

STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY

Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
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John W. Hickenlooper
Governor

Mike King
Executive Director

Loretta Piñeda
Director

July 26, 2013

Mr. Randy Diluzio
Tezak Heavy Equipment Co. Inc.
205 Tunnel Dr.
Cañon City, CO 81212

**Re: T.H.E. Aggregate Source; DRMS File No. M-1977-193;
Amendment Approval with Stipulation, Revision No. AM-05**

Dear Mr. Diluzio:

On July 26, 2013 the Division of Reclamation, Mining and Safety approved the Amendment application submitted to the Division on January 4, 2013, addressing the following:

Increase permit area to 314 acres including 79 acres of BLM land

The terms of the Amendment No. 05 approved by the Division are hereby incorporated into Permit No. M-1977-193.

The conditions of the Division approval are noted below. Please note that all other provisions of Permit No. M-1977-193 remain in full force and effect.

<u>Stipulation No.</u>	<u>Description</u>
7	Prior to entering into Phase 3 as shown on Exhibit C in AM-05, the Operator shall submit a Technical Revision addressing a re-evaluation of the reclamation bond as necessary for the Phase 3 highwall conversion to the final 30' x 40' bench configuration along with unfinished phase one and phase 2 reclamation; and receive approval from the Division..

The revised estimated liability amount of \$674,200 exceeds the \$540,215 performance bond currently held. If you have not already done so, please submit additional bond in the amount of \$133,985. **The revision will not be final until the bond is approved by the Division.** Please see the enclosed cost summary sheets for details.

If you have any questions, please contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Timothy A. Cazier".

Timothy A. Cazier, P.E.
Environmental Protection Specialist

Enclosure

cc: Tom Kaldenbach, DRMS

Enclosure:

COST SUMMARY WORK

Task description: D1

Site: Cresson Project

Permit Action: AM-10/MLE2

Permit/Job#: M1980244

PROJECT IDENTIFICATION

Task #: 100

State: Colorado

Abbreviation: None

Date: 9/13/2012

County: Teller

Filename: M244-100

User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Direct Cost Summary*	NA	1	0.00	\$148,405,317.00
<u>SUBTOTALS:</u>				1	\$ 148,405,317.00

* From AM-10 Application, Volume VI, Appendix 13, Sheet 6

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02 %

Total = \$2,997,787.40

Performance bond: 1.05 %

Total = \$1,558,255.83

Job superintendent: 0.00

Total = \$0.00

Profit: 10.00 %

Total = \$14,840,531.70

TOTAL O & P = \$19,396,574.93

CONTRACT AMOUNT (direct + O & P) = \$167,801,891.93

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00

Total = 500.00

Engineering work and/or contract/bid preparation: 0.00

Total = \$0.00

Reclamation management and/or administration: 5.00 %

\$8,390,094.60

CONTINGENCY: 0.00 %

Total = \$0.00

TOTAL INDIRECT COST = \$27,787,169.53

TOTAL BOND AMOUNT (direct + indirect) = \$176,192,486.53

COMBINED COST SUMMARY WORK

Task description: Combined Cost Summaries - Phases 1 & 2 (AM-05)

Site: T.H.E. Aggregate Source Permit Action: AM05-Phase 1 Permit/Job#: M1977193

PROJECT IDENTIFICATION

Task #: COVER State: Colorado Abbreviation: None
Date: 7/26/2013 County: Fremont Filename: M193-100
User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
100	TOTAL BOND AMOUNT (direct + indirect)	Cost Summary	0	355.01	\$393,426.78
200	TOTAL BOND AMOUNT (direct + indirect)	Cost Summary	0	242.71	\$280,692.88
<u>SUBTOTALS:</u>				597.72	\$674,119.66

TOTAL BOND AMOUNT (Phase 1 + Phase 2) = \$674,119.66

COST SUMMARY WORK

Task description: Cost Summary - Phase 1 (AM-05)

Site: T.H.E. Aggregate Source Permit Action: AM05-Phase 1 Permit/Job#: M1977193

PROJECT IDENTIFICATION

Task #: 100 State: Colorado Abbreviation: None
Date: 7/26/2013 County: Fremont Filename: M193-100
User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
110	Replace Topsoil in Phase 1 Pit Area (12" over 40ac)	SCRAPER1	1	197.21	\$39,126.91
120	Rough Grade Phase 1 Pit Topsoil (assume 10% of Tsk 110 Vol.)	GRADER	1	3.88	\$327.00
130	Rip Phase 1 Pit Floor, TS Source Area & Road Easm't	RIPPER	1	147.61	\$24,338.00
140	Reseed Phase 1 Dist. Area (pit flr, borrow area & rd easm't)	REVEGE	1	0.00	\$193,779.16
150	Phase 1 Bench Ditch Maintenance (5 benches x3300'x12')	GRADER	1	4.91	\$414.00
170	Permanent Structure Demolition	DEMOLISH	1	0.00	\$60,597.00
190	Mob/Demob	MOBILIZE	1	1.40	\$2,109.27
<u>SUBTOTALS:</u>				355.01	\$320,691.34

