July 5, 2018

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

Greg Dangler
RMR Aggregates, Inc.
4601 DTC Blvd., Suite 120
Denver, CO 80237

RE: Mid-Continent LST, Permit No. M-1982-121, Technical Revision (TR-5) Approval

Dear Mr. Dangler:

On July 5, 2018 the Division of Reclamation, Mining and Safety (Division) approved the Technical Revision request (TR-5) submitted on June 11, 2018, addressing the following:

Exploration drilling within the current permitted boundary. Up to 15 holes to be completed in 2018

The terms of the TR-5 approved by the Division are hereby incorporated into Permit No. M-1982-121. All other conditions and requirements of the permit remain in full force and effect.

The estimated liability amount of *$222,081.00* exceeds the *$ 196,181.00* Financial Warranty currently held for this site. If you have not already done so, please submit additional bond in the amount of *$ 25,900.00*. The revision will not be final until the bond is approved by the Division.

If you require additional information, or have questions or concerns, please feel free to contact me. Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 970-254-8511 or via email at amy.yeldell@ state.co.us

Sincerely,

Amy Yeldell

Amy Yeldell
Environmental Protection Specialist
Department of Natural Resources
Division of Reclamation, Mining and Safety
Phone: (970) 254-8511
Fax: (970) 241-1516

Cc: Wally Erickson, Senior EPS, Grand Junction DRMS

Enclosures: Updated reclamation cost estimate

COST SUMMARY WORK

Task description: **Full update plus addition of 15 exploration holes**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: ACY State: Colorado Abbreviation: None
Date: 6/12/2018 County: Garfield Filename: M121-ACY
User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Demolition/removal of onsite facilities and structures	DEMOLISH	1	40.00	$47,336.56
Production Benches					
02a	Place loose material against highwall/grade benches	EXCAVATE	1	37.52	$3,802.00
02b	Placement of topsoil on benches	EXCAVATE	1	9.89	$1,002.00
Process Bench					
03a	Placement of backfill against process bench highwall	LOADER	2	55.24	$14,517.00
03b	Finish grading of process bench highwall	DOZER	2	24.98	$9,582.00
03c	Transport topsoil to processing bench	LOADER	2	6.82	$1,655.00
03d	Distribute topsoil over processing bench	DOZER	2	0.80	$309.00
Mill Bench					
04a	Transport backfill material	LOADER	2	66.69	$17,527.00
04b	Grade and distribute backfill to 2H:1V Slope	DOZER	2	52.04	$19,963.00
04c	Transport of topsoil	LOADER	2	1.79	$512.00
04d	Spread topsoil over mill pad area	DOZER	2	1.09	$419.00
05a	Rip upper and lower access roads	RIPPER	2	1.52	$631.00
06a	Reveg disturbed areas	REVEGE	1	20.00	$36,366.00
07a	Initial Mobilization	MOBILIZE	1	2.53	$4,668.00
07b	Secondary Mobilization	MOBILIZE	1	0.26	$31.00
TR5	Abandonment of 15 Exploration Holes TR-5 Addition	BOREHOLE	1	90.00	$2,560.12
			SUBTOTALS:	**411.17**	**$160,881**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$3,249.80
Performance bond:	1.05	Total =	$1,689.25
Job superintendent:	205.59	Total =	$15,017.98
Profit:	10.00	Total =	$16,088.10
		TOTAL O & P =	$36,045.13
		CONTRACT AMOUNT (direct + O & P) =	$196,926.13

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	7.22	Total =	$14,218.07
Reclamation management and/or administration:	5.30		$10,437.08
CONTINGENCY:	0.00	Total =	$0.00
		TOTAL INDIRECT COST =	$61,200.28
		TOTAL BOND AMOUNT (direct + indirect) =	**$222,081.28**

DEMOLITION WORK

Task description: **Demolition/removal of onsite facilities and structures**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 01A State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-01a
User: ACY

