



## COLORADO

Division of Reclamation,  
Mining and Safety

Department of Natural Resources

1313 Sherman St. Room 215  
Denver, CO 80203

March 14, 2019

Mr. Andre Laroche  
Continental Materials Corporation  
444 E. Costilla  
Colorado, CO 80903

Mr. Jerald Schnabel  
Castle Concrete Aggregates  
7250 Allegheny Drive  
Colorado Springs, CO 80203

**Re: Pikeview Quarry, Permit No. M-1977-211, Financial Warranty Increase, Revision No. SI-2**

Dear Messrs. Laroche and Schnabel:

On March 14, 2019 the Division of Reclamation, Mining and Safety increased the current Financial Warranty for this permit to \$21,924,090.00, in accordance with Rule 4.2.1 of the Rules and Regulations. This is an increase of \$17,698,090.00. The Division is notifying both of you because the pending Succession of Operator application has not been received or approved by the Division.

The Division ordered amendment of the current Financial Warranty, or submittal of a new Financial Warranty reflecting the increase, within 60 days from the date of this letter. If you wish to submit a different type of Financial Warranty, please contact me such that I may send you the applicable form.

If you have any questions, please contact me.

Sincerely,

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

Enclosure: Cost Summary Work

cc: Barbara J. Coria, DRMS (w/o enclosure)  
Andre Laroche, Continental Materials Corporation  
Jerald Schnabel, Castle Concrete Aggregates

M-FW-14



## COST SUMMARY WORK

Task description: Cost Summary

Site: Pikeview Quarry

Permit Action: 2019 Update

Permit/Job#: M1977211

### PROJECT IDENTIFICATION

Task #: A00

State: Colorado

Abbreviation: None

Date: 3/11/2019

County: El Paso

Filename: M211-A00

User: TC1

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
B10	Rip weathered granite for Bathtub area backfill	RIPPER	2	78.87	\$50,390.00
B20	Drill/blast granite for Bathtub area backfill (\$0.66/ton) ‡	NA	1	201.00	\$1,397,423.00
B30	Load/Haul/Dump Ripped & Blasted Material	TRUCK1	1	2,395.38	\$1,685,270.00
B31	Push ripped/blasted material transported w/ Loader & Trucks	DOZER	4	348.14	\$405,585.00
B40	Place topsoil in Bathtub area	TRUCK1	1	14.54	\$11,667.00
B50	Revegetate Bathtub Area - 10.9 Ac (ref. App, Table 1)	REVEGE	1	22.00	\$16,943.00
D01	Demo Maintenance Shop, Office & Outbuilding	DEMOLISH	1	0.00	\$33,021.36
E50	Revegetate East Area - 32.1 Ac (ref. App, Table 1)	REVEGE	1	64.00	\$49,895.00
H10	Rip weathered granite for Horseshoe area backfill	RIPPER	2	35.75	\$22,846.00
H20	Drill/blast granite for Horseshoe area backfill(\$0.66/ton) ‡	NA	1	91.00	\$633,562.00
H30	Load/Haul/Dump Ripped & Blasted Material- Horseshoe Area	TRUCK1	1	1,136.50	\$631,919.00
H31	Push ripped/blasted material transported w/ Loader & Trucks	DOZER	4	157.84	\$183,884.00
H40	Place topsoil in Horseshoe area	TRUCK1	1	8.55	\$6,858.00
H50	Revegetate Horseshoe Area - 7 Ac (ref. App, Table 1)	REVEGE	1	14.00	\$10,881.00
K10	Rip weathered granite for Kiewitt Cliffs backfill	RIPPER	2	78.33	\$50,045.00
K20	Drill/blast granite for Kiewitt area backfill (\$0.66/ton) ‡	NA	1	200.00	\$1,387,859.00
K30	Load/Haul/Dump Ripped & Blasted Material- Kiewit Cliffs	TRUCK1	1	2,710.60	\$1,643,738.00
K31	Push ripped/blasted material transported w/ Loader & Trucks	DOZER	4	345.76	\$402,809.00
K40	Place topsoil in Kiewit Cliffs area	TRUCK1	1	18.45	\$14,804.00
K50	Revegetate Kiewit Cliffs - 15.9 Ac (ref. App, Table 1)	REVEGE	1	32.00	\$24,715.00
M01	MOB / DEMOB	MOBILIZE	1	2.00	\$10,957.00
N10	Rip weathered granite for North Widows Peak backfill	RIPPER	2	79.34	\$50,692.00
N20	Drill/blast granite for North W. Peak backfill (\$0.66/ton) ‡	NA	1	202.00	\$1,405,790.00
N30	Load/Haul/Dump Ripped & Blasted Material-N. Widows Peak	TRUCK1	1	2,409.72	\$2,050,868.00
N31	Push ripped/blasted material transported w/ Loader & Trucks	DOZER	4	350.22	\$408,014.00

N40	Place topsoil in N. Widows Peak area	TRUCK1	1	18.06	\$17,158.00
N50	Revegetate N. Widows Peak - 13.9 Ac (ref. App, Table 1)	REVEGE	1	28.00	\$21,606.00
P10	Rip weathered granite for Plant area backfill	RIPPER	2	26.98	\$17,242.00
P20	Drill/blast granite for Plant area backfill (\$0.66/ton) ‡	NA	1	69.00	\$478,160.00
P30	Load/Haul/Dump Ripped & Blasted Material-Plant Area	TRUCK1	1	834.84	\$464,187.00
P31	Push ripped/blasted material transported w/ Loader & Trucks	DOZER	4	119.12	\$138,780.00
P40	Place topsoil in Plant area	TRUCK1	1	8.28	\$6,648.00
P50	Revegetate Plant Area - 6.2 Ac (ref. App, Table 1)	REVEGE	1	12.00	\$9,637.00
S10	Rip weathered granite for South Widows Peak backfill	RIPPER	2	78.33	\$50,045.00
S20	Drill/blast granite for South W. Peak backfill (\$0.66/ton) ‡	NA	1	200.00	\$1,387,859.00
S30	Load/Haul/Dump Ripped & Blasted Material-S. Widows Peak	TRUCK1	1	2,378.99	\$1,793,614.00
S31	Push ripped/blasted material transported w/ Loader & Trucks	DOZER	4	345.76	\$402,809.00
S40	Place topsoil in S. Widows Peak area	TRUCK1	1	19.04	\$18,085.00
S50	Revegetate S. Widows Peak - 14.6 Ac (ref. App, Table 1)	REVEGE	1	29.00	\$22,694.00
<b><u>SUBTOTALS:</u></b>				<b>15163.39</b>	<b>\$17,418,959</b>

**INDIRECT COSTS****OVERHEAD AND PROFIT:**

Liability insurance:	2.02	Total =	\$351,862.97
Performance bond:	1.05	Total =	\$182,899.07
Job superintendent:	7,581.69	Total =	\$553,842.45
Profit:	10.00	Total =	\$1,741,895.90
		TOTAL O & P =	\$2,830,500.39
		CONTRACT AMOUNT (direct + O & P) =	\$20,249,459.39