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02%	Total =	\$6,477.97
Performance bond:	1.05%	Total =	\$3,367.26
Job superintendent:	177.50 hrs	Total =	\$11,610.28
Profit:	10.00%	Total =	\$32,069.13
		TOTAL O & P =	\$53,524.64
		CONTRACT AMOUNT (direct + O & P) =	\$374,215.98

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	0.00%	Total =	\$0.00
Reclamation management and/or administration:	5.00%		\$18,710.80
CONTINGENCY:	0.00	Total =	\$0.00

TOTAL INDIRECT COST = \$72,735.44

TOTAL BOND AMOUNT (direct + indirect) = \$393,426.78

SCRAPER TEAM WORKTask description: Replace Topsoil in Phase 1 Pit Area (12" over 40ac)Site: T.H.E. Aggregate SourcePermit Action: AM05-Phase 1Permit/Job#: M1977193**PROJECT IDENTIFICATION**Task #: 110State: ColoradoAbbreviation: NoneDate: 7/18/2013County: FremontFilename: M193-110User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 621G
-Dozer:	NA
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	NA	NA	NA	NA	NA
Ownership cost/hour:	\$52.68	NA	NA	NA	NA	NA
Operating cost/hour:	\$115.69	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	\$30.02	NA	NA	NA	NA	NA
Unit Subtotals:	\$198.40	NA	NA	NA	NA	NA
Number of Units:	1	0	0	0	0	0
Group Subtotals:	Work:	\$198.40	Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: **\$198.40****MATERIAL QUANTITIES**Initial volume: 64,533

CCY

Swell factor: 1.125Loose volume: **72,600**

LCY

Source of estimated volume: AM-04, Exh. L: 2178 tons/ac x 40 ac (@ 100#/CF)Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,650 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Decomposed rock - 25% Rock, 75% Earth</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>19.92 LCY</u>	Adjusted Capacity:	<u>18.85</u>	LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
 Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5600 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, 2" tire penetration 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	3.00	5.00	8.00	916	0.59

Haul Time: 0.59 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	-3.00	5.00	2.00	2898	0.36

Return Time: 0.36 minutesTotal Scraper team cycle time: 2.55 minutesAdjusted for job conditions: 368.13 LCY/HourSelected Number of Scrapers: 1 Scraper(s)Adjusted single scraper team (unit) hourly production: 368.13 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 368.13 LCY/HourUnadjusted unit production/hour: 443.53 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 197.21 HoursUnit cost: \$0.539 /LCYTotal job cost: \$39,126.91

MOTOR GRADER WORK

Task description: Rough Grade Phase 1 Pit Topsoil (assume 10% of Tsk 110 Vol.)

Site: T.H.E. Aggregate Source

Permit Action: AM05-Phase 1

Permit/Job#: M1977193

PROJECT IDENTIFICATION

Task #: 120 State: Colorado Abbreviation: None
Date: 7/18/2013 County: Fremont Filename: M193-120
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 12M Horsepower: 158
Ripper Attachment: Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$22.65</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$34.03</u>	<u>75</u>
Ripper Operating Cost/Hour:	<u>\$0.00</u>	
Operator Cost/Hour:	<u>\$27.55</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$84.23</u>	
Total Fleet Cost/Hour:	<u>\$95.57</u>	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 4.00 acres

Source of estimated acreage: 10% of Task 110 Vol. or 4 ac (10% of 40 ac) / AM-04 Exh. L

HOURLY PRODUCTION

Average Grader Speed: 1.50 mph
Selected Application: Finish grading (0-2.5 mph) - 1.5
Selected Blade Angle: 30 degrees
Effective Blade Length: 10.40 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 8.40 feet
Unadjusted Hourly Unit Production: 1.5273 acres/hour

Job Condition Correction Factors

Site Altitude: 5600 feet

Altitude Adj:	<u>1.00</u>	Source
Job Efficiency:	<u>0.90</u>	(CAT HB)
Net Correction:	<u>0.9000</u>	(1sh/d, fav.)
		multiplier

Adjusted Hourly Unit Production: 1.3745 acres/Hour
Adjusted Hourly Fleet Production: 1.3745 acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 3.88 Hours

Unit cost: \$61.28 per acre Total job cost: \$327.00

BULLDOZER RIPPING WORK

Task description: Rip Phase 1 Pit Floor, TS Source Area & Road Easmt

Site: T.H.E. Aggregate Source Permit Action: AM05-Phase 1 Permit/Job#: M1977193

PROJECT IDENTIFICATION

Task #: 130 State: Colorado Abbreviation: None
Date: 7/18/2013 County: Fremont Filename: M193-130
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II Horsepower: 240
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$46.33</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$76.81</u>	<u>100</u>
Ripper Operating Cost/Hour:	<u>\$4.31</u>	<u>100</u>
Operator Cost/Hour:	<u>\$37.41</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$164.87</u>	
Total Fleet Cost/Hour:	<u>\$164.87</u>	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 91.50 acres Rip Depth (ft): 1.00 Volume: 147,620 BCY or CCY

Source of estimated quantity: AM-04 & -05, Exh. L (pit flr & borrow area, Rd easmt)

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.45 mph
Average Ripping Width: 6.50 degrees
Average Ripping Length: 400.00 feet
Average Dozer Speed: 88.00 feet
Average Maneuver Time: 0.25 feet
Production per unit area: 0.747 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.747 Acres/hr
Site Altitude: 5,600 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.62 Acres/hr
Adjusted Hourly Fleet Production: **0.62** Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **147.62** Hours