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 95.50 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Mill Facility	30'H x 50'W x 125'L	Plant (3S) demo./on-site disposal in excavated pit - Max. 200 ft. push	187,500.00	CF	$0.24	$45,562.50
Conveyor	40' L	Conveyor, Horizontal Belt 24" Belt, 41.5' Length	1.00	EA	$2,050.00	$2,050.00
Silo (2x)	30'H x 10'D each	Loading and 5 mile haul, salvage allowed - Steel frame structures	174.50	CY	$10.71	$1,868.90
Scales	30'L x 12'W	Loading and 5 mile haul, salvage allowed - Steel frame structures	8.00	CY	$10.71	$85.68

Job Hours: **40.00** **Subtotal (unadjusted)**: **$49,567.08** **Total Cost (adjusted for location)**: **$47,336.56**

HYDRAULIC EXCAVATOR WORK

Task description: **Place loose material against highwall/grade benches**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 02A State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-02a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 320D L 9'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 148
Weight (MT): 21.55
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$31.02	NA
Operating Cost/Hour:	$32.50	100
Operator Cost/Hour:	$37.79	NA
Total Unit Cost/Hour:	$101.31	

Total Fleet Cost/Hour: $101.31

MATERIAL QUANTITIES

Initial volume: 3,333 CCY Swell factor: 1.345
Loose volume: **4,483** LCY

Source of estimated volume: 3 Benches approx. 600'L x 50'H x 50'W (see drawings & F-2)
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: SEVERE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 1.54 LCY (heaped)
Bucket Fill Factor: 0.675 Blasted rock - poorly blasted (60 - 75%) 0.675
Adjusted Capacity: **1.04** LCY

Job Condition Correction Factors

Site Altitude: 6800 feet

		Source
Altitude Adj:	0.90	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.75	multiplier

Unadjusted Hourly Unit Production: 159.92 LCY/Hour
Adjusted Hourly Unit Production: 119.46 LCY/Hour
Adjusted Hourly Fleet Production: **119.46** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **37.53** Hours

Unit cost: $0.848 /LCY Total job cost: **$3,802**

HYDRAULIC EXCAVATOR WORK

Task description: **Placement of topsoil on benches**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 02B State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-02b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 320D L 9'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 148
Weight (MT): 21.55
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$31.02	NA
Operating Cost/Hour:	$32.50	100
Operator Cost/Hour:	$37.79	NA
Total Unit Cost/Hour:	$101.31	

Total Fleet Cost/Hour: $101.31

MATERIAL QUANTITIES

Initial volume: 1,333 CCY Swell factor: 1.215
Loose volume: **1,620** LCY

Source of estimated volume: Approx. 6" on 3 benches (40' W x 600' L)
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: SEVERE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 1.54 LCY (heaped)
Bucket Fill Factor: 0.925 Loose material - 1/8" to 3/8" (90 - 95%) 0.925
Adjusted Capacity: **1.42** LCY

Job Condition Correction Factors

Site Altitude: 6800 feet

		Source
Altitude Adj:	0.90	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.75	multiplier

Unadjusted Hourly Unit Production: 219.15 LCY/Hour
Adjusted Hourly Unit Production: 163.71 LCY/Hour
Adjusted Hourly Fleet Production: **163.71** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **9.89** Hours

Unit cost: $0.619 /LCY Total job cost: **$1,002**

WHEEL LOADER – LOAD AND CARRY WORK

Task description: **Placement of backfill against process bench highwall**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #:	03A	State:	Colorado	Abbreviation:	None
Date:	7/3/2018	County:	Garfield	Filename:	M121-03A
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	CAT 972H	Horsepower:	287
Attachment 1:	ROPS Cab	Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$43.47	NA
Operating Cost/Hour:	$46.72	100
Operator Cost/Hour:	$41.20	NA
Total Unit Cost/Hour:	$131.39	

Total Fleet Cost/Hour: $262.78

MATERIAL QUANTITIES

Initial volume: 27,778 CCY Swell factor: 1.345

Loose volume: **37,361** LCY

Source of estimated volume: Previously accepted values TR-4

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(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:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.020	minutes
	Adjusted Basic Cycle Time:	0.505	minutes

Rolling Resistance – Road Conditions

Haul: Rutted dirt, little maintenance, no water, 2” tire penetration 5.0

Return: Rutted dirt, little maintenance, no water, 2” tire penetration 5.0

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	100	0.00	5.00	5.00	0.0922	(Cat HB)
Return Route:	100	0.00	5.00	5.00	0.0832	(Cat HB)