**LEGAL - ENGINEERING - PROJECT MANAGEMENT:**

Financial warranty processing (legal/related costs):	0.00	Total =	0.00
Engineering work and/or contract/bid preparation:	3.27	Total =	\$662,157.32
Reclamation management and/or administration:	5.00		\$1,012,472.97

CONTINGENCY:	0.00	Total =	\$0.00
--------------	------	---------	--------

TOTAL INDIRECT COST =	\$4,505,130.68
-----------------------	----------------

TOTAL BOND AMOUNT (direct + indirect) =	\$21,924,089.68
---	-----------------

ROUNDED TOTAL BOND AMOUNT (direct + indirect) =	\$21,924,090.00
---	-----------------

## BULLDOZER RIPPING WORK

Task description: Rip weathered granite for Bathtub area backfill

Site: Pikeview Quarry Permit Action: 2019 Update Permit/Job#: M1977211

### PROJECT IDENTIFICATION

Task #: B10 State: Colorado Abbreviation: None  
Date: 2/11/2019 County: El Paso Filename: M211-B10  
User: TC1

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU Horsepower: 574  
Ripper Attachment: 1-Shank Ripper Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$129.20	NA
Operating Cost/Hour:	\$121.82	100
Ripper Ownership Cost/Hour:	\$18.04	NA
Ripper Operating Cost/Hour:	\$10.15	100
Operator Cost/Hour:	\$40.23	NA
Total Unit Cost/Hour:	\$319.44	
Total Fleet Cost/Hour:	<b>\$638.88</b>	

### MATERIAL QUANTITIES

Selected estimating method: Seismic

#### Alternate Methods:

Seismic: 163,660 BCY Bank Volume: 163,660 BCY Midrange  
Area: NA acres Rip Depth (ft): NA Volume: NA BCY or CCY

Source of estimated quantity: See Appendix, Table 2.

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: 5,000 feet/second

#### Area:

Average Ripping Depth: NA mph  
Average Ripping Width: NA degrees  
Average Ripping Length: NA feet  
Average Dozer Speed: NA feet  
Average Maneuver Time: NA feet  
Production per unit area: NA acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1,250.00 Cu. yds./hr  
Site Altitude: 7,200 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 1,037.50 Cu. yds./hr  
Adjusted Hourly Fleet Production: **2,075.00** Cu. yds./hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **78.87** Hours

Unit cost: \$0.308 Per cu. yd. Total job cost: **\$50,390**

**TRUCK/LOADER TEAM WORK**Task description: **Load/Haul/Dump Ripped & Blasted Material**Site: **Pikeview Quarry**Permit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: B30State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-B30User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	NA	NA	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	NA	\$7.65	\$9.15
% Utilization-ripper:	NA	0	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:	\$25.65	\$36.13	NA	NA	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	NA	\$84.03	\$34.45
Number of Units:	3	1	0	0	1	1
Group Subtotals:	Work: \$585.07		Support: \$0.00		Maint: \$118.48	

Total work team cost/hour: **\$703.55****MATERIAL QUANTITIES**Initial volume: 1,169,000

CCY

Swell factor: 1.120Loose volume: **1,309,280**

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 3,250

Pounds/LCY

Description: Gravel - PitrunRated Payload: 87,000

Pounds

Payload Capacity: 26.77

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	26.77	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	<b>6.188</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.630</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.630	Minutes	Adjusted for site altitude:	1.630	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2500.00	-8.00	3.00	-5.00	2721	0.988

Haul Time: **0.988** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2500.00	8.00	3.00	11.00	1610	1.639

Return Time: **1.639** minutesTotal Truck Cycle Time: **5.924** minutes

## Loading Tool unit

Production 658.54 LCY/Hour      Adjusted for job efficiency: 546.59 LCY/Hour  
Truck Unit Production 250.69 LCY/Hour      Adjusted for job efficiency: 208.07 LCY/Hour

Optimal No. of Trucks: 3 Truck(s)      Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 624.22 LCY/Hour  
Adjusted single truck/loader team production: 546.59 LCY/Hour  
Adjusted multiple truck/loader team production: **546.59** LCY/Hour

**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: **2,395.38** HoursUnit cost: \$1.287 /LCY      Total job cost: **\$1,685,270**

**BULLDOZER WORK**Task description: **Push ripped/blasted material transported w/ Loader & Trucks**Site: **Pikeview Quarry** Permit Action: 2019 Update Permit/Job#: M1977211**PROJECT IDENTIFICATION**

Task #: B31 State: Colorado Abbreviation: None  
 Date: 2/11/2019 County: El Paso Filename: M211-B31  
 User: TC1

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU  
 Horsepower: 574  
 Blade Type: Semi-Universal  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$129.20</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$121.82</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.23</u>	<u>NA</u>

Total unit Cost/Hour: \$291.25  
 Total Fleet Cost/Hour: **\$1,165.01**

**MATERIAL QUANTITIES**

Initial Volume: 1,169,000  
 Swell factor: 1.124  
 Loose volume: **1,313,488 LCY**

Source of estimated volume: See Appendix, Table 2.; dry sand/gravel selected for swell fSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 150 feet  
 Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: -30 %  
 Average site altitude: 7,200 feet

Material weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>0.800</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(S-BY-S)</u>



Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7587

Adjusted unit production: 943.22 LCY/hr

Adjusted fleet production: **3772.88** LCY/hr

### **JOB TIME AND COST**

Fleet size: 4 Dozer(s)  
Unit cost: \$0.309/LCY

Total job time: **348.14** Hours  
Total job cost: **\$405,585**

**TRUCK/LOADER TEAM WORK**Task description: **Place topsoil in Bathtub area**Site: **Pikeview Quarry**Permit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: B40State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-B40User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D9T - 9SU
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	\$110.70	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	\$95.46	\$7.65	\$9.15
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$25.65	\$36.13	NA	\$40.23	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	\$246.39	\$84.03	\$34.45
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work: \$437.54		Support: \$246.39		Maint: \$118.48	

Total work team cost/hour: **\$802.41****MATERIAL QUANTITIES**Initial volume: 8,777

CCY

Swell factor: 1.000Loose volume: **8,777**

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 87,000

Pounds

Payload Capacity: 54.38

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<b>8.250</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 3 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.120</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.120	Minutes	Adjusted for site altitude:	1.120	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1150.00	-8.00	3.00	-5.00	2721	0.497

Haul Time: **0.497** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1150.00	8.00	3.00	11.00	1610	0.800

Return Time: **0.800** minutesTotal Truck Cycle Time: **4.084** minutes

## Loading Tool unit

Production 851.00 LCY/Hour Adjusted for job efficiency: 706.33 LCY/HourTruck Unit Production 363.64 LCY/Hour Adjusted for job efficiency: 301.82 LCY/HourOptimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)Adjusted hourly truck team production: 603.65 LCY/HourAdjusted single truck/loader team production: 603.65 LCY/HourAdjusted multiple truck/loader team production: **603.65** LCY/Hour**JOB TIME AND COST**Fleet size: 1 Team(s) Total job time: **14.54** HoursUnit cost: \$1.329 /LCY Total job cost: **\$11,667**

