



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

October 28, 2020

Clint Beck, P.E.
Pete Lien & Sons, Inc.
P.O. Box 440
Rapid City, SD 57709

**RE: Division's Financial Warranty Cost Estimate for
St. Barbara Sand and Gravel Mine (M2004-013)**

Dear Mr. Beck,

On October 7, 2020 the Division performed an inspection as part of the Division's Routine Monitoring Program of the St. Barbara Sand and Gravel Mine. As part of the inspection the financial warranty for the mine was calculated. The Division used observations made during the inspection, the Annual Map submitted in 2020, and details provided in TR-2 during the cost estimate calculations.

A copy of the mine's estimate is attached for your review. The Division will allow 14 days to review and comment on the bond estimate prior to issuing a surety increase notice for the St. Barbara Sand and Gravel Mine. Once the surety increase is issued by the Division, the Operator will have 60 days to provide the additional financial warranty.

If you need additional information or have any questions, please contact me at Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, by telephone at **303-866-3567 x8114**, or by email at patrick.lennberg@state.co.us.

Sincerely,

Patrick Lennberg
Environmental Protection Specialist

cc: Jared Ebert, DRMS

ec: Clint Beck, P.E., Pete Lien & Sons, Inc., CBeck@petelien.com



COST SUMMARY WORK

Task description: Cost Summary

Site: St. Barbara Sand and Gravel
Mine

Permit Action: 2020 Inspection

Permit/Job#: M2004013

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 10/21/2020 County: Pueblo Filename: M013-000
User: JPL

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001a	Fill 5.7 acre Pit Area	SCRAPER1	1	25.31	\$121,996
001b	Fill Process Ponds	SCRAPER1	1	22.15	\$106,783
002	Replace Topsoil 7-in on 80 acres	SCRAPER1	1	13.98	\$67,759
003	Reveg 80 Acres	REVEGE	1	40.00	\$149,425
004	Mob/Demob	MOBILIZE	1	3.33	\$14,140
<u>SUBTOTALS:</u>				104.77	\$460,103

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$9,294
Performance bond:	1.05	Total =	\$4,831
Job superintendent:	52.51	Total =	\$3,652
Profit:	10.00	Total =	\$46,010
		TOTAL O & P =	\$63,788
		CONTRACT AMOUNT (direct + O & P) =	\$523,891

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	\$500	Total =	\$500
Engineering work and/or contract/bid preparation:	4.25	Total =	\$22,265
Reclamation management and/or administration:	5.00		\$26,195

CONTINGENCY: 0.00 Total = \$0

TOTAL INDIRECT COST = \$112,747

TOTAL BOND AMOUNT (direct + indirect) = \$572,850

SCRAPER TEAM WORKTask description: Fill 5.7 acre Pit AreaSite: St. Barbara Sand and Gravel
MinePermit Action: 2020 InspectionPermit/Job#: M2004013**PROJECT IDENTIFICATION**

Task #: 001A State: Colorado Abbreviation: None
 Date: 10/21/2020 County: Pueblo Filename: 001a
 User: JPL

Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 657G
-Dozer:	Cat D7R DS XR Series II
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	50	NA	NA	50	50
Ownership cost/hour:	\$255.26	\$74.64	NA	NA	\$65.89	\$10.06
Operating cost/hour:	\$261.03	\$35.78	NA	NA	\$29.48	\$9.39
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$47.28	\$40.04	NA	NA	\$46.87	\$0.00
Unit Subtotals:	\$563.58	\$150.45	NA	NA	\$142.25	\$19.45
Number of Units:	8	1	0	0	1	1
Group Subtotals:	Work:	\$4,659.09	Support:	\$0.00	Maint:	\$161.70

Total work team cost/hour: \$4,820.79**MATERIAL QUANTITIES**

Initial volume: 138,000 CCY Swell factor: 1.000
 Loose volume: 138,000 LCY

Source of estimated volume: Est by DRMS for 5.7 acre pit area cells
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION**Scraper Bowl (volume) Basis:**

Material weight: 2,900 lbs/LCY Struck Volume: 32.00 LCY
 Material description: Decomposed rock - 50% Rock, 50% Earth Heaped Volume: 44.00 LCY
 Rated Payload: 104,000 pounds Average Volume: 38.00 LCY