Total Travel Time:	0.1754	minutes
Total Cycle Time:	**0.6804**	minutes

Load Bucket Capacity

Rated Capacity:	5.60	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	**4.62**	LCY

Job Condition Correction Factors
Site Altitude: 6800 feet

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

Unadjusted Hourly Unit Production:	407.40	LCY/Hour
Adjusted Hourly Unit Production:	338.14	LCY/Hour
Adjusted Hourly Fleet Production:	**676.28**	LCY/Hour

JOB TIME AND COST

Fleet size:	2	Loader(s)	Total job time:	**55.25**	Hours
Unit cost:	$0.389	/LCY	Total job cost:	**$14,517**	

BULLDOZER WORK

Task description: **Finish grading of process bench highwall**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 03B
State: Colorado
Abbreviation: None
Date: 7/3/2018
County: Garfield
Filename: M121-03b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.81	NA
Operating Cost/Hour:	$66.17	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.85	NA

Total unit Cost/Hour: $191.83
Total Fleet Cost/Hour: **$383.65**

MATERIAL QUANTITIES

Initial Volume: 10,000
Swell factor: 1.000
Loose volume: **10,000** LCY

Source of estimated volume: Approx 1/3 of previously transported material
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: 15 %
Average site altitude: 6,800 feet

Material weight: 2,600 lbs/LCY

Weight description: Limestone - Broken

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(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:	0.666	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.885	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2348

Adjusted unit production: 200.19 LCY/hr
Adjusted fleet production: **400.38** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.958/LCY

Total job time: **24.98** Hours
Total job cost: **$9,582**

WHEEL LOADER – LOAD AND CARRY WORK

Task description: **Transport topsoil to processing bench**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 03C State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-03c
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 966H high lift
Attachment 1: ROPS Cab

Horsepower: 262
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$37.45	NA
Operating Cost/Hour:	$42.54	100
Operator Cost/Hour:	$41.20	NA
Total Unit Cost/Hour:	$121.19	

Total Fleet Cost/Hour: $242.38

MATERIAL QUANTITIES

Initial volume: 1,936 CCY Swell factor: 1.215
Loose volume: **2,352** LCY

Source of estimated volume: 2.4 ac. @ 6” Thick
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.500 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:	Common ownership of trucks and loaders -0.04	-0.040	(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:	-0.040	minutes
	Adjusted Basic Cycle Time:	0.460	minutes

Rolling Resistance – Road Conditions

Haul: Rutted dirt, little maintenance, no water, 2” tire penetration 5.0
Return: Rutted dirt, little maintenance, no water, 2” tire penetration 5.0

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	500	0.00	5.00	5.00	0.4593	(Cat HB)
Return Route:	500	0.00	5.00	5.00	0.4179	(Cat HB)

Total Travel Time:	0.8771	minutes
Total Cycle Time:	**1.3371**	minutes

Load Bucket Capacity

Rated Capacity:	5.00	LCY (heaped)
Bucket Fill Factor:	0.925	Loose material - 1/8" to 3/8" (90 - 95%) 0.925
Adjusted Capacity:	**4.63**	LCY

Job Condition Correction Factors

Site Altitude: 6800 feet

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

Unadjusted Hourly Unit Production:	207.53	LCY/Hour
Adjusted Hourly Unit Production:	172.25	LCY/Hour
Adjusted Hourly Fleet Production:	**344.50**	LCY/Hour

JOB TIME AND COST

Fleet size:	2	Loader(s)	Total job time:	**6.83**	Hours
Unit cost:	$0.704	/LCY	Total job cost:	**$1,655**	

BULLDOZER WORK

Task description: **Distribute topsoil over processing bench**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #:	03D	State:	Colorado	Abbreviation:	None
Date:	7/3/2018	County:	Garfield	Filename:	M121-03D
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.81	NA
Operating Cost/Hour:	$66.17	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.85	NA

Total unit Cost/Hour: $191.83
Total Fleet Cost/Hour: **$383.65**

MATERIAL QUANTITIES

Initial Volume: 1,936
Swell factor: 1.000
Loose volume: **1,936** 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: 1,400.0 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,800 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(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:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 1,203.02 LCY/hr
Adjusted fleet production: **2406.04** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.159/LCY