Unit cost: \$265.985 Per acre Total job cost: **\$24,338.00**

REVEGETATION WORKTask description: Reseed Phase 1 Dist. Area (pit flr, borrow area & rd easm't)Site: T.H.E. Aggregate SourcePermit Action: AM05-Phase 1Permit/Job#: M1977193PROJECT IDENTIFICATIONTask #: 140State: ColoradoAbbreviation: NoneDate: 7/18/2013County: FremontFilename: M193-140User: TC1Agency or organization name: DRMSFERTILIZING**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
6-24-24, 10-20-10, 15-15-15	300.00	pound	\$0.26	\$79.20
Composted manure {MEANS 32 91 13.23 4400}	1.00	pound	\$0.48	\$0.48
			Total Fertilizer Materials Cost/Acre	\$79.68

Application

Description	Cost /Acre
Tractor spreader (MEANS 32 91 13.16 0950)	\$37.46
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$52.71
Total Fertilizer Application Cost/Acre	\$90.17

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$88.58
Total Tilling Cost/Acre	\$88.58

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.50	8.16	\$5.33
Indian Ricegrass - Nespar	1.50	4.86	\$10.62
Sideoats Grama - Butte	2.50	8.21	\$27.85
Juniper, Single Seed	1.00	0.29	\$88.00
Crested Wheatgrass - Standard	0.50	2.30	\$1.11
Pine, Pinyon	1.00	0.03	\$30.91
Mahogany, Mountain	1.50	2.03	\$69.47
Needle and Thread	1.50	3.96	\$70.49
Western Wheatgrass - Native	1.00	2.53	\$3.04

Saltbush, Four Wing	2.50	3.44	\$26.83
Winter Fat	1.50	3.82	\$49.04
Totals Seed Mix	15.00	39.63	\$382.67

Application

Description	Cost /Acre
Drill seeding (DRMS Cost Data)	\$88.20
Total Seed Application Cost/Acre	\$88.20

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$265.00	\$530.00
Total Mulch Materials Cost/Acre				\$530.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$65.89
Power mulcher (MEANS 32 91 13.16 0250)	\$86.68
Total Mulch Application Cost/Acre	\$152.57

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:	91.5	Cost /Acre:	\$1,411.87
Estimated Failure Rate:	50%	Cost /Acre*:	\$1,411.87
*Selected Replanting Work Items:	FERTILIZING,TILLING,SEEDING,MULCHING		
Initial Job Cost:	\$129,186.11		
Reseeding Job Cost:	\$64,593.05		
Total Job Cost:	\$193,779.16		
Job Hours:	0.00		

MOTOR GRADER WORK

Task description: Phase 1 Bench Ditch Maintenance (5 benches x3300'x12')

Site: T.H.E. Aggregate Source

Permit Action: AM05-Phase 1

Permit/Job#: M1977193

PROJECT IDENTIFICATION

Task #: 150 State: Colorado Abbreviation: None
Date: 7/18/2013 County: Fremont Filename: M193-150
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 12M Horsepower: 158
Ripper Attachment: Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$22.65</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$34.03</u>	<u>75</u>
Ripper Operating Cost/Hour:	<u>\$0.00</u>	
Operator Cost/Hour:	<u>\$27.55</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$84.23</u>	
Total Fleet Cost/Hour:	<u>\$95.57</u>	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 4.50 acres

Source of estimated acreage: Five 3,300-ft benches x 12-ft blade width

HOURLY PRODUCTION

Average Grader Speed: 1.50 mph
Selected Application: Finish grading (0-2.5 mph) - 1.5
Selected Blade Angle: 30 degrees
Effective Blade Length: 10.40 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 8.40 feet
Unadjusted Hourly Unit Production: 1.5273 acres/hour

Job Condition Correction Factors

Site Altitude: 5600 feet

Altitude Adj: 1.00 Source
Job Efficiency: 0.80 (CAT HB)
Net Correction: 0.8000 (1sh/d, adv.)
multiplier

Adjusted Hourly Unit Production: 1.2218 acres/Hour
Adjusted Hourly Fleet Production: 1.2218 acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 4.91 Hours

