cattle and sheep graze in the Williams Fork Mountains. Dry land wheat is cultivated on colluvial toe slopes of the Williams Fork Mountains. Native hay and dry land wheat are cultivated on the soils of the Yampa and Williams Fork River valleys.

Description of the Operation and Reclamation Plans

The current permit area covers 11,156.69 acres. This PR11 application will allow the company to continue mining and reclamation as currently approved while expanding the permit boundary by 137.1 acres to comprise a total of 11,293.79 acres.

Mining Method

Total cumulative coal production over the life of the Trapper mine is projected to be a maximum of 74 million tons. Coal mining occurs at the Trapper Mine using surface mining methods and auger mining. For surface mining, draglines remove overburden and interburden, while front-end loaders and haul trucks remove the coal seams. Trapper Mining, Inc. has historically oriented the pits north-south, parallel to the downhill dip of the coal seams. PR5 reoriented pits G, F and Z (East F-Pit) parallel with the strike of the coal seams in an east-west direction. Strike line pits progress from north to south. Each successive pit cut occurs next to and parallel to the previous cut. When more than one seam is recovered in a pit, partings are removed by dozer, or backhoe, or similar equipment if thin; or by dragline, if thick.

The October 2006 landslide in the East Panel of Trapper Mine created a need for a change in mining methods for the East Panel area, resulting in Permit Revision PR6. The K-Pit and L-Pit (originally identified as G Pit) were originally planned as dragline pits, consistent with Trapper's historical mining method.

Strip Pits

Trapper mined or plans to mine coal from the following four pits during the 2023-2027 permit term:

1. Lancaster (L), Pit
2. Nighthawk (N) Pit
3. I Pits (East, Middle)
4. J Pit (West), and
5. C Pit

Pits advance generally southward. Individual cuts in pits are as much as 6,000 ft. long. The maximum width of a cut is 200 feet. In 2002, D-Pit progressed to the point that it merged with E-Pit. This combination D/E-Pit is approved for ash disposal, however TMI plans to reclaim this pit as there is no longer a need to utilize the D and E Pits for ash disposal. A (Ashmore) pit remains open for ash disposal (see description of ash disposal below). Highwall mining in I Pit began in 2021. I and J Pits comprise single seam pits to the F and G2 seams. N Pit was opened in 2021 for highwall mining in the L, M and Q seams. C Pit proposes mining in L seam and down to the Q seam. Opening I Pit West was initially proposed and has since been withdrawn from the R11 permitting action.

Auger/Highwall Mining

Auger or "highwall mining" is conducted in the end walls of the C, I, J, L and N pits. The pits are developed in sections from west to east with contemporaneous backfilling minimizing the out-of-pit spoil placement. An HW N800 Addcar System is utilized. A launch vehicle platform, sitting on the boxcut floor controls the systems functions, rigid conveyor cars each fitted with a belt conveyor are fed by a remote controlled underground continuous miner. Real Time feedback to the outside

operator from video cameras and a HORTS guidance system provides three dimensional locations. Gamma sensors in the cutting head provide the ability to sense roof and floor rock to maintain the miner in the coal seam. Auger depth of penetration and coal recovery vary depending on coal seam splitting, thinning or pinching, coal quality, roof and floor integrity, and machine limitations. Penetration depths at 1,200 feet or less are common. All highwall mining must comply with Rule 4.23.2. Additional mining of this type is proposed with PR11 for the 2023-2027 permit term.

Removal of Topsoil and Overburden

Prior to disturbance, and in advance of pit construction, vegetation is cleared and topsoil is removed and salvaged. Stockpiled soils are shaped and seeded to establish vegetation for protection from wind and water erosion. After topsoil removal, the overburden is drilled and blasted in advance of the pit. Overburden is then stripped by draglines, scrapers, truck/loader or bulldozers. Finally, front-end loaders load coal into 90-ton haul trucks, which deliver the raw coal to the Craig Power Plant.

Trapper removed 24.6 billion cubic yards (BCY) of spoil material in the K-Pit and placed the material in a permanent fill that is known as Horse Gulch Fill. Additional spoil from the K-Pit is also placed north of the pit and elsewhere on the site to meet the requirements of the post-mine topography. The Horse Gulch fill is completed. The only portion of Trapper's operation located downslope from the Horse Gulch Fill is Trapper's Horse Gulch sediment control pond.

Backfilling of Pits

After removing coal from economically recoverable coal seams, associated pits are backfilled with spoil (overburden and interburden) and then graded by dragline and dozers. As a dragline removes overburden and interburden, spoil ridges are created by dumping the material from a recently open pit into a recently mined out pit. Dozers and graders then smooth the spoil ridges and blend the ridges into the existing topography.

Timing of Backfilling and Grading

The Operator committed to the regulatory requirements of contemporaneous reclamation: that there will never be more than four ungraded spoil rows (including the active one) at any one time.

Topsoiling and Seeding

After final grading of the spoil ridges, topsoil is placed on the spoil to a depth of 18 inches on cropland and 12 inches on rangeland. A variation of +/- 2 inches is allowed due to compaction and operational considerations. Areas are then seeded with one of three main seed mixes, depending on the elevation. Seed mixes contain various native grasses, forbs and shrubs, while the lowest elevation site seed mix contains only grasses and forbs. Shrub clumps of approximately 1.6 acres are also located throughout the reclaimed areas. Seeding occurs by both drill and broadcasting methods.

Long-Term Ash Disposal Plan

The applicant continues to backfill Ashmore pit with ash from the Craig Power Plant. Ash will not be disposed in Enfield/Derringer pits, as the power plant has reduced its coal consumption, shutting down one tower, with the closure of the power plant slated for 2028. The ash is approximately 60% fly ash, 20% bottom ash, and 20% scrubber sludge. A maximum of 5,250 tons per day of the waste will be disposed of at the Trapper Mine with an average of 1,222 tons per day expected. This is equivalent to an average annual volume of waste of about 231 acre-feet, after compaction. The

applicant expects this waste burial process will continue for the life of the mine. Down-gradient ground water monitoring wells are in place to detect any potential degradation of the ground water due to leachate through the ash waste pile.

Findings of the Colorado Division of Reclamation, Mining and Safety for Trapper Mine

Explanation of Findings

Pursuant to Rule 2.07.6(2) of the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining, and the approved state program, the Division of Reclamation, Mining and Safety or the Board must make specific written findings prior to issuance of a permit, permit renewal or permit revision. These findings are based on information made available to the Division that demonstrates that the applicant will be able to operate in compliance with the Colorado Surface Coal Mining Reclamation Act and the Regulations promulgated pursuant to the Act.

The findings in the following sections required by Rule 2.07.6(2) are listed in accordance with that Rule. The findings and specific approvals required pursuant to Rule 2.07.6(2)(m) are listed in accordance with Rule 4 and are organized under subject or discipline subtitles.

This findings document has been updated for this permit revision (PR11). The following findings have been reevaluated and updated if necessary to reflect changes which will occur as a result of this permit revision. Any stipulations from the original permit and findings document or subsequent revisions that have been totally resolved to the satisfaction of the Division have been removed from this document.

Section A – Findings Required by Rule 2.07.6

1. The permit application is accurate and complete. All requirements of the Act and these rules have been complied with (2.07.6(2)(a)).
2. Based on information contained in the permit application and other information available to the Division, the Division finds that surface coal mining and reclamation can be feasibly accomplished at the Trapper Mine (2.07.6(2)(b)).
3. The assessment of the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance, as described in 2.05.6(3), has been reviewed for PR11 by the Division. This assessment, entitled Yampa River Cumulative Hydrologic Impact Assessment (CHIA), is available for inspection at the offices of the Division.

Please refer to Section B.III. E (Probable Hydrologic Consequences), of this document for additional discussion of the predicted hydrologic consequences of mining operations at Trapper Mine. The Division finds that the operations proposed under PR11 are designed to prevent damage to the hydrologic balance outside the proposed permit area in

accordance with Rule 2.07.6(2)(c).

4. The Division finds that the affected area is, subject to valid rights existing as of August 3, 1977, not within:
 - a) An area designated unsuitable for surface coal mining operations (2.07.6(2)(d)(i));
 - b) An area under study for designation as unsuitable for surface coal mining operations (2.07.6(2)(d)(ii));
 - c) The boundaries of the National Park System, the National Wildlife Refuge System, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System including rivers under study for designation, and National Recreation Areas (2.07.6(2)(d)(iii)(A));
 - d) Three hundred feet of any public building, school, church, community or institutional building, or public park (2.07.6(2)(d)(iii)(B));
 - e) One hundred feet of a cemetery (2.07.6(2)(d)(iii)(C));
 - f) The boundaries of any National Forest unless the required finding of compatibility has been made by the Secretary of the U.S. Department of Agriculture (2.07.6(2)(d)(iii)(D));
 - g) One hundred feet of the outside right-of-way line of any public road except where mine access or haul roads join such line, and excepting any roads for which the necessary approvals have been received, notices published, public hearing opportunities provided, and written findings made (2.07.6(2)(d)(iv));
 - h) Three hundred feet of an occupied dwelling unless a written waiver from the owner has been provided (2.07.6(2)(d)(v)).
 - i) PR11 is proposed to be approved with Stipulation #23 noted above. TMI must satisfy the requirements of Stipulation #23 prior to affecting 29.4 acres within the mine plan area. Currently identified archaeological, cultural and historic sites are discussed in Section 2.9.1, 2.9.2, and Appendix K of the PAP. Site 5MF948 is discussed in section 3.4.3.1 and Appendix K of the PAP. Subject to valid existing rights as of August 3, 1977, the Division finds the mining operation is not within an area designated unsuitable for mining, will not adversely affect any Federal Public Lands or Rivers, publicly owned parks, buildings, schools or churches or place listed on or eligible for listing in the National Register of Historic Places as determined by the State Historic Preservation Office (30 CFR 76), (2.07.6(2)(d)).
5. The proposed permit area is not within an area designated unsuitable for surface coal mining operation and/or within an area under study for designation as unsuitable for surface coal mining operations in accordance with Rule 2.07.6(2)(e).

6. For this surface mining operation, private mineral estate has not been severed from private surface estate, therefore, the documentation specified by Rule 2.03.6(2) is not required (2.07.6(2)(f)).
7. On the basis of evidence submitted by the applicant and received from other state and federal agencies as a result of the Section 34-33-114(3) compliance review required by the Colorado Surface Coal Mining Reclamation Act, the Division finds that Trapper Mining, Inc. does not own or control any operations which are currently in violation of any law, rule, or regulation of the United States, or any State law, rule, or regulation, or any provision of the Surface Mining Control and Reclamation Act or the Colorado Surface Coal Mining Reclamation Act (2.07.6(2)(g)(i)).
8. Prior to proposing this decision, on 10 April 2023 the Division queried the Office of Surface Mining Applicant Violator System. The system recommendation for the proposed application was "adequate."
9. Trapper Mining, Inc. does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the Act of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act (2.07.6(2)(h)).
10. The Division finds that surface coal mining and reclamation operations to be performed under this permit will not be inconsistent with other such operations anticipated to be performed in areas adjacent to the permit area (2.07.6(2)(i)).
11. For PR11, the Division estimated the reclamation liability for the site to be \$41,744,040.00. The Division currently holds a \$45,100,000.00 performance bond for the Trapper Mine. Therefore a sufficient performance bond is held in accordance with Rule 2.07.6(2)(j).
12. The Division has made a negative determination for the presence of prime farmland within the permit area. The decision is based on a pre-application investigation of soils found within the proposed permit area. Pursuant to 2.04.12(2) criteria, the applicant has provided information demonstrating that lands within the permit area possessing cropland potential are not irrigated or naturally sub-irrigated, have no dependable water supply of adequate quality, and receive less than 14 inches of annual precipitation. Therefore, the Division hereby renders a negative determination for the presence of prime farmland within the permit area (2.07.6(2)(k)).
13. Based on information provided in the application, the Division determined that two alluvial valley floors (AVFs) exist near the permit area:
 - a. the Yampa River AVF
 - b. Williams Fork River AVF.

The Division finds that the proposed surface coal mining operation will not affect either AVF. For additional specific findings concerning these AVFs, please refer to permit Section B, XVII.

14. The Division approved the post-mining land uses of rangeland, wildlife habitat and cropland

as meeting the requirements of Rule 4.16 for the permit area (2.07.6(2)(l)).

15. Specific approvals have been granted or are proposed. These approvals are addressed in the following section, Section B (2.07.6(2)(m)).
16. The Division finds that the activities proposed by the PR11 application will not affect the continued existence of endangered or threatened species or result in the destruction or adverse modification of their critical habitats as determined under the Endangered Species Act of 1973 (16 USC Sec. 1531 et seq.) or the Nongame, Endangered or Threatened Species Conservation Act (Section 33-2-101 et seq., C.R.S), (2.07.6(2)(n)).
17. The Division finds that the applicant has satisfied the applicable requirements of Rules 4.23 through 4.29 regarding special categories of mining (2.07.6(2)(p)).

Section B – Findings Required Rule 4

I. Roads - Rule 4.03

A. Haul Roads

Haul roads discussed in permit Section 3.7.2, Vol. III, occur upstream of adequate sediment control facilities (4.03.1 (2)(c)).

B. Access Roads

Access roads, discussed in permit Section 3.7.3, Vol III, meet requirements of Rule 4.03.2(2)(c).

II. Support Facilities - Rule 4.04

Support facilities discussed in permit Section 3.8, Vol. III, meet requirements of Rule 4.04(6).

III. Hydrologic Balance - Rule 4.05

Volume 4 of the Trapper Mine permit application includes an assessment of the probable hydrologic consequences of the proposed mining operation. Each year, Trapper assesses the ongoing impacts to the hydrologic system in its annual hydrologic report submitted as Appendix W of the permit application. The probable hydrologic consequences as set forth in Volume 4 and Appendix W are summarized below.

A. Water Quality Standards and Effluent Limitations

Surface discharge at the Trapper Mine is monitored under CDPS permit #CO-0032115 issued by the Colorado Department of Public Health and Environment. In addition, the applicant has quarterly and monthly reporting requirements as part of its surface water monitoring program. WET testing through bio-monitoring sampling is required in the following drainages if mine-contaminated water is discharged.

1. East Flume System

2. Middle Pyeatt System

B. Stream Channel Diversions

Drainage way reconstruction is discussed under Section 4.8. 1.3, Vol. IV of the permit application. Channel lining structures, retention basins, and artificial channel roughness structures are proposed for use to control erosion. The applicant uses rock check structures, various geotextiles, and rapid growing vegetation within reconstructed drainages to control erosion. (4.05.4(2)(a)).

C. Sedimentation Ponds

Sediment ponds are discussed under Section 4.8.1.4, Vol. IV of the permit application.

The applicant uses sedimentation ponds in all disturbed drainages to control increased sediment loads resulting from disturbance within the ephemeral drainages on the mine site. All sediment ponds are designed to contain or treat, at a minimum, the 10-year, 24-hour event and to safely pass the 25-year, 24-hour event. One MSHA size pond exists on the site in the Coyote drainage.

D. Surface and Ground Water Monitoring

1. The applicant will conduct monitoring of ground water in a manner approved by the Division. The ground water monitoring plan can be found in Section 4.8.5.2a, Vol. IV of the permit application (4.05.13(1)). Baseline groundwater quality information is presented in Section 2.7.5.2 of the currently approved PAP (Page 2-463). Water quality has been monitored at five different locations at the mine site; Sites GA, GB, GC, GD and GE.
2. The applicant will conduct monitoring of surface water in a manner approved by the Division. The monitoring plan was submitted under 2.05.6(3)(b)(iv) and can be found in Section 4.8.5.1a of the permit application, Vol. IV (4.05.13(2)).

The Division reviewed the surface and ground water monitoring plans as part of the permit revision PR11 review process. These monitoring plans are adequate to monitor for the development of impacts, if any should develop. Well GP-09 has been designated the groundwater point of compliance for the Third White Sandstone aquifer, and the Coy well is the point of compliance for the Flume Gulch alluvium. The applicable standard at the points of compliance is the Interim Narrative Standard from Regulation 41, The Basic Standards for Groundwater (Reg 41).

Water monitoring was undertaken down dip of the I and J pits near the Coyote Pond for the pits as they develop to the west. These wells have been drilled under the MR225 permitting action and monitor the First, Second and Third White Sandstone aquifers.

New or revised surface water monitoring is proposed under PR11 associated with new pond construction in the East and West Buzzard drainages as outlined in the submission.

E. Probable Hydrologic Consequences

The model for leachate formation and migration at the Trapper Mine is based on a study conducted by the U.S. Geological Survey at the Seneca II Mine in Routt County, approximately 14 miles east of the Trapper Mine (U.S. Geological Survey Water Resources Investigations Report 92-4187). The model is described in the probable hydrologic consequences of the permit application (Section 4.8).

No drawdowns have been detected in aquifer wells within one mile from the permit boundary. Observed drawdowns have been temporary and are limited to the immediate vicinity of the pits. The operator expects such limited drawdowns to continue with future mining.

The proposed mining operation will have little if any effects on the post-mining recharge capacity. The applicant's studies concluded that the recharge capacity of the reclaimed spoils will actually be slightly higher than the pre-mine condition. The mine activities should not impact any regional aquifers except the Third White Sandstone. Mined strata dip far beneath the Yampa River alluvial aquifer and communication between these strata and the alluvial aquifer is negligible.

Permit section 4.8.2.2 discusses potential drawdown impacts to adjacent wells. A groundwater monitoring program is discussed in section 4.8.3.2 of the permit. Point of compliance wells are in place.

Surface Water Impacts

Surface water flow and quality are monitored in the Flume System, Johnson Gulch, No Name Gulch, Ute Gulch, Pyeatt System, Oak, Gulch, Horse Gulch and Deal Gulch. Generally, Johnson, No Name East Pyeatt and Middle Flume gulches exhibit flow over the course of the year. The most noticeable change in surface water quality resulting from mining activities constitutes increased levels of total dissolved solids (TDS). TMI expects higher TDS in some surface water runoff for a few years after reclamation in an area. Increased TDS levels occur periodically when the contribution from precipitation and snowmelt is at a minimum (base flow conditions).

Conductivity, TDS and major constituents tend to increase as the ground water contribution comprises a larger portion of flow. For a detailed analysis of surface water impacts, the 2021 Annual Hydrology Report, Section 2.5 of the permit presents the most current information.

Leachate that may discharge from the toe of the Horse Gulch Fill probably will cause an increase in the dissolved solids content of natural stream flows in Horse Gulch. Rain or snowmelt provides most natural surface water flows in Horse Gulch. Although loading of Horse Gulch surface flows with dissolved solids from the fill would be a local impact, it does not rise to the level of material damage because use or potential use is not likely to be impaired. An exceedance of an instream standard in Horse Gulch is unlikely because leachate from the fill will probably be alkaline (like all other Trapper leachates) and is not likely to contain high concentrations of the

inorganic or metals constituents for which there are numeric standards in Horse Gulch.

Ground Water Impacts

The 2021 Annual Hydrology Report (AHR), Section 2.5 of the permit presents the most current information regarding springs and seeps at TMI. Appendix B presents ground water quality data from 2012 through 2021. Flow from the springs and seeps is shown on Table B-2. A CD submitted with the AHR provides all historical data.

The NPDES permit #C0-0032115 issued by the Colorado Department of Public Health and Environment describes water quality monitoring requirements. Pit dewatering occurs in L, N Pits, and well dewatering in the G Pit wells. All pit water is routed to NPDES drainage systems with discharges monitored at the approved outfall. Dust suppression for the main haul road consumes most of the water yielded from dewatering activities. Currently a number of the listed outfalls encompass Phase III bond released areas and therefore are no longer subject to DRMS monitoring requirements.

IV. Topsoil

Soil information can be found in Section 2.6, Volume II and Section 4.9, Vol. IV.

The Division previously granted a variance from topsoil removal in accordance with Rule 4.06.2(2)(a). Specific areas which the operator will not strip topsoil are limited to rocky areas which occur over limited areas throughout the mine area. Each area approved is handled separately as a minor revision to the permit and no general variance is currently approved.

V. Sealing of Drilled Holes and Underground Openings

Sealing of wells, holes, and other openings is discussed in permit Section 3.3, Vol. III.

The Division requires each hole, well, or other underground opening be capped, sealed, backfilled or otherwise managed as per Rule 4.07.3.

VI. Use of Explosives

The blasting plan, as well as other items related to blasting, are discussed in permit Section 3.4, Vol. III.

The Division approved blasting at times other than those described in the blasting schedule due to unavoidable hazardous situations. These situations include elimination of misfires, adverse weather, equipment failure, and safety related reasons (4.08.3(2)(b)(v) and (4.08.4(2))).

VII. Disposal of Excess Spoil

Permit section 3.5.3, Vol. III of the application discusses disposal of excess spoil.

In accordance with TR106 and Appendix T, the K-Pit Buttress Fill is no longer required. The Horse Gulch Fill is described in Appendix T and inspected in accordance with Rule 4.09.1(11), and meets the definitions and regulations associated with valley fill and head of hollow construction. The Horse Gulch underdrain and runoff diversions were constructed in accordance with Rules 4.09.2(2), 4.09.3(1), and 4.09.2(7). The slope stability analysis for the Horse Gulch Fill demonstrates that the fill is designed to meet rules (4.09.1(7)) and (4.09.2(1)).

VIII. Coal Mine Waste Banks

No specific approvals are granted to the applicant under this section.

IX. Coal Mine Waste

No specific approvals are granted to the applicant under this section.

X. Backfilling and Grading

Backfilling and grading are discussed under Section 3.5, Vol. III of the permit application.

1. The applicant is bonded for a maximum of four (4) spoil ridges at any time within each pit area. Reclamation has historically been, and is proposed for completion, at approximately the same rate as disturbance of any new ground (4.14.1).
2. Trapper committed to a minimum safety factor of 1.5 to ensure long term global stability in both the L and Ash Pits, exceeding the minimum requirements (4.12.2 and 4.27.3)
3. The Post Mine Topography Map (Map M12) is a permit requirement in permit section 3.5.3.
4. During PR9, TMI requested a variance for backfilling and grading portions of the L and Ash Pits to the approximate original contour in accordance with Rule 2.06.5. Based on a stability analysis provided by TMI with (PR9), they demonstrated that based on unique combinations of steepness of the pit floor, spoil thickness, spoil saturation, and the presence of a weak shale/clay layer in the floor of the pit, steep slopes for the final cut of the L Pit and Ash Pit should be identified as any slope over 16 degrees. Therefore, these areas qualify for a variance from the requirement to backfill and grade to the approximate original contour under the steep slope mining provision. The findings required for a variance in accordance with Rule 2.06.5 and Rule 4.27.4 are discussed below in the Operations on Steep Slopes, Section XX of this document.

XI. Revegetation

The Division previously approved Trapper's revegetation plan as set forth in permit Section 3.6, Vol. III of the application.

1. The applicant uses introduced species in the reclamation seed mix, and submitted information illustrating the desirability and necessity of introduced species in achieving the approved post-mining land use illustrating that these species are not poisonous or noxious (4.15.2). In conjunction with Trapper's years of reclamation experience, Trapper has reduced the number of introduced species in the seed mixes utilized at the site. DRMS found the seed mix adjustments acceptable.
2. Methods to measure species diversity, woody plant density, herbaceous cover and production are discussed in permit section 4.4.1, Volume IV. Seed mixes and revegetation practices are designed to meet diversity standards set forth in the permit. The applicant will reestablish shrubs on Range Sites A and B by including various native shrubs in the seed mixes and by transplanting mature woody shrub clumps. There is no shrub density standard for Range Site C. (4.15.7(1)).