Payload Capacity: 35.86 LCYAdjusted Capacity: 35.86 LCYCycle Time:Scraper Loading Time: 1.00 Minutes
Maneuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 4500 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	2.00	3.00	5.00	2335	0.66

Haul Time: 0.66 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	-2.00	3.00	1.00	3045	0.36

Return Time: 0.36 minutesTotal Scraper team cycle time: 2.62 minutesAdjusted for job conditions: 681.65 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 5,453.22 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 5,453.22 LCY/HourUnadjusted unit production/hour: 821.27 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 25.31 HoursUnit cost: \$0.884 /LCYTotal job cost: \$121,996

SCRAPER TEAM WORKTask description: **Fill Process Ponds**Site: **St. Barbara Sand and Gravel**
MinePermit Action: **2020 Inspection**Permit/Job#: **M2004013****PROJECT IDENTIFICATION**

Task #: **001B** State: **Colorado** Abbreviation: **None**
 Date: **10/21/2020** County: **Pueblo** Filename: **001b**
 User: **JPL**

Agency or organization name: **DRMS****HOURLY EQUIPMENT**COSTShift basis: **1 per day**

Equipment Description	
-Scraper:	Cat 657G
-Dozer:	Cat D7R DS XR Series II
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	50	NA	NA	50	55
Ownership cost/hour:	\$255.26	\$74.64	NA	NA	\$65.89	\$10.06
Operating cost/hour:	\$261.03	\$35.78	NA	NA	\$29.48	\$10.33
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$47.28	\$40.04	NA	NA	\$46.87	\$0.00
Unit Subtotals:	\$563.58	\$150.45	NA	NA	\$142.25	\$20.39
Number of Units:	8	1	0	0	1	1
Group Subtotals:	Work:	\$4,659.09	Support:	\$0.00	Maint:	\$162.64

Total work team cost/hour: **\$4,821.73****MATERIAL QUANTITIES**

Initial volume: **132,390** CCY Swell factor: **1.000**
 Loose volume: **132,390** LCY

Source of estimated volume: **Est from DRMS and PLS**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: **2,900 lbs/LCY** Struck Volume: **32.00** LCY
 Material description: **Decomposed rock - 50% Rock, 50% Earth** Heaped Volume: **44.00** LCY
 Rated Payload: **104,000 pounds** Average Volume: **38.00** LCY

Payload Capacity: 35.86 LCYAdjusted Capacity: 35.86 LCYCycle Time:Scraper Loading Time: 1.00 Minutes
Maneuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 4500 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	3.00	3.00	2883	0.49

Haul Time: 0.49 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	3.00	3.00	2958	0.30

Return Time: 0.30 minutesTotal Scraper team cycle time: 2.39 minutesAdjusted for job conditions: 747.25 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 5,978.01 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 5,978.01 LCY/HourUnadjusted unit production/hour: 900.30 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 22.15 HoursUnit cost: \$0.807 /LCYTotal job cost: \$106,783

SCRAPER TEAM WORKTask description: Replace Topsoil 7-in on 80 acresSite: St. Barbara Sand and Gravel
MinePermit Action: 2020 InspectionPermit/Job#: M2004013**PROJECT IDENTIFICATION**

Task #: 002 State: Colorado Abbreviation: None
 Date: 10/21/2020 County: Pueblo Filename: 002
 User: JPL

Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 657G
-Dozer:	Cat D7R DS XR Series II
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	50	NA	NA	85	70
Ownership cost/hour:	\$255.26	\$74.64	NA	NA	\$65.89	\$10.06
Operating cost/hour:	\$261.03	\$35.78	NA	NA	\$50.12	\$13.15
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$47.28	\$40.04	NA	NA	\$46.87	\$0.00
Unit Subtotals:	\$563.58	\$150.45	NA	NA	\$162.88	\$23.20
Number of Units:	8	1	0	0	1	1
Group Subtotals:	Work:	\$4,659.09	Support:	\$0.00	Maint:	\$186.08

