



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

September 30, 2019

J.C. York
J&T Consulting, Inc.
305 Denver Ave., Suite D
Fort Lupton, CO 80621

Re: DPG Pit, File No. M-2019-028, 112 Construction Materials Reclamation Permit Application, Adequacy Review No. 3 – Bond Estimate

Mr. York:

The Division of Reclamation, Mining and Safety (Division) has completed its third adequacy review of the application materials submitted for the DPG Pit. All adequacy items have been addressed to the Division's satisfaction.

The Division has calculated a reclamation bond (see enclosed estimate) for the proposed operation based on the information provided in the application. Please review the enclosed estimate and submit any comments at your earliest convenience. If the Division receives no comments from you by the application decision date of **October 4, 2019**, and no extension has been requested by that time, the DPG Pit application will be approved with a required financial warranty in the amount of \$984,566.00.

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

Cc: Chris Leone
J-2 Contracting Company
105 Coronado Ct., Unit A-101
Fort Collins, CO 80525

Michael Cunningham, DRMS



COST SUMMARY WORK

Task description: Cost Summary

Site: DPG Pit

Permit Action: DPG Pit Application

Permit/Job#: M2019028

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 9/30/2019

County: Weld

Filename: M028-000

User: AME

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Rip 92.55 acres	RIPPER	2	67.82	\$33,221
002	Retopsoil Phase 1 area= 27.15 ac x 12 in	SCRAPER1	1	60.25	\$75,772
003	Retopsoil stockpile/processing area= 33.50 ac x 12 in	SCRAPER1	1	48.65	\$61,282
004	Retopsoil loadout area= 10.40 ac x 12 in	SCRAPER1	1	14.54	\$18,314
005	Retopsoil settling ponds area= 19.57 ac x 12 in	SCRAPER1	1	47.41	\$59,721
006	Retopsoil access road/scale house area= 1.93 ac x 12 in	SCRAPER1	1	4.43	\$5,577
007	Revegetate 92.55 acres	REVEGE	1	92.55	\$123,872
008	Grade berms around sediment ponds (16,000 cy)	NA	1	8.00	\$32,000
009	Demolish/remove scale & scale house foundations (50 cy)	NA	1	8.00	\$10,000
010	Install riprap spillway for Phase 1 pit (3,309 cy)	NA	1	15.00	\$178,668
011	Administrative costs to convert dedicated water shares	NA	1	1.00	\$150,000
012	Slurry wall installation (No costs for Phase 1 only)	NA	1	0.00	\$0
013	Mobilization/Demobilization	MOBILIZE	1	11.48	\$36,715
014	Removal of dewatering overflow pipe (380 lf)	NA	1	5.00	\$2,280
<u>SUBTOTALS:</u>				384.13	\$787,422

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$15,906

Performance bond: 1.05

Total = \$8,268

Job superintendent: 150.00

Total = \$10,408

Profit: 10.00

Total = \$78,742

TOTAL O & P = \$113,325

CONTRACT AMOUNT (direct + O & P) = \$900,747

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$500

Total = \$500

Engineering work and/or contract/bid preparation: 4.25

Total = \$38,282

Reclamation management and/or administration: 5.00

\$45,037

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$197,144

TOTAL BOND AMOUNT (direct + indirect) = \$984,566

BULLDOZER RIPPING WORK

Task description: Rip 92.55 acres

Site: DPG Pit Permit Action: DPG Pit Application Permit/Job#: M2019028

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 9/13/2019 County: Weld Filename: M028-001
User: AME

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:	\$103.86	NA
Operating Cost/Hour:	\$82.26	100
Ripper Ownership Cost/Hour:	\$10.43	NA
Ripper Operating Cost/Hour:	\$8.38	100
Operator Cost/Hour:	\$39.98	NA
Total Unit Cost/Hour:	\$244.91	
Total Fleet Cost/Hour:	\$489.81	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 92.55 acres Rip Depth (ft): 1.50 Volume: 223,971 BCY or CCY

