

COST SUMMARY WORK

Task description: New Permit CO

Site: Arapaho Pit

Permit Action: Phase A-1
Reclamation

Permit/Job#: M2024043

PROJECT IDENTIFICATION

Task #: 000
Date: 8/22/2024
User: BEH

State: Colorado
County: Jackson

Abbreviation: None
Filename: M043-000

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	3:1 Levelling	DOZER	1	1.53	\$318
002	Topsoil Replacement	DOZER	1	23.79	\$4,943
004	Topsoil Replacement	LOADER	1	58.61	\$5,905
005	Reseeding	REVEGE	1	21.00	\$17,404
006	Equipment Mobilization	MOBILIZE	1	6.60	\$3,832
<u>SUBTOTALS:</u>				111.53	\$32,402

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$655
Performance bond:	1.05	Total =	\$340
Job superintendent:	122.93	Total =	\$9,745
Profit:	10.00	Total =	\$3,240
		TOTAL O & P =	\$13,980
		CONTRACT AMOUNT (direct + O & P) =	\$46,382

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	\$500	Total =	\$500
Engineering work and/or contract/bid preparation:	4.25	Total =	\$1,971
Reclamation management and/or administration:	5.00		\$2,319

CONTINGENCY: 0.00 Total = \$0

TOTAL INDIRECT COST = \$18,770

TOTAL BOND AMOUNT (direct + indirect) = \$51,172

BULLDOZER WORKTask description: **3:1 Levelling**Site: **Arapaho Pit** Permit Action: **Phase A-1
Reclamation** Permit/Job#: **M2024043****PROJECT IDENTIFICATION**Task #: **001** State: **Colorado** Abbreviation: **None**
Date: **8/19/2024** County: **Jackson** Filename: **M043-001**
User: **BEH**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D7R DS XR Series II**
Horsepower: **240**
Blade Type: **Semi-Universal**
Attachment: **NA**
Shift Basis: **1 per day**
Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$90.24	NA
Operating Cost/Hour:	\$78.95	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.59	NA

Total unit Cost/Hour: **\$207.78**
Total Fleet Cost/Hour: **\$207.78****MATERIAL QUANTITIES**Initial Volume: **1,000**
Swell factor: **1.230**
Loose volume: **1,230 LCY**Source of estimated volume: **Division of Reclamation, Mining & Safety**
Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **50 feet**
Unadjusted hourly production: **1,022.9 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **-30 %**
Average site altitude: **8,550 feet**Material weight: **2,100 lbs/LCY**Weight description: **Earth - Loam****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:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7857

Adjusted unit production: 803.69 LCY/hr

Adjusted fleet production: **803.69** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.259/LCY

Total job time: **1.53** Hours

Total job cost: **\$318**

BULLDOZER WORKTask description: **Topsoil Replacement**

Site: Arapaho Pit Permit Action: Phase A-1 Reclamation Permit/Job#: M2024043

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
 Date: 8/19/2024 County: Jackson Filename: M043-002
 User: BEH

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

Basic Machine: Cat D7R DS XR Series II
 Horsepower: 240
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$90.24</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$78.95</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>\$38.59</u>	<u>NA</u>

Total unit Cost/Hour: \$207.78
 Total Fleet Cost/Hour: \$207.78

MATERIAL QUANTITIES

Initial Volume: 10,665
 Swell factor: 1.000
 Loose volume: **10,665 LCY**

Source of estimated volume: Division of Reclamation, Mining & Safety
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 75 feet
 Unadjusted hourly production: 854.1 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: 0 %
 Average site altitude: 8,550 feet

Material weight: 2,100 lbs/LCYWeight description: Earth - Loam**Job Condition Correction Factor**

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

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:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5249

Adjusted unit production: 448.32 LCY/hr

Adjusted fleet production: **448.32** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.463/LCY

Total job time: **23.79** Hours
Total job cost: **\$4,943**

WHEEL LOADER – LOAD AND CARRY WORKTask description: **Topsoil Replacement**

Site: **Arapaho Pit** Permit Action: **Phase A-1 Reclamation** Permit/Job#: **M2024043**

PROJECT IDENTIFICATION

Task #: **004** State: **Colorado** Abbreviation: **None**
 Date: **8/22/2024** County: **Jackson** Filename: **M043-004**
 User: **BEH**

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

Basic Machine: **CAT 938H** Horsepower: **172**
 Attachment 1: **ROPS Cab** Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$32.87	NA
Operating Cost/Hour:	\$31.02	100
Operator Cost/Hour:	\$36.85	NA
Total Unit Cost/Hour:	\$100.74	
Total Fleet Cost/Hour:	\$100.74	

MATERIAL QUANTITIES

Initial volume: **10,665** CCY Swell factor: **1.000**
 Loose volume: **10,665** LCY

Source of estimated volume: **Division of Reclamation, Mining & Safety**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTIONLoader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): **0.483** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material up to 1/8" diameter 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		0.000	minutes
Adjusted Basic Cycle Time:		0.483	minutes

Rolling Resistance – Road Conditions

Haul: **Rutted dirt, little maintenance, no water, 1" tire penetration 4.0**
 Return: **Rutted dirt, little maintenance, no water, 1" tire penetration 4.0**

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	400	0.00	4.00	4.00	0.3302	(Cat HB)
Return Route:	400	0.00	4.00	4.00	0.3081	(Cat HB)

Total Travel Time: 0.6383 minutes
 Total Cycle Time: 1.1208 minutes

Load Bucket Capacity

Rated Capacity: 3.90 LCY (heaped)
 Bucket Fill Factor: 1.050 Moist loam or sandy clay (100% - 110%) 1.050
 Adjusted Capacity: 4.10 LCY

