



COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215
Denver, Colorado 80203

February 22, 2019

Judy Sprague
Arkins Park Stone Corporation
5975 NCR 27
Loveland, CO 80538

Re: Sprague Red Lyons, Permit No. M-1981-057, Surety Reduction Request, Revision No. SR-01, Cost Summary Work

Ms. Sprague:

The Division of Reclamation, Mining and Safety (Division) has recalculated the required financial warranty for the Sprague Red Lyons operation based on the recent release of Quarry 3 through Acreage Reduction No. 1 (approved today).

The Division has determined the required financial warranty for the site to be in the amount of \$40,665.00, which is \$6,385.00 less than the existing financial warranty of \$47,050.00. Please review the Division's enclosed bond estimate and provide any comments you might have by **March 1, 2019**.

If you have any questions, you may contact me by telephone at 303-866-3567, ext. 8129, or by email at amy.eschberger@state.co.us.

Sincerely,

Amy Eschberger
Environmental Protection Specialist

Encl: Division's bond estimate

Ec: Shari Swenson, Arkins Park Stone Corporation at: shari@arkinsparkstone.com



COST SUMMARY WORK

Task description: Cost Summary

Site: Sprague Red Lyons

Permit Action: SR-1 2019

Permit/Job#: M1981057

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 2/22/2019

County: Boulder

Filename: M057-000

User: AME

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Backfill Quarry Areas - 10.22 ac	DOZER	2	11.00	\$4,839
002	Replace Topsoil on Quarry Areas - 10.22 ac	SCRAPER1	1	5.68	\$5,385
003	Revegetate Quarry Areas - 10.22 ac	REVEGE	1	5.50	\$13,876
004	Backfill Steep Highwalls	DOZER	1	1.98	\$435
005	Mobilization/Demobilization	MOBILIZE	1	6.04	\$9,717
<u>SUBTOTALS:</u>				30.2	\$34,252

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$692

Performance bond: 1.05

Total = \$360

Job superintendent: 0.00

Total = \$0

Profit: 10.00

Total = \$3,425

TOTAL O & P = \$4,477

CONTRACT AMOUNT (direct + O & P) = \$38,729

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$0

Total = \$0

Engineering work and/or contract/bid preparation: 0.00

Total = \$0

Reclamation management and/or administration: 5.00

\$1,936

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$6,413

TOTAL BOND AMOUNT (direct + indirect) = \$40,665

BULLDOZER WORKTask description: **Backfill Quarry Areas - 10.22 ac**Site: **Sprague Red Lyons**Permit Action: **SR-1 2019**Permit/Job#: **M1981057****PROJECT IDENTIFICATION**Task #: **001**State: **Colorado**Abbreviation: **None**Date: **2/22/2019**County: **Boulder**Filename: **M057-001**User: **AME**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **3-shank ripper**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$8.93	NA
Ripper op. Cost/Hour:	\$3.89	50
Operator Cost/Hour:	\$40.23	NA

Total unit Cost/Hour: **\$220.02**Total Fleet Cost/Hour: **\$440.04****MATERIAL QUANTITIES**Initial Volume: **8,245**Swell factor: **1.165**Loose volume: **9,605 LCY**Source of estimated volume: **CN-1 application (6 inch depth x 10.22 ac)**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **100 feet**Unadjusted hourly production: **852.6 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **10 %**Average site altitude: **5,900 feet**Material weight: **2,900 lbs/LCY**Weight description: **Decomposed rock - 50% Rock, 50% Earth****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	1.000	(EXCL.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)

Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5122

Adjusted unit production: 436.70 LCY/hr

Adjusted fleet production: **873.4** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.504/LCY

Total job time: **11.00** Hours

Total job cost: **\$4,839**

SCRAPER TEAM WORKTask description: **Replace Topsoil on Quarry Areas - 10.22 ac**Site: **Sprague Red Lyons**Permit Action: SR-1 2019Permit/Job#: M1981057**PROJECT IDENTIFICATION**Task #: 002State: ColoradoAbbreviation: NoneDate: 2/22/2019County: BoulderFilename: M057-002User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 631G
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-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	NA	100	NA	100	100
Ownership cost/hour:	\$110.85	NA	\$93.62	NA	\$60.13	\$8.51
Operating cost/hour:	\$119.02	NA	\$73.35	NA	\$50.87	\$15.97
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$4.07	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$3.53	\$0.00
Operator cost/hour:	\$45.84	NA	\$40.23	NA	\$45.64	\$0.00
Unit Subtotals:	\$275.71	NA	\$207.20	NA	\$164.23	\$24.48
Number of Units:	2	0	1	0	1	1
Group Subtotals:	Work:	\$551.42	Support:	\$207.20	Maint:	\$188.71

Total work team cost/hour: **\$947.33****MATERIAL QUANTITIES**Initial volume: 8,245

CCY

Swell factor: 1.125Loose volume: **9,276**

LCY

Source of estimated volume: CN-1 application (6 inches depth)Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,650 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Decomposed rock - 25% Rock, 75% Earth</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>30.79 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 0.80 MinutesManeuver and Spread Time: 0.70 MinutesJob Condition Correction:

Site Altitude: 5900 feet

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

Travel Time:Road Condition: Hard, smooth, stabilized, surfaced, watered, maintained 2.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	100.00	10.00	2.00	12.00	537	0.20