Source of estimated quantity: Exhibit L

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 feet/pass
Average Ripping Width: 7.08 feet/pass
Average Ripping Length: 500.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 0.822 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.822 Acres/hr
Site Altitude: 4,600 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.68 Acres/hr
Adjusted Hourly Fleet Production: 1.36 Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 67.82 Hours

Unit cost: \$358.963 Per acre Total job cost: \$33,221

SCRAPER TEAM WORKTask description: Retopsoil Phase 1 area= 27.15 ac x 12 inSite: DPG PitPermit Action: DPG Pit ApplicationPermit/Job#: M2019028**PROJECT IDENTIFICATION**Task #: 002State: ColoradoAbbreviation: NoneDate: 9/13/2019County: WeldFilename: M028-002User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	\$162.02	NA	\$103.86	NA	\$82.71	\$13.51
Operating cost/hour:	\$184.64	NA	\$82.26	NA	\$70.09	\$28.95
%Utilization-ripper:	NA	NA	NA	NA	50	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$4.44	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$1.96	\$0.00
Operator cost/hour:	\$45.58	NA	\$39.98	NA	\$45.39	\$0.00
Unit Subtotals:	\$392.24	NA	\$226.10	NA	\$204.58	\$42.46
Number of Units:	2	0	1	0	1	1
Group Subtotals:	Work:	\$784.48	Support:	\$226.10	Maint:	\$247.04

Total work team cost/hour: \$1,257.62**MATERIAL QUANTITIES**Initial volume: 43,802

CCY

Swell factor: 1.215Loose volume: 53,219

LCY

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

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</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>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes
 Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction:

Site Altitude: 4600 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: 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	2100.00	1.00	3.00	4.00	2394	1.04

Haul Time: 1.04 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	-1.00	3.00	2.00	2960	0.83

Return Time: 0.83 minutes

Total Scraper team cycle time: 3.27 minutes
 Adjusted for job conditions: 441.65 LCY/Hour
 Selected Number of Scrapers: 2 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 883.30 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 883.30 LCY/Hour

Unadjusted unit production/hour: 532.11 LCY/Hour
 Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 60.25 HoursUnit cost: \$1.424 /LCY Total job cost: \$75,772

SCRAPER TEAM WORKTask description: Retopsoil stockpile/processing area= 33.50 ac x 12 inSite: DPG PitPermit Action: DPG Pit ApplicationPermit/Job#: M2019028**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 9/13/2019County: WeldFilename: M028-003User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	\$162.02	NA	\$103.86	NA	\$82.71	\$13.51
Operating cost/hour:	\$184.64	NA	\$82.26	NA	\$70.09	\$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$4.44	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$3.92	\$0.00
Operator cost/hour:	\$45.58	NA	\$39.98	NA	\$45.39	\$0.00
Unit Subtotals:	\$392.24	NA	\$226.10	NA	\$206.54	\$42.46
Number of Units:	2	0	1	0	1	1
Group Subtotals:	Work:	\$784.48	Support:	\$226.10	Maint:	\$249.00

Total work team cost/hour: \$1,259.58**MATERIAL QUANTITIES**Initial volume: 54,047

CCY

Swell factor: 1.215Loose volume: 65,667

LCY

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

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</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>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes
 Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction:

Site Altitude: 4600 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: 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	600.00	1.00	3.00	4.00	2394	0.41

Haul Time: 0.41 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	-1.00	3.00	2.00	2960	0.33

Return Time: 0.33 minutes

Total Scraper team cycle time: 2.14 minutes
 Adjusted for job conditions: 674.86 LCY/Hour
 Selected Number of Scrapers: 2 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 1,349.72 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 1,349.72 LCY/Hour

Unadjusted unit production/hour: 813.08 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 48.65 HoursUnit cost: \$0.933 /LCY Total job cost: \$61,282