**REVEGETATION WORK**Task description: Revegetate Bathtub Area - 10.9 Ac (ref. App, Table 1)Site: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: B50State: ColoradoAbbreviation: NoneDate: 2/8/2019County: El PasoFilename: M211-B50User: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
<b>Total Tilling Cost/Acre</b>	<b>\$92.77</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.50	8.16	\$8.33
Crested Wheatgrass - Ephraim	1.00	4.59	\$3.75
Little Bluestem - Native	1.00	5.97	\$16.13
Sideoats Grama - El Reno	2.00	6.57	\$19.80
Russian Wildrye - Bozoiaky	2.00	8.03	\$12.96
Intermediate Wheatgrass - Oahe	4.00	8.54	\$15.72
Alfalfa - Ranger (inoculated)	1.00	4.82	\$2.66
Pubescent Wheatgrass - Greenleaf	4.00	8.26	\$15.28
Mahogany, Mountain	2.00	2.71	\$75.38
Western Wheatgrass - Arriba	4.00	10.10	\$33.12

Rabbitbrush, Rubber	1.00	14.90	\$65.84
Needlegrass, Green - Lodorm	1.00	4.16	\$4.98
<b>Totals Seed Mix</b>	<b>23.50</b>	<b>86.81</b>	<b>\$273.95</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

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

**NURSERY STOCK PLANTING**

<b>Common Name</b>	<b>No / Acre</b>	<b>Type and Size</b>	<b>Planting Cost</b>	<b>Fertilizer Pellet Cost</b>	<b>Cost /Acre</b>
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

No. of Acres: 10.9                      Cost /Acre: \$1,243.50  
 Estimated Failure Rate: 25%                      Cost /Acre\*: \$1,243.50  
 \*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **\$13,554.15**  
 Reseeding Job Cost: **\$3,388.54**  
 Total Job Cost: **\$16,943**  
 Job Hours: **22.00**

## DEMOLITION WORK

Task description: Demo Maintenance Shop, Office & Outbuilding

Site: Pikeview Quarry

Permit Action: 2019 Update

Permit/Job#: M1977211

### PROJECT IDENTIFICATION

Task #: D01

State: Colorado

Abbreviation: None

Date: 2/6/2019

County: El Paso

Filename: M211-D01

User: TC1

Agency or organization name: DRMS

### UNIT COSTS

Location adjustment: 93.10 %

Structure or Item Description	Dimensions ‡	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Maintenance Shop	18' x 80' x 80'	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	115,200.00	CF	\$0.18	\$20,966.40
Maintenance Shop Floor	0.5' x 80' x 80'	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 200 ft. push	6,400.00	SF	\$0.81	\$5,203.20
Office	9' x 42' x 72'	Bldg. (SC) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	27,216.00	CF	\$0.24	\$6,450.19
Office Floor	0.33' x 42' x 72'	Demo. and on-site disposal in existing pit, 4 in. thick - Max. 200 ft. push	3,024.00	SF	\$0.54	\$1,639.01
Office Outbuilding	9' x 15' x 37'	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	4,995.00	CF	\$0.18	\$909.09
Office Outbuilding Floor	0.33' x 15' x 37'	Demo. and on-site disposal in existing pit, 4 in. thick - Max. 200 ft. push	555.00	SF	\$0.54	\$300.81

‡ See Appendix, Table 3

Job Hours: 0.00

Subtotal  
(unadjusted): \$35,468.70

Total Cost  
(adjusted for location): \$33,021.36

**REVEGETATION WORK**Task description: Revegetate East Area - 32.1 Ac (ref. App, Table 1)Site: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: E50State: ColoradoAbbreviation: NoneDate: 2/8/2019County: El PasoFilename: M211-E50User: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
<b>Total Tilling Cost/Acre</b>	<b>\$92.77</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.50	8.16	\$8.33
Crested Wheatgrass - Ephraim	1.00	4.59	\$3.75
Little Bluestem - Native	1.00	5.97	\$16.13
Sideoats Grama - El Reno	2.00	6.57	\$19.80
Russian Wildrye - Bozoiaky	2.00	8.03	\$12.96
Intermediate Wheatgrass - Oahe	4.00	8.54	\$15.72
Alfalfa - Ranger (inoculated)	1.00	4.82	\$2.66
Pubescent Wheatgrass - Greenleaf	4.00	8.26	\$15.28
Mahogany, Mountain	2.00	2.71	\$75.38
Western Wheatgrass - Arriba	4.00	10.10	\$33.12



Rabbitbrush, Rubber	1.00	14.90	\$65.84
Needlegrass, Green - Lodorm	1.00	4.16	\$4.98
<b>Totals Seed Mix</b>	23.50	86.81	<b>\$273.95</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

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

**NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

No. of Acres: 32.1 Cost /Acre: \$1,243.50  
 Estimated Failure Rate: 25% Cost /Acre\*: \$1,243.50  
 \*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **\$39,916.35**  
 Reseeding Job Cost: **\$9,979.09**  
 Total Job Cost: **\$49,895**  
 Job Hours: **64.00**

## BULLDOZER RIPPING WORK

Task description: Rip weathered granite for Horseshoe area backfill

Site: Pikeview Quarry

Permit Action: 2019 Update

Permit/Job#: M1977211

### PROJECT IDENTIFICATION

Task #: H10

State: Colorado

Abbreviation: None

Date: 2/11/2019

County: El Paso

Filename: M211-H10

User: TC1

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU  
Ripper Attachment: 1-Shank Ripper

Horsepower: 574

Shift Basis: 1 per day

Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$129.20	NA
Operating Cost/Hour:	\$121.82	100
Ripper Ownership Cost/Hour:	\$18.04	NA
Ripper Operating Cost/Hour:	\$10.15	100
Operator Cost/Hour:	\$40.23	NA
Total Unit Cost/Hour:	\$319.44	
Total Fleet Cost/Hour:	<b>\$638.88</b>	

### MATERIAL QUANTITIES

Selected estimating method: Seismic

#### Alternate Methods:

Seismic: 74,200 BCY      Bank Volume: 74,200 BCY      Midrange  
Area: NA acres      Rip Depth (ft): NA      Volume: NA BCY or CCY

Source of estimated quantity: See Appendix, Table 2.