Total job time: **0.80** Hours
Total job cost: **$309**

WHEEL LOADER – LOAD AND CARRY WORK

Task description: **Transport backfill material**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #:	04A	State:	Colorado	Abbreviation:	None
Date:	7/3/2018	County:	Garfield	Filename:	M121-04A
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	CAT 972H	Horsepower:	287
Attachment 1:	ROPS Cab	Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$43.47	NA
Operating Cost/Hour:	$46.72	100
Operator Cost/Hour:	$41.20	NA
Total Unit Cost/Hour:	$131.39	

Total Fleet Cost/Hour: $262.78

MATERIAL QUANTITIES

Initial volume:	41,667	CCY	Swell factor:	1.345
Loose volume:	**56,042**	LCY		

Source of estimated volume: Previously accepted TR-4 values
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(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:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.020	minutes
	Adjusted Basic Cycle Time:	0.505	minutes

Rolling Resistance – Road Conditions

Haul: Rutted dirt, little maintenance, no water, 2” tire penetration 5.0
Return: Rutted dirt, little maintenance, no water, 2” tire penetration 5.0

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	100	0.00	5.00	5.00	0.0922	(Cat HB)
Return Route:	100	0.00	5.00	5.00	0.0832	(Cat HB)

Total Travel Time:	0.1754	minutes
Total Cycle Time:	**0.6804**	minutes

Load Bucket Capacity

Rated Capacity:	5.60	LCY (heaped)
Bucket Fill Factor:	1.025	Rock - Earth Mixture (100%-105%) 1.025
Adjusted Capacity:	**5.74**	LCY

Job Condition Correction Factors

Site Altitude: 6800 feet

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

Unadjusted Hourly Unit Production:	506.16	LCY/Hour
Adjusted Hourly Unit Production:	420.11	LCY/Hour
Adjusted Hourly Fleet Production:	**840.23**	LCY/Hour

JOB TIME AND COST

Fleet size:	2	Loader(s)	Total job time:	**66.70**	Hours
Unit cost:	$0.313	/LCY	Total job cost:	**$17,527**	

BULLDOZER WORK

Task description: **Grade and distribute backfill to 2H:1V Slope**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 04B State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-04B
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.81	NA
Operating Cost/Hour:	$66.17	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.85	NA

Total unit Cost/Hour: $191.83
Total Fleet Cost/Hour: **$383.65**

MATERIAL QUANTITIES

Initial Volume: 20,834
Swell factor: 1.000
Loose volume: **20,834** LCY

Source of estimated volume: Half of transported volume
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: 15 %
Average site altitude: 6,800 feet

Material weight: 2,600 lbs/LCY

Weight description: Limestone - Broken

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(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:	0.666	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.885	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2348

Adjusted unit production: 200.19 LCY/hr
Adjusted fleet production: **400.38** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.958/LCY

Total job time: **52.04** Hours
Total job cost: **$19,963**

WHEEL LOADER – LOAD AND CARRY WORK

Task description: **Transport of topsoil**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #:	04C	State:	Colorado	Abbreviation:	None
Date:	7/3/2018	County:	Garfield	Filename:	M121-04c
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	CAT 980H	Horsepower:	315
Attachment 1:	ROPS Cab	Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$48.81	NA
Operating Cost/Hour:	$52.37	100
Operator Cost/Hour:	$41.20	NA
Total Unit Cost/Hour:	$142.38	
Total Fleet Cost/Hour:	$284.76	

MATERIAL QUANTITIES

Initial volume:	1,600	CCY	Swell factor:	1.215
Loose volume:	**1,944**	LCY		

Source of estimated volume: 2 ac. @ 6” Deep

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.550 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:	Common ownership of trucks and loaders -0.04	-0.040	(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:	-0.040	minutes
	Adjusted Basic Cycle Time:	0.510	minutes

Rolling Resistance – Road Conditions

Haul: Rutted dirt, little maintenance, no water, 2” tire penetration 5.0

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:	100	0.00	5.00	5.00	0.0884	(Cat HB)
Return Route:	100	0.00	4.00	4.00	0.0755	(Cat HB)