XII. Post-mining Land Use

Post-mining land use is discussed under Section 4.2, Vol. IV of the permit application.

Cropland, rangeland and wildlife habitat are currently approved post-mining land uses. These land uses meet the criteria of Rule 4.16.3.

XIII. Protection of Fish, Wildlife and Related Environmental Values

Section 4. 6 of Vol. IV of the permit application discusses the protection of fish, wildlife and related environmental values.

Wildlife habitat is a planned post-mining land use. The applicant selected appropriate plant species and distributions to benefit fish and wildlife (4.18(4)(i)).

XIV. Protection of Underground Mining

This PR11 permitting action proposes further mining on the west portion of the site in the I and J Pits. The area had been fully reclaimed (4.19(1)), and 4.22.4(1)) will be re-disturbed as per PR10 and PR11.

XV. Subsidence Control

No specific approvals are granted to the applicant under this section.

XVI. Concurrent Surface and Underground Mining

No specific approvals are granted to the applicant under this section.

XVII. Auger Mining - Rule 4.23

Auger of highwall mining is planned in the C, I, J, L and N pits. Subsidence is not anticipated with any highwall mining activities at the site. Trapper is not currently aware of any abandoned or active underground mine workings in any of the pertinent coal seams in the proposed highwall mining areas. In the event abandoned or active underground mining operations are identified, no highwall mining will be conducted within 500 feet of previous workings in the applicable seams. Trapper is also not aware of any dwellings, buildings, tanks, impoundments or utilities overlying areas planned for highwall mining. Design criteria established by Agapito Associates Inc. will be utilized to ensure long-term stability of highwalls and mining areas based on seam and overburden thickness. Access to highwall miner entries will be blocked or buried within 30 days following coal extraction.

XVIII. Operations on Alluvial Valley Floors

Operations on alluvial valley floors (AVFs) are discussed in Section 4.8.4 of Vol. IV of the permit application.

- | | | | |
|----|---------------|----|---------------------|
| 1. | Yampa River | 2. | Williams Fork River |
| 3. | No Name Gulch | 4. | Johnson Gulch |
| 5. | Pyeatt Gulch | 6. | Flume Gulch |

The above alluvial valleys would meet the regulatory definition of an alluvial valley floor (AVF) if the valleys had water availability sufficient for flood-irrigated agricultural activities [Section 1.04(10)], or availability of water sufficient for sub-irrigated agricultural activities [Section 1.04(10)]. Flood irrigation is practiced on the valley floors of the Yampa River in the Big Bottom area and the Williams Fork River near its confluence with the Yampa. Based on the presence of unconsolidated stream-laid holding streams with water availability sufficient for flood-irrigated agricultural activities, the following two alluvial valleys have been determined to be alluvial valley floors:

1. the Yampa River in the Big Bottom area
2. the Williams Fork River near its confluence with the Yampa River.

Map 35A and Map 52 indicate the locations of AVF well sites and the location of alluvial valley floors. The Coy well drilled into the alluvium of Flume drainage functions as a point of compliance well. Four wells are drilled into the Pyeatt alluvium, well J1 is located in the Johnson drainage alluvium and one of the three GLEV wells in the Deacon drainage reached the alluvium at the very north east corner of the permit. This GLEV well is located downgradient of any mining to the east that may occur in the future. These wells constitute an environmental monitoring system during surface coal mining and reclamation operations continuing until release of all bonds in accordance with Rule 3 (4.24.4).

Four gulches (No Name, Johnson, Pyeatt, and Flume) are determined not to be alluvial valley floors based on their absence of water availability sufficient for flood-irrigation or sub-irrigation agricultural activities.

Potential impacts to the Yampa River AVF resulting from the proposed mining operation are negligible. Generally, the Yampa River AVF receives very little of its water supply (surface and ground water) from the proposed mine area. The majority of the flow in the river and subsequent recharge to the alluvial aquifer derive from the headwaters portions of the drainage, far upstream from Trapper. The applicant states that the contribution of surface water from the Trapper mine is insignificant as per page 2-533 of the permit application.

This is substantiated by seepage, runoff, and potentiometric studies in Appendix H of the permit application. Based on the information presented by the applicant, the Division finds that proposed surface coal mining operations will not interrupt, discontinue, or preclude farming on the Yampa River AVF, nor materially damage surface or ground water quantity or quality in systems supplying the Yampa River AVF (4. 24.3(1)), (4.24.3(3), and 2.06. 8(5)(a)(ii)).

The potential for impacts from mining to the Williams Fork AVF is also negligible. The Williams Fork River is located south of the proposed mining area. Almost exclusively, spring snowmelt comprises the only surface discharge from sediment ponds in the drainages flowing towards the Williams Fork River. It is likely that much of the discharge from these ponds infiltrate into the permeable Twentymile Sandstone outcrop prior to reaching the Williams Fork River. Therefore, the Division finds that the proposed surface coal mining operations will not interrupt, discontinue, or preclude farming on the Williams Fork AVF, and will not materially damage the quantity or quality of water in surface or ground water systems that supply the Williams Fork AVF (4.24. 3(1)), (4.24.3(3), and 2.06. 8(5)(a)(ii)).

The Division finds that:

1. Proposed mining activities comply with the requirements of the Act and the Regulations with respect to alluvial valley floors, (2. 06.8(5)(a)(iii)).
2. The surface coal mining and reclamation operations will be conducted to preserve the essential hydrologic functions of alluvial valley floors outside the permit area and to reestablish the essential hydrologic functions of alluvial valley floors within the affected area

throughout the mining and reclamation process (4. 24.2).

XVIII. Operations on Prime Farmland

No prime farmlands currently exist within the proposed permit area. Therefore any specific approvals under this section do not apply.

XIX. Mountaintop Removal

No specific approvals are granted to the applicant under this section.

XX. Operations on Steep Slopes

Trapper was approved for a variance from backfilling and grading to the approximate original contour in the L Pit and in the Ash Pit with PR9. The following summarizes the findings required by Rule 2.06.5 for the incorporation of a variance from the approximate original contour restoration requirements for steep slope mining:

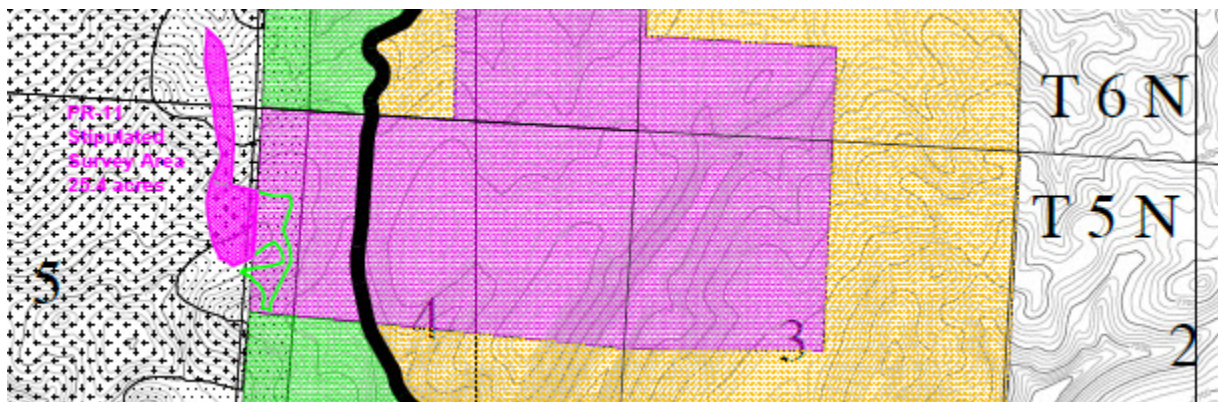
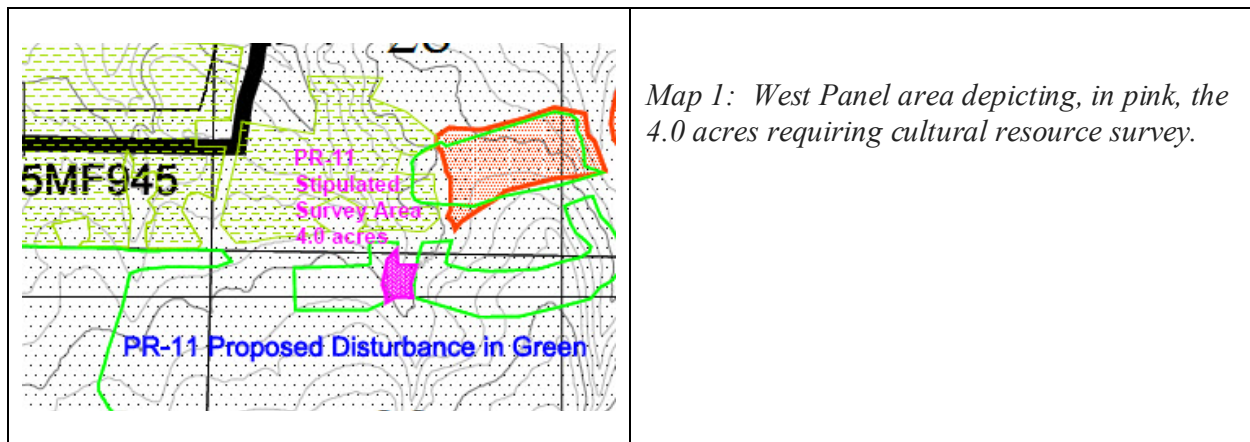
1. TMI is not revising the post-mining land use for rangeland, wildlife habitat and cropland. The L and Ash pits will be reclaimed to support the approved post mine land use of rangeland which will support grazing as an agricultural use.
2. The post-mine land use established by reclamation of the L and Ash pits constitutes an equal or better economic use.
3. The applicant is not proposing an alternative post-mining land use whereby this is not applicable.
4. TMI has demonstrated the watershed of lands within the proposed permit area and adjacent areas will be improved by the operation. TMI demonstrated there will be a reduction in the total suspended solids or other pollutants discharged to the surface waters from the permit area as compared to such discharges prior to mining in the L and Ash pits.
5. TMI provided documentation to the landowners of the affected land associated with the variance; TMI and the Colorado State Land Board has knowingly requested, in writing, as part of the (PR9) application, that a variance be granted.
6. The applicant has demonstrated that the proposed operation will be conducted in accordance with Rule 4.27.4:
 - a. The L and Ash Pits highwalls will be eliminated and backfilled with spoil and the post mine configuration will exceed the required 1.3 factor of safety as required by the rule.
 - b. The watershed control of the area shall be improved. There will not be a significant change to the post-mining watershed areas that would impact seasonal or flood flows. The sediment yield per acre, postmining in the L and Ash pits shall be less than pre- mining levels.
 - c. The land above the highwalls in the Ash and L pits will only be disturbed in compliance with the approved mining and reclamation plan as depicted on map M10A and M10B and will be necessary for the establishment of the proposed post-mining topography as shown on Map M12.
 - d. The proposed plan, if implemented as described in the permit application package should allow compliance with Rule 2.06.5.
 - e. Not applicable to this operation.
7. The proposed operation should allow for other requirements of the Act, Rules and this regulatory program to be met should TMI conduct the operation as proposed.

XXI. In Situ Processing

No specific approvals are granted to the applicant under this section.

Appendix A: Stipulation Maps

This Appendix comprises two detailed views of areas requiring additional cultural surveys. These captures were taken by DRMS from TMI's submission of Map M45, *Cultural Resources Surveys Conducted on and Adjacent to the Trapper Mine* on 10 April 2023. The views indicate the locations requiring additional cultural resources surveys, L Pit -25.4 acres and the West Panel, 4 acres. TMI must satisfy Stipulation #23 prior to disturbing these areas.



Map2: L Pit area depicting, in pink, the 25.4 acres requiring cultural resource survey.

Worst Case Costs for Permitting Action PR11 Year 2023

Post PR11 Estimate

Phase Bond Release Area Cost Accounting			Liability	Acres	Cost /Acre	%	Phase Bond Release Acreage	
	Worst Case Bond		\$ 39,216612.00	2836.40	\$15,649.35	100%	Phase 1	4684.5
	Phase I Bond Release		\$ 1,629,831.55	294.70	\$6,259.74	40%	Phase 2	4389.8
	Phase II Bond Release		\$ 897,596.41	432.80	\$2,347.40	15%	Phase 3	3957.0
	Total		TOTAL	\$41,744,040	3563.9			

COST SUMMARY WORK

Task description: PR11 Reclamation Cost Estimate

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 5/31/2022

County: Moffat

Filename: C010-000

User: ZTT

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Ash Disposal Pit Regrade (NW section)	DOZER	2	11.75	\$13,435
001B	Load/Haul Section E1,423,800	TRUCK1	1	40.89	\$274,182
002	Ash Disposal Pit Regrade (Section 1)	DOZER	2	25.26	\$28,894
002B	Ash Disposal Pit Regrade (Section 2)	DOZER	2	32.20	\$36,828
003	Ash Disposal Pit Regrade (Section 3-1)	DOZER	2	2.27	\$2,597
003B	Ash Disposal Pit Regrade (Section 3-2)	DOZER	2	77.54	\$88,683
004	Regrade Johnson Coal Stockpile	DOZER	1	13.37	\$7,646
004A	D/E Pit Regrade (Spoil Side East)	DOZER	8	91.64	\$419,242
005A	D/E Pit Regrade (West)	DOZER	6	117.26	\$402,333
030	Regrade BC Road	DOZER	4	72.55	\$105,020
031	Regrade D-Main Road	DOZER	4	53.06	\$76,816
032	Regrade East and West Ash Roads	DOZER	4	87.61	\$126,826
033	Regrade LOM Roads	DOZER	4	158.24	\$229,073
034	Regrade A Roads (Middle A and North A N pit)	DOZER	4	58.27	\$84,349
035	Regrade N Pit Roads (old LOM, cross-over, ash pit)	DOZER	4	21.12	\$48,295
036	Regrade C Pit Haul Road	DOZER	4	59.52	\$86,171
039	Regrade East A Haul Roads (East A and East A Split, Bridge Rd)	DOZER	4	67.82	\$98,174
040	Regrade I/J Roads (I/J Spoil, I Mid, I West)	DOZER	4	26.16	\$37,892
041	Regrade K Pit Haul Roads (K1 EPRL K3)	DOZER	4	64.71	\$93,678
042	Regrade Mine Access Road	DOZER	4	23.58	\$34,128
044	Regrade No Name Access Roads #2, #4, 5R	DOZER	4	10.79	\$15,616
045	Regrade Potable Water Well Access Road	DOZER	4	1.79	\$2,586
046	Regrade West Pyeatt Access Road (1 and 2)	DOZER	4	7.14	\$10,342
047	Regrade Middle Pyeatt Access Road (1, 2 and 3)	DOZER	4	6.61	\$9,566
048	Regrade East Pyeatt Access Road (1, 2 and 3)	DOZER	4	9.23	\$13,367
049	Regrade Grouse Access Road	DOZER	4	4.57	\$6,619
050	Regrade West Flume Access Road	DOZER	4	2.68	\$3,878
051	Regrade East Flume Access Road	DOZER	4	2.68	\$3,878
052	Regrade Deal Access Road	DOZER	4	2.68	\$3,878
053	Regrade Horse Access Roads (Horse and Horse 1)	DOZER	4	6.07	\$8,791
054	Regrade West Horse Access Road	DOZER	4	2.68	\$3,878
055	Regrade Middle Flume Access Roads (1 and 3)	DOZER	4	4.60	\$6,658
056	Regrade Oak Access Roads	DOZER	4	3.39	\$4,912
057	Regrade Sage Access Roads	DOZER	4	4.46	\$6,463
058	Regrade Johnson Access Road	DOZER	4	11.07	\$16,030
063	Rip BC Walk Road	RIPPER	4	2.24	\$3,553
064	Rip D-main Pit Haul Roads	RIPPER	4	8.40	\$13,311

065	Rip West Ash Haulroads (West Ash, West Ash1 and West Ash 2)	RIPPER	4	5.98	\$9,474
066	Rip LOM Haul Roads (F2 and F2-G5)	RIPPER	4	8.76	\$13,879
067	Rip A Pit Haul Roads (Middle A and North A)	RIPPER	4	6.43	\$10,184
068	Rip N Pit Haul Roads	RIPPER	4	5.38	\$8,526
072	Rip East A Haul Roads (East A and East A Split)	RIPPER	4	2.96	\$4,690
074	Rip Access Road (Tasks 042-059)	RIPPER	4	3.11	\$4,926
075	Rip K Pit Haul Roads (KMain, K1, K2 , K3)	RIPPER	4	2.12	\$3,363
077	Rip I/J Roads (I/J Spoil, I Mid, I West)	RIPPER	4	4.55	\$7,214
078	Regrade Coyote Impoundment	DOZER	2	288.69	\$208,963
079	Regrade Middle Pyeatt Impoundments Impoundment (1,2, 3)	DOZER	1	51.73	\$18,721
080	Regrade Far East Buzzard Impoundment	DOZER	1	0.56	\$204
081	Regrade Sage Impoundments (1 and 2)	DOZER	1	18.91	\$6,845
082	Regrade West Horse Impoundment	DOZER	1	3.52	\$1,273
083	Regrade Impoundment H	DOZER	1	7.29	\$2,637
084	Regrade Industrial Waste Pond	DOZER	1	7.47	\$2,703
085	Regrade Deal 1 and 2	DOZER	1	9.83	\$3,835
086	Regrade Deacon 1,2 and Jeffway 1,2 impoundments	DOZER	1	94.72	\$36,962
087	Regrade W. Buzzard #4 Impoundment	DOZER	1	6.00	\$2,343
088	Regrade E. Buzzard #3 Impoundment	DOZER	1	7.04	\$2,747
089	Regrade Diversions	DOZER	1	61.42	\$17,231
090	Replace Topsoil on Ash Pits (ASH1)	SCRAPER1	1	5.20	\$29,208
090A	Replace Topsoil on Ash Pits (ASH2)	SCRAPER1	1	12.78	\$71,735
090B	Replace Topsoil on Ash Pits (A92-4 to Pit)	TRUCK1	1	107.16	\$259,367
091	Replace Topsoil on D/E Pits (Truck/Excavator)	TRUCK1	1	416.57	\$873,326
091A	Replace Topsoil on D/E Pits (D97-1)	SCRAPER1	1	14.75	\$79,262
091B	Replace Topsoil on D/E Pits (D1-07)	SCRAPER1	1	1.99	\$10,706
092	Replace Topsoil at C Pit	SCRAPER1	1	91.03	\$511,131
096	Replace Topsoil at West Panel, BC rd, Shop (Scraper)	SCRAPER1	1	13.22	\$74,249
096A	Replace Topsoil at West Panel, BC rd, Shop (Truck/Excavator)	TRUCK1	1	147.14	\$308,466
097	Replace Topsoil at East Panel Ponds, A road (Scraper)	SCRAPER1	1	20.64	\$115,897
097A	Replace Topsoil at East Panel Ponds, A Rd (Truck/Excavator)	TRUCK1	1	209.29	\$438,768
098	Re-topsoil Johnson Coal Stockpile	SCRAPER1	1	4.14	\$23,254
099	Replace Topsoil at Dragline Walk Road (ASH4)	TRUCK1	1	8.17	\$14,484
099A	Replace Topsoil at Dragline Walk Road (ASH1)	TRUCK1	1	33.14	\$58,752
100	Facilities Area	REVEGE	1	75.00	\$28,037
100A	Seed D Pit Range A-B	REVEGE	1	319.30	\$220,117
101	Roads (including BC road) below 6700'	REVEGE	1	196.00	\$73,382
102	Finish Grading I/J Pit	GRADER	2	21.73	\$13,139
103	Ponds below 6700' (Coyote, Sage, E Buzzard)	REVEGE	1	26.00	\$9,719
104	Johnson Coal Stockpile	REVEGE	1	12.00	\$4,710
105	topsoil piles below 6700'	REVEGE	1	27.00	\$10,131
107	Roads: >6700 ft.-Rangeland with Shrubs	REVEGE	1	54.00	\$37,364
108	Ash pit.-Rangeland with Shrubs	REVEGE	1	115.00	\$79,691
109	Seed D/E Pit Range B	REVEGE	1	15.00	\$10,331
111	Ponds above 6700'(Deal, Deacon, Jeffways, West Horse)	REVEGE	1	19.00	\$12,898
112	topsoil piles above 6700'	REVEGE	1	5.00	\$3,516
113	Shrub Transplants as per operator	NA	1	40.00	\$155,204

120	Seal Land Slide Monitoring Stations	BOREHOLE	1	4.00	\$5,315
121	Plug and Seal Exploration Drill Holes	BOREHOLE	1	80.00	\$25,280
122	Plug and Seal Monitoring Wells	BOREHOLE	1	185.00	\$108,065
128	Reveg for 20 x .3 acres drillholes	REVEGE	1	6.00	\$4,136
129	Regrade .3acres x 20 drill pads	DOZER	1	60.58	\$16,996
130	Demolish structures, remove materials and debris	DEMOLISH	1	100.00	\$788,371
131	Culvert Removal and Disposal	DEMOLISH	1	60.00	\$127,840
132	Mobilize and Demobilize from Hayden, CO	MOBILIZE	1	5.34	\$75,650
133	Drill and Blast L Pit 1,776,482 BCY	NA	3	407.00	\$640,555
134	Drill and Blast Ash Pit 106,474 BCY	NA	3	37.75	\$43,232
135	Drill and Blast J Pit 513,911 BCY	NA	3	142.00	\$193,985
136	Place holder	NA	0	0.00	\$0
L01	Regrade L Pit X-sec:407,200	DOZER	4	38.19	\$87,365
L02	Regrade L Pit X-sec:406,700	DOZER	4	96.29	\$220,258
L03	Regrade L Pit X-sec:406,200	DOZER	4	54.48	\$124,607
L04	Regrade L Pit X-sec:405700	DOZER	4	71.33	\$163,163
L05	Regrade L Pit X-sec:405,200	DOZER	4	386.09	\$883,157
L06	Regrade L Pit X-sec:404,700	DOZER	4	428.34	\$979,780
L07	Regrade L Pit X-sec:404,200	DOZER	4	269.44	\$616,327
L08	Regrade L Pit X-sec:403,700	DOZER	4	58.40	\$133,596
L09	Regrade L Pit X-sec:403,200	DOZER	4	61.03	\$139,605
L10	Regrade L Pit X-sec:402,700	DOZER	4	178.08	\$407,352
L11	Regrade L Pit X-sec:402,200	DOZER	4	339.20	\$775,880
L12	Regrade L Pit X-sec:401,700	DOZER	4	88.07	\$201,461
L13	Regrade L Pit X-sec:401,200	DOZER	4	62.00	\$141,825
L14	Regrade L Pit X-secs:400,700 and 400,200	DOZER	4	47.12	\$107,774
L15	Regrade L Pit (Truck/Excavator)	TRUCK1	1	459.83	\$1,495,471
L16	Seed L Pit: Rangeland with Shrubs	REVEGE	1	804.00	\$554,187
L17	Regrade L Pit North Haul road.6.5 ac X 9 ft th.	DOZER	2	32.35	\$36,981
L18	Replace Topsoil on L Pit (Scraper)	SCRAPER1	1	166.47	\$934,752
L19	Replace Topsoil on L Pit (Truck/Excavator)	TRUCK1	1	708.38	\$1,714,488
LN20	Site Maintenance; Rill and Gully Repair and Pond Cleaning	SITEMAINT ENANCE	1	600.00	\$240,462
N01	Regrade N Pit	DOZER	2	1,071.15	\$1,225,074
N02	Backfill and Grading N Pit	TRUCK1	1	604.84	\$2,246,168
N02a	Backfill and Grading I Pit	TRUCK1	1	156.39	\$508,620
N02b	Backfill and Grading J Pit	DOZER	2	450.41	\$515,134
N03	Backfill and Grading C Pit	TRUCK1	1	1,914.22	\$6,225,540
N13	Replace Topsoil on C Pit	SCRAPER1	1	90.64	\$508,981
N14	Replace Topsoil on N Pit (Scraper)	SCRAPER1	1	169.86	\$953,793
N14a	Replace Topsoil on N Pit (Truck/Excavator)	TRUCK1	1	147.82	\$305,805
N15	Replace Topsoil in I Pit	SCRAPER1	1	13.46	\$75,606
N16	Replace Topsoil on J Pit (Truck/Excavator)	TRUCK1	1	103.22	\$213,547
N16a	Replace Topsoil in J Pit (Scraper)	SCRAPER1	1	3.87	\$21,726
N17	Replace Topsoil on I/J Pit	TRUCK1	1	54.31	\$94,773
N18	Seed N PitRangeland w/o shrubs (<6700 ft.)	REVEGE	1	44.00	\$16,486
N18a	Seed N Pit: >6700 ft.-Rangeland with Shrubs	REVEGE	1	244.00	\$168,483
N19	Seed J Pit without shrubs (Range C)	REVEGE	1	66.00	\$24,598
N20	Seed I Pit without Shrubs	REVEGE	1	35.00	\$13,140
N21	Seed I/J Pits no shrubs (Range C)	REVEGE	1	31.00	\$11,502
N22	Seed C Pit No Shrubs	REVEGE	1	189.00	\$70,241
RNY BR	Reclaimed Not Yet Bond Released	NA	1	1,057.00	\$900,575