Unit cost: \$68.94 per acre Total job cost: \$414.00

DEMOLITION WORK

Task description: **Permanent Structure Demolition**

Site: **T.H.E. Aggregate Source**

Permit Action: **AM05-Phase 1**

Permit/Job#: **M1977193**

PROJECT IDENTIFICATION

Task #: **170**

State: **Colorado**

Abbreviation: **None**

Date: **7/26/2013**

County: **Fremont**

Filename: **M193-170**

User: **TC1**

Agency or organization name: **DRMS**

UNIT COSTS

Location adjustment: 94.10 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Existing Office - single story	30'x40'x8'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	9,600.00	CF	\$1.07	\$10,272.00
Existing Office Floor	30'x40'	Floor, concrete, demolition only, average reinforcing - 6 in. thick	1,200.00	SF	\$1.59	\$1,910.40
Office Addition - 2-story portion ONLY	30'x40'x16'	Bldg. (MN) demo./off-site disposal in approved landfill - Max. 15 mile haul	19,200.00	CF	\$1.09	\$20,985.60
Office Addition Mech. Room	8.5'x10'x8'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	680.00	CF	\$1.07	\$727.60
Office Addition Vault (conc.)	9.5'x10'x8'	Bldg. (SC) demo./off-site disposal in approved landfill - Max. 15 mile haul	760.00	CF	\$1.12	\$850.44
Office Addition Floor	30'x40'+18'x10'	Floor, concrete, demolition only, average reinforcing - 6 in. thick	1,380.00	SF	\$1.59	\$2,196.96
Water Tank Stor. bldg #1 (dirt floor)	35'x20'x8'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	5,600.00	CF	\$1.07	\$5,992.00
Water Tank Stor. bldg #2 (dirt floor)	35'x15'x8'	Bldg. (SN) demo./off-site disposal in approved landfill - Max. 15 mile haul	4,200.00	CF	\$1.07	\$4,494.00
Remove Pavement from Cañon City prop.	1000'x30'	Pavement, bituminous, demolition only - 3 in. thick	3,333.00	SY	\$4.01	\$13,365.33
Truck Scale Pit Floors (2)	70'x10' each	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 10,000 ft. haul	1,400.00	SF	\$1.70	\$2,378.60
Truck Scale Pit Foundation	70'x20'	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	180.00	LF	\$6.80	\$1,223.46

Job Hours: **0.00**

Subtotal
(unadjusted): \$64,396.39

Total Cost
(adjusted for location): \$60,597.00

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob/Demob**Site: **T.H.E. Aggregate Source**Permit Action: **AM05-Phase 1**Permit/Job#: **M1977193****PROJECT IDENTIFICATION**Task #: **190**State: **Colorado**Abbreviation: **None**Date: **7/18/2013**County: **Fremont**Filename: **M193-190**User: **TC1**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:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

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 621G	37.47	\$52.68	\$117.55	1	\$170.23	\$117.55	\$250.00
Cat D7R DS XR Series II	32.01	\$41.75	\$117.55	1	\$159.30	\$117.55	\$250.00
CAT 12M	16.01	\$22.65	\$88.67	1	\$111.32	\$88.67	\$250.00

Subtotals: **\$440.85** **\$323.77** **\$750.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Drill/Broadcast Seeder with Tractor	\$51.96	1	\$51.96	\$51.96
Power Mulcher (Reinco M90)	\$25.56	1	\$25.56	\$25.56

Subtotals: **\$77.52** **\$77.52**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	CANON CITY	
Total one-way travel distance:	3.00	miles
Average Travel Speed:	30.00	mph

Total Non-Roadable Mob/Demob Cost *	\$2,093.77
* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$15.50
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.10	0.10
Return Time (Hours):	0.10	0.10
Loading Time (Hours):	0.25	NA
Unloading Time (Hours):	0.25	NA
Subtotals:	0.70	0.20

JOB TIME AND COST

Total job time:	1.40	Hours
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Total job cost:	\$2,109.27
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COST SUMMARY WORK

Task description: Cost Summary for AM-05, Phase 2

Site: T.H.E. Aggregate Source Permit Action: AM05-Phs 2 Permit/Job#: M1977193

PROJECT IDENTIFICATION

Task #: 200 State: Colorado Abbreviation: None
Date: 7/19/2013 County: Fremont Filename: M193-200
User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
210	Replace Topsoil in Phase 1 Pit Area (12" over 3 ac)	SCRAPER1	1	14.79	\$2,934.53
220	Rough Grade Phase 1 Pit Topsoil (assume 10% of TSK 210 Vol.)	GRADER	1	0.29	\$25.00
230	Rip Phase 1 Pit Floor & TS Source Area	RIPPER	1	4.83	\$798.00
240	Reseed Phase 2 Dist. Area (660' x 200' pit floor)	REVEGE	1	0.00	\$6,353.42
251	Drill & Blast 20'x40' Benches to Final 30'x40' Benches	NA	0	0.00	\$194,242.51
252	Blast mucking for 30'x40' final benches (Phase 2)	LOADER	1	99.10	\$42,045.00
253	Push Phase 2 mucked blast material to 3H:1V slope	DOZER	1	122.30	\$30,503.63
290	Mob/Demob	MOBILIZE	1	1.40	\$3,790.79
<u>SUBTOTALS:</u>				242.71	\$280,692.88

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02%	Total =	\$5,670.00
Performance bond:	1.05%	Total =	\$2,947.28
Job superintendent:	82.63 hrs	Total =	\$5,404.83
Profit:	10.00%	Total =	\$28,069.29
		TOTAL O & P =	\$42,091.40
		CONTRACT AMOUNT (direct + O & P) =	\$322,784.28

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	0.00**	Total =	0.00
Engineering work and/or contract/bid preparation:	0.00%	Total =	\$0.00
Reclamation management and/or administration:	5.00%		\$16,139.21
CONTINGENCY: 0.00		Total =	\$0.00