Total Travel Time:	0.1639	minutes
Total Cycle Time:	**0.6739**	minutes

Load Bucket Capacity

Rated Capacity:	7.50	LCY (heaped)
Bucket Fill Factor:	0.975	Loose material - mixed moist aggregates (95-100%) 0.975
Adjusted Capacity:	**7.31**	LCY

Job Condition Correction Factors

Site Altitude: 6800 feet

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

Unadjusted Hourly Unit Production:	651.10	LCY/Hour
Adjusted Hourly Unit Production:	540.41	LCY/Hour
Adjusted Hourly Fleet Production:	**1,080.83**	LCY/Hour

JOB TIME AND COST

Fleet size:	2	Loader(s)	Total job time:	**1.80**	Hours
Unit cost:	$0.263	/LCY	Total job cost:	**$512**	

BULLDOZER WORK

Task description: **Spread topsoil over mill pad area**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 04D State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-04D
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.81	NA
Operating Cost/Hour:	$66.17	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.85	NA

Total unit Cost/Hour: $191.83
Total Fleet Cost/Hour: **$383.65**

MATERIAL QUANTITIES

Initial Volume: 1,600
Swell factor: 1.000
Loose volume: **1,600** LCY

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

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,800 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(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:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 732.64 LCY/hr
Adjusted fleet production: **1465.28** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.262/LCY

Total job time: **1.09** Hours
Total job cost: **$419**

BULLDOZER RIPPING WORK

Task description: **Rip upper and lower access roads**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #:	05A	State:	Colorado	Abbreviation:	None
Date:	7/3/2018	County:	Garfield	Filename:	M121-05a
User:	ACY				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8SU	Horsepower:	310
Ripper Attachment:	3-Shank Ripper	Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.81	NA
Operating Cost/Hour:	$66.17	100
Ripper Ownership Cost/Hour:	$7.55	NA
Ripper Operating Cost/Hour:	$7.21	100
Operator Cost/Hour:	$41.85	NA
Total Unit Cost/Hour:	$206.59	
Total Fleet Cost/Hour:	**$413.17**	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic:	NA		Bank Volume:	NA	BCY	NA	
Area:	2.00	acres	Rip Depth (ft):	2.00	Volume:	6,453	BCY or CCY

Source of estimated quantity: Field Estimates

HOURLY PRODUCTION

Seismic:

Seismic Velocity:	NA	feet/second

Area:

Average Ripping Depth:	2.56	mph
Average Ripping Width:	7.08	degrees
Average Ripping Length:	250.00	feet
Average Dozer Speed:	88.00	feet
Average Maneuver Time:	0.25	feet
Production per unit area:	0.789	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	0.789	Acres/hr
Site Altitude:	6,800	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier
Adjusted Hourly Unit Production:	0.65	Acres/hr
Adjusted Hourly Fleet Production:	**1.31**	Acres/hr

JOB TIME AND COST

Fleet size:	2	Grader(s)	Total job time:	**1.53**	Hours
Unit cost:	$315.559	Per acre	Total job cost:	**$631**	

REVEGETATION WORK

Task description: **Reveg disturbed areas**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 06A State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-06a
User: ACY

Agency 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**
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$106.29
Total Tilling Cost/Acre	**$106.29**

SEEDING

Seed Mix	**Rate – PLS LBS / Acre**	**Seeds per SQ. FT**	**Cost /Acre**
Indian Ricegrass - Native	10.00	32.37	$70.00
Mountain Brome - Bromar	10.00	16.07	$43.50
Kentucky Bluegrass - Lato	10.00	493.57	$28.80
Milk Vetch, Cicer - Lutana	10.00	33.29	$82.00
Thurber's Fescue	10.00	103.31	$614.20
Western Wheatgrass - Native	10.00	25.25	$70.00
Totals Seed Mix	60.00	703.86	**$908.50**

Application

Description	Cost /Acre
Hydro seeding (MEANS 32 92 19.14 0200)	$951.79
Total Seed Application Cost/Acre	**$951.79**

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.74	$2.74
Hydromulch tackifier, >15 ac. {Materials Only}	1.00	ACRE	$463.91	$463.91
Total Mulch Materials Cost/Acre				**$466.65**