<u>SUBTOTALS:</u>	16285.57	\$32,408,860
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INDIRECT COSTS**OVERHEAD AND PROFIT:**

Liability insurance:	2.02	Total =	\$654,659
Performance bond:	1.05	Total =	\$340,293
Job superintendent:	540.76	Total =	\$40,627
Profit:	10.00	Total =	\$3,240,886
		TOTAL O & P =	\$4,276,465
		CONTRACT AMOUNT (direct + O & P) =	\$36,685,325

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	\$0	Total =	\$0
Engineering work and/or contract/bid preparation:	4.25	Total =	\$1,559,126
Reclamation management and/or administration:	2.65		\$972,161

CONTINGENCY:	0.00	Total =	\$0
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TOTAL INDIRECT COST = \$6,807,753

TOTAL BOND AMOUNT (direct + indirect) = \$39,216,613

BULLDOZER WORKTask description: Ash Disposal Pit Regrade (NW section)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 001State: ColoradoAbbreviation: NoneDate: 11/22/2022County: MineralFilename: C81015User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 3 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: \$571.85Total Fleet Cost/Hour: \$1,143.70**MATERIAL QUANTITIES**Initial Volume: 43,722Swell factor: 1.000Loose volume: 43,722 LCYSource of estimated volume: Permit Appendix A, Table A.4.1 and A-2.8Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 150 feetUnadjusted hourly production: 2,036.8 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: -30 %Average site altitude: 6,800 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9137

Adjusted unit production: 1,861.02 LCY/hr

Adjusted fleet production: **3722.04** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.307/LCY

Total job time: **11.75** Hours

Total job cost: **\$13,435**

TRUCK/LOADER TEAM WORKTask description: **Load/Haul Section E1,423,800**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 001BState: ColoradoAbbreviation: NoneDate: 11/22/2022County: MoffatFilename: C010-001BUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	KOMATSU 830E
-Loader:	CAT 6090
Support Equipment -Load Area:	NA
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 14,000 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Shovel	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	NA	25	25	50
Ownership cost/hour:	\$179.05	\$23.07	NA	\$153.67	\$163.86	\$105.66
Operating cost/hour:	\$247.93	\$930.15	NA	\$41.74	\$27.47	\$76.75
% Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$34.42	\$37.32	NA	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$461.40	\$990.54	NA	\$236.71	\$219.88	\$182.41
Number of Units:	11	1	0	1	1	1
Group Subtotals:	Work: \$6,065.94		Support: \$236.71		Maint: \$402.29	

Total work team cost/hour: **\$6,704.94****MATERIAL QUANTITIES**Initial volume: 128,454

CCY

Swell factor: 1.000Loose volume: **128,454**

LCY

Source of estimated volume: Table A-4.1ASource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 3,300

Pounds/LCY

Description: Decomposed rock - 75% Rock, 25% EarthRated Payload: 492,200

Pounds

Payload Capacity: 149.15

LCY

Truck Bed (volume) Basis:

Struck Volume:	153.00	LCY
Heaped Volume:	192.00	LCY
Average Volume:	172.50	LCY
Adjusted Volume:	149.15	LCY

Final Truck Volume Based on Number of Loader Passes: 145.78 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	58.900	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	48.593	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.498	minutes
Net Load Time per Truck:		1.494	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	1.494	Minutes	Adjusted for site altitude:	1.494	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	11428.00	10.00	3.00	13.00	620	18.513

Haul Time: **18.513** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	11428.00	-10.00	3.00	-7.00	3450	3.415

Return Time: **3.415** minutesTotal Truck Cycle Time: **25.422** minutes

Loading Tool unit

Production	<u>3,812.84</u>	LCY/Hour	Adjusted for job efficiency:	<u>3,164.66</u>	LCY/Hour
Truck Unit Production	<u>344.06</u>	LCY/Hour	Adjusted for job efficiency:	<u>285.57</u>	LCY/Hour

Optimal No. of Trucks:	<u>11</u>	Truck(s)	Selected Number of Trucks:	<u>11</u>	Truck(s)
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Adjusted hourly truck team production:	<u>3,141.25</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>3,141.25</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>3,141.25</u>	LCY/Hour

JOB TIME AND COST

Fleet size:	<u>1</u>	Team(s)	Total job time:	<u>40.89</u>	Hours
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Unit cost:	<u>\$2.134</u>	/LCY	Total job cost:	<u>\$274,182</u>
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BULLDOZER WORKTask description: Ash Disposal Pit Regrade (Section 1)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 002State: ColoradoAbbreviation: NoneDate: 11/22/2022County: MineralFilename: C010-002User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 3 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: \$571.85Total Fleet Cost/Hour: \$1,143.70**MATERIAL QUANTITIES**Initial Volume: 24,907Swell factor: 1.000Loose volume: 24,907 LCYSource of estimated volume: Permit Appendix A, Table A.4.1 and A-2.8Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 420 feetUnadjusted hourly production: 774.7 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: -5 %Average site altitude: 6,800 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6363

Adjusted unit production: 492.94 LCY/hr

Adjusted fleet production: **985.88** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$1.160/LCY

Total job time: **25.26** Hours

Total job cost: **\$28,894**

BULLDOZER WORKTask description: Ash Disposal Pit Regrade (Section 2)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 002BState: ColoradoAbbreviation: NoneDate: 11/22/2022County: MineralFilename: C010-002BUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 3 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: \$571.85Total Fleet Cost/Hour: \$1,143.70**MATERIAL QUANTITIES**Initial Volume: 35,685Swell factor: 1.000Loose volume: 35,685 LCYSource of estimated volume: Permit Appendix A, Table A.4.1 and A-2.8Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 410 feetUnadjusted hourly production: 792.6 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: -10 %Average site altitude: 6,800 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6991

Adjusted unit production: 554.11 LCY/hr

Adjusted fleet production: **1108.22** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$1.032/LCY

Total job time: **32.20** Hours

Total job cost: **\$36,828**

BULLDOZER WORKTask description: Ash Disposal Pit Regrade (Section 3-1)Site: Trapper Mine Permit Action: PR11 Permit/Job#: C1981010**PROJECT IDENTIFICATION**

Task #: 003 State: Colorado Abbreviation: None
 Date: 11/22/2022 County: Mineral Filename: C010-003
 User: ZTT

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D11T - 11U
 Horsepower: 850
 Blade Type: Universal
 Attachment: NA
 Shift Basis: 3 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$257.09</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$273.21</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.55</u>	<u>NA</u>

Total unit Cost/Hour: \$571.85
 Total Fleet Cost/Hour: \$1,143.70

MATERIAL QUANTITIES

Initial Volume: 7,833
 Swell factor: 1.000
 Loose volume: 7,833 LCY

Source of estimated volume: Permit Appendix A, Table A.4.1 and A-2.8
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 120 feet
 Unadjusted hourly production: 2,467.4 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: -10 %
 Average site altitude: 6,800 feet

Material weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.200</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(S-BY-S)</u>
Visibility:	<u>0.800</u>	<u>(POOR)</u>

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6991

Adjusted unit production: 1,724.96 LCY/hr

Adjusted fleet production: **3449.92** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.332/LCY

Total job time: **2.27** Hours

Total job cost: **\$2,597**

BULLDOZER WORKTask description: Ash Disposal Pit Regrade (Section 3-2)Site: Trapper Mine Permit Action: PR11 Permit/Job#: C1981010**PROJECT IDENTIFICATION**

Task #: 003B State: Colorado Abbreviation: None
 Date: 11/22/2022 County: Mineral Filename: C010-003B
 User: ZTT

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D11T - 11U
 Horsepower: 850
 Blade Type: Universal
 Attachment: NA
 Shift Basis: 3 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$257.09</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$273.21</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.55</u>	<u>NA</u>

Total unit Cost/Hour: \$571.85
 Total Fleet Cost/Hour: \$1,143.70

MATERIAL QUANTITIES

Initial Volume: 64,667
 Swell factor: 1.000
 Loose volume: 64,667 LCY

Source of estimated volume: Permit Appendix A, Table A.4.1 and A-2.8
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 635 feet
 Unadjusted hourly production: 512.4 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: -20 %
 Average site altitude: 6,800 feet

Material weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.200</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(S-BY-S)</u>
Visibility:	<u>0.800</u>	<u>(POOR)</u>

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8138

Adjusted unit production: 416.99 LCY/hr

Adjusted fleet production: **833.98** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$1.371/LCY

Total job time: **77.54** Hours

Total job cost: **\$88,683**

BULLDOZER WORKTask description: Regrade Johnson Coal StockpileSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 11/22/2022County: MoffatFilename: C010-004User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 3 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: \$571.85Total Fleet Cost/Hour: **\$571.85****MATERIAL QUANTITIES**Initial Volume: 26,112Swell factor: 1.000Loose volume: **26,112 LCY**Source of estimated volume: Permit Appendix A, Table A-4.7Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 75 feetUnadjusted hourly production: 3,584.2 LCY/hrMaterials consistency description: Partly consolidated stockpile 1.1Average push gradient: 0 %Average site altitude: 7,000 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5449

Adjusted unit production: 1,953.03 LCY/hr

Adjusted fleet production: **1953.03** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.293/LCY

Total job time: **13.37** Hours

Total job cost: **\$7,646**

BULLDOZER WORKTask description: D/E Pit Regrade (Spoil Side East)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 004AState: ColoradoAbbreviation: NoneDate: 11/22/2022County: MoffatFilename: C81015User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 3 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: \$571.85Total Fleet Cost/Hour: \$4,574.82**MATERIAL QUANTITIES**Initial Volume: 528,550Swell factor: 1.000Loose volume: 528,550 LCYSource of estimated volume: Permit Appendix A, Table 1.4-2Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 335 feetUnadjusted hourly production: 956.8 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: -20 %Average site altitude: 7,000 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7535

Adjusted unit production: 720.95 LCY/hr

Adjusted fleet production: **5767.6** LCY/hr

JOB TIME AND COST

Fleet size: 8 Dozer(s)

Unit cost: \$0.793/LCY

Total job time: **91.64** Hours

Total job cost: **\$419,242**

BULLDOZER WORKTask description: D/E Pit Regrade (West)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 005AState: ColoradoAbbreviation: NoneDate: 11/22/2022County: MoffatFilename: C81015User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 3 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: \$571.85Total Fleet Cost/Hour: \$3,431.11**MATERIAL QUANTITIES**Initial Volume: 507,233Swell factor: 1.000Loose volume: 507,233 LCYSource of estimated volume: Permit Appendix A, Table 1.4-2Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 335 feetUnadjusted hourly production: 956.8 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: -20 %Average site altitude: 7,000 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7535

Adjusted unit production: 720.95 LCY/hr

Adjusted fleet production: **4325.7** LCY/hr

JOB TIME AND COST

Fleet size: 6 Dozer(s)

Unit cost: \$0.793/LCY

Total job time: **117.26** Hours

Total job cost: **\$402,333**

BULLDOZER WORKTask description: **Regrade BC Road**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **030** State: **Colorado** Abbreviation: **None**
 Date: **11/22/2022** County: **Moffat** Filename: **C010-030**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	100
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: **166,237**
 Swell factor: **1.250**
 Loose volume: **207,796 LCY**

Source of estimated volume: **Appendix A, Table A-6.1**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **80 feet**
 Unadjusted hourly production: **2,028.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)
Material consistency: 1.000	(CAT HB)
Dozing method: 1.000	(GEN.)
Visibility: 1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **72.55** Hours

Total job cost: **\$105,020**

BULLDOZER WORKTask description: **Regrade D-Main Road**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **031** State: **Colorado** Abbreviation: **None**
 Date: **11/22/2022** County: **Moffat** Filename: **C81010**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	100
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: **121,593**
 Swell factor: **1.250**
 Loose volume: **151,991 LCY**

Source of estimated volume: **Appendix A, Table A-6.1**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **80 feet**
 Unadjusted hourly production: **2,028.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)
Material consistency: 1.000	(CAT HB)
Dozing method: 1.000	(GEN.)
Visibility: 1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **53.06** Hours

Total job cost: **\$76,816**

BULLDOZER WORKTask description: **Regrade East and West Ash Roads**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **032**State: **Colorado**Abbreviation: **None**Date: **11/22/2022**County: **Moffat**Filename: **C81010**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D10T - 10SU**Horsepower: **574**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	100
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**Total Fleet Cost/Hour: **\$1,447.65****MATERIAL QUANTITIES**Initial Volume: **200,753**Swell factor: **1.250**Loose volume: **250,941 LCY**Source of estimated volume: **Appendix A, Table A-6.1**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **80 feet**Unadjusted hourly production: **2,028.0 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **10 %**Average site altitude: **6,400 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **87.61** Hours

Total job cost: **\$126,826**

BULLDOZER WORKTask description: **Regrade LOM Roads**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **033** State: **Colorado** Abbreviation: **None**
 Date: **11/22/2022** County: **Moffat** Filename: **C010-033**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	100
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: **362,600**
 Swell factor: **1.250**
 Loose volume: **453,250 LCY**

Source of estimated volume: **Appendix A, Table A-6.1**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **80 feet**
 Unadjusted hourly production: **2,028.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)
Material consistency: 1.000	(CAT HB)
Dozing method: 1.000	(GEN.)
Visibility: 1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **158.24** Hours

Total job cost: **\$229,073**

BULLDOZER WORKTask description: **Regrade A Roads (Middle A and North A N pit)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 034State: ColoradoAbbreviation: NoneDate: 11/22/2022County: MoffatFilename: C81010User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	100
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$361.91Total Fleet Cost/Hour: **\$1,447.65****MATERIAL QUANTITIES**Initial Volume: 133,517Swell factor: 1.250Loose volume: **166,896 LCY**Source of estimated volume: Appendix A, Table A-6.1Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 80 feetUnadjusted hourly production: 2,028.0 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: 10 %Average site altitude: 6,400 feetMaterial weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **58.27** Hours

Total job cost: **\$84,349**

BULLDOZER WORKTask description: Regrade N Pit Roads (old LOM, cross-over, ash pit)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 035State: ColoradoAbbreviation: NoneDate: 11/22/2022County: MoffatFilename: C010-035User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	100
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$571.60Total Fleet Cost/Hour: \$2,286.41**MATERIAL QUANTITIES**Initial Volume: 105,283Swell factor: 1.150Loose volume: 121,075 LCYSource of estimated volume: Table A-6.1Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 80 feetUnadjusted hourly production: 3,441.4 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 0 %Average site altitude: 6,600 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4164

Adjusted unit production: 1,433.00 LCY/hr

Adjusted fleet production: **5732** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.399/LCY

Total job time: **21.12** Hours

Total job cost: **\$48,295**

BULLDOZER WORKTask description: **Regrade C Pit Haul Road**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **036**State: **Colorado**Abbreviation: **None**Date: **11/22/2022**County: **Moffat**Filename: **C010-036**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D10T - 10SU**Horsepower: **574**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**Total Fleet Cost/Hour: **\$1,447.65****MATERIAL QUANTITIES**Initial Volume: **136,400**Swell factor: **1.250**Loose volume: **170,500 LCY**Source of estimated volume: **Appendix A, Table a-6.1**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **80 feet**Unadjusted hourly production: **2,028.0 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **10 %**Average site altitude: **6,400 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **59.52** Hours

Total job cost: **\$86,171**

BULLDOZER WORKTask description: Regrade East A Haul Roads (East A and East ASplit, BridgeRd)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 039State: ColoradoAbbreviation: NoneDate: 11/22/2022County: MoffatFilename: C010-039User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	100
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$361.91Total Fleet Cost/Hour: \$1,447.65**MATERIAL QUANTITIES**Initial Volume: 155,400Swell factor: 1.250Loose volume: 194,250 LCYSource of estimated volume: Appendix A, Table A-6.1Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 80 feetUnadjusted hourly production: 2,028.0 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: 10 %Average site altitude: 6,400 feetMaterial weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **67.82** Hours

Total job cost: **\$98,174**

BULLDOZER WORKTask description: **Regrade I/J Roads (I/J Spoil, I Mid, I West)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 040State: ColoradoAbbreviation: NoneDate: 11/22/2022County: MoffatFilename: C010-040User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: NAShift Basis: 3 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	25
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: \$362.16Total Fleet Cost/Hour: **\$1,448.65****MATERIAL QUANTITIES**Initial Volume: 111,117Swell factor: 1.250Loose volume: **138,896 LCY**Source of estimated volume: Permit Appendix A, Tables A-2.3, A.6.1Source of estimated swell factor: Operator, Appendix A
Table A-6.1**HOURLY PRODUCTION**Average push distance: 80 feetUnadjusted hourly production: 2,028.0 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: -5 %Average site altitude: 6,725 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	1.000	(EXCL.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)

Visibility:	1.000	(AVG.)
Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6546

Adjusted unit production: 1,327.53 LCY/hr

Adjusted fleet production: **5310.12** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.273/LCY

Total job time: **26.16** Hours

Total job cost: **\$37,892**

BULLDOZER WORKTask description: **Regrade K Pit Haul Roads (K1 EPRL K3)**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **041**State: **Colorado**Abbreviation: **None**Date: **11/22/2022**County: **Moffat**Filename: **C010-041**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D10T - 10SU**Horsepower: **574**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**Total Fleet Cost/Hour: **\$1,447.65****MATERIAL QUANTITIES**Initial Volume: **148,283**Swell factor: **1.250**Loose volume: **185,354 LCY**Source of estimated volume: **Appendix A, Table A-6.1**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **80 feet**Unadjusted hourly production: **2,028.0 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **10 %**Average site altitude: **6,400 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **64.71** Hours

Total job cost: **\$93,678**

BULLDOZER WORKTask description: **Regrade Mine Access Road**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **042** State: **Colorado** Abbreviation: **None**
 Date: **11/22/2022** County: **Moffat** Filename: **C010-042**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: **54,022**
 Swell factor: **1.250**
 Loose volume: **67,528 LCY**

Source of estimated volume: **Appendix A, Table a-6.1**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **80 feet**
 Unadjusted hourly production: **2,028.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

<u>Job Condition Correction Factor</u>		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **23.58** Hours

Total job cost: **\$34,128**

BULLDOZER WORKTask description: **Regrade No Name Access Roads #2, #4, 5R**Site: **Trapper Mine** Permit Action: PR11 Permit/Job#: C1981010**PROJECT IDENTIFICATION**

Task #: 044 State: Colorado Abbreviation: None
 Date: 11/23/2022 County: Moffat Filename: C81010
 User: ZTT

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU
 Horsepower: 574
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$153.67</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$166.94</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.30</u>	<u>NA</u>

Total unit Cost/Hour: \$361.91
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: 24,719
 Swell factor: 1.250
 Loose volume: **30,899 LCY**

Source of estimated volume: Appendix A, Table A- 6.2
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 80 feet
 Unadjusted hourly production: 2,028.0 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 10 %
 Average site altitude: 6,400 feet

Material weight: 2,550 lbs/LCYWeight description: Earth - Dry packed

<u>Job Condition Correction Factor</u>		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.000</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.000</u>	<u>(GEN.)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **10.79** Hours

Total job cost: **\$15,616**

BULLDOZER WORKTask description: **Regrade Potable Water Well Access Road**Site: **Trapper Mine** Permit Action: PR11 Permit/Job#: C1981010**PROJECT IDENTIFICATION**

Task #: 045 State: Colorado Abbreviation: None
 Date: 11/23/2022 County: Moffat Filename: C010-045
 User: ZTT

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU
 Horsepower: 574
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$153.67</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$166.94</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.30</u>	<u>NA</u>

Total unit Cost/Hour: \$361.91
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: 4,093
 Swell factor: 1.250
 Loose volume: **5,116 LCY**

Source of estimated volume: Appendix A, Table 1.4-5
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 80 feet
 Unadjusted hourly production: 2,028.0 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 10 %
 Average site altitude: 6,400 feet

Material weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.000</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.000</u>	<u>(GEN.)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **1.79** Hours

Total job cost: **\$2,586**

BULLDOZER WORKTask description: **Regrade West Pyeatt Access Road (1 and 2)**Site: **Trapper Mine** Permit Action: PR11 Permit/Job#: C1981010**PROJECT IDENTIFICATION**

Task #: 046 State: Colorado Abbreviation: None
 Date: 11/23/2022 County: Moffat Filename: C010-046
 User: ZTT

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU
 Horsepower: 574
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$153.67</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$166.94</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.30</u>	<u>NA</u>

Total unit Cost/Hour: \$361.91
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: 16,370
 Swell factor: 1.250
 Loose volume: **20,463 LCY**

Source of estimated volume: Appendix A, Table A-6.2
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 80 feet
 Unadjusted hourly production: 2,028.0 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 10 %
 Average site altitude: 6,400 feet

Material weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.000</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.000</u>	<u>(GEN.)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **7.14** Hours

Total job cost: **\$10,342**

BULLDOZER WORKTask description: Regrade Middle Pyeatt Access Road (1, 2 and 3)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 047State: ColoradoAbbreviation: NoneDate: 11/23/2022County: MoffatFilename: C010-047User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$361.91Total Fleet Cost/Hour: \$1,447.65**MATERIAL QUANTITIES**Initial Volume: 15,142Swell factor: 1.250Loose volume: 18,928 LCYSource of estimated volume: Appendix A, Table A-6.2Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 80 feetUnadjusted hourly production: 2,028.0 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: 10 %Average site altitude: 6,400 feetMaterial weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **6.61** Hours

Total job cost: **\$9,566**

BULLDOZER WORKTask description: **Regrade East Pyeatt Access Road (1, 2 and 3)**Site: **Trapper Mine** Permit Action: PR11 Permit/Job#: C1981010**PROJECT IDENTIFICATION**