SCRAPER TEAM WORKTask description: Retopsoil loadout area= 10.40 ac x 12 inSite: DPG PitPermit Action: DPG Pit ApplicationPermit/Job#: M2019028**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 9/13/2019County: WeldFilename: M028-004User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	\$162.02	NA	\$103.86	NA	\$82.71	\$13.51
Operating cost/hour:	\$184.64	NA	\$82.26	NA	\$70.09	\$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$4.44	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$3.92	\$0.00
Operator cost/hour:	\$45.58	NA	\$39.98	NA	\$45.39	\$0.00
Unit Subtotals:	\$392.24	NA	\$226.10	NA	\$206.54	\$42.46
Number of Units:	2	0	1	0	1	1
Group Subtotals:	Work:	\$784.48	Support:	\$226.10	Maint:	\$249.00

Total work team cost/hour: \$1,259.58**MATERIAL QUANTITIES**Initial volume: 16,779

CCY

Swell factor: 1.215Loose volume: 20,386

LCY

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

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</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>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes
 Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction:

Site Altitude: 4600 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: 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	500.00	1.00	3.00	4.00	2394	0.37

Haul Time: 0.37 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	-1.00	3.00	2.00	2960	0.29

Return Time: 0.29 minutes

Total Scraper team cycle time: 2.06 minutes
 Adjusted for job conditions: 701.07 LCY/Hour
 Selected Number of Scrapers: 2 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 1,402.14 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 1,402.14 LCY/Hour

Unadjusted unit production/hour: 844.66 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 14.54 HoursUnit cost: \$0.898 /LCY Total job cost: \$18,314

SCRAPER TEAM WORKTask description: Retopsoil settling ponds area= 19.57 ac x 12 inSite: DPG PitPermit Action: DPG Pit ApplicationPermit/Job#: M2019028**PROJECT IDENTIFICATION**Task #: 005State: ColoradoAbbreviation: NoneDate: 9/13/2019County: WeldFilename: M028-005User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	\$162.02	NA	\$103.86	NA	\$82.71	\$13.51
Operating cost/hour:	\$184.64	NA	\$82.26	NA	\$70.09	\$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$4.44	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$3.92	\$0.00
Operator cost/hour:	\$45.58	NA	\$39.98	NA	\$45.39	\$0.00
Unit Subtotals:	\$392.24	NA	\$226.10	NA	\$206.54	\$42.46
Number of Units:	2	0	1	0	1	1
Group Subtotals:	Work:	\$784.48	Support:	\$226.10	Maint:	\$249.00

Total work team cost/hour: \$1,259.58**MATERIAL QUANTITIES**Initial volume: 31,573

CCY

Swell factor: 1.215Loose volume: 38,361

LCY

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

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</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>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes
 Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction:

Site Altitude: 4600 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: 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	2500.00	1.00	3.00	4.00	2394	1.20

Haul Time: 1.20 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2500.00	-1.00	3.00	2.00	2960	0.97

Return Time: 0.97 minutes

Total Scraper team cycle time: 3.57 minutes
 Adjusted for job conditions: 404.54 LCY/Hour
 Selected Number of Scrapers: 2 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 809.08 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 809.08 LCY/Hour

Unadjusted unit production/hour: 487.39 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 47.41 HoursUnit cost: \$1.557 /LCY Total job cost: \$59,721

SCRAPER TEAM WORKTask description: Retopsoil access road/scale house area= 1.93 ac x 12 inSite: DPG PitPermit Action: DPG Pit ApplicationPermit/Job#: M2019028**PROJECT IDENTIFICATION**Task #: 006State: ColoradoAbbreviation: NoneDate: 9/13/2019County: WeldFilename: M028-006User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	\$162.02	NA	\$103.86	NA	\$82.71	\$13.51
Operating cost/hour:	\$184.64	NA	\$82.26	NA	\$70.09	\$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$4.44	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$3.92	\$0.00
Operator cost/hour:	\$45.58	NA	\$39.98	NA	\$45.39	\$0.00
Unit Subtotals:	\$392.24	NA	\$226.10	NA	\$206.54	\$42.46
Number of Units:	2	0	1	0	1	1
Group Subtotals:	Work:	\$784.48	Support:	\$226.10	Maint:	\$249.00