Application

Description	Cost /Acre
Hydromulching (MEANS 32 92 19.13 1100)	$968.00
Weed spray, truck, non-aquatic areas, ann. [DMG]	$23.35
Total Mulch Application Cost/Acre	**$991.35**

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
Oak, Gambel's	50	Bare root seedling, 11-16 inch ht. (MEANS)	$2.12	$0.00	$106.00
Serviceberry	50	Bare root seedling, 11-16 inch ht. (MEANS)	$2.12	$0.00	$106.00
Totals Nursery Stock Cost / Acre					**$212.00**

JOB TIME AND COST

No. of Acres: 8
Cost /Acre: $3,636.58
Estimated Failure Rate: 25%
Cost /Acre*: $3,636.58
*Selected Replanting Work Items: TILLING,SEEDING,NURSERY,MULCHING

Initial Job Cost: **$29,092.64**
Reseeding Job Cost: **$7,273.16**
Total Job Cost: **$36,366**
Job Hours: **20.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Initial Mobilization**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 07A State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-07a
User: ACY

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 320D L 9'-6" Stick	23.70	$31.02	$88.67	1	$119.69	$88.67	$250.00
CAT 972H	28.00	$43.47	$117.55	2	$322.04	$235.10	$500.00
Cat D8T - 8SU	53.08	$91.36	$125.45	2	$433.62	$250.90	$500.00
				Subtotals:	**$875.35**	**$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
Hydroseeder with Tractor	$68.43	1	$68.43	$68.43
Light Duty Pickup, 4x4, 1 T. Crew	$47.41	1	$47.41	$47.41
		Subtotals:	**$115.84**	**$115.84**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GLENWOOD SPRINGS	
Total one-way travel distance:	2.00	miles
Average Travel Speed:	15.00	mph
Total Non-Roadable Mob/Demob Cost * ‘* two round trips with haul rig:	$4,637.37	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$30.89	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.13	0.13
Return Time (Hours):	0.13	0.13
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.27	0.27

JOB TIME AND COST

Total job time: **2.53** Hours

Total job cost: **$4,668**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Secondary Mobilization**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: 07B State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-07b
User: ACY

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
				Subtotals:	**$0.00**	**$0.00**	**$0.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Hydroseeder with Tractor	$68.43	1	$68.43	$68.43
Light Duty Pickup, 4x4, 1 T. Crew	$47.41	1	$47.41	$47.41
		Subtotals:	**$115.84**	**$115.84**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GLENWOOD SPRINGS	
Total one-way travel distance:	2.00	miles
Average Travel Speed:	15.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$0.00	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$30.89	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.13	0.13
Return Time (Hours):	0.13	0.13
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.27	0.27

JOB TIME AND COST

Total job time: **0.27** Hours

Total job cost: **$31**

BOREHOLE SEALING WORK

Task description: **Abandonment of 15 Exploration Holes TR-5 Addition**

Site: **Mid-Continent LST** Permit Action: TR-5 Permit/Job#: M1982121

PROJECT IDENTIFICATION

Task #: TR5 State: Colorado Abbreviation: None
Date: 7/3/2018 County: Garfield Filename: M121-TR5
User: ACY