TOTAL INDIRECT COST = \$58,230.61

TOTAL BOND AMOUNT (direct + indirect) = \$338,923.49

** The \$500 Financial warranty processing fee is included in Task 100 for Phase 1 to avoid duplication.

SCRAPER TEAM WORKTask description: Replace Topsoil in Phase 2 Pit Area (12" over 3 ac)Site: T.H.E. Aggregate SourcePermit Action: AM05-Phs 2Permit/Job#: M1977193**PROJECT IDENTIFICATION**Task #: 210State: ColoradoAbbreviation: NoneDate: 7/18/2013County: FremontFilename: M193-210User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 621G
-Dozer:	NA
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	NA	NA	NA	NA	NA
Ownership cost/hour:	\$52.68	NA	NA	NA	NA	NA
Operating cost/hour:	\$115.69	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	\$30.02	NA	NA	NA	NA	NA
Unit Subtotals:	\$198.40	NA	NA	NA	NA	NA
Number of Units:	1	0	0	0	0	0
Group Subtotals:	Work:	\$198.40	Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: **\$198.40****MATERIAL QUANTITIES**Initial volume: 4,840

CCY

Swell factor: 1.125Loose volume: 5,445

LCY

Source of estimated volume: AM-05-Phase2 (~660'x200' ft): 2178 tons/ACx3 AC (@100#/CF)Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,650 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Decomposed rock - 25% Rock, 75% Earth</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>19.92 LCY</u>	Adjusted Capacity:	<u>18.85</u>	LCY

Cycle Time:Scraper Loading Time: 0.90 MinutesManeuver and Spread Time: 0.70 MinutesJob Condition Correction:

Site Altitude: 5600 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, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	3.00	5.00	8.00	916	0.59

Haul Time: 0.59 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	-3.00	5.00	2.00	2898	0.36

Return Time: 0.36 minutesTotal Scraper team cycle time: 2.55 minutesAdjusted for job conditions: 368.13 LCY/HourSelected Number of Scrapers: 1 Scraper(s)Adjusted single scraper team (unit) hourly production: 368.13 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 368.13 LCY/HourUnadjusted unit production/hour: 443.53 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 14.79 HoursUnit cost: \$0.539 /LCYTotal job cost: \$2,934.53

MOTOR GRADER WORK

Task description: Rough Grade Phase 2 Pit Topsoil (assume 10% of TSK 210 Vol.)

Site: T.H.E. Aggregate Source

Permit Action: AM05-Phs 2

Permit/Job#: M1977193

PROJECT IDENTIFICATION

Task #: 220 State: Colorado Abbreviation: None
Date: 7/18/2013 County: Fremont Filename: M193-220
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 12M Horsepower: 158
Ripper Attachment: Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$22.65</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$34.03</u>	<u>75</u>
Ripper Operating Cost/Hour:	<u>\$0.00</u>	
Operator Cost/Hour:	<u>\$27.55</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$84.23</u>	
Total Fleet Cost/Hour:	<u>\$95.57</u>	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 0.30 acres

Source of estimated acreage: 10% of Task 210 Vol. or 0.3 ac (10% of 3 ac) / AM-05 Phs 2

HOURLY PRODUCTION

Average Grader Speed: 1.50 mph
Selected Application: Finish grading (0-2.5 mph) - 1.5
Selected Blade Angle: 30 degrees
Effective Blade Length: 10.40 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 8.40 feet
Unadjusted Hourly Unit Production: 1.5273 acres/hour

Job Condition Correction Factors

Site Altitude: 5600 feet

Altitude Adj: 1.00 Source
Job Efficiency: 0.90 (CAT HB)
Net Correction: 0.9000 (1sh/d, fav.)
multiplier

Adjusted Hourly Unit Production: 1.3745 acres/Hour
Adjusted Hourly Fleet Production: 1.3745 acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 0.29 Hours

Unit cost: \$61.28 per acre Total job cost: \$25.00

BULLDOZER RIPPING WORK

Task description: Rip Phase 2 Pit Floor & TS Source Area

Site: T.H.E. Aggregate Source Permit Action: AM05-Phs 2 Permit/Job#: M1977193

PROJECT IDENTIFICATION

Task #: 230 State: Colorado Abbreviation: None
Date: 7/18/2013 County: Fremont Filename: M193-230
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II Horsepower: 240
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$46.33</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$76.81</u>	<u>100</u>
Ripper Operating Cost/Hour:	<u>\$4.31</u>	<u>100</u>
Operator Cost/Hour:	<u>\$37.41</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$164.87</u>	
Total Fleet Cost/Hour:	<u>\$164.87</u>	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 3.00 acres Rip Depth (ft): 1.00 Volume: 4,840 BCY or CCY

Source of estimated quantity: AM-05, Phase 2 (area 660' x 200')

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.45 mph
Average Ripping Width: 6.50 degrees
Average Ripping Length: 400.00 feet
Average Dozer Speed: 88.00 feet
Average Maneuver Time: 0.25 feet
Production per unit area: 0.747 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.747 Acres/hr
Site Altitude: 5,600 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.62 Acres/hr
Adjusted Hourly Fleet Production: **0.62** Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **4.84** Hours