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: 5,000 feet/second

#### Area:

Average Ripping Depth: NA mph  
Average Ripping Width: NA degrees  
Average Ripping Length: NA feet  
Average Dozer Speed: NA feet  
Average Maneuver Time: NA feet  
Production per unit area: NA acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1,250.00 Cu. yds./hr  
Site Altitude: 7,200 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 1,037.50 Cu. yds./hr  
Adjusted Hourly Fleet Production: **2,075.00** Cu. yds./hr

### JOB TIME AND COST

Fleet size: 2 Grader(s)      Total job time: **35.76** Hours

Unit cost: \$0.308 Per cu. yd.      Total job cost: **\$22,846**

**TRUCK/LOADER TEAM WORK**Task description: **Load/Haul/Dump Ripped & Blasted Material-Horseshoe Area**Site: **Pikeview Quarry**Permit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: H30State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-H30User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	NA	NA	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	NA	\$7.65	\$9.15
% Utilization-ripper:	NA	0	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:	\$25.65	\$36.13	NA	NA	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	NA	\$84.03	\$34.45
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work: \$437.54		Support: \$0.00		Maint: \$118.48	

Total work team cost/hour: **\$556.02****MATERIAL QUANTITIES**Initial volume: 530,000

CCY

Swell factor: 1.120Loose volume: **593,600**

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 3,250

Pounds/LCY

Description: Gravel - PitrunRated Payload: 87,000

Pounds

Payload Capacity: 26.77

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	26.77	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	<b>6.188</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.630</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.630	Minutes	Adjusted for site altitude:	1.630	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1275.00	-8.00	3.00	-5.00	2721	0.545

Haul Time: **0.545** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1275.00	8.00	3.00	11.00	1610	0.878

Return Time: **0.878** minutesTotal Truck Cycle Time: **4.720** minutes

## Loading Tool unit

Production 658.54 LCY/Hour      Adjusted for job efficiency: 546.59 LCY/Hour  
Truck Unit Production 314.64 LCY/Hour      Adjusted for job efficiency: 261.15 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)      Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 522.30 LCY/Hour  
Adjusted single truck/loader team production: 522.30 LCY/Hour  
Adjusted multiple truck/loader team production: **522.30** LCY/Hour

**JOB TIME AND COST**

Fleet size: 1 Team(s)      Total job time: **1,136.50** Hours

Unit cost: \$1.065 /LCY      Total job cost: **\$631,919**

**BULLDOZER WORK**Task description: **Push ripped/blasted material transported w/ Loader & Trucks**Site: **Pikeview Quarry** Permit Action: 2019 Update Permit/Job#: M1977211**PROJECT IDENTIFICATION**

Task #: H31 State: Colorado Abbreviation: None  
 Date: 2/11/2019 County: El Paso Filename: M211-H31  
 User: TC1

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU  
 Horsepower: 574  
 Blade Type: Semi-Universal  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$129.20</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$121.82</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.23</u>	<u>NA</u>

Total unit Cost/Hour: \$291.25  
 Total Fleet Cost/Hour: **\$1,165.01**

**MATERIAL QUANTITIES**

Initial Volume: 530,000  
 Swell factor: 1.124  
 Loose volume: **595,508 LCY**

Source of estimated volume: See Appendix, Table 2.; dry sand/gravel selected for swell fSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 150 feet  
 Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: -30 %  
 Average site altitude: 7,200 feet

Material weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>0.800</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(S-BY-S)</u>

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7587

Adjusted unit production: 943.22 LCY/hr

Adjusted fleet production: **3772.88** LCY/hr

### **JOB TIME AND COST**

Fleet size: 4 Dozer(s)  
 Unit cost: \$0.309/LCY

Total job time: **157.84** Hours  
 Total job cost: **\$183,884**

**TRUCK/LOADER TEAM WORK**Task description: Place topsoil in Horseshoe areaSite: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: H40State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-H40User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D9T - 9SU
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	\$110.70	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	\$95.46	\$7.65	\$9.15
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$25.65	\$36.13	NA	\$40.23	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	\$246.39	\$84.03	\$34.45
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work: \$437.54		Support: \$246.39		Maint: \$118.48	

Total work team cost/hour: **\$802.41****MATERIAL QUANTITIES**Initial volume: 5,663

CCY

Swell factor: 1.000Loose volume: **5,663**

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 87,000

Pounds

Payload Capacity: 54.38

LCY



**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<b>8.250</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 3 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.120</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.120	Minutes	Adjusted for site altitude:	1.120	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	550.00	3.00	3.00	6.00	1566	0.607

Haul Time: **0.607** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	550.00	-3.00	3.00	0.00	3706	0.327

Return Time: **0.327** minutesTotal Truck Cycle Time: **3.721** minutes

## Loading Tool unit

Production 851.00 LCY/Hour      Adjusted for job efficiency: 706.33 LCY/Hour  
Truck Unit Production 399.12 LCY/Hour      Adjusted for job efficiency: 331.27 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)      Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 662.54 LCY/Hour  
Adjusted single truck/loader team production: 662.54 LCY/Hour  
Adjusted multiple truck/loader team production: **662.54** LCY/Hour

**JOB TIME AND COST**

Fleet size: 1 Team(s)      Total job time: **8.55** Hours

Unit cost: \$1.211 /LCY      Total job cost: **\$6,858**

**REVEGETATION WORK**Task description: Revegetate Horseshoe Area - 7 Ac (ref. App, Table 1)Site: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: H50State: ColoradoAbbreviation: NoneDate: 2/8/2019County: El PasoFilename: M211-H50User: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
<b>Total Tilling Cost/Acre</b>	<b>\$92.77</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.50	8.16	\$8.33
Crested Wheatgrass - Ephraim	1.00	4.59	\$3.75
Little Bluestem - Native	1.00	5.97	\$16.13
Sideoats Grama - El Reno	2.00	6.57	\$19.80
Russian Wildrye - Bozoiaky	2.00	8.03	\$12.96
Intermediate Wheatgrass - Oahe	4.00	8.54	\$15.72
Alfalfa - Ranger (inoculated)	1.00	4.82	\$2.66
Pubescent Wheatgrass - Greenleaf	4.00	8.26	\$15.28
Mahogany, Mountain	2.00	2.71	\$75.38
Western Wheatgrass - Arriba	4.00	10.10	\$33.12

Rabbitbrush, Rubber	1.00	14.90	\$65.84
Needlegrass, Green - Lodorm	1.00	4.16	\$4.98
<b>Totals Seed Mix</b>	<b>23.50</b>	<b>86.81</b>	<b>\$273.95</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

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

**NURSERY STOCK PLANTING**

<b>Common Name</b>	<b>No / Acre</b>	<b>Type and Size</b>	<b>Planting Cost</b>	<b>Fertilizer Pellet Cost</b>	<b>Cost /Acre</b>
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

No. of Acres: 7 Cost /Acre: \$1,243.50  
 Estimated Failure Rate: 25% Cost /Acre\*: \$1,243.50  
 \*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **\$8,704.50**  
 Reseeding Job Cost: **\$2,176.13**  
 Total Job Cost: **\$10,881**  
 Job Hours: **14.00**

## BULLDOZER RIPPING WORK

Task description: Rip weathered granite for Kiewitt Cliffs backfill

Site: Pikeview Quarry

Permit Action: 2019 Update

Permit/Job#: M1977211

### PROJECT IDENTIFICATION

Task #: K10

State: Colorado

Abbreviation: None

Date: 2/11/2019

County: El Paso

Filename: M211-K10

User: TC1

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU  
Ripper Attachment: 1-Shank Ripper

Horsepower: 574

Shift Basis: 1 per day

Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$129.20	NA
Operating Cost/Hour:	\$121.82	100
Ripper Ownership Cost/Hour:	\$18.04	NA
Ripper Operating Cost/Hour:	\$10.15	100
Operator Cost/Hour:	\$40.23	NA
Total Unit Cost/Hour:	\$319.44	
Total Fleet Cost/Hour:	<b>\$638.88</b>	

### MATERIAL QUANTITIES

Selected estimating method: Seismic

#### Alternate Methods:

Seismic: 162,540 BCY Bank Volume: 162,540 BCY Midrange  
Area: NA acres Rip Depth (ft): NA Volume: NA BCY or CCY

Source of estimated quantity: See Appendix, Table 2.