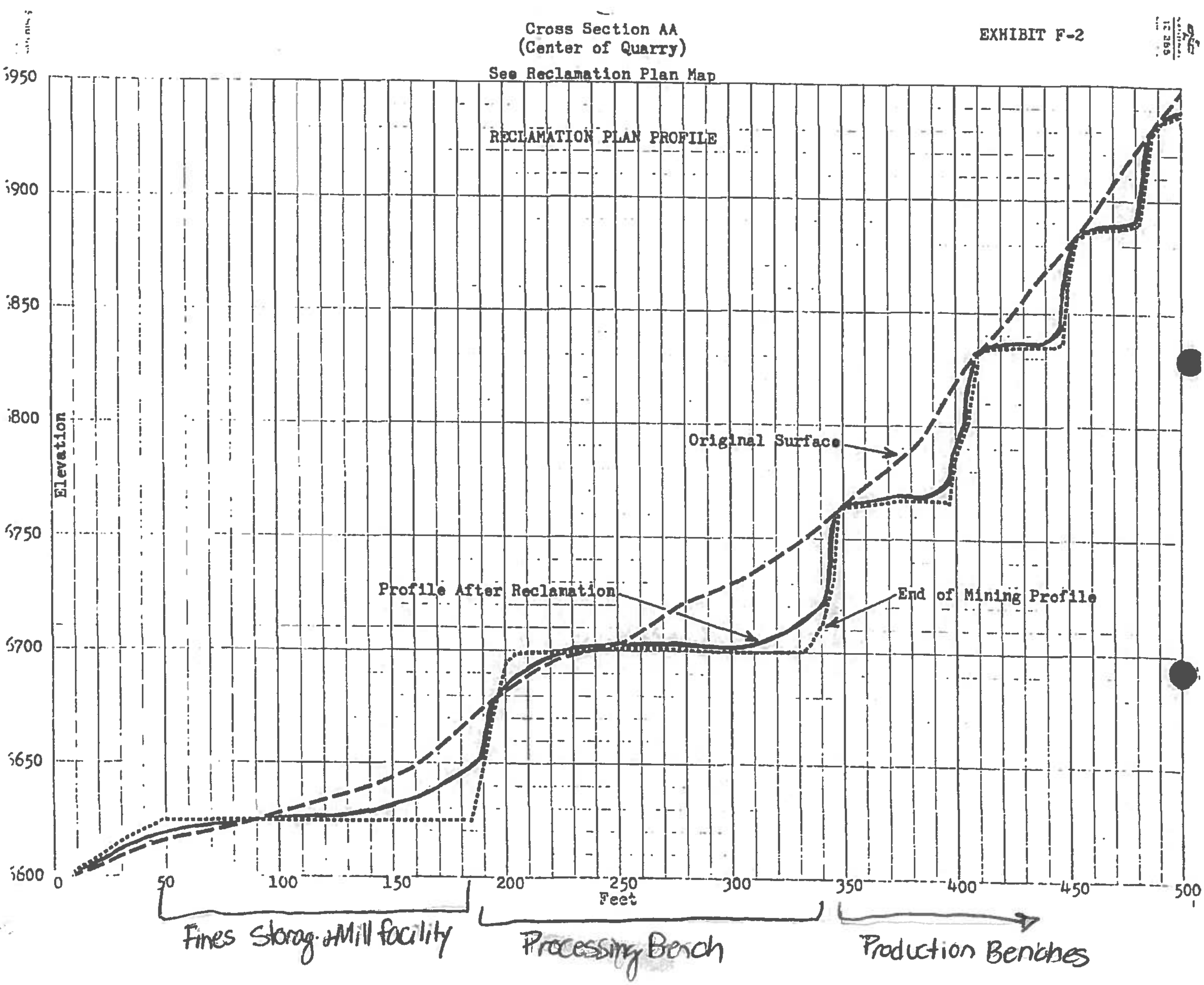
Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Hand Backfill Holes with Cuttings Approx 3.3 CY- 4 hrs each	General laborer - Colorado (total incl. fringes, empl. burden)	6.5	197	60.00	HR	$23.53	$1,411.80
Non-Metalic Plug	PVC plug - 6 in. diameter borehole	6.5	.5	15.00	EA	$54.14	$812.10
Cement Cap	Portland cement grout - 6 in. (labor, equip, materials)	6.5	3	15.00	LF	$10.65	$159.75
Rake out remaining cuttings at surface 30 min each	General laborer - Colorado (total incl. fringes, empl. burden)	0	.25	7.50	HR	$23.53	$176.48

Job Hours: **90.00** **Total Cost**: **$2,560.00**

EXHIBIT F-2



Cross Section AA
(Center of Quarry)
See Reclamation Plan Map
RECLAMATION PLAN PROFILE
Elevation
Original Surface
Profile After Reclamation
End of Mining Profile
Feet
Fines Storag & Mill facility
Processing Bench
Production Benches