Unit cost: \$265.985 Per acre Total job cost: **\$798.00**

REVEGETATION WORKTask description: **Reseed Phase 2 Dist. Area (660' x 200' pit floor)**Site: **T.H.E. Aggregate Source**Permit Action: **AM05-Phs 2**Permit/Job#: **M1977193****PROJECT IDENTIFICATION**Task #: **240**State: **Colorado**Abbreviation: **None**Date: **7/19/2013**County: **Fremont**Filename: **M193-240**User: **TC1**Agency or organization name: **DRMS****FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
6-24-24, 10-20-10, 15-15-15	300.00	pound	\$0.26	\$79.20
Composted manure {MEANS 32 91 13.23 4400}	1.00	pound	\$0.48	\$0.48
			Total Fertilizer Materials Cost/Acre	\$79.68

Application

Description	Cost /Acre
Tractor spreader (MEANS 32 91 13.16 0950)	\$37.46
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$52.71
Total Fertilizer Application Cost/Acre	\$90.17

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$88.58
Total Tilling Cost/Acre	\$88.58

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.50	8.16	\$5.33
Indian Ricegrass - Nespar	1.50	4.86	\$10.62
Sideoats Grama - Butte	2.50	8.21	\$27.85
Juniper, Single Seed	1.00	0.29	\$88.00
Crested Wheatgrass - Standard	0.50	2.30	\$1.11
Pine, Pinyon	1.00	0.03	\$30.91
Mahogany, Mountain	1.50	2.03	\$69.47
Needle and Thread	1.50	3.96	\$70.49
Western Wheatgrass - Native	1.00	2.53	\$3.04

Saltbush, Four Wing	2.50	3.44	\$26.83
Winter Fat	1.50	3.82	\$49.04
Totals Seed Mix	15.00	39.63	\$382.67

Application

Description	Cost /Acre
Drill seeding (DRMS Cost Data)	\$88.20
Total Seed Application Cost/Acre	\$88.20

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$265.00	\$530.00
Total Mulch Materials Cost/Acre				\$530.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$65.89
Power mulcher (MEANS 32 91 13.16 0250)	\$86.68
Total Mulch Application Cost/Acre	\$152.57

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: 3 Cost /Acre: \$1,411.87
 Estimated Failure Rate: 50% Cost /Acre*: \$1,411.87
 *Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MU
LCHING

Initial Job Cost: **\$4,235.61**
 Reseeding Job Cost: **\$2,117.81**
 Total Job Cost: **\$6,353.42**
 Job Hours: **0.00**

DRILL BLAST WORK

Task Description:

Phase 2 Final Highwall Reclamation Volumes (3-Bench Fill at 3H:1V)

Site:

T.H.E. Aggregate Source

Permit Action:

AM05-Phs 2

Permit/Job #:

M1977193

PROJECT IDENTIFICATION

Task #:

251

State:

Colorado

Date:

7/19/2013

County:

Fremont

User:

TC1

Abbreviation:

None

Filename:

C:\Documents and Settings\tc1\My Documents\Projects\Fremont\M-77-193 THE Aggregate Source\AM05\Quantities\BenchOffsets.xlsx3-BenchCut-Fill Summary Phase 2

Assumed bench Height:

40

ft

Working Bench Depth:

20

ft

Working Face Slope:

0.25

 H:1V

Reclaimed Slope:

3

 H:1V

θ:

0.32175

 radians, or

18.435

 degrees

α:

1.24905

 radians, or

71.565

 degrees

Assumed N-S Bench Length @ Pit Floor:

660

 ft

Assumed N-S Bench Length @ Elev. 6100 ft:

300

 ft

Assumed E-W Bench Length @ Pit Floor:

200

 ft

Assumed E-W Bench Length @ Elev. 6100 ft:

100

 ft

Pit Floor Elev.:

5650

 ft

Assumed Min. Crest Elev. of Highwall:

5700

 ft

Assumed Max. Crest Elev. of Highwall:

6100

 ft

Reclaimed Bench Width:

30

 ft

Minimum Slice Width:

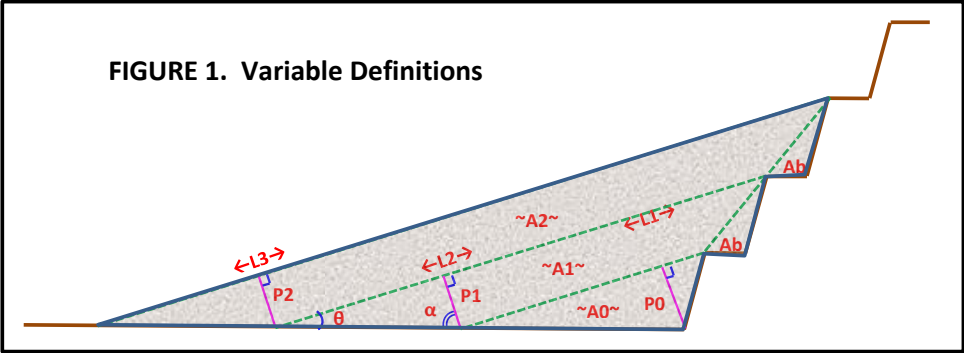
50

 ft

Selected Bench Elev. to Backfill at 3H:1V:

5770

 ft



Lowest Bench No. to begin 30-ft Bench Depth:

3

Material Blast & Fill Volume Balance Estimates for Phase 2 Bond Calculation.