Haul Time: 0.20 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	100.00	-10.00	2.00	-8.00	2159	0.07

Return Time: 0.07 minutesTotal Scraper team cycle time: 1.77 minutesAdjusted for job conditions: 815.93 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 1,631.86 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 1,631.86 LCY/HourUnadjusted unit production/hour: 983.05 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 5.68 HoursUnit cost: \$0.581 /LCYTotal job cost: \$5,385

REVEGETATION WORKTask description: **Revegetate Quarry Areas - 10.22 ac**Site: **Sprague Red Lyons**Permit Action: SR-1 2019Permit/Job#: M1981057**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 2/22/2019County: BoulderFilename: M057-003User: AMEAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Potassium nitrate, 13-46-0	2.00	pound	\$1.25	\$2.50
			Total Fertilizer Materials Cost/Acre	\$2.50

Application

Description	Cost /Acre
Push rotary spreader (MEANS 32 01 90.13 0110)	\$99.32
Total Fertilizer Application Cost/Acre	\$99.32

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
Indiangrass - Cheyenne	1.00	3.05	\$17.61
Big Bluestem - Native	3.00	8.95	\$31.50
Blue Grama - Native	0.50	8.16	\$7.43
Little Bluestem - Native	2.40	14.33	\$38.71
Sideoats Grama - Vaughn	2.40	7.88	\$24.58
Totals Seed Mix	9.30	42.37	\$119.82

Application

Description	Cost /Acre
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Broadcast seeding [DMG]	\$267.22
Total Seed Application Cost/Acre	\$267.22

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Total Mulch Application Cost/Acre	\$68.78

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
Pine, Ponderosa	3	Tubling, 10 cu. in. container {(MEANS)}	\$1.98	\$2.40	\$5.94
Juniper, Common	3	Tubling, 10 cu. in. container {(MEANS)}	\$5.03	\$2.40	\$15.09
Totals Nursery Stock Cost / Acre					\$21.03

JOB TIME AND COST

No. of Acres: 10.22 Cost /Acre: \$1,260.96
 Estimated Failure Rate: 25% Cost /Acre*: \$387.04
 *Selected Replanting Work Items: SEEDING

Initial Job Cost: **\$12,887.01**
 Reseeding Job Cost: **\$988.89**
 Total Job Cost: **\$13,876**
 Job Hours: **5.50**

BULLDOZER WORKTask description: **Backfill Steep Highwalls**Site: **Sprague Red Lyons**Permit Action: **SR-1 2019**Permit/Job#: **M1981057****PROJECT IDENTIFICATION**Task #: **004**State: **Colorado**Abbreviation: **None**Date: **2/22/2019**County: **Boulder**Filename: **M057-004**User: **AME**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **3-shank ripper**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$8.93	NA
Ripper op. Cost/Hour:	\$3.89	50
Operator Cost/Hour:	\$40.23	NA

Total unit Cost/Hour: **\$220.02**Total Fleet Cost/Hour: **\$220.02****MATERIAL QUANTITIES**Initial Volume: **741**Swell factor: **1.165**Loose volume: **863 LCY**Source of estimated volume: **Q1: 10'H x 200'L, 1H:1V to 3H:1V**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **100 feet**Unadjusted hourly production: **852.6 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **10 %**Average site altitude: **5,900 feet**Material weight: **2,900 lbs/LCY**Weight description: **Decomposed rock - 50% Rock, 50% Earth****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	1.000	(EXCL.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)

Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5122

Adjusted unit production: 436.70 LCY/hr

Adjusted fleet production: **436.7** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.504/LCY

Total job time: **1.98** Hours

Total job cost: **\$435**

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: Mobilization/DemobilizationSite: Sprague Red LyonsPermit Action: SR-1 2019Permit/Job#: M1981057**PROJECT IDENTIFICATION**Task #: 005State: ColoradoAbbreviation: NoneDate: 2/22/2019County: BoulderFilename: M057-005User: AMEAgency or organization name: DRMS**EQUIPMENT TRANSPORT RIG COST**Shift basis: 1 per dayCost Data Source: CRG DataTruck 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 D8T - 8SU	47.71	\$93.62	\$117.55	2	\$422.34	\$235.10	\$500.00
Cat 631G	52.50	\$110.85	\$125.45	2	\$472.60	\$250.90	\$500.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00
CAT 14M	23.57	\$64.20	\$88.67	1	\$152.87	\$88.67	\$250.00

Subtotals: **\$1,152.02** **\$663.34** **\$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.	\$24.48	1	\$24.48	\$24.48

Subtotals: **\$24.48** **\$24.48**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>LONGMONT</u>	
Total one-way travel distance:	<u>13.00</u>	miles
Average Travel Speed:	<u>50.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$9,704.09</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$12.73</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.26</u>	<u>0.26</u>
Return Time (Hours):	<u>0.26</u>	<u>0.26</u>
Loading Time (Hours):	<u>1.25</u>	<u>NA</u>
Unloading Time (Hours):	<u>1.25</u>	<u>NA</u>
Subtotals:	<u>3.02</u>	<u>0.52</u>

JOB TIME AND COST

Total job time:	<u>6.04</u>	Hours
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Total job cost:	<u>\$9,717</u>
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