Highwall reduction - backfill

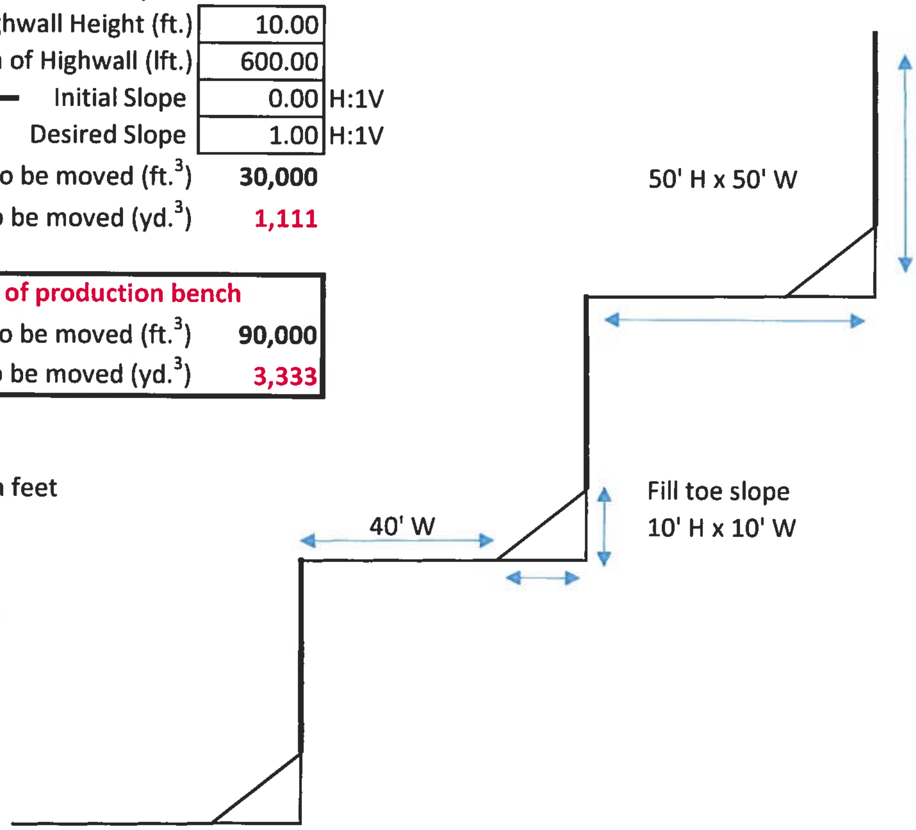
Production bench-3x toe slopes recontour

Highwall Height (ft.)	10.00	
Length of Highwall (lft.)	600.00	
Initial Slope	0.00	H:1V
Desired Slope	1.00	H:1V
Volume of material to be moved (ft.^{3})	**30,000**	
Volume of material to be moved (yd.^{3})	**1,111**	

Total for 3 fill areas of production bench

Volume of material to be moved (ft.^{3})	**90,000**
Volume of material to be moved (yd.^{3})	**3,333**

All dimensions measured in feet
Drawing not to scale



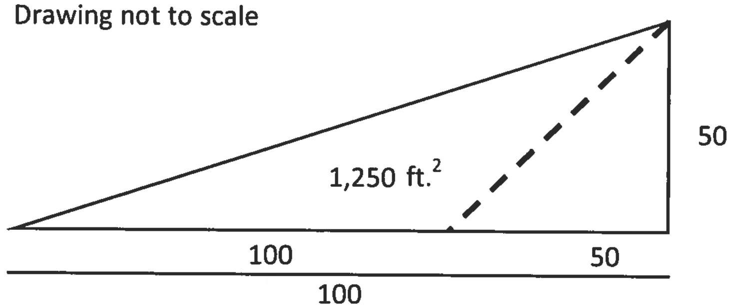
Highwall reduction - backfill

Processing Bench

Highwall Height (ft.)	50.00	
Length of Highwall (lft.)	600.00	
Initial Slope	1.00	H:1V
Desired Slope	2.00	H:1V
Volume of material to be moved (ft.^{3})	**750,000**	
Volume of material to be moved (yd.^{3})	**27,778**	

All dimensions measured in feet

Drawing not to scale



Highwall reduction - backfill

Fine storage area

Highwall Height (ft.)	50.00	
Length of Highwall (lft.)	900.00	
Initial Slope	1.00	H:1V
Desired Slope	2.00	H:1V
Volume of material to be moved (ft.^{3})	**1,125,000**	
Volume of material to be moved (yd.^{3})	**41,667**	

All dimensions measured in feet

Drawing not to scale