Task #: 048 State: Colorado Abbreviation: None
 Date: 11/23/2022 County: Moffat Filename: C10-048
 User: ZTT

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU
 Horsepower: 574
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$153.67</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$166.94</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.30</u>	<u>NA</u>

Total unit Cost/Hour: \$361.91
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: 21,159
 Swell factor: 1.250
 Loose volume: **26,449 LCY**

Source of estimated volume: Appendix A, Table 1.4-5
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 80 feet
 Unadjusted hourly production: 2,028.0 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 10 %
 Average site altitude: 6,400 feet

Material weight: 2,550 lbs/LCYWeight description: Earth - Dry packed

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: <u>0.750</u>	<u>(AVG.)</u>
Material consistency: <u>1.000</u>	<u>(CAT HB)</u>
Dozing method: <u>1.000</u>	<u>(GEN.)</u>
Visibility: <u>1.000</u>	<u>(AVG.)</u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **9.23** Hours

Total job cost: **\$13,367**

BULLDOZER WORKTask description: **Regrade Grouse Access Road**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **049** State: **Colorado** Abbreviation: **None**
 Date: **11/23/2022** County: **Moffat** Filename: **C010-049**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: **10,477**
 Swell factor: **1.250**
 Loose volume: **13,096 LCY**

Source of estimated volume: **Appendix A, Table 1.4-5**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **80 feet**
 Unadjusted hourly production: **2,028.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **4.57** Hours

Total job cost: **\$6,619**

BULLDOZER WORKTask description: Regrade West Flume Access RoadSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 050State: ColoradoAbbreviation: NoneDate: 11/23/2022County: MoffatFilename: C010-050User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$361.91Total Fleet Cost/Hour: \$1,447.65**MATERIAL QUANTITIES**Initial Volume: 6,139Swell factor: 1.250Loose volume: 7,674 LCYSource of estimated volume: Appendix A, Table A-6.2Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 80 feetUnadjusted hourly production: 2,028.0 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: 10 %Average site altitude: 6,400 feetMaterial weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **2.68** Hours

Total job cost: **\$3,878**

BULLDOZER WORKTask description: **Regrade East Flume Access Road**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **051**State: **Colorado**Abbreviation: **None**Date: **11/23/2022**County: **Moffat**Filename: **C010-051**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D10T - 10SU**Horsepower: **574**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**Total Fleet Cost/Hour: **\$1,447.65****MATERIAL QUANTITIES**Initial Volume: **6,139**Swell factor: **1.250**Loose volume: **7,674 LCY**Source of estimated volume: **Appendix A, Table A-6.2**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **80 feet**Unadjusted hourly production: **2,028.0 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **10 %**Average site altitude: **6,400 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **2.68** Hours

Total job cost: **\$3,878**

BULLDOZER WORKTask description: **Regrade Deal Access Road**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **052** State: **Colorado** Abbreviation: **None**
 Date: **11/23/2022** County: **Moffat** Filename: **C010-052**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: **6,139**
 Swell factor: **1.250**
 Loose volume: **7,674 LCY**

Source of estimated volume: **Appendix A, Table A-6.2**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **80 feet**
 Unadjusted hourly production: **2,028.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)
Material consistency: 1.000	(CAT HB)
Dozing method: 1.000	(GEN.)
Visibility: 1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **2.68** Hours

Total job cost: **\$3,878**

BULLDOZER WORKTask description: **Regrade Horse Access Roads (Horse and Horse1)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 053State: ColoradoAbbreviation: NoneDate: 11/23/2022County: MoffatFilename: C010-053User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$361.91Total Fleet Cost/Hour: **\$1,447.65****MATERIAL QUANTITIES**Initial Volume: 13,915Swell factor: 1.250Loose volume: **17,394 LCY**Source of estimated volume: Appendix A, Table A-6.2Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 80 feetUnadjusted hourly production: 2,028.0 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: 10 %Average site altitude: 6,400 feetMaterial weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **6.07** Hours

Total job cost: **\$8,791**

BULLDOZER WORKTask description: **Regrade West Horse Access Road**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **054**State: **Colorado**Abbreviation: **None**Date: **11/23/2022**County: **Moffat**Filename: **C010-054**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D10T - 10SU**Horsepower: **574**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**Total Fleet Cost/Hour: **\$1,447.65****MATERIAL QUANTITIES**Initial Volume: **6,139**Swell factor: **1.250**Loose volume: **7,674 LCY**Source of estimated volume: **Appendix A, Table A-6.2**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **80 feet**Unadjusted hourly production: **2,028.0 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **10 %**Average site altitude: **6,400 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **2.68** Hours

Total job cost: **\$3,878**

BULLDOZER WORKTask description: **Regrade Middle Flume Access Roads (1 and 3)**Site: **Trapper Mine** Permit Action: PR11 Permit/Job#: C1981010**PROJECT IDENTIFICATION**

Task #: 055 State: Colorado Abbreviation: None
 Date: 11/23/2022 County: Moffat Filename: C010-055
 User: ZTT

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU
 Horsepower: 574
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$153.67</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$166.94</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.30</u>	<u>NA</u>

Total unit Cost/Hour: \$361.91
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: 10,539
 Swell factor: 1.250
 Loose volume: **13,174 LCY**

Source of estimated volume: Appendix A, Table A-6.2
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 80 feet
 Unadjusted hourly production: 2,028.0 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 10 %
 Average site altitude: 6,400 feet

Material weight: 2,550 lbs/LCYWeight description: Earth - Dry packed

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: <u>0.750</u>	<u>(AVG.)</u>
Material consistency: <u>1.000</u>	<u>(CAT HB)</u>
Dozing method: <u>1.000</u>	<u>(GEN.)</u>
Visibility: <u>1.000</u>	<u>(AVG.)</u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **4.60** Hours

Total job cost: **\$6,658**

BULLDOZER WORKTask description: **Regrade Oak Access Roads**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **056** State: **Colorado** Abbreviation: **None**
 Date: **11/23/2022** County: **Moffat** Filename: **C010-056**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: **7,776**
 Swell factor: **1.250**
 Loose volume: **9,720 LCY**

Source of estimated volume: **Appendix A, Table A-6.2**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **80 feet**
 Unadjusted hourly production: **2,028.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)
Material consistency: 1.000	(CAT HB)
Dozing method: 1.000	(GEN.)
Visibility: 1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **3.39** Hours

Total job cost: **\$4,912**

BULLDOZER WORKTask description: **Regrade Sage Access Roads**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **057** State: **Colorado** Abbreviation: **None**
 Date: **11/23/2022** County: **Moffat** Filename: **C010-057**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: **10,231**
 Swell factor: **1.250**
 Loose volume: **12,789 LCY**

Source of estimated volume: **Appendix A, Table A-6.2**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **80 feet**
 Unadjusted hourly production: **2,028.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)
Material consistency: 1.000	(CAT HB)
Dozing method: 1.000	(GEN.)
Visibility: 1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **4.46** Hours

Total job cost: **\$6,463**

BULLDOZER WORKTask description: **Regrade Johnson Access Road**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **058** State: **Colorado** Abbreviation: **None**
 Date: **11/23/2022** County: **Moffat** Filename: **C010-058**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$1,447.65**

MATERIAL QUANTITIES

Initial Volume: **25,374**
 Swell factor: **1.250**
 Loose volume: **31,718 LCY**

Source of estimated volume: **Appendix A, Table A-6.2**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **80 feet**
 Unadjusted hourly production: **2,028.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: 0.750	(AVG.)
Material consistency: 1.000	(CAT HB)
Dozing method: 1.000	(GEN.)
Visibility: 1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 716.09 LCY/hr

Adjusted fleet production: **2864.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.505/LCY

Total job time: **11.07** Hours

Total job cost: **\$16,030**

BULLDOZER RIPPING WORK

Task description: Rip BC Walk Road

Site: Trapper Mine Permit Action: PR11 Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 063 State: Colorado Abbreviation: None
Date: 11/23/2022 County: Moffat Filename: C010-063
User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU Horsepower: 574
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	
Total Fleet Cost/Hour:	\$1,583.05	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 7.50 acres Rip Depth (ft): 2.50 Volume: 30,250 BCY or CCY

Source of estimated quantity: Appendix A Table 1.4-5

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.50 feet/pass
Average Ripping Width: 8.67 feet/pass
Average Ripping Length: 500.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 1.007 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1.007 Acres/hr
Site Altitude: 6,400 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr
Adjusted Hourly Fleet Production: 3.34 Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: 2.24 Hours

Unit cost: \$473.684 Per acre Total job cost: \$3,553

BULLDOZER RIPPING WORK

Task description: Rip D-main Pit Haul Roads

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 064

State: Colorado

Abbreviation: None

Date: 11/23/2022

County: Moffat

Filename: C010-064

User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU

Horsepower: 574

Ripper Attachment: 3-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	

Total Fleet Cost/Hour: \$1,583.05

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA

Bank Volume: NA

BCY NA

Area: 28.10 acres

Rip Depth (ft): 2.50

Volume: 113,337

BCY or CCY

Source of estimated quantity: Appendix A Table 1.4-5

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.50</u>	feet/pass
Average Ripping Width:	<u>8.67</u>	feet/pass
Average Ripping Length:	<u>500.00</u>	feet/pass
Average Dozer Speed:	<u>88.00</u>	feet/minute
Average Maneuver Time:	<u>0.25</u>	minutes/pass
Production per unit area:	<u>1.007</u>	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1.007 Acres/hr

Site Altitude: 6,400 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr

Adjusted Hourly Fleet Production: 3.34 Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: 8.41 Hours

Unit cost: \$473.684 Per acre Total job cost: \$13,311

BULLDOZER RIPPING WORK

Task description: Rip West Ash Haulroads (West Ash, West Ash1 and West Ash 2)

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 065

State: Colorado

Abbreviation: None

Date: 11/23/2022

County: Moffat

Filename: C010-065

User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU
Ripper Attachment: 3-Shank Ripper

Horsepower: 574

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	
Total Fleet Cost/Hour:	\$1,583.05	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 20.00 acres Rip Depth (ft): 2.50 Volume: 80,667 BCY or CCY

Source of estimated quantity: Appendix A Table 1.4-5

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.50 feet/pass
Average Ripping Width: 8.67 feet/pass
Average Ripping Length: 500.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 1.007 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1.007 Acres/hr
Site Altitude: 6,400 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr

Adjusted Hourly Fleet Production: 3.34 Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: 5.98 Hours

Unit cost: \$473.684 Per acre Total job cost: \$9,474

BULLDOZER RIPPING WORK

Task description: Rip LOM Haul Roads (F2 and F2-G5)

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 066

State: Colorado

Abbreviation: None

Date: 11/23/2022

County: Moffat

Filename: C010-066

User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU

Horsepower: 574

Ripper Attachment: 3-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	
Total Fleet Cost/Hour:	\$1,583.05	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 29.30 acres Rip Depth (ft): 2.50 Volume: 118,177 BCY or CCY

Source of estimated quantity: Appendix A Table 1.4-5

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.50</u>	feet/pass
Average Ripping Width:	<u>8.67</u>	feet/pass
Average Ripping Length:	<u>500.00</u>	feet/pass
Average Dozer Speed:	<u>88.00</u>	feet/minute
Average Maneuver Time:	<u>0.25</u>	minutes/pass
Production per unit area:	<u>1.007</u>	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	<u>1.007</u>	Acres/hr
Site Altitude:	<u>6,400</u>	feet
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr

Adjusted Hourly Fleet Production: 3.34 Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: 8.77 Hours

Unit cost: \$473.684 Per acre Total job cost: \$13,879

BULLDOZER RIPPING WORK

Task description: Rip A Pit Haul Roads (Middle A and North A)

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 067

State: Colorado

Abbreviation: None

Date: 11/23/2022

County: Moffat

Filename: C010-067

User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU

Horsepower: 574

Ripper Attachment: 3-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	
Total Fleet Cost/Hour:	\$1,583.05	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 21.50 acres Rip Depth (ft): 2.50 Volume: 86,717 BCY or CCY

Source of estimated quantity: Appendix A Table 1.4-5

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.50</u>	feet/pass
Average Ripping Width:	<u>8.67</u>	feet/pass
Average Ripping Length:	<u>500.00</u>	feet/pass
Average Dozer Speed:	<u>88.00</u>	feet/minute
Average Maneuver Time:	<u>0.25</u>	minutes/pass
Production per unit area:	<u>1.007</u>	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1.007 Acres/hr

Site Altitude: 6,400 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr

Adjusted Hourly Fleet Production: **3.34** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **6.43** Hours

Unit cost: \$473.684 Per acre Total job cost: **\$10,184**

BULLDOZER RIPPING WORK

Task description: Rip N Pit Haul Roads

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 068

State: Colorado

Abbreviation: None

Date: 11/23/2022

County: Moffat

Filename: C010-068

User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU

Horsepower: 574

Ripper Attachment: 3-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	
Total Fleet Cost/Hour:	\$1,583.05	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 18.00 acres Rip Depth (ft): 2.50 Volume: 72,600 BCY or CCY

Source of estimated quantity: Appendix A Table 1.4-5

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.50</u>	feet/pass
Average Ripping Width:	<u>8.67</u>	feet/pass
Average Ripping Length:	<u>500.00</u>	feet/pass
Average Dozer Speed:	<u>88.00</u>	feet/minute
Average Maneuver Time:	<u>0.25</u>	minutes/pass
Production per unit area:	<u>1.007</u>	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	<u>1.007</u>	Acres/hr
Site Altitude:	<u>6,400</u>	feet
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr

Adjusted Hourly Fleet Production: 3.34 Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: 5.39 Hours

Unit cost: \$473.684 Per acre Total job cost: \$8,526

BULLDOZER RIPPING WORK

Task description: Rip East A Haul Roads (East A and East A Split)

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 072

State: Colorado

Abbreviation: None

Date: 11/23/2022

County: Moffat

Filename: C010-072

User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU
Ripper Attachment: 3-Shank Ripper

Horsepower: 574

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	
Total Fleet Cost/Hour:	\$1,583.05	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 9.90 acres Rip Depth (ft): 2.50 Volume: 39,930 BCY or CCY

Source of estimated quantity: Appendix A Table 1.4-5

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.50 feet/pass
Average Ripping Width: 8.67 feet/pass
Average Ripping Length: 500.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 1.007 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1.007 Acres/hr
Site Altitude: 6,400 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr

Adjusted Hourly Fleet Production: 3.34 Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: 2.96 Hours

Unit cost: \$473.684 Per acre Total job cost: \$4,690

BULLDOZER RIPPING WORK

Task description: Rip Access Road (Tasks 042-059)

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 074

State: Colorado

Abbreviation: None

Date: 11/23/2022

County: Moffat

Filename: C010-074

User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU

Horsepower: 574

Ripper Attachment: 3-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	
Total Fleet Cost/Hour:	\$1,583.05	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 10.40 acres Rip Depth (ft): 2.50 Volume: 41,947 BCY or CCY

Source of estimated quantity: Appendix A Table 1.4-5

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.50</u>	feet/pass
Average Ripping Width:	<u>8.67</u>	feet/pass
Average Ripping Length:	<u>500.00</u>	feet/pass
Average Dozer Speed:	<u>88.00</u>	feet/minute
Average Maneuver Time:	<u>0.25</u>	minutes/pass
Production per unit area:	<u>1.007</u>	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	<u>1.007</u>	Acres/hr
Site Altitude:	<u>6,400</u>	feet
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr

Adjusted Hourly Fleet Production: 3.34 Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: 3.11 Hours

Unit cost: \$473.684 Per acre Total job cost: \$4,926

BULLDOZER RIPPING WORK

Task description: Rip K Pit Haul Roads (KMain, K1, K2 , K3)

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 075

State: Colorado

Abbreviation: None

Date: 11/23/2022

County: Moffat

Filename: C010-075

User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU

Horsepower: 574

Ripper Attachment: 3-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	
Total Fleet Cost/Hour:	\$1,583.05	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 7.10 acres Rip Depth (ft): 2.50 Volume: 28,637 BCY or CCY

Source of estimated quantity: Appendix A Table 1.4-5

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.50</u>	feet/pass
Average Ripping Width:	<u>8.67</u>	feet/pass
Average Ripping Length:	<u>500.00</u>	feet/pass
Average Dozer Speed:	<u>88.00</u>	feet/minute
Average Maneuver Time:	<u>0.25</u>	minutes/pass
Production per unit area:	<u>1.007</u>	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1.007 Acres/hr

Site Altitude: 6,400 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr

Adjusted Hourly Fleet Production: **3.34** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **2.12** Hours

Unit cost: \$473.684 Per acre Total job cost: **\$3,363**

BULLDOZER RIPPING WORK

Task description: Rip I/J Roads (I/J Spoil, I Mid, I West)

Site: Trapper Mine Permit Action: PR11 Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 077 State: Colorado Abbreviation: None
Date: 11/23/2022 County: Moffat Filename: C010-077
User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU Horsepower: 574
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper Ownership Cost/Hour:	\$22.74	NA
Ripper Operating Cost/Hour:	\$11.11	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$395.76	
Total Fleet Cost/Hour:	\$1,583.05	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 15.23 acres Rip Depth (ft): 2.50 Volume: 61,428 BCY or CCY

Source of estimated quantity: Appendix A Table 6.2

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.50 feet/pass
Average Ripping Width: 8.67 feet/pass
Average Ripping Length: 500.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 1.007 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1.007 Acres/hr
Site Altitude: 6,400 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.84 Acres/hr
Adjusted Hourly Fleet Production: 3.34 Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: 4.56 Hours

Unit cost: \$473.684 Per acre Total job cost: \$7,214

BULLDOZER WORKTask description: **Regrade Coyote Impoundment**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **078** State: **Colorado** Abbreviation: **None**
 Date: **11/28/2022** County: **Moffat** Filename: **C010-078**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$723.82**

MATERIAL QUANTITIES

Initial Volume: **83,750**
 Swell factor: **1.000**
 Loose volume: **83,750 LCY**

Source of estimated volume: **Appendix A Table A-7.2**
 Source of estimated swell factor: **Operator Estimate**

HOURLY PRODUCTION

Average push distance: **500 feet**
 Unadjusted hourly production: **410.8 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 145.05 LCY/hr

Adjusted fleet production: **290.1** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$2.495/LCY

Total job time: **288.69** Hours

Total job cost: **\$208,963**

BULLDOZER WORKTask description: **Regrade Middle Pyeatt Impoundments Impoundment (1,2,3)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 079State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-079User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$361.91Total Fleet Cost/Hour: **\$361.91****MATERIAL QUANTITIES**Initial Volume: 15,381Swell factor: 1.000Loose volume: **15,381 LCY**Source of estimated volume: Appendix A Table A-7.2Source of estimated swell factor: Operator Estimate**HOURLY PRODUCTION**Average push distance: 225 feetUnadjusted hourly production: 842.1 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: 10 %Average site altitude: 6,400 feetMaterial weight: 2,550 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 297.35 LCY/hr

Adjusted fleet production: **297.35** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$1.217/LCY

Total job time: **51.73** Hours

Total job cost: **\$18,721**

BULLDOZER WORKTask description: **Regrade Far East Buzzard Impoundment**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 080State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-080User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$361.91Total Fleet Cost/Hour: **\$361.91****MATERIAL QUANTITIES**Initial Volume: 342Swell factor: 1.000Loose volume: **342 LCY**Source of estimated volume: Appendix A Table A-7.2Source of estimated swell factor: Operator Estimate**HOURLY PRODUCTION**Average push distance: 100 feetUnadjusted hourly production: 1,718.9 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: 10 %Average site altitude: 6,400 feetMaterial weight: 2,550 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 606.94 LCY/hr

Adjusted fleet production: **606.94** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.596/LCY

Total job time: **0.56** Hours

Total job cost: **\$204**

BULLDOZER WORKTask description: **Regrade Sage Impoundments (1 and 2)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 081State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-081User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$361.91Total Fleet Cost/Hour: **\$361.91****MATERIAL QUANTITIES**Initial Volume: 8,302Swell factor: 1.000Loose volume: **8,302 LCY**Source of estimated volume: Appendix A Table 1.4-6Source of estimated swell factor: Operator Estimate**HOURLY PRODUCTION**Average push distance: 150 feetUnadjusted hourly production: 1,243.2 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: 10 %Average site altitude: 6,400 feetMaterial weight: 2,550 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 438.97 LCY/hr

Adjusted fleet production: **438.97** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.824/LCY

Total job time: **18.91** Hours

Total job cost: **\$6,845**

BULLDOZER WORKTask description: **Regrade West Horse Impoundment**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **082** State: **Colorado** Abbreviation: **None**
 Date: **11/28/2022** County: **Moffat** Filename: **C010-082**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$361.91**

MATERIAL QUANTITIES

Initial Volume: **3,315**
 Swell factor: **1.000**
 Loose volume: **3,315 LCY**

Source of estimated volume: **Appendix A Table A-7.2**
 Source of estimated swell factor: **Operator Estimate**

HOURLY PRODUCTION

Average push distance: **55 feet**
 Unadjusted hourly production: **2,670.0 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 942.78 LCY/hr

Adjusted fleet production: **942.78** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.384/LCY

Total job time: **3.52** Hours

Total job cost: **\$1,273**

BULLDOZER WORKTask description: **Regrade Impoundment H**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **083** State: **Colorado** Abbreviation: **None**
 Date: **11/28/2022** County: **Moffat** Filename: **C010-083**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$361.91**

MATERIAL QUANTITIES

Initial Volume: **3,198**
 Swell factor: **1.000**
 Loose volume: **3,198 LCY**

Source of estimated volume: **Appendix A Table A-7.2**
 Source of estimated swell factor: **Operator Estimate**

HOURLY PRODUCTION

Average push distance: **150 feet**
 Unadjusted hourly production: **1,243.2 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 438.97 LCY/hr

Adjusted fleet production: **438.97** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.824/LCY

Total job time: **7.29** Hours

Total job cost: **\$2,637**

BULLDOZER WORKTask description: **Regrade Industrial Waste Pond**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **084** State: **Colorado** Abbreviation: **None**
 Date: **11/28/2022** County: **Moffat** Filename: **C010-084**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D10T - 10SU**
 Horsepower: **574**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$361.91**
 Total Fleet Cost/Hour: **\$361.91**

MATERIAL QUANTITIES

Initial Volume: **3,279**
 Swell factor: **1.000**
 Loose volume: **3,279 LCY**

Source of estimated volume: **Appendix A TableA-7.2**
 Source of estimated swell factor: **Operator Estimate**

HOURLY PRODUCTION

Average push distance: **150 feet**
 Unadjusted hourly production: **1,243.2 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **10 %**
 Average site altitude: **6,400 feet**

Material weight: **2,550 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 438.97 LCY/hr

Adjusted fleet production: **438.97** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.824/LCY

Total job time: **7.47** Hours

Total job cost: **\$2,703**

BULLDOZER WORKTask description: **Regrade Deal 1 and 2**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **085**State: **Colorado**Abbreviation: **None**Date: **11/28/2022**County: **Moffat**Filename: **C010-085**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D10T - 10SU**Horsepower: **574**Blade Type: **Semi-Universal**Attachment: **3-shank ripper**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$22.74	NA
Ripper op. Cost/Hour:	\$5.56	50
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$390.21**Total Fleet Cost/Hour: **\$390.21****MATERIAL QUANTITIES**Initial Volume: **9,555**Swell factor: **1.000**Loose volume: **9,555 LCY**Source of estimated volume: **A-7.2**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **50 feet**Unadjusted hourly production: **2,748.7 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **0 %**Average site altitude: **7,500 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3537