Job Condition Correction Factors

Site Altitude: 8550 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Unadjusted Hourly Unit Production: 219.22 LCY/Hour
 Adjusted Hourly Unit Production: 181.95 LCY/Hour
 Adjusted Hourly Fleet Production: 181.95 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: 58.61 Hours
 Unit cost: \$0.554 /LCY Total job cost: \$5,905

REVEGETATION WORKTask description: **Reseeding**Site: **Arapaho Pit**Permit Action: **Phase A-1
Reclamation**Permit/Job#: **M2024043****PROJECT IDENTIFICATION**Task #: **005**
Date: **8/22/2024**
User: **BEH**State: **Colorado**
County: **Jackson**Abbreviation: **None**
Filename: **M043-005**Agency or organization name: **DRMS****FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Composted manure DRMS Survey	20.00	pound	\$0.43	\$8.56
			Total Fertilizer Materials Cost/Acre	\$8.56

Application

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	\$77.10
Total Fertilizer Application Cost/Acre	\$77.10

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$117.61
Weed control spraying (MEANS 31 31 16.13 3100)	\$338.80
Total Tilling Cost/Acre	\$456.41

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arizona Fescue - Redondo	5.00	57.39	\$75.32
Prairie Clover, Purple - Kanab	0.50	3.42	\$22.45
Sandberg Bluegrass - VNS	4.00	84.94	\$57.79
Smooth Brome - Lincoln	4.00	13.31	\$19.43
Bluebunch Wheatgrass - Goldar	6.00	19.28	\$68.76
Totals Seed Mix	19.50	178.35	\$243.74

Application

Description	Cost /Acre
Broadcast seeding [DMG]	\$272.56
Total Seed Application Cost/Acre	\$272.56

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:	13.22	Cost /Acre:	\$1,058.37
Estimated Failure Rate:	50%	Cost /Acre*:	\$516.30
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$13,991.65
Reseeding Job Cost:	\$3,412.74
Total Job Cost:	\$17,404
Job Hours:	21.00

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: Equipment Mobilization

Site: Arapaho Pit Permit Action: Phase A-1 Reclamation Permit/Job#: M2024043

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
 Date: 8/22/2024 County: Jackson Filename: M043-006
 User: BEH

Agency or organization name: DRMS**EQUIPMENT TRANSPORT RIG COST**

Shift basis: 1 per day
 Cost Data Source: CRG Data

Truck Tractor Description: GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED, 400 HP (2ND HALF, 2006)Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT TRAILER (25T, 50T, AND 100T)**Cost Breakdown:**

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	\$10.44	\$22.18	\$23.94
Operating Cost/Hour:	\$26.48	\$54.55	\$55.65
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$59.44	\$122.78	\$125.64

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
CAT 938H	16.34	\$32.87	\$59.44	1	\$92.31	\$59.44	\$250.00
Cat D7R DS XR Series II	32.01	\$90.24	\$122.78	1	\$213.02	\$122.78	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$41.02	\$59.44	1	\$100.46	\$59.44	\$250.00

Subtotals: **\$405.79** **\$241.66** **\$750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	\$13.77	1	\$13.77	\$13.77

Subtotals: **\$13.77** **\$13.77**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	STEAMBOAT SPRINGS	
Total one-way travel distance:	46.00	miles
Average Travel Speed:	40.00	mph
Total Non-Roadable Mob/Demob Cost *	\$3,800.72	
** two round trips with haul rig:		
Total Roadable Mob/Demob Cost **	\$31.67	
** one round trip, no haul rig:		

Transportation Cycle Time:

	Non- Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.15	1.15
Return Time (Hours):	1.15	1.15
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	3.30	2.30

JOB TIME AND COST

Total job time:	6.60	Hours
Total job cost:	\$3,832	

SCRAPER TEAM WORKTask description: Scraper TopsoilSite: Arapaho PitPermit Action: Phase A-1
ReclamationPermit/Job#: M2024043**PROJECT IDENTIFICATION**Task #: 007State: ColoradoAbbreviation: NoneDate: 12/18/2024County: JacksonFilename: M043-007User: BEHAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 627G
-Dozer:	Cat D8T - 8SU
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

Scraper Work Team

Support Equipment

Maintenance Equipment

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	NA	NA
Ownership cost/hour:	\$217.39	\$173.32	NA	NA	NA	NA
Operating cost/hour:	\$257.76	\$109.71	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Operator cost/hour:	\$30.90	\$38.59	NA	NA	NA	NA
Unit Subtotals:	\$506.05	\$321.62	NA	NA	NA	NA
Number of Units:	1	1	0	0	0	0
Group Subtotals:	Work: \$827.67		Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: **\$827.67****MATERIAL QUANTITIES**Initial volume: 10,665

CCY

Swell factor: 1.000Loose volume: **10,665**

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: 2,100 lbs/LCY
 Material description: Earth - Loam
 Rated Payload: 52,800 pounds
 Payload Capacity: 25.14 LCY

Struck Volume: 15.70 LCY
 Heaped Volume: 22.00 LCY
 Average Volume: 18.85 LCY
 Adjusted Capacity: **18.85** LCY

Cycle Time:Scraper Loading Time: 0.50 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 8600 feet

	Scraper	Push Dozer	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.797	0.830	

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	5.00	5.00	2218	0.32

Haul Time: 0.32 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	5.00	5.00	2814	0.28

Return Time: 0.28 minutesTotal Scraper team cycle time: 1.70 minutesAdjusted for job conditions: 530.24 LCY/HourSelected Number of Scrapers: 1 Scraper(s)Adjusted single scraper team (unit) hourly production: 530.24 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 530.24 LCY/HourUnadjusted unit production/hour: 665.29 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 20.11 HoursUnit cost: \$1.561 /LCYTotal job cost: \$16,647