Supplemental Slice Depth to Achieve Desired 3H:1V Fill Volume:

0.00

 ft

Assumed Swell Factor:

1.5

FILL MATERIAL															BLAST MATERIAL							MUCKED MATERIAL		
Bench Elev. (ft)	Bench No.	Iterpolated N-S Bench Length (ft)	Iterpolated E-W Bench Length (ft)	Combined Iterpolated N-S & E-W Bench Length (ft)	Bench Depth, Db to be Filled (ft)	Bench Fill Cross-Sectional Area, Ab (ft2)	Horizontal Distance, Lt from 3H:1V Toe to Lower Bench Fill Toe (ft)	Total Fill Horizontal Length Check(ft)	Lift Height, P Perpendicular to 3H:1V Fill Slope (ft)	Fill Slope Length, Ln (ft)	Toe Fill Cross-Sectional Area, An (ft2)	Combined Toe & Bench Fill Cross-Sectional Area (ft2)	Toe Fill Volume for Given Bench, Vn (ft3)	Cumulative Toe Fill Volume for Given Bench, Σ Vn (ft3)	Minimum Bench Depth based on 50-ft Min. Slice & Lowest Bench for 3H:1V Fill (ft)	Bench Depth of Material Available for Blasting (ft)	Minimum Volume of Material to be Removed for Given Bench (ft3)	Supplemental Slice Depth (ft) to Achieve Desired 3H:1V Fill Volume	Supplemental Volume of Material to be Removed for Given Bench (ft3)	Combined Volume of Material to be Blasted & Available for Fill, by Bench (ft3)	Cumulative Volume of Blasted & Available Material for Fill (ft3)	Mucked Material Volume by bench w/ Swell Factor (ft3)	Cumulative Mucked Material Volume w/ Swell Factor (ft3)	Mucked Material Volume w/ Swell Factor (CY)
5650	0	660.0	200.0	860.0	0	0	10								20	0	0	0	0	0		0		0
5690	1	628.0	191.1	819.1	20	400	110	120	34.8	126.5	2,200	2,600	2,129,660	2,129,660	20	0	0	0	0	0	0	0	0	0
5730	2	596.0	182.2	778.2	20	400	90	210	28.5	253.0	5,400	5,800	4,513,560	6,643,220	20	0	0	0	0	0	0	0	0	0
5770	3	564.0	173.3	737.3	20	400	90	300	28.5	379.5	9,000	9,400	6,930,620	13,573,840	20	10	294,920	0	0	294,920	294,920	442,380	442,380	16,384
5810	4	532.0	164.4	696.4	20	400	90	390	28.5	506.0	12,600	13,000	9,053,200	22,627,040	50	30	835,680	0	0	835,680	1,130,600	1,253,520	1,695,900	46,427
5850	5	500.0	155.6	655.6	20	400	90	480	28.5	632.5	16,200	16,600	10,882,960	33,510,000	60	40	1,048,960	0	0	1,048,960	2,179,560	1,573,440	3,269,340	58,276
5890	6	468.0	146.7	614.7	20	400	90	570	28.5	758.9	19,800	20,200	12,416,940	45,926,940	70	50	1,229,400	0	0	1,229,400	3,408,960	1,844,100	5,113,440	68,300
5930	7	436.0	137.8	573.8	20	400	90	660	28.5	885.4	23,400	23,800	13,656,440	59,583,380	80	60	1,377,120	0	0	1,377,120	4,786,080	2,065,680	7,179,120	76,507
5970	8	404.0	128.9	532.9	20	400	90	750	28.5	1011.9	27,000	27,400	14,601,460	74,184,840	90	70	1,492,120	0	0	1,492,120	6,278,200	2,238,180	9,417,300	82,896
6010	9	372.0	120.0	492.0	20	400	90	840	28.5	1138.4	30,600	31,000	15,252,000	89,436,840	100	80	1,574,400	0	0	1,574,400	7,852,600	2,361,600	11,778,900	87,467
6050	10	340.0	111.1	451.1	20	400	90	930	28.5	1264.9	34,200	34,600	15,608,060	105,044,900	110	90	1,623,960	0	0	1,623,960	9,476,560	2,435,940	14,214,840	90,220
6090	11	308.0	102.2	410.2	20	400	90	1020	28.5	1391.4	37,800	38,200	15,669,640	120,714,540	120	100	1,640,800	0	0	1,640,800	11,117,360	2,461,200	16,676,040	91,156
6130	12	0.0	0.0	0.0	0	0	0	1020	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6170	13	0.0	0.0	0.0	0	0	0	1020	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6210	14	0.0	0.0	0.0	0	0	0	1020	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6250	15	0.0	0.0	0.0	0	0	0	1020	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6290	16	0.0	0.0	0.0	0	0	0	1020	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6330	17	0.0	0.0	0.0	0	0	0	1020	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6370	18	0.0	0.0	0.0	0	0	0	1020	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DRILL & BLAST QUANTITY

Drill & Blast Volume:

11,117,360

 ft3

Assumed Specific gravity of rock:

1.6

Weight of Blasted Rock:

554,979

 tons

Unit Drill & Blast Cost:

\$ 0.35

 per ton*

TOTAL COST TO DRILL & BLAST:

\$ 194,242.51

*(provided by Operator)

MUCKING QUANTITY

Other Task #s Using This Volume:

252, 253

Mucking Volume:

91,156

WHEEL LOADER – LOAD AND CARRY WORKTask description: **Blast mucking for 30'x40' final benches (Phase 2)**Site: **T.H.E. Aggregate Source**Permit Action: **AM05-Phs 2**Permit/Job#: **M1977193****PROJECT IDENTIFICATION**Task #: **252**State: **Colorado**Abbreviation: **None**Date: **7/19/2013**County: **Fremont**Filename: **M193-252**User: **TC1**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **CAT 992K**Attachment 1: **ROPS Cab**Horsepower: **801**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$175.54	NA
Operating Cost/Hour:	\$212.88	100
Operator Cost/Hour:	\$35.82	NA
Total Unit Cost/Hour:	\$424.23	
Total Fleet Cost/Hour:	\$424.23	

MATERIAL QUANTITIESInitial volume: **91,156**

CCY

Swell factor: **1.000**Loose volume: **91,156**

LCY

Source of estimated volume: **Division of Reclamation, Mining & Safety**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): **0.625** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders -0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.060	minutes
Adjusted Basic Cycle Time:		0.565	minutes

Rolling Resistance – Road ConditionsHaul: **Loose sand or gravel 10**Return: **Loose sand or gravel 10****Haul and Return Time**

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	60	0.00	10.00	10.00	0.0818	(Cat HB)
Return Route:	60	0.00	10.00	10.00	0.0679	(Cat HB)

Total Travel Time: 0.1497 minutes
 Total Cycle Time: **0.7147** minutes

Load Bucket Capacity

Rated Capacity:	<u>16.00</u>	LCY (heaped)
Bucket Fill Factor:	<u>0.825</u>	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	<u>13.20</u>	LCY

Job Condition Correction FactorsSite Altitude: 5800 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:	<u>1,108.15</u>	LCY/Hour
Adjusted Hourly Unit Production:	<u>919.77</u>	LCY/Hour
Adjusted Hourly Fleet Production:	<u>919.77</u>	LCY/Hour

JOB TIME AND COST

Fleet size:	<u>1</u>	Loader(s)	Total job time:	<u>99.11</u>	Hours
Unit cost:	<u>\$0.461</u>	/LCY	Total job cost:	<u>\$42,045.00</u>	

BULLDOZER WORKTask description: **Push Phase 2 mucked blast material to 3H:1V slope**Site: **T.H.E. Aggregate Source**Permit Action: AM05-Phs 2Permit/Job#: M1977193**PROJECT IDENTIFICATION**Task #: 253
Date: 7/19/2013
User: TC1State: Colorado
County: FremontAbbreviation: None
Filename: M193-253Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9U
Horsepower: 405
Blade Type: Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$69.88</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$142.13</u>	<u>100</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$37.41</u>	<u>NA</u>

Total unit Cost/Hour: \$249.42
Total Fleet Cost/Hour: **\$249.42****MATERIAL QUANTITIES**Initial Volume: 91,156
Swell factor: 1.000
Loose volume: **91,156 LCY**Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 210 feet
Unadjusted hourly production: 702.9 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: -30 %
Average site altitude: 5,600 feetMaterial weight: 2,800 lbs/LCYWeight description: Granite - BrokenJob 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>(SLOT)</u>

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.821	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 1.0604

Adjusted unit production: 745.36 LCY/hr

Adjusted fleet production: **745.36** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.335/LCY

Total job time: **122.30** Hours

Total job cost: **\$30,503.63**

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob/Demob (Phase 2 Equipment)**Site: **T.H.E. Aggregate Source**Permit Action: **AM05-Phs 2**Permit/Job#: **M1977193****PROJECT IDENTIFICATION**Task #: **290**State: **Colorado**Abbreviation: **None**Date: **7/18/2013**County: **Fremont**Filename: **M193-290**User: **TC1**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:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

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 621G	37.47	\$52.68	\$117.55	1	\$170.23	\$117.55	\$250.00
Cat D7R DS XR Series II	32.01	\$41.75	\$117.55	1	\$159.30	\$117.55	\$250.00
CAT 12M	16.01	\$22.65	\$88.67	1	\$111.32	\$88.67	\$250.00
CAT 992K	107.88	\$175.54	\$125.45	1	\$300.99	\$125.45	\$250.00
Cat D9T - 9U	60.66	\$69.88	\$125.45	1	\$195.33	\$125.45	\$250.00

Subtotals: **\$937.17** **\$574.67** **\$1,250.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Drill/Broadcast Seeder with Tractor	\$51.96	1	\$51.96	\$51.96
Power Mulcher (Reinco M90)	\$25.56	1	\$25.56	\$25.56
ANFO Bulk Delivery Truck	\$178.73	1	\$178.73	\$178.73

Subtotals: **\$256.25** **\$256.25**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	CANON CITY	
Total one-way travel distance:	3.00	miles
Average Travel Speed:	30.00	mph

Total Non-Roadable Mob/Demob Cost *	\$3,739.54
* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$51.25
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.10	0.10
Return Time (Hours):	0.10	0.10
Loading Time (Hours):	0.25	NA
Unloading Time (Hours):	0.25	NA
Subtotals:	0.70	0.20

JOB TIME AND COST

Total job time:	1.40	Hours
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Total job cost:	\$3,790.79
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