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: 5,000 feet/second

#### Area:

Average Ripping Depth: NA mph  
Average Ripping Width: NA degrees  
Average Ripping Length: NA feet  
Average Dozer Speed: NA feet  
Average Maneuver Time: NA feet  
Production per unit area: NA acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1,250.00 Cu. yds./hr

Site Altitude: 7,200 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 1,037.50 Cu. yds./hr

Adjusted Hourly Fleet Production: **2,075.00** Cu. yds./hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **78.33** Hours

Unit cost: \$0.308 Per cu. yd. Total job cost: **\$50,045**

**TRUCK/LOADER TEAM WORK**Task description: Load/Haul/Dump Ripped & Blasted Material-Kiewit CliffsSite: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: K30State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-K30User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	NA	NA	100	100
Ownership cost/hour:	\$66.13	\$50.17	NA	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	NA	\$30.60	\$36.60
% Utilization-riper:	NA	0	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:	\$25.65	\$36.13	NA	NA	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	NA	\$106.97	\$61.90
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work: \$437.54		Support: \$0.00		Maint: \$168.87	

Total work team cost/hour: \$606.41**MATERIAL QUANTITIES**Initial volume: 1,161,000

CCY

Swell factor: 1.120Loose volume: 1,300,320

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 3,250

Pounds/LCY

Description: Gravel - PitrunRated Payload: 87,000

Pounds

Payload Capacity: 26.77

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	26.77	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	<b>6.188</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.630</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.630	Minutes	Adjusted for site altitude:	1.630	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1700.00	-8.00	3.00	-5.00	2721	0.700

Haul Time: **0.700** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1700.00	8.00	3.00	11.00	1610	1.142

Return Time: **1.142** minutesTotal Truck Cycle Time: **5.139** minutes

## Loading Tool unit

Production	<u>658.54</u>	LCY/Hour	Adjusted for job efficiency:	<u>546.59</u>	LCY/Hour
Truck Unit Production	<u>288.99</u>	LCY/Hour	Adjusted for job efficiency:	<u>239.86</u>	LCY/Hour

Optimal No. of Trucks:	<u>2</u>	Truck(s)	Selected Number of Trucks:	<u>2</u>	Truck(s)
------------------------	----------	----------	----------------------------	----------	----------

Adjusted hourly truck team production:	<u>479.72</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>479.72</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<b><u>479.72</u></b>	LCY/Hour

**JOB TIME AND COST**

Fleet size:	<u>1</u>	Team(s)	Total job time:	<b><u>2,710.60</u></b>	Hours
-------------	----------	---------	-----------------	------------------------	-------

Unit cost:	<u>\$1.264</u>	/LCY	Total job cost:	<b><u>\$1,643,738</u></b>
------------	----------------	------	-----------------	---------------------------



**BULLDOZER WORK**Task description: **Push ripped/blasted material transported w/ Loader & Trucks**Site: **Pikeview Quarry** Permit Action: 2019 Update Permit/Job#: M1977211**PROJECT IDENTIFICATION**

Task #: K31 State: Colorado Abbreviation: None  
 Date: 2/11/2019 County: El Paso Filename: M211-K31  
 User: TC1

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU  
 Horsepower: 574  
 Blade Type: Semi-Universal  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$129.20</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$121.82</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.23</u>	<u>NA</u>

Total unit Cost/Hour: \$291.25  
 Total Fleet Cost/Hour: **\$1,165.01**

**MATERIAL QUANTITIES**

Initial Volume: 1,161,000  
 Swell factor: 1.124  
 Loose volume: **1,304,500 LCY**

Source of estimated volume: See Appendix, Table 2.; dry sand/gravel selected 4 swell fac  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 150 feet  
 Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: -30 %  
 Average site altitude: 7,200 feet

Material weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>0.800</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(S-BY-S)</u>

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7587

Adjusted unit production: 943.22 LCY/hr

Adjusted fleet production: **3772.88** LCY/hr

### **JOB TIME AND COST**

Fleet size: 4 Dozer(s)  
 Unit cost: \$0.309/LCY

Total job time: **345.76** Hours  
 Total job cost: **\$402,809**

**TRUCK/LOADER TEAM WORK**Task description: Place topsoil in Kiewit Cliffs areaSite: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: K40State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-K40User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D9T - 9SU
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	\$110.70	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	\$95.46	\$7.65	\$9.15
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$25.65	\$36.13	NA	\$40.23	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	\$246.39	\$84.03	\$34.45
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work: \$437.54		Support: \$246.39		Maint: \$118.48	

Total work team cost/hour: **\$802.41****MATERIAL QUANTITIES**Initial volume: 12,834

CCY

Swell factor: 1.000Loose volume: **12,834**

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 87,000

Pounds

Payload Capacity: 54.38

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<b>8.250</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 3 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.120</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.120	Minutes	Adjusted for site altitude:	1.120	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	-8.00	3.00	-5.00	2721	0.298

Haul Time: **0.298** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	8.00	3.00	11.00	1610	0.459

Return Time: **0.459** minutesTotal Truck Cycle Time: **3.544** minutes

## Loading Tool unit

Production 851.00 LCY/Hour      Adjusted for job efficiency: 706.33 LCY/Hour  
Truck Unit Production 419.06 LCY/Hour      Adjusted for job efficiency: 347.82 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)      Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 695.64 LCY/Hour  
Adjusted single truck/loader team production: 695.64 LCY/Hour  
Adjusted multiple truck/loader team production: **695.64** LCY/Hour

**JOB TIME AND COST**

Fleet size: 1 Team(s)      Total job time: **18.45** Hours

Unit cost: \$1.153 /LCY      Total job cost: **\$14,804**

**REVEGETATION WORK**Task description: Revegetate Kiewit Cliffs - 15.9 Ac (ref. App, Table 1)Site: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: K50State: ColoradoAbbreviation: NoneDate: 2/8/2019County: El PasoFilename: M211-K50User: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
<b>Total Tilling Cost/Acre</b>	<b>\$92.77</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.50	8.16	\$8.33
Crested Wheatgrass - Ephraim	1.00	4.59	\$3.75
Little Bluestem - Native	1.00	5.97	\$16.13
Sideoats Grama - El Reno	2.00	6.57	\$19.80
Russian Wildrye - Bozoiaky	2.00	8.03	\$12.96
Intermediate Wheatgrass - Oahe	4.00	8.54	\$15.72
Alfalfa - Ranger (inoculated)	1.00	4.82	\$2.66
Pubescent Wheatgrass - Greenleaf	4.00	8.26	\$15.28
Mahogany, Mountain	2.00	2.71	\$75.38
Western Wheatgrass - Arriba	4.00	10.10	\$33.12