Adjusted unit production: 972.22 LCY/hr

Adjusted fleet production: **972.22** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.401/LCY

Total job time: **9.83** Hours

Total job cost: **\$3,835**

BULLDOZER WORKTask description: **Regrade Deacon 1,2 and Jeffway 1,2 impoundments**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 086State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-086User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SUHorsepower: 574Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$22.74	NA
Ripper op. Cost/Hour:	\$5.56	50
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$390.21Total Fleet Cost/Hour: **\$390.21****MATERIAL QUANTITIES**Initial Volume: 92,093Swell factor: 1.000Loose volume: **92,093 LCY**Source of estimated volume: A-7.2Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly production: 2,748.7 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 0 %Average site altitude: 7,500 feetMaterial weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3537

Adjusted unit production: 972.22 LCY/hr

Adjusted fleet production: **972.22** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.401/LCY

Total job time: **94.72** Hours

Total job cost: **\$36,962**

BULLDOZER WORKTask description: **Regrade W. Buzzard #4 Impoundment**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **087**State: **Colorado**Abbreviation: **None**Date: **11/28/2022**County: **Moffat**Filename: **C010-087**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D10T - 10SU**Horsepower: **574**Blade Type: **Semi-Universal**Attachment: **3-shank ripper**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$22.74	NA
Ripper op. Cost/Hour:	\$5.56	50
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$390.21**Total Fleet Cost/Hour: **\$390.21****MATERIAL QUANTITIES**Initial Volume: **4,923**Swell factor: **1.000**Loose volume: **4,923 LCY**Source of estimated volume: **A-7.2**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **80 feet**Unadjusted hourly production: **2,028.0 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **0 %**Average site altitude: **7,500 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4043

Adjusted unit production: 819.92 LCY/hr

Adjusted fleet production: **819.92 LCY/hr**

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.476/LCY

Total job time: **6.00** Hours

Total job cost: **\$2,343**

BULLDOZER WORKTask description: **Regrade E. Buzzard #3 Impoundment**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **088**State: **Colorado**Abbreviation: **None**Date: **11/28/2022**County: **Moffat**Filename: **C010-088**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D10T - 10SU**Horsepower: **574**Blade Type: **Semi-Universal**Attachment: **3-shank ripper**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$153.67	NA
Operating Cost/Hour:	\$166.94	100
Ripper own. Cost/Hour:	\$22.74	NA
Ripper op. Cost/Hour:	\$5.56	50
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$390.21**Total Fleet Cost/Hour: **\$390.21****MATERIAL QUANTITIES**Initial Volume: **6,414**Swell factor: **1.000**Loose volume: **6,414 LCY**Source of estimated volume: **A-7.2**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **70 feet**Unadjusted hourly production: **2,253.9 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **0 %**Average site altitude: **7,500 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4043

Adjusted unit production: 911.25 LCY/hr

Adjusted fleet production: **911.25** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.428/LCY

Total job time: **7.04** Hours

Total job cost: **\$2,747**

BULLDOZER WORKTask description: **Regrade Diversions**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **089** State: **Colorado** Abbreviation: **None**
 Date: **11/28/2022** County: **Moffat** Filename: **C010-89**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D8T - 8SU**
 Horsepower: **310**
 Blade Type: **Semi-Universal**
 Attachment: **3-shank ripper**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper own. Cost/Hour:	\$13.10	NA
Ripper op. Cost/Hour:	\$3.65	50
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$280.53**
 Total Fleet Cost/Hour: **\$280.53**

MATERIAL QUANTITIES

Initial Volume: **33,374**
 Swell factor: **1.000**
 Loose volume: **33,374 LCY**

Source of estimated volume: **A-8.2**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **50 feet**
 Unadjusted hourly production: **1,400.0 LCY/hr**

Materials consistency description: **Compacted fill or embankment 0.9**

Average push gradient: **0 %**
 Average site altitude: **7,500 feet**

Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3881

Adjusted unit production: 543.34 LCY/hr

Adjusted fleet production: **543.34** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.516/LCY

Total job time: **61.42** Hours

Total job cost: **\$17,231**

SCRAPER TEAM WORKTask description: **Replace Topsoil on Ash Pits (ASH1)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 090State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-090User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work:	\$4,767.36	Support:	\$556.88	Maint:	\$290.95

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 11,254

CCY

Swell factor: 1.000Loose volume: **11,254**

LCY

Source of estimated volume: Appendix A, Table A-9.1Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1978.00	10.00	4.00	14.00	657	3.02

Haul Time: 3.02 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1978.00	-10.00	4.00	-6.00	2972	0.72

Return Time: 0.72 minutesTotal Scraper team cycle time: 5.34 minutesAdjusted for job conditions: 540.90 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 2,163.60 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 2,163.60 LCY/HourUnadjusted unit production/hour: 651.69 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 5.20 HoursUnit cost: \$2.595 /LCYTotal job cost: \$29,208

SCRAPER TEAM WORKTask description: **Replace Topsoil on Ash Pits (ASH2)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 090AState: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-090AUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 60,000

CCY

Swell factor: 1.000Loose volume: **60,000**

LCY

Source of estimated volume: Appendix A, Table A-10.1Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	711.00	-12.00	4.00	-8.00	1628	0.56

Haul Time: 0.56 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	711.00	-12.00	4.00	-8.00	2972	0.30

Return Time: 0.30 minutesTotal Scraper team cycle time: 2.46 minutesAdjusted for job conditions: 1,174.15 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 4,696.59 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 4,696.59 LCY/HourUnadjusted unit production/hour: 1,414.63 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 12.78 HoursUnit cost: \$1.196 /LCYTotal job cost: \$71,735

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil on Ash Pits (A92-4 to Pit)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 090BState: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-090BUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 777F
-Loader:	Cat 385C L 18'-1" Stick
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$27.68
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$48.12
Number of Units:	4	1	1	1	1	1
Group Subtotals:	Work: \$1,677.06		Support: \$475.23		Maint: \$268.00	

Total work team cost/hour: **\$2,420.29****MATERIAL QUANTITIES**Initial volume: 115,215

CCY

Swell factor: 1.000Loose volume: **115,215**

LCY

Source of estimated volume: TR124 Appendix A Table A-3.1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	8.635	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 9 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		2.516	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.516	Minutes	Adjusted for site altitude:	2.516	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5147.00	10.00	3.00	13.00	620	8.345

Haul Time: **8.345** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5147.00	-10.00	3.00	-7.00	3450	1.538

Return Time: **1.538** minutesTotal Truck Cycle Time: **14.399** minutes

Loading Tool unit

Production 1,406.18 LCY/Hour Adjusted for job efficiency: 1,167.13 LCY/Hour
Truck Unit Production 323.83 LCY/Hour Adjusted for job efficiency: 268.78 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 1,075.13 LCY/Hour
Adjusted single truck/loader team production: 1,075.13 LCY/Hour
Adjusted multiple truck/loader team production: **1,075.13** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **107.16** Hours

Unit cost: \$2.251 /LCY Total job cost: **\$259,367**

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil on D/E Pits (Truck/Excavator)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 091State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-091User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 777F
-Loader:	Cat 385C L 18'-1" Stick
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
% Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$27.68
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$48.12
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$1,353.22		Support: \$475.23		Maint: \$268.00	

Total work team cost/hour: **\$2,096.45****MATERIAL QUANTITIES**Initial volume: 470,723

CCY

Swell factor: 1.000Loose volume: **470,723**

LCY

Source of estimated volume: TR124 Appendix A Table A-3.1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	8.635	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 9 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		2.516	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.516	Minutes	Adjusted for site altitude:	2.516	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4788.00	-8.60	3.00	-5.60	1870	2.695

Haul Time: **2.695** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4788.00	8.60	3.00	11.60	1628	3.064

Return Time: **3.064** minutesTotal Truck Cycle Time: **10.275** minutes

Loading Tool unit

Production 1,406.18 LCY/Hour Adjusted for job efficiency: 1,167.13 LCY/Hour
Truck Unit Production 453.81 LCY/Hour Adjusted for job efficiency: 376.66 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 1,129.99 LCY/Hour
Adjusted single truck/loader team production: 1,129.99 LCY/Hour
Adjusted multiple truck/loader team production: **1,129.99** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **416.57** HoursUnit cost: \$1.855 /LCY Total job cost: **\$873,326**

SCRAPER TEAM WORKTask description: **Replace Topsoil on D/E Pits (D97-1)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 091AState: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-91AUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	OBSOLETE - Cat D10T - 10U
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

Scraper Work Team

Support Equipment

Maintenance Equipment

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$10.00	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$5.00	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$595.92	NA	\$278.44	\$56.30	\$247.35	\$22.47
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$334.74		Maint: \$269.82	

Total work team cost/hour: **\$5,371.92****MATERIAL QUANTITIES**Initial volume: 62,216

CCY

Swell factor: 1.000Loose volume: **62,216**

LCY

Source of estimated volume: Appendix A, Table 1.4-9Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1496.00	0.00	4.00	4.00	2394	0.79

Haul Time: 0.79 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	-3.00	4.00	1.00	2963	0.35

Return Time: 0.35 minutesTotal Scraper team cycle time: 2.74 minutesAdjusted for job conditions: 1,054.16 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 4,216.64 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 4,216.64 LCY/HourUnadjusted unit production/hour: 1,270.07 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 14.75 HoursUnit cost: \$1.274 /LCYTotal job cost: \$79,262

SCRAPER TEAM WORKTask description: **Replace Topsoil on D/E Pits (D1-07)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 091BState: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-091BUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	OBSOLETE - Cat D10T - 10U
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$10.00	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$5.00	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$595.92	NA	\$278.44	\$56.30	\$247.35	\$22.47
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$334.74		Maint:	\$269.82

Total work team cost/hour: **\$5,371.92****MATERIAL QUANTITIES**Initial volume: 7,476

CCY

Swell factor: 1.000Loose volume: **7,476**

LCY

Source of estimated volume: Appendix A, Table 1.4-9Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1221.00	3.00	4.00	7.00	1362	0.95

Haul Time: 0.95 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1221.00	-3.00	4.00	1.00	2963	0.53

Return Time: 0.53 minutesTotal Scraper team cycle time: 3.08 minutesAdjusted for job conditions: 937.79 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 3,751.17 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 3,751.17 LCY/HourUnadjusted unit production/hour: 1,129.87 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 1.99 HoursUnit cost: \$1.432 /LCYTotal job cost: \$10,706

SCRAPER TEAM WORKTask description: **Replace Topsoil at C Pit**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 092State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-092User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 304,836

CCY

Swell factor: 1.000Loose volume: **304,836**

LCY

Source of estimated volume: Appendix A, Table A-10.1Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	-4.50	4.00	-0.50	2972	0.72

Haul Time: 0.72 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	4.50	4.00	8.50	1931	1.13

Return Time: 1.13 minutesTotal Scraper team cycle time: 3.45 minutesAdjusted for job conditions: 837.22 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 3,348.87 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 3,348.87 LCY/HourUnadjusted unit production/hour: 1,008.70 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 91.03 HoursUnit cost: \$1.677 /LCYTotal job cost: \$511,131

SCRAPER TEAM WORKTask description: **Replace Topsoil at West Panel, BC rd, Shop (Scraper)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 096State: ColoradoAbbreviation: NoneDate: 12/9/2022County: MoffatFilename: C010-096User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 66,713

CCY

Swell factor: 1.000Loose volume: **66,713**

LCY

Source of estimated volume: A-9.1Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	498.00	1.00	4.00	5.00	1867	0.37

Haul Time: 0.37 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	498.00	-1.00	4.00	3.00	2949	0.32

Return Time: 0.32 minutesTotal Scraper team cycle time: 2.29 minutesAdjusted for job conditions: 1,261.31 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 5,045.24 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 5,045.24 LCY/HourUnadjusted unit production/hour: 1,519.65 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 13.22 HoursUnit cost: \$1.113 /LCYTotal job cost: \$74,249

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil at West Panel, BC rd, Shop (Truck/Excavator)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 096AState: ColoradoAbbreviation: NoneDate: 12/9/2022County: MoffatFilename: C010-096AUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 777F
-Loader:	Cat 385C L 18'-1" Stick
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$27.68
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$48.12
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$1,353.22		Support: \$475.23		Maint: \$268.00	

Total work team cost/hour: **\$2,096.45****MATERIAL QUANTITIES**Initial volume: 171,625

CCY

Swell factor: 1.000Loose volume: **171,625**

LCY

Source of estimated volume: TR124 Appendix A Table A-3.1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	8.635	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 9 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		2.516	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.516	Minutes	Adjusted for site altitude:	2.516	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7375.00	-1.00	3.00	2.00	3328	2.961

Haul Time: **2.961** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7375.00	1.00	3.00	4.00	3411	2.477

Return Time: **2.477** minutesTotal Truck Cycle Time: **9.954** minutes

Loading Tool unit

Production	<u>1,406.18</u>	LCY/Hour	Adjusted for job efficiency:	<u>1,167.13</u>	LCY/Hour
Truck Unit Production	<u>468.44</u>	LCY/Hour	Adjusted for job efficiency:	<u>388.81</u>	LCY/Hour

Optimal No. of Trucks:	<u>3</u>	Truck(s)	Selected Number of Trucks:	<u>3</u>	Truck(s)
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Adjusted hourly truck team production:	<u>1,166.43</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>1,166.43</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>1,166.43</u>	LCY/Hour

JOB TIME AND COST

Fleet size:	<u>1</u>	Team(s)	Total job time:	<u>147.14</u>	Hours
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Unit cost:	<u>\$1.797</u>	/LCY	Total job cost:	<u>\$308,466</u>
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SCRAPER TEAM WORKTask description: **Replace Topsoil at East Panel Ponds, A road (Scraper)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 097State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-097User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 114,647

CCY

Swell factor: 1.000Loose volume: **114,647**

LCY

Source of estimated volume: Appendix A, Table 1.4-9Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	390.00	-5.50	3.00	-2.50	2972	0.18

Haul Time: 0.18 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	390.00	5.50	3.00	8.50	1931	0.30

Return Time: 0.30 minutesTotal Scraper team cycle time: 2.08 minutesAdjusted for job conditions: 1,388.65 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 5,554.62 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 5,554.62 LCY/HourUnadjusted unit production/hour: 1,673.08 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 20.64 HoursUnit cost: \$1.011 /LCYTotal job cost: \$115,897

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil at East Panel Ponds, A Rd (Truck/Excavator)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 097AState: ColoradoAbbreviation: NoneDate: 1/30/2023County: MoffatFilename: C010-097AUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 777F
-Loader:	Cat 385C L 18'-1" Stick
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$27.68
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$48.12
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$1,353.22		Support: \$475.23		Maint: \$268.00	

Total work team cost/hour: **\$2,096.45****MATERIAL QUANTITIES**Initial volume: 244,270

CCY

Swell factor: 1.000Loose volume: **244,270**

LCY

Source of estimated volume: TR124 Appendix A Table A-3.1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	8.635	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 9 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		2.516	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.516	Minutes	Adjusted for site altitude:	2.516	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4345.00	-1.00	3.00	2.00	3328	2.050

Haul Time: 2.050 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7375.00	1.00	3.00	4.00	3411	2.477

Return Time: 2.477 minutesTotal Truck Cycle Time: 9.043 minutes

Loading Tool unit

Production 1,406.18 LCY/Hour Adjusted for job efficiency: 1,167.13 LCY/HourTruck Unit Production 515.64 LCY/Hour Adjusted for job efficiency: 427.98 LCY/HourOptimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)Adjusted hourly truck team production: 1,283.93 LCY/HourAdjusted single truck/loader team production: 1,167.13 LCY/HourAdjusted multiple truck/loader team production: 1,167.13 LCY/Hour**JOB TIME AND COST**Fleet size: 1 Team(s) Total job time: 209.29 HoursUnit cost: \$1.796 /LCY Total job cost: \$438,768

SCRAPER TEAM WORKTask description: **Re-topsoil Johnson Coal Stockpile**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 098State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-098User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 20,360

CCY

Swell factor: 1.000Loose volume: **20,360**

LCY

Source of estimated volume: Division EstimateSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	625.00	3.20	3.00	6.20	1477	0.48

Haul Time: 0.48 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	625.00	-3.20	3.00	-0.20	2972	0.27

Return Time: 0.27 minutesTotal Scraper team cycle time: 2.35 minutesAdjusted for job conditions: 1,229.11 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 4,916.43 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 4,916.43 LCY/HourUnadjusted unit production/hour: 1,480.85 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 4.14 HoursUnit cost: \$1.142 /LCYTotal job cost: \$23,254

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil at Dragline Walk Road (ASH4)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 099State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-099User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 777F
-Loader:	Cat 385C L 18'-1" Stick
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$27.68
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$48.12
Number of Units:	2	1	1	1	1	1
Group Subtotals:	Work: \$1,029.38		Support: \$475.23		Maint: \$268.00	

Total work team cost/hour: **\$1,772.61****MATERIAL QUANTITIES**Initial volume: 8,695

CCY

Swell factor: 1.000Loose volume: **8,695**

LCY

Source of estimated volume: TR124 Appendix A Table A-3.1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	8.635	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 9 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		2.516	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.516	Minutes	Adjusted for site altitude:	2.516	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2288.00	2.80	3.00	5.80	1266	1.932

Haul Time: 1.932 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2288.00	-2.80	3.00	0.20	3503	0.826

Return Time: 0.826 minutesTotal Truck Cycle Time: 7.274 minutes

Loading Tool unit

Production 1,406.18 LCY/Hour Adjusted for job efficiency: 1,167.13 LCY/Hour
Truck Unit Production 641.04 LCY/Hour Adjusted for job efficiency: 532.06 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 1,064.12 LCY/Hour
Adjusted single truck/loader team production: 1,064.12 LCY/Hour
Adjusted multiple truck/loader team production: 1,064.12 LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 8.17 HoursUnit cost: \$1.666 /LCY Total job cost: \$14,484

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil at Dragline Walk Road (ASH1)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 099AState: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-099AUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 777F
-Loader:	Cat 385C L 18'-1" Stick
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$27.68
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$48.12
Number of Units:	2	1	1	1	1	1
Group Subtotals:	Work: \$1,029.38		Support: \$475.23		Maint: \$268.00	

Total work team cost/hour: **\$1,772.61****MATERIAL QUANTITIES**Initial volume: 38,684

CCY

Swell factor: 1.000Loose volume: **38,684**

LCY

Source of estimated volume: TR124 Appendix A Table A-3.1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	8.635	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 9 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		2.516	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.516	Minutes	Adjusted for site altitude:	2.516	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2130.00	-3.80	3.00	-0.80	3503	0.688

Haul Time: **0.688** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2130.00	3.80	3.00	6.80	2398	1.082

Return Time: **1.082** minutesTotal Truck Cycle Time: **6.286** minutes

Loading Tool unit

Production 1,406.18 LCY/Hour Adjusted for job efficiency: 1,167.13 LCY/Hour
Truck Unit Production 741.79 LCY/Hour Adjusted for job efficiency: 615.69 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 1,231.37 LCY/Hour
Adjusted single truck/loader team production: 1,167.13 LCY/Hour
Adjusted multiple truck/loader team production: **1,167.13** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **33.14** HoursUnit cost: \$1.519 /LCY Total job cost: **\$58,752**

REVEGETATION WORKTask description: Facilities AreaSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 100State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-100User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	<u>75</u>	Cost /Acre:	<u>\$318.15</u>
Estimated Failure Rate:	<u>17.5%</u>	Cost /Acre*:	<u>\$318.15</u>
*Selected Replanting Work Items:	<u>TILLING,SEEDING</u>		
Initial Job Cost:	<u>\$23,861.25</u>		
Reseeding Job Cost:	<u>\$4,175.72</u>		

Total Job Cost:	\$28,037
Job Hours:	75.00

REVEGETATION WORKTask description: Seed D Pit Range A-BSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 100AState: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-100AUser: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Bitterbrush, Antelope	4.40	1.35	\$85.80
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Chokecherry	3.00	0.21	\$87.00
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00

Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46
Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Rabbitbrush, Rubber	0.26	3.87	\$16.72
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Rose, Wood's	0.96	0.00	\$19.68
Sagebrush, Mountain or Big	0.07	3.70	\$1.38
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Sagebrush, Silver	0.10	1.94	\$3.10
Saltbush, Four Wing	0.62	0.85	\$7.75
Serviceberry	0.29	0.53	\$17.84
Snowberry, Mountain	0.58	1.00	\$29.29
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	15.79	44.87	\$354.70

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	<u>319.3</u>	Cost /Acre:	<u>\$586.70</u>
Estimated Failure Rate:	<u>17.5%</u>	Cost /Acre*:	<u>\$586.70</u>
*Selected Replanting Work Items:	<u>TILLING,SEEDING</u>		
Initial Job Cost:	<u>\$187,333.31</u>		
Reseeding Job Cost:	<u>\$32,783.33</u>		
Total Job Cost:	<u>\$220,117</u>		
Job Hours:	<u>319.30</u>		

REVEGETATION WORKTask description: Roads (including BC road) below 6700'Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 101State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-101User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 196.3 Cost /Acre: \$318.15
 Estimated Failure Rate: 17.5% Cost /Acre*: \$318.15
 *Selected Replanting Work Items: TILLING,SEEDING
 Initial Job Cost: \$62,452.85
 Reseeding Job Cost: \$10,929.25

Total Job Cost:	<u>\$73,382</u>
Job Hours:	<u>196.00</u>

MOTOR GRADER WORK

Task description: Finish Grading I/J Pit

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 102

State: Colorado

Abbreviation: None

Date: 11/28/2022

County: Moffat

Filename: C010-102

User: ZTT

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 16M

Horsepower: 297

Ripper Attachment: _____

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$163.86	NA
Operating Cost/Hour:	\$109.86	100
Ripper Ownership Cost/Hour:	\$0.00	NA
Ripper Operating Cost/Hour:	\$0.00	
Operator Cost/Hour:	\$28.56	NA
Total Unit Cost/Hour:	\$302.28	
Total Fleet Cost/Hour:	\$604.56	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 79.94 acres

Source of estimated acreage: Appen. A; Table A-8.2A Finish Grading

HOURLY PRODUCTION

Average Grader Speed:	<u>1.50</u>	mph
Selected Application:	<u>Finish grading (0-2.5 mph) - 1.5</u>	
Selected Blade Angle:	<u>30</u>	degrees
Effective Blade Length:	<u>13.90</u>	feet
Width of blade overlap per pass:	<u>2.00</u>	feet
Net grading or ripping width per pass:	<u>11.90</u>	feet
Unadjusted Hourly Unit Production:	<u>2.1636</u>	acres/hour

Job Condition Correction Factors

Site Altitude: 7000 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.85</u>	(1sh/d, mod.)
Net Correction:	<u>0.8500</u>	multiplier

Adjusted Hourly Unit Production: 1.8391 acres/Hour

Adjusted Hourly Fleet Production: **3.6782** acres/Hour

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **21.73** Hours

Unit cost: \$164.36 per acre Total job cost: **\$13,139**

REVEGETATION WORKTask description: Ponds below 6700' (Coyote, Sage, E Buzzard)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 103State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-103User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 26 Cost /Acre: \$318.15
 Estimated Failure Rate: 17.5% Cost /Acre*: \$318.15
 *Selected Replanting Work Items: TILLING,SEEDING
 Initial Job Cost: \$8,271.90
 Reseeding Job Cost: \$1,447.58