Total work team cost/hour: \$4,845.17**MATERIAL QUANTITIES**

Initial volume: 66,500 CCY Swell factor: 1.125
 Loose volume: 74,813 LCY

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

HOURLY PRODUCTION**Scraper Bowl (volume) Basis:**

Material weight: 2,650 lbs/LCY Struck Volume: 32.00 LCY
 Material description: Decomposed rock - 25% Rock, Heaped Volume: 44.00 LCY
75% Earth
 Rated Payload: 104,000 pounds Average Volume: 38.00 LCY

Payload Capacity: 39.25 LCYAdjusted Capacity: 38.00 LCYCycle Time:Scraper Loading Time: 1.00 Minutes
Maneuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 4500 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	2.00	3.00	5.00	2335	0.77

Haul Time: 0.77 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	-2.00	3.00	1.00	3045	0.46

Return Time: 0.46 minutesTotal Scraper team cycle time: 2.83 minutesAdjusted for job conditions: 668.69 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 5,349.54 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 5,349.54 LCY/HourUnadjusted unit production/hour: 805.65 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 13.98 HoursUnit cost: \$0.906 /LCYTotal job cost: \$67,759

REVEGETATION WORKTask description: Reveg 80 AcresSite: St. Barbara Sand and Gravel
MinePermit Action: 2020 InspectionPermit/Job#: M2004013**PROJECT IDENTIFICATION**Task #: 003
Date: 10/21/2020
User: JPLState: Colorado
County: PuebloAbbreviation: None
Filename: 003Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	121.00	pound	\$0.34	\$40.54
Triple superphosphate, 0-46-0	87.00	pound	\$0.43	\$36.98
			Total Fertilizer Materials Cost/Acre	\$77.51

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$37.03
Total Fertilizer Application Cost/Acre	\$37.03

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$107.16
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
Total Tilling Cost/Acre	\$300.76

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	1.50	58.54	\$42.71
Switchgrass - Blackwell	4.00	35.72	\$46.00
Galleta	11.00	40.15	\$245.85
Western Wheatgrass - Barton	16.00	40.40	\$112.00
Totals Seed Mix	32.50	174.82	\$446.56

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hay, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$301.00	\$602.00
Total Mulch Materials Cost/Acre				\$602.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$70.17
Total Mulch Application Cost/Acre	\$70.17

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:	80	Cost /Acre:	\$1,766.03
Estimated Failure Rate:	15%	Cost /Acre*:	\$678.56
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	\$141,282.40		
Reseeding Job Cost:	\$8,142.72		
Total Job Cost:	\$149,425		
Job Hours:	40.00		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob/Demob**Site: **St. Barbara Sand and Gravel**
MinePermit Action: **2020 Inspection**Permit/Job#: **M2004013****PROJECT IDENTIFICATION**

Task #: **004** State: **Colorado** Abbreviation: **None**
 Date: **10/21/2020** County: **Pueblo** Filename: **004**
 User: **JPL**

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:	\$17.20	\$29.63	\$38.69
Operating Cost/Hour:	\$26.56	\$47.02	\$55.69
Operator Cost/Hour:	\$23.63	\$23.63	\$23.63
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$67.39	\$123.81	\$141.54

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 D7R DS XR Series II	32.01	\$74.64	\$123.81	1	\$198.45	\$123.81	\$250.00
Cat 657G	78.88	\$255.26	\$141.54	8	\$3,174.40	\$1,132.32	\$500.00
CAT 14M	23.57	\$65.89	\$67.39	1	\$133.28	\$67.39	\$250.00
Hydroseeder with Tractor	28.00	\$11.88	\$123.81	2	\$271.38	\$247.62	\$500.00

Subtotals: **\$3,777.51** **\$1,571.14** **\$1,500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 2,500 Gal.	\$28.84	1	\$28.84	\$28.84

Subtotals: **\$28.84** **\$28.84**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>PUEBLO</u>	
Total one-way travel distance:	<u>15.00</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$14,120.79</u>
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 '* two round trips with haul rig:

Total Roadable Mob/Demob Cost **	<u>\$19.23</u>
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 ** one round trip, no haul rig:

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.33</u>	<u>0.33</u>
Return Time (Hours):	<u>0.33</u>	<u>0.33</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.67</u>	<u>0.67</u>

JOB TIME AND COST

Total job time:	<u>3.33</u>	Hours
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Total job cost:	<u>\$14,140</u>
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