Rabbitbrush, Rubber	1.00	14.90	\$65.84
Needlegrass, Green - Lodorm	1.00	4.16	\$4.98
<b>Totals Seed Mix</b>	23.50	86.81	<b>\$273.95</b>

## Application

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

## MULCHING and MISCELLANEOUS

## Materials

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

## Application

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

## 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:	15.9	Cost /Acre:	\$1,243.50
Estimated Failure Rate:	25%	Cost /Acre*:	\$1,243.50
*Selected Replanting Work Items:	TILLING,SEEDING,MULCHING		
Initial Job Cost:	\$19,771.65		
Reseeding Job Cost:	\$4,942.91		
Total Job Cost:	\$24,715		
Job Hours:	32.00		

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **MOB / DEMOB**Site: **Pikeview Quarry**Permit Action: **2019 Update**Permit/Job#: **M1977211****PROJECT IDENTIFICATION**Task #: **M01**State: **Colorado**Abbreviation: **None**Date: **2/13/2019**County: **El Paso**Filename: **M211-M01**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:**

<b>Available Rig Capacities</b>	<b>0-25 Tons</b>	<b>26-50 Tons</b>	<b>51+ Tons</b>
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 D9T - 9SU	60.01	\$110.70	\$125.45	4	\$944.60	\$501.80	\$250.00
Cat 365C L 13'-7" Stick	77.56	\$114.54	\$125.45	1	\$239.99	\$125.45	\$250.00
CAT 980H	33.12	\$50.17	\$117.55	1	\$167.72	\$117.55	\$250.00
Cat 740	36.49	\$66.13	\$117.55	4	\$734.72	\$470.20	\$1,000.00
ATLAS COPCO ROC D7-11,4.0 in.	0.00	\$68.46	\$88.67	1	\$157.13	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	1	\$97.00	\$88.67	\$250.00
CAT 12M	16.01	\$30.73	\$88.67	1	\$119.40	\$88.67	\$250.00
Water Tanker, 5,000 Gal.	15.00	\$25.30	\$88.67	1	\$113.97	\$88.67	\$250.00

Subtotals: **\$2,678.74** **\$1,658.35** **\$3,000.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
ANFO Bulk Delivery Truck	\$193.85	1	\$193.85	\$193.85
Cap Delivery Truck	\$26.31	1	\$26.31	\$26.31

Subtotals: **\$220.16** **\$220.16**



**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>COLORADO SPRINGS</u>	
Total one-way travel distance:	<u>10.00</u>	miles
Average Travel Speed:	<u>40.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$10,847.29</u>
-------------------------------------	--------------------

    \*\* two round trips with haul rig:

Total Roadable Mob/Demob Cost **	<u>\$110.08</u>
----------------------------------	-----------------

    \*\* one round trip, no haul rig:

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.25</u>	<u>0.25</u>
Return Time (Hours):	<u>0.25</u>	<u>0.25</u>
Loading Time (Hours):	<u>0.25</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.25</u>	<u>NA</u>
Subtotals:	<u>1.00</u>	<u>0.50</u>

**JOB TIME AND COST**

Total job time:	<u>2.00</u>	Hours
-----------------	-------------	-------

Total job cost:	<u>\$10,957</u>
-----------------	-----------------

## BULLDOZER RIPPING WORK

Task description: Rip weathered granite for North Widows Peak backfill

Site: Pikeview Quarry

Permit Action: 2019 Update

Permit/Job#: M1977211

### PROJECT IDENTIFICATION

Task #: N10

State: Colorado

Abbreviation: None

Date: 2/11/2019

County: El Paso

Filename: M211-N10

User: TC1

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU  
Ripper Attachment: 1-Shank Ripper

Horsepower: 574

Shift Basis: 1 per day

Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$129.20	NA
Operating Cost/Hour:	\$121.82	100
Ripper Ownership Cost/Hour:	\$18.04	NA
Ripper Operating Cost/Hour:	\$10.15	100
Operator Cost/Hour:	\$40.23	NA
Total Unit Cost/Hour:	\$319.44	
Total Fleet Cost/Hour:	<b>\$638.88</b>	

### MATERIAL QUANTITIES

Selected estimating method: Seismic

#### Alternate Methods:

Seismic: 164,640 BCY      Bank Volume: 164,640 BCY      Midrange  
Area: NA acres      Rip Depth (ft): NA      Volume: NA BCY or CCY

Source of estimated quantity: See Appendix, Table 2.

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: 5,000 feet/second

#### Area:

Average Ripping Depth: NA mph  
Average Ripping Width: NA degrees  
Average Ripping Length: NA feet  
Average Dozer Speed: NA feet  
Average Maneuver Time: NA feet  
Production per unit area: NA acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1,250.00 Cu. yds./hr  
Site Altitude: 7,200 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 1,037.50 Cu. yds./hr  
Adjusted Hourly Fleet Production: **2,075.00** Cu. yds./hr

### JOB TIME AND COST

Fleet size: 2 Grader(s)      Total job time: **79.34** Hours

Unit cost: \$0.308 Per cu. yd.      Total job cost: **\$50,692**

**TRUCK/LOADER TEAM WORK**Task description: **Load/Haul/Dump Ripped & Blasted Material-N. Widows Peak**Site: **Pikeview Quarry**Permit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: N30State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-N30User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	NA	NA	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	NA	\$7.65	\$9.15
% Utilization-riper:	NA	0	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:	\$25.65	\$36.13	NA	NA	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	NA	\$84.03	\$34.45
Number of Units:	4	1	0	0	1	1
Group Subtotals:	Work: \$732.60		Support: \$0.00		Maint: \$118.48	

Total work team cost/hour: **\$851.08****MATERIAL QUANTITIES**Initial volume: 1,176,000

CCY

Swell factor: 1.120Loose volume: **1,317,120**

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 3,250

Pounds/LCY

Description: Gravel - PitrunRated Payload: 87,000

Pounds

Payload Capacity: 26.77

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	26.77	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	<b>6.188</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.630</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.630	Minutes	Adjusted for site altitude:	1.630	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3500.00	-8.00	3.00	-5.00	2721	1.354

Haul Time: **1.354** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	10.00	3.00	13.00	1288	4.149

Return Time: **4.149** minutesTotal Truck Cycle Time: **8.800** minutes

## Loading Tool unit

Production	<u>658.54</u>	LCY/Hour	Adjusted for job efficiency:	<u>546.59</u>	LCY/Hour
Truck Unit Production	<u>168.76</u>	LCY/Hour	Adjusted for job efficiency:	<u>140.07</u>	LCY/Hour

Optimal No. of Trucks:	<u>4</u>	Truck(s)	Selected Number of Trucks:	<u>4</u>	Truck(s)
------------------------	----------	----------	----------------------------	----------	----------

Adjusted hourly truck team production:	<u>560.27</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>546.59</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<b><u>546.59</u></b>	LCY/Hour