Total Job Cost:	\$9,719
Job Hours:	26.00

REVEGETATION WORKTask description: Johnson Coal StockpileSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 104State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-104User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 12.6 Cost /Acre: \$318.15
 Estimated Failure Rate: 17.5% Cost /Acre*: \$318.15
 *Selected Replanting Work Items: TILLING,SEEDING
 Initial Job Cost: \$4,008.69
 Reseeding Job Cost: \$701.52

Total Job Cost:	\$4,710
Job Hours:	12.00

REVEGETATION WORKTask description: Topsoil piles below 6700'Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 105State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-105User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 27.1 Cost /Acre: \$318.15
Estimated Failure Rate: 17.5% Cost /Acre*: \$318.15
*Selected Replanting Work Items: TILLING,SEEDING

Initial Job Cost: \$8,621.87
Reseeding Job Cost: \$1,508.83

Total Job Cost:	\$10,131
Job Hours:	27.00

REVEGETATION WORKTask description: Roads: >6700 ft.-Rangeland with ShrubsSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 107State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-107User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Bitterbrush, Antelope	4.40	1.35	\$85.80
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Chokecherry	3.00	0.21	\$87.00
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00

Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46
Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Rabbitbrush, Rubber	0.26	3.87	\$16.72
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Rose, Wood's	0.96	0.00	\$19.68
Sagebrush, Mountain or Big	0.07	3.70	\$1.38
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Sagebrush, Silver	0.10	1.94	\$3.10
Saltbush, Four Wing	0.62	0.85	\$7.75
Serviceberry	0.29	0.53	\$17.84
Snowberry, Mountain	0.58	1.00	\$29.29
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	15.79	44.87	\$354.70

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	<u>54.2</u>	Cost /Acre:	<u>\$586.70</u>
Estimated Failure Rate:	<u>17.5%</u>	Cost /Acre*:	<u>\$586.70</u>
*Selected Replanting Work Items:	<u>TILLING,SEEDING</u>		
Initial Job Cost:	<u>\$31,799.14</u>		
Reseeding Job Cost:	<u>\$5,564.85</u>		
Total Job Cost:	<u>\$37,364</u>		
Job Hours:	<u>54.00</u>		

REVEGETATION WORKTask description: Ash pit.-Rangeland with ShrubsSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 108State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-108User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Bitterbrush, Antelope	4.40	1.35	\$85.80
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Chokecherry	3.00	0.21	\$87.00
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00

Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46
Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Rabbitbrush, Rubber	0.26	3.87	\$16.72
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Rose, Wood's	0.96	0.00	\$19.68
Sagebrush, Mountain or Big	0.07	3.70	\$1.38
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Sagebrush, Silver	0.10	1.94	\$3.10
Saltbush, Four Wing	0.62	0.85	\$7.75
Serviceberry	0.29	0.53	\$17.84
Snowberry, Mountain	0.58	1.00	\$29.29
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	15.79	44.87	\$354.70

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	<u>115.6</u>	Cost /Acre:	<u>\$586.70</u>
Estimated Failure Rate:	<u>17.5%</u>	Cost /Acre*:	<u>\$586.70</u>
*Selected Replanting Work Items:	<u>TILLING,SEEDING</u>		
Initial Job Cost:	<u>\$67,822.52</u>		
Reseeding Job Cost:	<u>\$11,868.94</u>		
Total Job Cost:	<u>\$79,691</u>		
Job Hours:	<u>115.00</u>		

REVEGETATION WORKTask description: Seed D/E Pit Range BSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 109State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-109User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Crested Wheatgrass - Ephraim	25.00	114.78	\$108.13
Crested Wheatgrass - Hy-Crest	25.00	114.78	\$99.38
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Slender Wheatgrass - San Luis	25.00	91.25	\$106.25
Totals Seed Mix	76.23	325.57	\$328.01

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	15.7	Cost /Acre:	\$560.01
Estimated Failure Rate:	17.5%	Cost /Acre*:	\$560.01
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$8,792.16
Reseeding Job Cost:	\$1,538.63
Total Job Cost:	\$10,331
Job Hours:	15.00

REVEGETATION WORKTask description: Ponds above 6700'(Deal, Deacon, Jeffways, West Horse)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 111State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-111User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Bitterbrush, Antelope	4.40	1.35	\$85.80
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Chokecherry	3.00	0.21	\$87.00
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00

Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46
Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Rabbitbrush, Rubber	0.26	3.87	\$16.72
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Rose, Wood's	0.96	0.00	\$19.68
Sagebrush, Mountain or Big	0.07	3.70	\$1.38
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Sagebrush, Silver	0.10	1.94	\$3.10
Saltbush, Four Wing	0.62	0.85	\$7.75
Serviceberry	0.29	0.53	\$17.84
Snowberry, Mountain	0.58	1.00	\$29.29
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	15.79	44.87	\$354.70

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	<u>18.71</u>	Cost /Acre:	<u>\$586.70</u>
Estimated Failure Rate:	<u>17.5%</u>	Cost /Acre*:	<u>\$586.70</u>
*Selected Replanting Work Items:	<u>TILLING,SEEDING</u>		
Initial Job Cost:	<u>\$10,977.16</u>		
Reseeding Job Cost:	<u>\$1,921.00</u>		
Total Job Cost:	<u>\$12,898</u>		
Job Hours:	<u>19.00</u>		

REVEGETATION WORKTask description: Topsoil piles above 6700'Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 112State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-112User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Bitterbrush, Antelope	4.40	1.35	\$85.80
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Chokecherry	3.00	0.21	\$87.00
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00

Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46
Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Rabbitbrush, Rubber	0.26	3.87	\$16.72
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Rose, Wood's	0.96	0.00	\$19.68
Sagebrush, Mountain or Big	0.07	3.70	\$1.38
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Sagebrush, Silver	0.10	1.94	\$3.10
Saltbush, Four Wing	0.62	0.85	\$7.75
Serviceberry	0.29	0.53	\$17.84
Snowberry, Mountain	0.58	1.00	\$29.29
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	15.79	44.87	\$354.70

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	<u>5.1</u>	Cost /Acre:	<u>\$586.70</u>
Estimated Failure Rate:	<u>17.5%</u>	Cost /Acre*:	<u>\$586.70</u>
*Selected Replanting Work Items:	<u>TILLING,SEEDING</u>		
Initial Job Cost:	<u>\$2,992.17</u>		
Reseeding Job Cost:	<u>\$523.63</u>		
Total Job Cost:	<u>\$3,516</u>		
Job Hours:	<u>5.00</u>		

BOREHOLE SEALING WORK

Task description: Seal Land Slide Monitoring Stations

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 120

State: Colorado

Abbreviation: None

Date: 2/1/2023

County: Moffat

Filename: C010-120

User: ZTT

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Plug and Seal Station 8	Portland cement grout - 6 in. (labor, equip, materials)	6	172	841.00	LF	\$6.32	\$5,315.12

Job Hours: 4.00

Total Cost: \$5,315.00

BOREHOLE SEALING WORK

Task description: Plug and Seal Exploration Drill Holes

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 121

State: Colorado

Abbreviation: None

Date: 2/1/2023

County: Moffat

Filename: C010-121

User: ZTT

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Plug and Seal Boreholes	Portland cement grout - 6 in. (labor, equip, materials)	6	4000	4,000.00	LF	\$6.32	\$25,280.00

Job Hours: 80.00

Total Cost: \$25,280.00

BOREHOLE SEALING WORK

Task description: Plug and Seal Monitoring Wells

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 122

State: Colorado

Abbreviation: None

Date: 11/28/2022

County: Moffat

Filename: C010-122

User: ZTT

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
81-03A	Portland cement grout - 2 in. (labor, equip, materials)	2	650	650.00	LF	\$5.29	\$3,438.50
COY-A	Portland cement grout - 2 in. (labor, equip, materials)	2	59	59.00	LF	\$5.29	\$312.11
COY-B	Portland cement grout - 2 in. (labor, equip, materials)	2	49	49.00	LF	\$5.29	\$259.21
COY	Portland cement grout - 4 in. (labor, equip, materials)	4	54	54.00	LF	\$5.55	\$299.70
GC1	Portland cement grout - 4 in. (labor, equip, materials)	2.5	180	180.00	LF	\$5.55	\$999.00
GC2	Portland cement grout - 4 in. (labor, equip, materials)	2.5	165	165.00	LF	\$5.55	\$915.75
GC3	Portland cement grout - 4 in. (labor, equip, materials)	2.5	64	64.00	LF	\$5.55	\$355.20
GC3A	Portland cement grout - 2 in. (labor, equip, materials)	2	50	50.00	LF	\$5.29	\$264.50
GC3B	Portland cement grout - 2 in. (labor, equip, materials)	2	67	67.00	LF	\$5.29	\$354.43
GD2	Portland cement grout - 4 in. (labor, equip, materials)	4	210	210.00	LF	\$5.55	\$1,165.50
GD3	Portland cement grout - 4 in. (labor, equip, materials)	4	198	198.00	LF	\$5.55	\$1,098.90
GF1	Portland cement grout - 4 in. (labor, equip, materials)	4	640	640.00	LF	\$5.55	\$3,552.00
GF4	Portland cement grout - 4 in. (labor, equip, materials)	4	270	270.00	LF	\$5.55	\$1,498.50
GF5	Portland cement grout - 6 in. (labor, equip, materials)	4.25	153.5	153.50	LF	\$6.32	\$970.12

GF6	Portland cement grout - 4 in. (labor, equip, materials)	4	200	200.00	LF	\$5.55	\$1,110.00
GF7	Portland cement grout - 6 in. (labor, equip, materials)	4.25	127	127.00	LF	\$6.32	\$802.64
GF8	Portland cement grout - 6 in. (labor, equip, materials)	4.25	220	220.00	LF	\$6.32	\$1,390.40
GP2	Portland cement grout - 4 in. (labor, equip, materials)	4	307	307.00	LF	\$5.55	\$1,703.85
GP3	Portland cement grout - 4 in. (labor, equip, materials)	4	154	154.00	LF	\$5.55	\$854.70
GP3A	Portland cement grout - 2 in. (labor, equip, materials)	2	143	143.00	LF	\$5.29	\$756.47
GP4	Portland cement grout - 4 in. (labor, equip, materials)	4	281	281.00	LF	\$5.55	\$1,559.55
GP5	Portland cement grout - 4 in. (labor, equip, materials)	4	284	284.00	LF	\$5.55	\$1,576.20
GP7	Portland cement grout - 4 in. (labor, equip, materials)	4	99	99.00	LF	\$5.55	\$549.45
GP8	Portland cement grout - 4 in. (labor, equip, materials)	4	198	198.00	LF	\$5.55	\$1,098.90
GP9	Portland cement grout - 4 in. (labor, equip, materials)	4	202	202.00	LF	\$5.55	\$1,121.10
J1	Portland cement grout - 4 in. (labor, equip, materials)	4	30	30.00	LF	\$5.55	\$166.50
P1	Portland cement grout - 4 in. (labor, equip, materials)	4	21	21.00	LF	\$5.55	\$116.55
P2	Portland cement grout - 4 in. (labor, equip, materials)	4	21	21.00	LF	\$5.55	\$116.55
P4	Portland cement grout - 4 in. (labor, equip, materials)	4	80	80.00	LF	\$5.55	\$444.00
P5	Portland cement grout - 4 in. (labor, equip, materials)	4	21	21.00	LF	\$5.55	\$116.55
P6	Portland cement grout - 4 in. (labor, equip, materials)	4	51	51.00	LF	\$5.55	\$283.05
P7	Portland cement grout - 4 in. (labor, equip, materials)	4	37	37.00	LF	\$5.55	\$205.35
P8	Portland cement grout - 4 in. (labor, equip, materials)	4	33	33.00	LF	\$5.55	\$183.15
GMP-1	Portland cement grout - 4	4	200	200.00	LF	\$5.55	\$1,110.00

	in. (labor, equip, materials)						
GD1	Portland cement grout - 6 in. (labor, equip, materials)	6	1132	1,132.00	LF	\$6.32	\$7,154.24
GD1(2)	Portland cement grout - 6 in. (labor, equip, materials)	6	1144	1,144.00	LF	\$6.32	\$7,230.08
GLEV-1	Portland cement grout - 6 in. (labor, equip, materials)	4.25	238	238.00	LF	\$6.32	\$1,504.16
GLEV-2	Portland cement grout - 6 in. (labor, equip, materials)	4.25	27	27.00	LF	\$6.32	\$170.64
GLEV-3	Portland cement grout - 6 in. (labor, equip, materials)	4.25	45	45.00	LF	\$6.32	\$284.40
CY-A	Portland cement grout - 6 in. (labor, equip, materials)	4.25	35	35.00	LF	\$6.32	\$221.20
CY-1	Portland cement grout - 6 in. (labor, equip, materials)	4.25	165	165.00	LF	\$6.32	\$1,042.80
CY-2	Portland cement grout - 6 in. (labor, equip, materials)	4.25	285	285.00	LF	\$6.32	\$1,801.20
CY-3	Portland cement grout - 6 in. (labor, equip, materials)	4.25	430	430.00	LF	\$6.32	\$2,717.60
GX1	Portland cement grout - 6 in. (labor, equip, materials)	4.25	318	318.00	LF	\$6.32	\$2,009.76
GW-23	Portland cement grout - 6 in. (labor, equip, materials)	4.25	280	280.00	LF	\$6.32	\$1,769.60
GW-26	Portland cement grout - 6 in. (labor, equip, materials)	4.25	321	321.00	LF	\$6.32	\$2,028.72
GW-29	Portland cement grout - 6 in. (labor, equip, materials)	4.25	320	320.00	LF	\$6.32	\$2,022.40
GW-30	Portland cement grout - 6 in. (labor, equip, materials)	4.25	320	320.00	LF	\$6.32	\$2,022.40
GW-31	Portland cement grout - 6 in. (labor, equip, materials)	4.25	320	320.00	LF	\$6.32	\$2,022.40
Ks_DW-1A	Portland cement grout - 6 in. (labor, equip, materials)	4.25	188	188.00	LF	\$6.32	\$1,188.16
NP-1	Portland cement grout - 6 in. (labor, equip, materials)	4.25	185	185.00	LF	\$6.32	\$1,169.20
NP-2	Portland cement grout - 6 in. (labor, equip, materials)	4.25	135	135.00	LF	\$6.32	\$853.20
NP-3	Portland cement grout - 6 in. (labor, equip,	4.25	299	299.00	LF	\$6.32	\$1,889.68

	materials)						
East Pyeatt Well #1	Portland cement grout - 6 in. (labor, equip, materials)	5	700	700.00	LF	\$6.32	\$4,424.00
05-LW-17	Portland cement grout - 4 in. (labor, equip, materials)	2.375	816	816.00	LF	\$5.55	\$4,528.80
05-LW-21	Portland cement grout - 4 in. (labor, equip, materials)	2.375	1325.4	1,325.40	LF	\$5.55	\$7,355.97
05-LW-25	Portland cement grout - 4 in. (labor, equip, materials)	2.375	1358	1,358.00	LF	\$5.55	\$7,536.90
05-LW-27	Portland cement grout - 4 in. (labor, equip, materials)	2.375	1594	1,594.00	LF	\$5.55	\$8,846.70
95-LW-09	Portland cement grout - 4 in. (labor, equip, materials)	4	695	995.00	LF	\$5.55	\$5,522.25

Job Hours: 185.00

Total Cost: \$108,065.00

REVEGETATION WORKTask description: Reveg for 20 x .3 acres drillholesSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 128State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-128User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Bitterbrush, Antelope	4.40	1.35	\$85.80
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Chokecherry	3.00	0.21	\$87.00
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00

Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46
Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Rabbitbrush, Rubber	0.26	3.87	\$16.72
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Rose, Wood's	0.96	0.00	\$19.68
Sagebrush, Mountain or Big	0.07	3.70	\$1.38
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Sagebrush, Silver	0.10	1.94	\$3.10
Saltbush, Four Wing	0.62	0.85	\$7.75
Serviceberry	0.29	0.53	\$17.84
Snowberry, Mountain	0.58	1.00	\$29.29
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	15.79	44.87	\$354.70

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	<u>6</u>	Cost /Acre:	<u>\$586.70</u>
Estimated Failure Rate:	<u>17.5%</u>	Cost /Acre*:	<u>\$586.70</u>
*Selected Replanting Work Items:	<u>TILLING,SEEDING</u>		
Initial Job Cost:	<u>\$3,520.20</u>		
Reseeding Job Cost:	<u>\$616.04</u>		
Total Job Cost:	<u>\$4,136</u>		
Job Hours:	<u>6.00</u>		

BULLDOZER WORKTask description: Regrade .3acres x 20 drill padsSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: 129State: ColoradoAbbreviation: NoneDate: 11/28/2022County: MoffatFilename: C010-129User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper own. Cost/Hour:	\$13.10	NA
Ripper op. Cost/Hour:	\$3.65	50
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$280.53Total Fleet Cost/Hour: \$280.53**MATERIAL QUANTITIES**Initial Volume: 30,000Swell factor: 1.000Loose volume: 30,000 LCYSource of estimated volume: A-7.2Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly production: 1,400.0 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 0 %Average site altitude: 7,500 feetMaterial weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3537

Adjusted unit production: 495.18 LCY/hr

Adjusted fleet production: **495.18** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.567/LCY

Total job time: **60.58** Hours

Total job cost: **\$16,996**

DEMOLITION WORK

Task description: Demolish structures, remove materials and debris

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 130

State: Colorado

Abbreviation: None

Date: 11/28/2022

County: Moffat

Filename: C010-130

User: ZTT

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 91.30 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Main office	31,7548 CF	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	317,548.00	CF	\$0.22	\$70,495.66
Office bldg. floor	15,288 SF	Floor, concrete, demolition only, average reinforcing - 10 in. thick	15,288.00	SF	\$1.86	\$28,435.68
Reinforced concrete floor office bldg.	251 SF	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	251.00	SF	\$2.30	\$576.55
Office footers	804 SF	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	804.00	LF	\$6.89	\$5,539.56
Remove fencing	700 LF	Fencing, chain link, including posts and fabric - 8 ft. to 10 ft. high	700.00	LF	\$3.08	\$2,156.00
Shop\Warehouse	1,925,700 CF	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,925,700.00	CF	\$0.22	\$427,505.40
Warehouse concrete floor	9,270 SF	Floor, concrete, demolition only, average reinforcing - 12 in. thick	9,270.00	SF	\$2.23	\$20,672.10
Warehouse 4" Concrete floor	7,925 SF	Floor, concrete, demolition only, average reinforcing - 4 in. thick	7,925.00	SF	\$0.74	\$5,864.50
Warehouse Footers	1,822 LF	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	1,822.00	LF	\$6.89	\$12,553.58
Silver storage trailer	40 X10X10	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	4,000.00	CF	\$0.22	\$872.00
Ble caterpillar parts trailer	35X10X8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,800.00	CF	\$0.22	\$610.40

Wash/Lube Bay	173,500 CF	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	173,500.00	CF	\$0.22	\$38,517.00
Wash bay concrete floor	9,275 SF	Floor, concrete, demolition only, average reinforcing - 6 in. thick	9,275.00	SF	\$1.11	\$10,295.25
Wash bay footers	480 LF	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	480.00	LF	\$4.59	\$2,203.20
Shop concrete floor	2,400 SF	Floor, concrete, demolition only, average reinforcing - 6 in. thick	2,400.00	SF	\$1.11	\$2,664.00
Shop Footers	290 LF	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	290.00	LF	\$4.59	\$1,331.10
Seed Trailer	30X10X8	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,400.00	CF	\$0.22	\$532.80
Pump House	4,840 CF	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	4,840.00	CF	\$0.22	\$1,074.48
Pump House floor	484 SF	Floor, concrete, demolition only, average reinforcing - 6 in. thick	484.00	SF	\$1.11	\$537.24
Pump House footers	88 LF	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	88.00	LF	\$4.59	\$403.92
Old cars and equipment at water tanks	120X10X4	Bldg. (SC) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	4,800.00	CF	\$0.26	\$1,248.00
Light Duty and Electrical Shop	94,500 CF	Bldg. (SC) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	94,500.00	CF	\$0.26	\$24,570.00
Concrete floor	5,250 SF	Floor, concrete, demolition only, average reinforcing - 6 in. thick	5,250.00	SF	\$1.11	\$5,827.50
Footers	348 LF	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	348.00	LF	\$4.59	\$1,597.32
Break Up and Bury Parking Lot Asphalt	2,448 SY	Pavement, bituminous, demolition only - 4 in. to 6 in. thick	2,448.00	SY	\$8.08	\$19,779.84
Water Tank	80,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	10,667.00	CF	\$0.22	\$2,325.41

Water Tank	80,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	10,667.00	CF	\$0.22	\$2,325.41
Diesel Tank	100,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	13,333.00	CF	\$0.22	\$2,906.59
Diesel Tank	100,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	13,333.00	CF	\$0.22	\$2,906.59
Diesel Tank	20,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,667.00	CF	\$0.22	\$581.41
Diesel Tank	20,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,667.00	CF	\$0.22	\$581.41
Diesel Tank	20,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,667.00	CF	\$0.22	\$581.41
Diesel Tank -- Removed but onsite	20,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,667.00	CF	\$0.22	\$581.41
Diesel Tank -- Removed but onsite	20,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,667.00	CF	\$0.22	\$581.41
Gasoline Tank	15,000 Gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,000.00	CF	\$0.22	\$436.00
Concrete Pads for Storage Tank	6,500 SF	Floor, concrete, demolition only, average reinforcing - 6 in. thick	6,500.00	SF	\$1.11	\$7,215.00
Fuel Tank Sludge Removal - 8 Tanks	6,300 Gallons	Remove sludge, water, and rem. product from tank - 6,000 to 8,000 gal.	1.00	EA	\$306.00	\$306.00
Disposal of Tank Sludge	26 Tons	Hazardous waste removal - Bulk liquids, large quantities (over 2,500 gal.)	6,300.00	GAL	\$1.88	\$11,844.00
Powerlines	75 330 LF	Utility Poles, Wood 35' - 45' high (each pole)	75.00	EA	\$297.50	\$22,312.50
Tire Shed-Skid Mounted	6,000 CF	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	6,000.00	CF	\$0.22	\$1,308.00
Main Substation	6,000 CF	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	6,000.00	CF	\$0.22	\$1,308.00
Concrete Pads	1,200 SF	Floor, concrete,	1,200.00	SF	\$1.11	\$1,332.00

		demolition only, average reinforcing - 6 in. thick				
4 Portables	4,200 CF	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	4,200.00	CF	\$0.22	\$915.60
ANFO Silos and Emulsion Tank	10,940 CF	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	10,940.00	CF	\$0.22	\$2,384.92
New 2007 Emulsion tank	15,000 gal	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	1,600.00	CF	\$0.22	\$348.80
Concrete Pad	1,642 SF	Floor, concrete, demolition only, average reinforcing - 6 in. thick	1,642.00	SF	\$1.11	\$1,822.62
Footers	52 LF	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	52.00	LF	\$4.59	\$238.68
Explosive storage- 2 magazines	2 X 853.3 CF	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	1,707.00	CF	\$0.22	\$372.13
Explosive Storage Trailer	2,560 CF	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	2,560.00	CF	\$0.22	\$558.08
2 Large Explosives Magazines	2 X 22.5. 8X6	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	2,160.00	CF	\$0.22	\$470.88
Tub Pad railroad Track	2 X 312	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	624.00	CF	\$0.22	\$136.03
5 Cargo Containers	5 X 25 and 8x8	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	8,000.00	CF	\$0.22	\$1,744.00
Queen Anne Dragline Repair Pad	70'Lx70'wx.067'h	Floor, concrete, demolition only, average reinforcing - 8 in. thick	4,900.00	SF	\$1.48	\$7,252.00
Bury boneyard storage material	84,000 CF	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	84,000.00	CF	\$0.22	\$18,312.00
Waste oil and Anit- Freeze drum disposal	50 used oil, 20 Solvent	Solid pickup - 55 gal. drums	70.00	EA	\$240.00	\$16,800.00
Waterlines and Waste Solvent Lines	Shop to waste oil pad	Pipe, sewer/water - 12 in. diameter pipe	100.00	LF	\$5.05	\$505.00
Transformer Pad	225 SF	Floor, concrete, demolition only, average reinforcing - 4 in. thick	225.00	SF	\$0.74	\$166.50