Total work team cost/hour: \$1,259.58**MATERIAL QUANTITIES**Initial volume: 3,114

CCY

Swell factor: 1.215Loose volume: 3,784

LCY

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

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</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>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes
 Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction:

Site Altitude: 4600 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: 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	2250.00	1.00	3.00	4.00	2394	1.10

Haul Time: 1.10 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2250.00	-1.00	3.00	2.00	2960	0.88

Return Time: 0.88 minutes

Total Scraper team cycle time: 3.38 minutes
 Adjusted for job conditions: 427.28 LCY/Hour
 Selected Number of Scrapers: 2 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 854.56 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 854.56 LCY/Hour

Unadjusted unit production/hour: 514.79 LCY/Hour
 Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 4.43 HoursUnit cost: \$1.474 /LCY Total job cost: \$5,577

REVEGETATION WORKTask description: Revegetate 92.55 acresSite: DPG PitPermit Action: DPG Pit ApplicationPermit/Job#: M2019028**PROJECT IDENTIFICATION**Task #: 007State: ColoradoAbbreviation: NoneDate: 9/13/2019County: WeldFilename: M028-007User: AMEAgency 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)	\$101.93
Total Tilling Cost/Acre	\$101.93

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.45	7.35	\$7.19
Switchgrass - Blackwell	9.65	86.18	\$110.98
Sideoats Grama - El Reno	2.70	8.86	\$22.61
Western Wheatgrass - Arriba	4.00	10.10	\$26.00
Needlegrass, Green - Lodorm	2.00	8.31	\$23.55
Totals Seed Mix	18.80	120.80	\$190.33

Application

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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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$295.00	\$590.00
Total Mulch Materials Cost/Acre				\$590.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$70.17
Weed spray, truck, aquatic area, annuals [DMG]	\$27.30
Total Mulch Application Cost/Acre	\$97.47

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:	92.55	Cost /Acre:	\$1,211.73
Estimated Failure Rate:	30%	Cost /Acre*:	\$422.33
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	\$112,145.61		
Reseeding Job Cost:	\$11,725.99		
Total Job Cost:	\$123,872		
Job Hours:	92.55		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: Mobilization/DemobilizationSite: DPG PitPermit Action: DPG Pit ApplicationPermit/Job#: M2019028**PROJECT IDENTIFICATION**Task #: 013State: ColoradoAbbreviation: NoneDate: 9/13/2019County: WeldFilename: M028-013User: 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:	\$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 D8T - 8SU	53.08	\$114.29	\$141.54	4	\$1,023.32	\$566.16	\$1,000.00
Cat 637G	57.28	\$162.02	\$141.54	4	\$1,214.24	\$566.16	\$1,000.00
CAT 16M	28.73	\$87.15	\$123.81	2	\$421.92	\$247.62	\$500.00
Drill/Broadcast Seeder with Tractor	25.00	\$18.15	\$67.39	1	\$85.54	\$67.39	\$250.00

Subtotals: **\$2,745.02** **\$1,447.33** **\$2,750.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 3,500 Gal.	\$42.46	1	\$42.46	\$42.46
Light Duty Pickup, 4x4, 3/4 T.	\$12.96	1	\$12.96	\$12.96

Subtotals: **\$55.42** **\$55.42**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>GREELEY</u>	
Total one-way travel distance:	<u>6.00</u>	miles
Average Travel Speed:	<u>50.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$36,701.38</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$13.30</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.12</u>	<u>0.12</u>
Return Time (Hours):	<u>0.12</u>	<u>0.12</u>
Loading Time (Hours):	<u>2.75</u>	<u>NA</u>
Unloading Time (Hours):	<u>2.75</u>	<u>NA</u>
Subtotals:	<u>5.74</u>	<u>0.24</u>

JOB TIME AND COST

Total job time:	<u>11.48</u>	Hours
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Total job cost:	<u>\$36,715</u>
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