**JOB TIME AND COST**

Fleet size:	<u>1</u>	Team(s)	Total job time:	<b><u>2,409.72</u></b>	Hours
-------------	----------	---------	-----------------	------------------------	-------

Unit cost:	<u>\$1.557</u>	/LCY	Total job cost:	<b><u>\$2,050,868</u></b>
------------	----------------	------	-----------------	---------------------------

**BULLDOZER WORK**Task description: **Push ripped/blasted material transported w/ Loader & Trucks**Site: **Pikeview Quarry** Permit Action: 2019 Update Permit/Job#: M1977211**PROJECT IDENTIFICATION**

Task #: N31 State: Colorado Abbreviation: None  
 Date: 2/11/2019 County: El Paso Filename: M211-N31  
 User: TC1

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU  
 Horsepower: 574  
 Blade Type: Semi-Universal  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$129.20</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$121.82</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.23</u>	<u>NA</u>

Total unit Cost/Hour: \$291.25  
 Total Fleet Cost/Hour: **\$1,165.01**

**MATERIAL QUANTITIES**

Initial Volume: 1,176,000  
 Swell factor: 1.124  
 Loose volume: **1,321,354 LCY**

Source of estimated volume: See Appendix, Table 2.; dry sand/gravel selected 4 swell fac  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 150 feet  
 Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: -30 %  
 Average site altitude: 7,200 feet

Material weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>0.800</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(S-BY-S)</u>

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7587

Adjusted unit production: 943.22 LCY/hr

Adjusted fleet production: **3772.88** LCY/hr

### **JOB TIME AND COST**

Fleet size: 4 Dozer(s)  
 Unit cost: \$0.309/LCY

Total job time: **350.22** Hours  
 Total job cost: **\$408,014**

**TRUCK/LOADER TEAM WORK**Task description: Place topsoil in N. Widows Peak areaSite: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: N40State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-N40User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D9T - 9SU
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	\$110.70	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	\$95.46	\$7.65	\$9.15
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$25.65	\$36.13	NA	\$40.23	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	\$246.39	\$84.03	\$34.45
Number of Units:	3	1	0	1	1	1
Group Subtotals:	Work: \$585.07		Support: \$246.39		Maint: \$118.48	

Total work team cost/hour: \$949.94**MATERIAL QUANTITIES**Initial volume: 11,205

CCY

Swell factor: 1.000Loose volume: 11,205

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 87,000

Pounds

Payload Capacity: 54.38

LCY



**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<b>8.250</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 3 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.120</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.120	Minutes	Adjusted for site altitude:	1.120	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	5.00	3.00	8.00	1123	2.437

Haul Time: **2.437** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	-5.00	3.00	-2.00	3706	0.737

Return Time: **0.737** minutesTotal Truck Cycle Time: **5.961** minutes

## Loading Tool unit

Production 851.00 LCY/Hour      Adjusted for job efficiency: 706.33 LCY/Hour  
Truck Unit Production 249.13 LCY/Hour      Adjusted for job efficiency: 206.78 LCY/Hour

Optimal No. of Trucks: 3 Truck(s)      Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 620.34 LCY/Hour  
Adjusted single truck/loader team production: 620.34 LCY/Hour  
Adjusted multiple truck/loader team production: **620.34** LCY/Hour

**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: **18.06** HoursUnit cost: \$1.531 /LCY      Total job cost: **\$17,158**

**REVEGETATION WORK**Task description: Revegetate N. Widows Peak - 13.9 Ac (ref. App, Table 1)Site: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: N50State: ColoradoAbbreviation: NoneDate: 2/8/2019County: El PasoFilename: M211-N50User: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
<b>Total Tilling Cost/Acre</b>	<b>\$92.77</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.50	8.16	\$8.33
Crested Wheatgrass - Ephraim	1.00	4.59	\$3.75
Little Bluestem - Native	1.00	5.97	\$16.13
Sideoats Grama - El Reno	2.00	6.57	\$19.80
Russian Wildrye - Bozoiaky	2.00	8.03	\$12.96
Intermediate Wheatgrass - Oahe	4.00	8.54	\$15.72
Alfalfa - Ranger (inoculated)	1.00	4.82	\$2.66
Pubescent Wheatgrass - Greenleaf	4.00	8.26	\$15.28
Mahogany, Mountain	2.00	2.71	\$75.38
Western Wheatgrass - Arriba	4.00	10.10	\$33.12

Rabbitbrush, Rubber	1.00	14.90	\$65.84
Needlegrass, Green - Lodorm	1.00	4.16	\$4.98
<b>Totals Seed Mix</b>	23.50	86.81	<b>\$273.95</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

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

**NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

No. of Acres:	13.9	Cost /Acre:	\$1,243.50
Estimated Failure Rate:	25%	Cost /Acre*:	\$1,243.50
*Selected Replanting Work Items:	TILLING,SEEDING,MULCHING		
Initial Job Cost:	<b>\$17,284.65</b>		
Reseeding Job Cost:	<b>\$4,321.16</b>		
Total Job Cost:	<b>\$21,606</b>		
Job Hours:	<b>28.00</b>		

## BULLDOZER RIPPING WORK

Task description: Rip weathered granite for Plant area backfill

Site: Pikeview Quarry Permit Action: 2019 Update Permit/Job#: M1977211

### PROJECT IDENTIFICATION

Task #: P10 State: Colorado Abbreviation: None  
Date: 2/11/2019 County: El Paso Filename: M211-P10  
User: TC1

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU Horsepower: 574  
Ripper Attachment: 1-Shank Ripper Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$129.20	NA
Operating Cost/Hour:	\$121.82	100
Ripper Ownership Cost/Hour:	\$18.04	NA
Ripper Operating Cost/Hour:	\$10.15	100
Operator Cost/Hour:	\$40.23	NA
Total Unit Cost/Hour:	\$319.44	
Total Fleet Cost/Hour:	<b>\$638.88</b>	

### MATERIAL QUANTITIES

Selected estimating method: Seismic

#### Alternate Methods:

Seismic: 56,000 BCY Bank Volume: 56,000 BCY Midrange  
Area: NA acres Rip Depth (ft): NA Volume: NA BCY or CCY

Source of estimated quantity: See Appendix, Table 2.