4 skid mounted substations	4'x10', 8'x20'	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	6,400.00	CF	\$0.22	\$1,395.20
East Panel RL Coverall Building	86,400CF	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	86,400.00	CF	\$0.22	\$18,835.20
East Panel RL Concrete Slabs	4,540 SF	Floor, concrete, demolition only, average reinforcing - 10 in. thick	4,540.00	SF	\$1.86	\$8,444.40
East Panel RL Footings	60 LF	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	600.00	LF	\$6.89	\$4,134.00
3x50,000 Tanks	20,040 CF	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	20,040.00	CF	\$0.22	\$4,368.72
2x20,000 Tanks	5,348 CF	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	5,348.00	CF	\$0.22	\$1,165.86
MgCl Tank @ H Impoundment	10,000 gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,005.00	CF	\$0.22	\$219.09
Red silo @ used oil storage area	15,000 gallons	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,600.00	CF	\$0.22	\$348.80
Blasters Equipment Building	45X85X22	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	76,021.88	CF	\$0.21	\$15,584.49
-Blasters Equipment Building Foundation	146 CY	Slab on grade, concrete, demolition only - No reinforcing	106.00	CY	\$96.00	\$10,176.00
Radio Tower Skid Mounted	NA	USER PROVIDED ITEM	1.00	EA	\$1,500.00	\$1,500.00

Job Hours: 100.00

Subtotal
(unadjusted): \$863,494.63

Total Cost
(adjusted for location): \$788,370.60

DEMOLITION WORK

Task description: Culvert Removal and Disposal

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: 131

State: Colorado

Abbreviation: None

Date: 11/28/2022

County: Moffat

Filename: C010-131

User: ZTT

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 91.30 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
A-1	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	240.00	LF	\$17.76	\$4,262.64
A-2	60" Diam	Pipe, corrugated metal (CMP) - 60 in. diameter pipe	240.00	LF	\$23.89	\$5,733.36
ASH-1	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	190.00	LF	\$7.68	\$1,458.82
A-3	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	240.00	LF	\$17.76	\$4,262.64
A-4	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	210.00	LF	\$17.76	\$3,729.81
A-5	2 @ 48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	480.00	LF	\$17.76	\$8,525.28
A-7	36" Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	210.00	LF	\$12.24	\$2,570.82
A9	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	180.00	LF	\$17.76	\$3,196.98
A-10	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	240.00	LF	\$17.76	\$4,262.64
A-11	18" Diam	Pipe, corrugated metal (CMP) - 18 in. diameter pipe	180.00	LF	\$5.90	\$1,062.36
A-12	36"Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	210.00	LF	\$12.24	\$2,570.82
A-14	36" Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	210.00	LF	\$12.24	\$2,570.82
AE-4	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	210.00	LF	\$7.68	\$1,612.38
AE-7	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	300.00	LF	\$7.68	\$2,303.40
AE-10	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter	240.00	LF	\$17.76	\$4,262.64

		pipe				
AE-11	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	240.00	LF	\$17.76	\$4,262.64
BC-1	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	540.00	LF	\$7.68	\$4,146.12
BC-2	60" Diam	Pipe, corrugated metal (CMP) - 60 in. diameter pipe	240.00	LF	\$23.89	\$5,733.36
BC-5	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	180.00	LF	\$7.68	\$1,382.04
BC-6	36"Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	210.00	LF	\$12.24	\$2,570.82
*FEB-1	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	180.00	LF	\$7.68	\$1,382.04
D-9	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	210.00	LF	\$7.68	\$1,612.38
D-10	18" Diam	Pipe, corrugated metal (CMP) - 18 in. diameter pipe	180.00	LF	\$5.90	\$1,062.36
D-12	18" Diam	Pipe, corrugated metal (CMP) - 18 in. diameter pipe	180.00	LF	\$5.90	\$1,062.36
D-15	36" Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	180.00	LF	\$12.24	\$2,203.56
D-16	2 @ 24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	360.00	LF	\$7.68	\$2,764.08
D-17	2 @ 24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	360.00	LF	\$7.68	\$2,764.08
FT-1	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	110.00	LF	\$7.68	\$844.58
EMF-1	2 @ 36"	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	120.00	LF	\$12.24	\$1,469.04
GRS-1	24"Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	180.00	LF	\$7.68	\$1,382.04
GRS-2	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	240.00	LF	\$17.76	\$4,262.64
RW-1	12" Diam	Pipe, corrugated metal (CMP) - 12 in. diameter pipe	180.00	LF	\$4.34	\$781.74
SA-1	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	240.00	LF	\$17.76	\$4,262.64
SA-7	30" Diam	Pipe, corrugated metal (CMP) - 30 in. diameter pipe	180.00	LF	\$10.15	\$1,827.18
SAH-1	24" Diam	Pipe, corrugated metal	180.00	LF	\$7.68	\$1,382.04

		(CMP) - 24 in. diameter pipe				
AE-8	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	240.00	LF	\$17.76	\$4,262.64
AE-12	36" Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	130.00	LF	\$12.24	\$1,591.46
AX-3	60" Diam	Pipe, corrugated metal (CMP) - 60 in. diameter pipe	240.00	LF	\$23.89	\$5,733.36
AX-4	36" Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	240.00	LF	\$12.24	\$2,938.08
AX-5	36" Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	210.00	LF	\$12.24	\$2,570.82
IH-1	18"Diam	Pipe, corrugated metal (CMP) - 18 in. diameter pipe	180.00	LF	\$5.90	\$1,062.36
IWP-1	6" Diam	Pipe, corrugated metal (CMP) - 8 in. diameter pipe	180.00	LF	\$3.31	\$595.26
Jgag-1	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	180.00	LF	\$7.68	\$1,382.04
JG-2	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	180.00	LF	\$7.68	\$1,382.04
NN-5	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	180.00	LF	\$7.68	\$1,382.04
OH-3	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	180.00	LF	\$7.68	\$1,382.04
OH-5	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	180.00	LF	\$7.68	\$1,382.04
MC-1	15" Diam	Pipe, corrugated metal (CMP) - 15 in. diameter pipe	180.00	LF	\$5.09	\$916.02
MC-3	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	180.00	LF	\$7.68	\$1,382.04
MC-5	18"	Pipe, corrugated metal (CMP) - 18 in. diameter pipe	120.00	LF	\$5.90	\$708.24
A-15	48" Diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	223.00	LF	\$17.76	\$3,960.70
AE-13A	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	175.00	LF	\$7.68	\$1,343.65
AE-13B	36" Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	170.00	LF	\$12.24	\$2,081.14
BC-7	36"Diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	192.00	LF	\$12.24	\$2,350.46

OH-6	18" Diam	Pipe, corrugated metal (CMP) - 18 in. diameter pipe	78.00	LF	\$5.90	\$460.36
A-13	24" Diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	210.00	LF	\$7.68	\$1,612.38

Job Hours: 60.00

Subtotal
(unadjusted): \$140,022.32

Total Cost
(adjusted for location): \$127,840.38

BULLDOZER WORKTask description: **Regrade L Pit X-sec:407,200**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L01**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **L01**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **93,302**Swell factor: **1.000**Loose volume: **93,302 LCY**Source of estimated volume: **Table A-4.3**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **400 feet**Unadjusted hourly production: **810.5 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **-20 %**Average site altitude: **6,950 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7535

Adjusted unit production: 610.71 LCY/hr

Adjusted fleet production: **2442.84** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.936/LCY

Total job time: **38.19** Hours

Total job cost: **\$87,365**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:406,700**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **L02** State: **Colorado** Abbreviation: **None**
 Date: **11/30/2022** County: **Moffat** Filename: **C010-L02**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D11T - 11U**
 Horsepower: **850**
 Blade Type: **Universal**
 Attachment: **NA**
 Shift Basis: **3 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**
 Total Fleet Cost/Hour: **\$2,287.41**

MATERIAL QUANTITIES

Initial Volume: **222,222**
 Swell factor: **1.000**
 Loose volume: **222,222 LCY**

Source of estimated volume: **Table A-4.3**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **425 feet**
 Unadjusted hourly production: **765.7 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **-20 %**
 Average site altitude: **7,050 feet**

Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7535

Adjusted unit production: 576.95 LCY/hr

Adjusted fleet production: **2307.8** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.991/LCY

Total job time: **96.29** Hours

Total job cost: **\$220,258**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:406,200**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L03**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **L03**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **141,481**Swell factor: **1.000**Loose volume: **141,481 LCY**Source of estimated volume: **Table A-4.3**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **400 feet**Unadjusted hourly production: **810.5 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **-25 %**Average site altitude: **7,050 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.516	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8011

Adjusted unit production: 649.29 LCY/hr

Adjusted fleet production: **2597.16** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.881/LCY

Total job time: **54.48** Hours

Total job cost: **\$124,607**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:405700**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L04**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **C010-L04**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **148,574**Swell factor: **1.000**Loose volume: **148,574 LCY**Source of estimated volume: **Table A-4.3**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **500 feet**Unadjusted hourly production: **650.0 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **-25 %**Average site altitude: **7,000 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.516	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8011

Adjusted unit production: 520.72 LCY/hr

Adjusted fleet production: **2082.88** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$1.098/LCY

Total job time: **71.33** Hours

Total job cost: **\$163,163**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:405,200**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L05**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **L05**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **402,666**Swell factor: **1.000**Loose volume: **402,666 LCY**Source of estimated volume: **Table A-4.3**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **520 feet**Unadjusted hourly production: **627.8 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **10 %**Average site altitude: **7,150 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4153

Adjusted unit production: 260.73 LCY/hr

Adjusted fleet production: **1042.92** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$2.193/LCY

Total job time: **386.09** Hours

Total job cost: **\$883,157**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:404,700**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L06**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **L06**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **718,834**Swell factor: **1.000**Loose volume: **718,834 LCY**Source of estimated volume: **Table A-4.3**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **590 feet**Unadjusted hourly production: **556.8 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **-20 %**Average site altitude: **7,050 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7535

Adjusted unit production: 419.55 LCY/hr

Adjusted fleet production: **1678.2 LCY/hr**

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$1.363/LCY

Total job time: **428.34 Hours**

Total job cost: **\$979,780**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:404,200**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L07**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **L07**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **475,815**Swell factor: **1.000**Loose volume: **475,815 LCY**Source of estimated volume: **Table A-4.5**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **560 feet**Unadjusted hourly production: **585.9 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **-20 %**Average site altitude: **7,200 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7535

Adjusted unit production: 441.48 LCY/hr

Adjusted fleet production: **1765.92** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$1.295/LCY

Total job time: **269.44** Hours

Total job cost: **\$616,327**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:403,700**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L08**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **C010-L08**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **102,185**Swell factor: **1.000**Loose volume: **102,185 LCY**Source of estimated volume: **Table A-4.3**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **600 feet**Unadjusted hourly production: **546.0 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **-25 %**Average site altitude: **7,250 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.516	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8011

Adjusted unit production: 437.40 LCY/hr

Adjusted fleet production: **1749.6** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$1.307/LCY

Total job time: **58.40** Hours

Total job cost: **\$133,596**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:403,200**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L09**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **L09**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **101,945**Swell factor: **1.000**Loose volume: **101,945 LCY**Source of estimated volume: **Table A-4.3**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **550 feet**Unadjusted hourly production: **594.6 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **-15 %**Average site altitude: **7,250 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7023

Adjusted unit production: 417.59 LCY/hr

Adjusted fleet production: **1670.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$1.369/LCY

Total job time: **61.03** Hours

Total job cost: **\$139,605**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:402,700**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L10**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **L10**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **430,259**Swell factor: **1.000**Loose volume: **430,259 LCY**Source of estimated volume: **Table A-4.5**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **405 feet**Unadjusted hourly production: **801.6 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **-20 %**Average site altitude: **7,350 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7535

Adjusted unit production: 604.01 LCY/hr

Adjusted fleet production: **2416.04** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.947/LCY

Total job time: **178.08** Hours

Total job cost: **\$407,352**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:402,200**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: L11State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: L11User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 3 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: \$571.85Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: 572,536Swell factor: 1.000Loose volume: **572,536 LCY**Source of estimated volume: Table A-4.3Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 525 feetUnadjusted hourly production: 622.2 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: -20 %Average site altitude: 7,400 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6782

Adjusted unit production: 421.98 LCY/hr

Adjusted fleet production: **1687.92 LCY/hr**

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$1.355/LCY

Total job time: **339.20 Hours**

Total job cost: **\$775,880**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:401,700**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L12**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **L12**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **173,389**Swell factor: **1.000**Loose volume: **173,389 LCY**Source of estimated volume: **Table A-4.3**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **450 feet**Unadjusted hourly production: **725.7 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **-20 %**Average site altitude: **7,400 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6782

Adjusted unit production: 492.17 LCY/hr

Adjusted fleet production: **1968.68** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$1.162/LCY

Total job time: **88.07** Hours

Total job cost: **\$201,461**

BULLDOZER WORKTask description: **Regrade L Pit X-sec:401,200**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **L13**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **C010-L13**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D11T - 11U**Horsepower: **850**Blade Type: **Universal**Attachment: **NA**Shift Basis: **3 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: **273,425**Swell factor: **1.000**Loose volume: **273,425 LCY**Source of estimated volume: **Table A-4.5**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **205 feet**Unadjusted hourly production: **1,529.1 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **-25 %**Average site altitude: **7,500 feet**Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.516	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7210

Adjusted unit production: 1,102.48 LCY/hr

Adjusted fleet production: **4409.92** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.519/LCY

Total job time: **62.00** Hours

Total job cost: **\$141,825**

BULLDOZER WORKTask description: **Regrade L Pit X-secs:400,700 and 400,200**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: L14State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: L14User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 3 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: \$571.85Total Fleet Cost/Hour: **\$2,287.41****MATERIAL QUANTITIES**Initial Volume: 271,815Swell factor: 1.000Loose volume: **271,815 LCY**Source of estimated volume: Table A-4.3Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 150 feetUnadjusted hourly production: 2,036.8 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: -30 %Average site altitude: 7,550 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.601	(CAT HB)
Altitude:	0.930	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7081

Adjusted unit production: 1,442.26 LCY/hr

Adjusted fleet production: **5769.04** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.396/LCY

Total job time: **47.12** Hours

Total job cost: **\$107,774**

TRUCK/LOADER TEAM WORKTask description: **Regrade L Pit (Truck/Excavator)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: L15State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-L15User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	KOMATSU 830E
-Loader:	CAT 6090
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 14,000 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Shovel	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$179.05	\$23.07	\$153.67	\$153.67	\$163.86	\$105.66
Operating cost/hour:	\$247.93	\$930.15	\$41.74	\$41.74	\$27.47	\$76.75
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$34.42	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$461.40	\$990.54	\$238.52	\$236.71	\$219.88	\$182.41
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$2,374.74		Support: \$475.23		Maint: \$402.29	

Total work team cost/hour: **\$3,252.26****MATERIAL QUANTITIES**Initial volume: 1,647,275

CCY

Swell factor: 1.000Loose volume: **1,647,275**

LCY

Source of estimated volume: TR124 Appendix A Table A-3.1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 3,300

Pounds/LCY

Description: Decomposed rock - 75% Rock, 25% EarthRated Payload: 492,200

Pounds

Payload Capacity: 149.15

LCY

Truck Bed (volume) Basis:

Struck Volume:	153.00	LCY
Heaped Volume:	192.00	LCY
Average Volume:	172.50	LCY
Adjusted Volume:	149.15	LCY

Final Truck Volume Based on Number of Loader Passes: 129.58 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	58.900	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	64.790	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 2 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.498	minutes
Net Load Time per Truck:		0.996	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	0.996	Minutes	Adjusted for site altitude:	0.996	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1841.00	-8.00	3.00	-5.00	1870	1.139

Haul Time: **1.139** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1502.00	8.00	3.00	11.00	1734	1.269

Return Time: **1.269** minutesTotal Truck Cycle Time: **5.404** minutes

Loading Tool unit

Production 4,328.95 LCY/Hour Adjusted for job efficiency: 3,593.03 LCY/Hour
Truck Unit Production 1,438.71 LCY/Hour Adjusted for job efficiency: 1,194.13 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 3,582.39 LCY/Hour
Adjusted single truck/loader team production: 3,582.39 LCY/Hour
Adjusted multiple truck/loader team production: **3,582.39** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **459.83** HoursUnit cost: \$0.908 /LCY Total job cost: **\$1,495,471**

REVEGETATION WORKTask description: Seed L Pit: Rangeland with ShrubsSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: L16State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-L16User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Bitterbrush, Antelope	4.40	1.35	\$85.80
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Chokecherry	3.00	0.21	\$87.00
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00

Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46
Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Rabbitbrush, Rubber	0.26	3.87	\$16.72
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Rose, Wood's	0.96	0.00	\$19.68
Sagebrush, Mountain or Big	0.07	3.70	\$1.38
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Sagebrush, Silver	0.10	1.94	\$3.10
Saltbush, Four Wing	0.62	0.85	\$7.75
Serviceberry	0.29	0.53	\$17.84
Snowberry, Mountain	0.58	1.00	\$29.29
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	15.79	44.87	\$354.70

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	<u>803.9</u>	Cost /Acre:	<u>\$586.70</u>
Estimated Failure Rate:	<u>17.5%</u>	Cost /Acre*:	<u>\$586.70</u>
*Selected Replanting Work Items:	<u>TILLING,SEEDING</u>		
Initial Job Cost:	<u>\$471,648.13</u>		
Reseeding Job Cost:	<u>\$82,538.42</u>		
Total Job Cost:	<u>\$554,187</u>		
Job Hours:	<u>804.00</u>		

BULLDOZER WORKTask description: Regrade L Pit North Haul road.6.5 ac X 9 ft th.Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: L17State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-L17User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D11T - 11UHorsepower: 850Blade Type: UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: \$571.60Total Fleet Cost/Hour: \$1,143.20**MATERIAL QUANTITIES**Initial Volume: 94,772Swell factor: 1.150Loose volume: 108,988 LCYSource of estimated volume: Map M9 sh.3/3Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 75 feetUnadjusted hourly production: 3,584.2 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push gradient: 5 %Average site altitude: 7,000 feetMaterial weight: 2,475 lbs/LCYWeight description: User Provided**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4700

Adjusted unit production: 1,684.57 LCY/hr

Adjusted fleet production: **3369.14** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.339/LCY

Total job time: **32.35** Hours

Total job cost: **\$36,981**

SCRAPER TEAM WORKTask description: **Replace Topsoil on L Pit (Scraper)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: L18State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-L18User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

Scraper Work Team

Support Equipment

Maintenance Equipment

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 470,247

CCY

Swell factor: 1.000Loose volume: **470,247**

LCY

Source of estimated volume: A-9.1Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,550 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Earth - Dry packed</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>32.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Hard, smooth, stabilized, surfaced, watered, maintained 2.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2334.00	4.20	2.00	6.20	1477	1.66

Haul Time: 1.66 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2334.00	-4.20	2.00	-2.20	2972	0.83

Return Time: 0.83 minutesTotal Scraper team cycle time: 4.09 minutesAdjusted for job conditions: 706.21 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 2,824.84 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 2,824.84 LCY/HourUnadjusted unit production/hour: 850.86 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 166.47 HoursUnit cost: \$1.988 /LCYTotal job cost: \$934,752

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil on L Pit (Truck/Excavator)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: L19State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-L19User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 777F
-Loader:	Cat 385C L 18'-1" Stick
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$27.68
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$48.12
Number of Units:	4	1	1	1	1	1
Group Subtotals:	Work: \$1,677.06		Support: \$475.23		Maint: \$268.00	

Total work team cost/hour: **\$2,420.29****MATERIAL QUANTITIES**Initial volume: 826,774

CCY

Swell factor: 1.000Loose volume: **826,774**

LCY

Source of estimated volume: TR124 Appendix A Table A-3.1Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	8.635	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 9 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		2.516	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.516	Minutes	Adjusted for site altitude:	2.516	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5925.00	4.40	3.00	7.40	1160	5.267

Haul Time: **5.267** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4788.00	8.60	3.00	11.60	1628	3.064

Return Time: **3.064** minutesTotal Truck Cycle Time: **12.847** minutes

Loading Tool unit

Production	<u>1,406.18</u>	LCY/Hour	Adjusted for job efficiency:	<u>1,167.13</u>	LCY/Hour
Truck Unit Production	<u>362.96</u>	LCY/Hour	Adjusted for job efficiency:	<u>301.25</u>	LCY/Hour

Optimal No. of Trucks:	<u>4</u>	Truck(s)	Selected Number of Trucks:	<u>4</u>	Truck(s)
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Adjusted hourly truck team production:	<u>1,205.02</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>1,167.13</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>1,167.13</u>	LCY/Hour

JOB TIME AND COST

Fleet size:	<u>1</u>	Team(s)	Total job time:	<u>708.38</u>	Hours
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Unit cost:	<u>\$2.074</u>	/LCY	Total job cost:	<u>\$1,714,488</u>
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SITE MAINTENANCE

Task description: Site Maintenance; Rill and Gully Repair and Pond Cleaning

Site: Trapper Mine

Permit Action: PR11

Permit/Job#: C1981010

PROJECT IDENTIFICATION

Task #: LN20

State: Colorado

Abbreviation: None

Date: 11/30/2022

County: Moffat

Filename: C010-LN20

User: ZTT

Agency or organization name: DRMS

UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Rill/Gully Repair 32hrs/year for 1st 5 years	32.00	Cat D7R DS Series II LGP	160.00	EA	\$213.41	\$34,145.60
Rill/Gully Repair 32hrs/year for 1st 5 years	32.00	Cat 324D L 9'-8" Stick	160.00	EA	\$179.56	\$28,729.60
Rill/Gully Repair 16hrs/year for last 5 years	15.00	Cat D3K XL - 3P	80.00	EA	\$96.39	\$7,711.20
Pond Cleaning 1st Year, 8 Weeks	320.00	Cat 324D L 9'-8" Stick	320.00	EA	\$179.56	\$57,459.20
Pond Cleaning 2nd Year, 3 Weeks	120.00	Cat 324D L 9'-8" Stick	120.00	EA	\$179.56	\$21,547.20
Haul Truck Cleaning 1st Year	320.00	Cat 725	320.00	EA	\$206.52	\$66,086.40
Haul Truck Cleaning 2nd Year	320.00	Cat 725	120.00	EA	\$206.52	\$24,782.40

Job Hours: 600.00

Total Cost: \$240,461.60

BULLDOZER WORKTask description: **Regrade N Pit**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **N01** State: **Colorado** Abbreviation: **None**
 Date: **11/30/2022** County: **Moffat** Filename: **N01**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D11T - 11U**
 Horsepower: **850**
 Blade Type: **Universal**
 Attachment: **NA**
 Shift Basis: **3 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**
 Total Fleet Cost/Hour: **\$1,143.70**

MATERIAL QUANTITIES

Initial Volume: **1,364,789**
 Swell factor: **1.000**
 Loose volume: **1,364,789 LCY**

Source of estimated volume: **Table A-4.5**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **325 feet**
 Unadjusted hourly production: **984.2 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **-10 %**
 Average site altitude: **6,700 feet**

Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6473

Adjusted unit production: 637.07 LCY/hr

Adjusted fleet production: **1274.14** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.898/LCY

Total job time: **1,071.15** Hours

Total job cost: **\$1,225,074**

TRUCK/LOADER TEAM WORKTask description: **Backfill and Grading N Pit**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **N02**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **C010-N02**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Shift basis: **1 per day**

Equipment Description	
Truck Loader Team -Truck:	KOMATSU 830E
-Loader:	CAT 6090
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 14,000 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Shovel	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$179.05	\$23.07	\$153.67	\$153.67	\$163.86	\$105.66
Operating cost/hour:	\$247.93	\$930.15	\$41.74	\$41.74	\$27.47	\$76.75
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$34.42	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$461.40	\$990.54	\$238.52	\$236.71	\$219.88	\$182.41
Number of Units:	4	1	1	1	1	1
Group Subtotals:	Work: \$2,836.14		Support: \$475.23		Maint: \$402.29	

Total work team cost/hour: **\$3,713.66****MATERIAL QUANTITIES**Initial volume: **2,519,470**

CCY

Swell factor: **1.000**Loose volume: **2,519,470**

LCY

Source of estimated volume: **TR124 Appendix A Table A-3.1**Source of estimated swell factor: **Cat Handbook**Material Purchase Cost: **\$0.00**Total Cost: **\$0.00****HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: **1**

Pounds/LCY

Description: **User Provided**Rated Payload: **492,200**

Pounds

Payload Capacity: **492,200.00**

LCY

Truck Bed (volume) Basis:

Struck Volume:	153.00	LCY
Heaped Volume:	192.00	LCY
Average Volume:	172.50	LCY
Adjusted Volume:	192.00	LCY

Final Truck Volume Based on Number of Loader Passes: 194.37 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	58.900	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	64.790	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.498	minutes
Net Load Time per Truck:		1.494	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	1.494	Minutes	Adjusted for site altitude:	1.494	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4737.00	-8.00	3.00	-5.00	1870	2.666

Haul Time: 2.666 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4737.00	8.00	3.00	11.00	1734	3.135

Return Time: 3.135 minutesTotal Truck Cycle Time: 9.295 minutes

Loading Tool unit

Production	<u>5,083.78</u>	LCY/Hour	Adjusted for job efficiency:	<u>4,219.54</u>	LCY/Hour
Truck Unit Production	<u>1,254.67</u>	LCY/Hour	Adjusted for job efficiency:	<u>1,041.38</u>	LCY/Hour

Optimal No. of Trucks:	<u>4</u>	Truck(s)	Selected Number of Trucks:	<u>4</u>	Truck(s)
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Adjusted hourly truck team production:	<u>4,165.52</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>4,165.52</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>4,165.52</u>	LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 604.84 HoursUnit cost: \$0.892 /LCY Total job cost: \$2,246,168

TRUCK/LOADER TEAM WORKTask description: **Backfill and Grading I Pit**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **N02A**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **N02a**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Shift basis: **1 per day**

Equipment Description	
Truck Loader Team -Truck:	KOMATSU 830E
-Loader:	CAT 6090
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 14,000 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Shovel	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$179.05	\$23.07	\$153.67	\$153.67	\$163.86	\$105.66
Operating cost/hour:	\$247.93	\$930.15	\$41.74	\$41.74	\$27.47	\$76.75
% Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$34.42	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$461.40	\$990.54	\$238.52	\$236.71	\$219.88	\$182.41
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$2,374.74		Support: \$475.23		Maint: \$402.29	

Total work team cost/hour: **\$3,252.26****MATERIAL QUANTITIES**Initial volume: **477,772**

CCY

Swell factor: **1.000**Loose volume: **477,772**

LCY

Source of estimated volume: **Appendix A Tables A-3.1**Source of estimated swell factor: **Cat Handbook**Material Purchase Cost: **\$0.00**Total Cost: **\$0.00****HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: **3,300**

Pounds/LCY

Description: **Decomposed rock - 75% Rock, 25% Earth**Rated Payload: **492,200**

Pounds

Payload Capacity: **149.15**

LCY

Truck Bed (volume) Basis:

Struck Volume:	153.00	LCY
Heaped Volume:	192.00	LCY
Average Volume:	172.50	LCY
Adjusted Volume:	149.15	LCY

Final Truck Volume Based on Number of Loader Passes: 145.78 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	58.900	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	48.593	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 3 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.498	minutes
Net Load Time per Truck:		1.494	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	1.494	Minutes	Adjusted for site altitude:	1.494	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4063.00	-2.00	3.00	1.00	3503	1.751

Haul Time: **1.751** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4063.00	2.00	3.00	5.00	3296	1.884

Return Time: **1.884** minutesTotal Truck Cycle Time: **7.129** minutes

Loading Tool unit

Production 3,812.84 LCY/Hour Adjusted for job efficiency: 3,164.66 LCY/Hour
Truck Unit Production 1,226.91 LCY/Hour Adjusted for job efficiency: 1,018.34 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 3,055.01 LCY/Hour
Adjusted single truck/loader team production: 3,055.01 LCY/Hour
Adjusted multiple truck/loader team production: **3,055.01** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **156.39** HoursUnit cost: \$1.065 /LCY Total job cost: **\$508,620**

BULLDOZER WORKTask description: **Backfill and Grading J Pit**Site: **Trapper Mine** Permit Action: **PR11** Permit/Job#: **C1981010****PROJECT IDENTIFICATION**

Task #: **N02B** State: **Colorado** Abbreviation: **None**
 Date: **11/30/2022** County: **Moffat** Filename: **C010-N02b**
 User: **ZTT**

Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**

Basic Machine: **Cat D11T - 11U**
 Horsepower: **850**
 Blade Type: **Universal**
 Attachment: **NA**
 Shift Basis: **3 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$257.09	NA
Operating Cost/Hour:	\$273.21	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	10
Operator Cost/Hour:	\$41.55	NA

Total unit Cost/Hour: **\$571.85**
 Total Fleet Cost/Hour: **\$1,143.70**

MATERIAL QUANTITIES

Initial Volume: **668,037**
 Swell factor: **1.000**
 Loose volume: **668,037 LCY**

Source of estimated volume: **Table A-4.5**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **325 feet**
 Unadjusted hourly production: **984.2 LCY/hr**

Materials consistency description: **Consolidated stockpile 1.0**

Average push gradient: **-20 %**
 Average site altitude: **6,700 feet**

Material weight: **2,475 lbs/LCY**Weight description: **User Provided****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.790	(3 SHIFTS/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.929	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7535

Adjusted unit production: 741.59 LCY/hr

Adjusted fleet production: **1483.18** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.771/LCY

Total job time: **450.41** Hours

Total job cost: **\$515,134**

TRUCK/LOADER TEAM WORKTask description: **Backfill and Grading C Pit**Site: **Trapper Mine**Permit Action: **PR11**Permit/Job#: **C1981010****PROJECT IDENTIFICATION**Task #: **N03**State: **Colorado**Abbreviation: **None**Date: **11/30/2022**County: **Moffat**Filename: **C010-N03**User: **ZTT**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Shift basis: **1 per day**

	Equipment Description
Truck Loader Team -Truck:	KOMATSU 830E
-Loader:	CAT 6090
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 14,000 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Shovel	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$179.05	\$23.07	\$153.67	\$153.67	\$163.86	\$105.66
Operating cost/hour:	\$247.93	\$930.15	\$41.74	\$41.74	\$27.47	\$76.75
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$34.42	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$461.40	\$990.54	\$238.52	\$236.71	\$219.88	\$182.41
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$2,374.74		Support: \$475.23		Maint: \$402.29	

Total work team cost/hour: **\$3,252.26****MATERIAL QUANTITIES**Initial volume: **5,960,837**

CCY

Swell factor: **1.000**Loose volume: **5,960,837**

LCY

Source of estimated volume: **Appendix A Tables A-2A-3.1**Source of estimated swell factor: **Cat Handbook**Material Purchase Cost: **\$0.00**Total Cost: **\$0.00****HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: **3,300**

Pounds/LCY

Description: **Decomposed rock - 75% Rock, 25% Earth**Rated Payload: **492,200**

Pounds

Payload Capacity: **149.15**

LCY

Truck Bed (volume) Basis:

Struck Volume:	153.00	LCY
Heaped Volume:	192.00	LCY
Average Volume:	172.50	LCY
Adjusted Volume:	149.15	LCY

Final Truck Volume Based on Number of Loader Passes: 145.78 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	58.900	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	48.593	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.498	minutes
Net Load Time per Truck:		1.494	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	1.494	Minutes	Adjusted for site altitude:	1.494	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3945.00	-5.10	3.00	-2.10	3450	1.227

Haul Time: 1.227 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3945.00	5.10	3.00	8.10	2327	2.273

Return Time: 2.273 minutesTotal Truck Cycle Time: 6.994 minutes

Loading Tool unit

Production 3,812.84 LCY/Hour Adjusted for job efficiency: 3,164.66 LCY/Hour
Truck Unit Production 1,250.59 LCY/Hour Adjusted for job efficiency: 1,037.99 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 3,113.98 LCY/Hour
Adjusted single truck/loader team production: 3,113.98 LCY/Hour
Adjusted multiple truck/loader team production: 3,113.98 LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 1,914.22 HoursUnit cost: \$1.044 /LCY Total job cost: \$6,225,540

SCRAPER TEAM WORKTask description: **Replace Topsoil on C Pit**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N13State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N13User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 304,436

CCY

Swell factor: 1.000Loose volume: **304,436**

LCY

Source of estimated volume: A-10.2Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,550 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Earth - Dry packed</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>32.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	-4.50	3.00	-1.50	2972	0.72

Haul Time: 0.72 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	4.50	3.00	7.50	1931	1.12

Return Time: 1.12 minutesTotal Scraper team cycle time: 3.44 minutesAdjusted for job conditions: 839.65 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 3,358.60 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 3,358.60 LCY/HourUnadjusted unit production/hour: 1,011.63 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 90.64 HoursUnit cost: \$1.672 /LCYTotal job cost: \$508,981

SCRAPER TEAM WORKTask description: **Replace Topsoil on N Pit (Scraper)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N14State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: N14User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 329,830

CCY

Swell factor: 1.000Loose volume: **329,830**

LCY

Source of estimated volume: A-9.1Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2667.00	8.00	3.00	11.00	786	3.41

Haul Time: 3.41 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2667.00	-8.00	3.00	-5.00	2972	0.94

Return Time: 0.94 minutesTotal Scraper team cycle time: 5.95 minutesAdjusted for job conditions: 485.45 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 1,941.78 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 1,941.78 LCY/HourUnadjusted unit production/hour: 584.87 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 169.86 HoursUnit cost: \$2.892 /LCYTotal job cost: \$953,793

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil on N Pit (Truck/Excavator)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N14AState: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N14aUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

		Equipment Description
Truck Loader Team -Truck:		Cat 777F
-Loader:		Cat 385C L 18'-1" Stick
Support Equipment -Load Area:		Cat D10T - 10SU
-Dump Area:		Cat D10T - 10SU
Road Maintenance -Motor Grader:		CAT 16M
-Water Truck:		Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$20.44
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$1,353.22		Support: \$475.23		Maint: \$240.32	

Total work team cost/hour: **\$2,068.77****MATERIAL QUANTITIES**Initial volume: 135,503

CCY

Swell factor: 1.000Loose volume: **135,503**

LCY

Source of estimated volume: Appendix A Tables A-10.8Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	6.476	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 12 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		3.422	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	3.422	Minutes	Adjusted for site altitude:	3.422	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4114.00	7.00	3.00	10.00	795	5.237

Haul Time: 5.237 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4114.00	-7.00	3.00	-4.00	3450	1.229

Return Time: 1.229 minutesTotal Truck Cycle Time: 11.888 minutes

Loading Tool unit

Production 1,104.43 LCY/Hour Adjusted for job efficiency: 916.68 LCY/Hour
 Truck Unit Production 392.24 LCY/Hour Adjusted for job efficiency: 325.56 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 976.67 LCY/Hour
 Adjusted single truck/loader team production: 916.68 LCY/Hour
 Adjusted multiple truck/loader team production: 916.68 LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 147.82 HoursUnit cost: \$2.257 /LCY Total job cost: \$305,805

SCRAPER TEAM WORKTask description: **Replace Topsoil in I Pit**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N15State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N15User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 56,983

CCY

Swell factor: 1.000Loose volume: **56,983**

LCY

Source of estimated volume: PR10 Tables A-9.1, A-10.4and TALPACS Summary (TMI)Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	958.00	2.70	3.00	5.70	1477	0.70

Haul Time: 0.70 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	958.00	-2.70	3.00	0.30	2965	0.43

Return Time: 0.43 minutesTotal Scraper team cycle time: 2.73 minutesAdjusted for job conditions: 1,058.02 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 4,232.09 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 4,232.09 LCY/HourUnadjusted unit production/hour: 1,274.73 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 13.46 HoursUnit cost: \$1.327 /LCYTotal job cost: \$75,606

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil on J Pit (Truck/Excavator)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N16State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N16User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 777F
-Loader:	Cat 385C L 18'-1" Stick
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$20.44
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$1,353.22		Support: \$475.23		Maint: \$240.32	

Total work team cost/hour: **\$2,068.77****MATERIAL QUANTITIES**Initial volume: 94,623

CCY

Swell factor: 1.000Loose volume: **94,623**

LCY

Source of estimated volume: Appendix A Tables A-10.5ASource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	6.476	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 12 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		3.422	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	3.422	Minutes	Adjusted for site altitude:	3.422	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7866.00	-3.30	3.00	-0.30	3503	2.364

Haul Time: **2.364** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7866.00	3.30	3.00	6.30	2853	3.080

Return Time: **3.080** minutesTotal Truck Cycle Time: **10.866** minutes

Loading Tool unit

Production 1,104.43 LCY/Hour Adjusted for job efficiency: 916.68 LCY/Hour
Truck Unit Production 429.13 LCY/Hour Adjusted for job efficiency: 356.18 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 1,068.53 LCY/Hour
Adjusted single truck/loader team production: 916.68 LCY/Hour
Adjusted multiple truck/loader team production: **916.68** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **103.22** HoursUnit cost: \$2.257 /LCY Total job cost: **\$213,547**

SCRAPER TEAM WORKTask description: **Replace Topsoil in J Pit (Scraper)**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N16AState: ColoradoAbbreviation: NoneDate: 2/1/2023County: MoffatFilename: C010-N16aUser: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	60
Ownership cost/hour:	\$287.19	NA	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$277.83	NA	\$83.47	\$83.47	\$54.93	\$12.19
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	\$41.30	\$28.56	\$21.12
Unit Subtotals:	\$595.92	NA	\$278.44	\$278.44	\$247.35	\$43.60
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work: \$4,767.36		Support: \$556.88		Maint: \$290.95	

Total work team cost/hour: **\$5,615.19****MATERIAL QUANTITIES**Initial volume: 11,260

CCY

Swell factor: 1.000Loose volume: **11,260**

LCY

Source of estimated volume: PR10 Tables A-9.1, A-10.4and TALPACS Summary (TMI)Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 6400 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2938.00	-1.50	3.00	1.50	2939	1.18

Haul Time: 1.18 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2938.00	1.50	3.00	4.50	2910	1.19

Return Time: 1.19 minutesTotal Scraper team cycle time: 3.97 minutesAdjusted for job conditions: 727.56 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 2,910.23 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 2,910.23 LCY/HourUnadjusted unit production/hour: 876.57 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 3.87 HoursUnit cost: \$1.929 /LCYTotal job cost: \$21,726

TRUCK/LOADER TEAM WORKTask description: **Replace Topsoil on I/J Pit**Site: **Trapper Mine**Permit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N17State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N17User: ZTTAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 777F
-Loader:	Cat 385C L 18'-1" Stick
Support Equipment -Load Area:	Cat D10T - 10SU
-Dump Area:	Cat D10T - 10SU
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	25	25	25	50
Ownership cost/hour:	\$156.75	\$195.53	\$153.67	\$153.67	\$163.86	\$10.28
Operating cost/hour:	\$133.38	\$148.85	\$41.74	\$41.74	\$27.47	\$10.16
%Utilization-riper:	NA	0	15	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$24.69	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$1.81	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.71	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$323.84	\$381.70	\$238.52	\$236.71	\$219.88	\$20.44
Number of Units:	2	1	1	1	1	1
Group Subtotals:	Work: \$1,029.38		Support: \$475.23		Maint: \$240.32	

Total work team cost/hour: **\$1,744.93****MATERIAL QUANTITIES**Initial volume: 49,788

CCY

Swell factor: 1.000Loose volume: **49,788**

LCY

Source of estimated volume: Appendix A Tables A-10.6Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 200,000

Pounds

Payload Capacity: 125.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	60.60	LCY
Heaped Volume:	78.80	LCY
Average Volume:	69.70	LCY
Adjusted Volume:	78.80	LCY

Final Truck Volume Based on Number of Loader Passes: 77.72 LCY

Loading Tool Capacity

Bucket Size Class: Large

Rated Capacity:	7.850	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	6.476	LCY

Job Condition Corrections:

Site Altitude (ft.): 6400 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 12 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: ABOVE AVERAGE
 Selected Value within this Basic Rating: AVERAGE

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)
Net Cycle Time Adjustment:		NA	minutes
Adjusted Loader Cycle Time:		0.302	minutes
Net Load Time per Truck:		3.422	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	3.422	Minutes	Adjusted for site altitude:	3.422	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3851.00	-4.00	3.00	-1.00	3503	1.180

Haul Time: **1.180** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3851.00	4.00	3.00	7.00	2398	1.809

Return Time: **1.809** minutesTotal Truck Cycle Time: **8.411** minutes

Loading Tool unit

Production 1,104.43 LCY/Hour Adjusted for job efficiency: 916.68 LCY/Hour
Truck Unit Production 554.38 LCY/Hour Adjusted for job efficiency: 460.14 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 920.27 LCY/Hour
Adjusted single truck/loader team production: 916.68 LCY/Hour
Adjusted multiple truck/loader team production: **916.68** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **54.31** HoursUnit cost: \$1.904 /LCY Total job cost: **\$94,773**

REVEGETATION WORKTask description: Seed N PitRangeland w/o shrubs (<6700 ft.)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N18State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N18User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 44.1 Cost /Acre: \$318.15
 Estimated Failure Rate: 17.5% Cost /Acre*: \$318.15
 *Selected Replanting Work Items: TILLING,SEEDING
 Initial Job Cost: \$14,030.42
 Reseeding Job Cost: \$2,455.32

Total Job Cost:	\$16,486
Job Hours:	44.00

REVEGETATION WORKTask description: Seed N Pit: >6700 ft.-Rangeland with ShrubsSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N18AState: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N18aUser: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Bitterbrush, Antelope	4.40	1.35	\$85.80
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Chokecherry	3.00	0.21	\$87.00
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00

Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46
Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Rabbitbrush, Rubber	0.26	3.87	\$16.72
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Rose, Wood's	0.96	0.00	\$19.68
Sagebrush, Mountain or Big	0.07	3.70	\$1.38
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Sagebrush, Silver	0.10	1.94	\$3.10
Saltbush, Four Wing	0.62	0.85	\$7.75
Serviceberry	0.29	0.53	\$17.84
Snowberry, Mountain	0.58	1.00	\$29.29
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	15.79	44.87	\$354.70

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	<u>244.4</u>	Cost /Acre:	<u>\$586.70</u>
Estimated Failure Rate:	<u>17.5%</u>	Cost /Acre*:	<u>\$586.70</u>
*Selected Replanting Work Items:	<u>TILLING,SEEDING</u>		
Initial Job Cost:	<u>\$143,389.48</u>		
Reseeding Job Cost:	<u>\$25,093.16</u>		
Total Job Cost:	<u>\$168,483</u>		
Job Hours:	<u>244.00</u>		

REVEGETATION WORKTask description: Seed J Pit without shrubs (Range C)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N19State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N19User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 65.8 Cost /Acre: \$318.15
 Estimated Failure Rate: 17.5% Cost /Acre*: \$318.15
 *Selected Replanting Work Items: TILLING,SEEDING
 Initial Job Cost: \$20,934.27
 Reseeding Job Cost: \$3,663.50

Total Job Cost:	\$24,598
Job Hours:	66.00

REVEGETATION WORKTask description: Seed I Pit without ShrubsSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N20State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N20User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 35.3 Cost /Acre: \$318.15
 Estimated Failure Rate: 17% Cost /Acre*: \$318.15
 *Selected Replanting Work Items: TILLING,SEEDING
 Initial Job Cost: \$11,230.70
 Reseeding Job Cost: \$1,909.22

Total Job Cost:	\$13,140
Job Hours:	35.00

REVEGETATION WORKTask description: Seed I/J Pits no shrubs (Range C)Site: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N21State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N21User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 30.9 Cost /Acre: \$318.15
 Estimated Failure Rate: 17% Cost /Acre*: \$318.15
 *Selected Replanting Work Items: TILLING,SEEDING
 Initial Job Cost: \$9,830.84
 Reseeding Job Cost: \$1,671.24

Total Job Cost:	\$11,502
Job Hours:	31.00

REVEGETATION WORKTask description: Seed C Pit No ShrubsSite: Trapper MinePermit Action: PR11Permit/Job#: C1981010**PROJECT IDENTIFICATION**Task #: N22State: ColoradoAbbreviation: NoneDate: 11/30/2022County: MoffatFilename: C010-N22User: ZTTAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arrowleaf Balsamroot	0.40	0.50	\$28.08
Beardless Wheatgrass - Whitmar	0.31	1.01	\$3.63
Mountain Brome - Bromar	0.72	1.16	\$2.74
Great Basin Wildrye - Magnar	0.92	3.74	\$10.63
Kentucky Bluegrass - Ginger	0.06	2.96	\$0.19
Alfalfa - Ladak (inoculated)	0.10	0.48	\$0.26
Burnett, Small (or Little) - Delar	0.40	0.51	\$1.00
Sheep Fescue - Covar	0.15	2.34	\$0.92
Milk Vetch, Cicer - Lutana	0.30	1.00	\$2.46

Slender Wheatgrass - San Luis	0.28	1.02	\$1.19
Streambank Wheatgrass - Sodar	0.26	0.85	\$1.48
Thickspike Wheatgrass - Critana	0.28	0.99	\$1.93
Western Wheatgrass - Arriba	0.38	0.96	\$2.47
Needlegrass, Green - Lodorm	0.24	1.00	\$2.83
Flax, Lewis Blue	0.30	1.99	\$4.95
Red Top	0.02	2.29	\$0.16
Penstemon, Rocky Mountain	0.14	2.19	\$4.13
Yarrow, Western	0.07	4.26	\$2.93
Globemallow, Munro	0.08	0.91	\$7.00
Aster, Pacific	0.02	0.35	\$2.39
Goldeneye - Showy	0.08	0.92	\$4.80
Totals Seed Mix	5.51	31.41	\$86.15

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 188.7 Cost /Acre: \$318.15
Estimated Failure Rate: 17% Cost /Acre*: \$318.15
*Selected Replanting Work Items: TILLING,SEEDING

Initial Job Cost: \$60,034.91
Reseeding Job Cost: \$10,205.93

Total Job Cost:	<u>\$70,241</u>
Job Hours:	<u>189.00</u>