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: 5,000 feet/second

#### Area:

Average Ripping Depth: NA mph  
Average Ripping Width: NA degrees  
Average Ripping Length: NA feet  
Average Dozer Speed: NA feet  
Average Maneuver Time: NA feet  
Production per unit area: NA acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1,250.00 Cu. yds./hr  
Site Altitude: 7,200 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 1,037.50 Cu. yds./hr  
Adjusted Hourly Fleet Production: **2,075.00** Cu. yds./hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **26.99** Hours

Unit cost: \$0.308 Per cu. yd. Total job cost: **\$17,242**

**TRUCK/LOADER TEAM WORK**Task description: **Load/Haul/Dump Ripped & Blasted Material-Plant Area**Site: **Pikeview Quarry**Permit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: P30State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-P30User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	NA	\$7.65	\$9.15
%Utilization-riper:	NA	0	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:	\$25.65	\$36.13	NA	NA	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	NA	\$84.03	\$34.45
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work: \$437.54		Support: \$0.00		Maint: \$118.48	

Total work team cost/hour: **\$556.02****MATERIAL QUANTITIES**Initial volume: 400,000

CCY

Swell factor: 1.120Loose volume: **448,000**

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 3,250

Pounds/LCY

Description: Gravel - PitrunRated Payload: 87,000

Pounds

Payload Capacity: 26.77

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	26.77	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	<b>6.188</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.630</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.630	Minutes	Adjusted for site altitude:	1.630	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1150.00	-8.00	3.00	-5.00	2721	0.497

Haul Time: **0.497** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1150.00	8.00	3.00	11.00	1610	0.800

Return Time: **0.800** minutesTotal Truck Cycle Time: **4.594** minutes

## Loading Tool unit

Production	<u>658.54</u>	LCY/Hour	Adjusted for job efficiency:	<u>546.59</u>	LCY/Hour
Truck Unit Production	<u>323.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>268.32</u>	LCY/Hour

Optimal No. of Trucks:	<u>2</u>	Truck(s)	Selected Number of Trucks:	<u>2</u>	Truck(s)
------------------------	----------	----------	----------------------------	----------	----------

Adjusted hourly truck team production:	<u>536.63</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>536.63</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<b><u>536.63</u></b>	LCY/Hour

**JOB TIME AND COST**

Fleet size:	<u>1</u>	Team(s)	Total job time:	<b><u>834.84</u></b>	Hours
-------------	----------	---------	-----------------	----------------------	-------

Unit cost:	<u>\$1.036</u>	/LCY	Total job cost:	<b><u>\$464,187</u></b>
------------	----------------	------	-----------------	-------------------------



**BULLDOZER WORK**Task description: **Push ripped/blasted material transported w/ Loader & Trucks**Site: **Pikeview Quarry** Permit Action: 2019 Update Permit/Job#: M1977211**PROJECT IDENTIFICATION**

Task #: P31 State: Colorado Abbreviation: None  
 Date: 2/11/2019 County: El Paso Filename: M211-P31  
 User: TC1

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU  
 Horsepower: 574  
 Blade Type: Semi-Universal  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$129.20</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$121.82</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.23</u>	<u>NA</u>

Total unit Cost/Hour: \$291.25  
 Total Fleet Cost/Hour: **\$1,165.01**

**MATERIAL QUANTITIES**

Initial Volume: 400,000  
 Swell factor: 1.124  
 Loose volume: **449,440 LCY**

Source of estimated volume: See Appendix, Table 2.; dry sand/gravel selected for swell fSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 150 feet  
 Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: -30 %  
 Average site altitude: 7,200 feet

Material weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>0.800</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(S-BY-S)</u>

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7587

Adjusted unit production: 943.22 LCY/hr

Adjusted fleet production: **3772.88** LCY/hr

### **JOB TIME AND COST**

Fleet size: 4 Dozer(s)  
 Unit cost: \$0.309/LCY

Total job time: **119.12** Hours  
 Total job cost: **\$138,780**

**TRUCK/LOADER TEAM WORK**Task description: **Place topsoil in Plant area**Site: **Pikeview Quarry**Permit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: P40State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-P40User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D9T - 9SU
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	\$110.70	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	\$95.46	\$7.65	\$9.15
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$25.65	\$36.13	NA	\$40.23	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	\$246.39	\$84.03	\$34.45
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work: \$437.54		Support: \$246.39		Maint: \$118.48	

Total work team cost/hour: **\$802.41****MATERIAL QUANTITIES**Initial volume: 5,001

CCY

Swell factor: 1.000Loose volume: **5,001**

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 87,000

Pounds

Payload Capacity: 54.38

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<b>8.250</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 3 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.120</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.120	Minutes	Adjusted for site altitude:	1.120	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1150.00	-8.00	3.00	-5.00	2721	0.497

Haul Time: **0.497** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1150.00	8.00	3.00	11.00	1610	0.800

Return Time: **0.800** minutesTotal Truck Cycle Time: **4.084** minutes

## Loading Tool unit

Production 851.00 LCY/Hour      Adjusted for job efficiency: 706.33 LCY/Hour  
Truck Unit Production 363.64 LCY/Hour      Adjusted for job efficiency: 301.82 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)      Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 603.65 LCY/Hour  
Adjusted single truck/loader team production: 603.65 LCY/Hour  
Adjusted multiple truck/loader team production: **603.65** LCY/Hour

**JOB TIME AND COST**

Fleet size: 1 Team(s)      Total job time: **8.28** Hours

Unit cost: \$1.329 /LCY      Total job cost: **\$6,648**

**REVEGETATION WORK**Task description: Revegetate Plant Area - 6.2 Ac (ref. App, Table 1)Site: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: P50State: ColoradoAbbreviation: NoneDate: 2/8/2019County: El PasoFilename: M211-P50User: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
<b>Total Tilling Cost/Acre</b>	<b>\$92.77</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.50	8.16	\$8.33
Crested Wheatgrass - Ephraim	1.00	4.59	\$3.75
Little Bluestem - Native	1.00	5.97	\$16.13
Sideoats Grama - El Reno	2.00	6.57	\$19.80
Russian Wildrye - Bozoiaky	2.00	8.03	\$12.96
Intermediate Wheatgrass - Oahe	4.00	8.54	\$15.72
Alfalfa - Ranger (inoculated)	1.00	4.82	\$2.66
Pubescent Wheatgrass - Greenleaf	4.00	8.26	\$15.28
Mahogany, Mountain	2.00	2.71	\$75.38
Western Wheatgrass - Arriba	4.00	10.10	\$33.12

Rabbitbrush, Rubber	1.00	14.90	\$65.84
Needlegrass, Green - Lodorm	1.00	4.16	\$4.98
<b>Totals Seed Mix</b>	<b>23.50</b>	<b>86.81</b>	<b>\$273.95</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

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

**NURSERY STOCK PLANTING**

<b>Common Name</b>	<b>No / Acre</b>	<b>Type and Size</b>	<b>Planting Cost</b>	<b>Fertilizer Pellet Cost</b>	<b>Cost /Acre</b>
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

No. of Acres: 6.2 Cost /Acre: \$1,243.50  
 Estimated Failure Rate: 25% Cost /Acre\*: \$1,243.50  
 \*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **\$7,709.70**  
 Reseeding Job Cost: **\$1,927.43**  
 Total Job Cost: **\$9,637**  
 Job Hours: **12.00**

## BULLDOZER RIPPING WORK

Task description: Rip weathered granite for South Widows Peak backfill

Site: Pikeview Quarry Permit Action: 2019 Update Permit/Job#: M1977211

### PROJECT IDENTIFICATION

Task #: S10 State: Colorado Abbreviation: None  
Date: 2/11/2019 County: El Paso Filename: M211-S10  
User: TC1

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU Horsepower: 574  
Ripper Attachment: 1-Shank Ripper Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$129.20	NA
Operating Cost/Hour:	\$121.82	100
Ripper Ownership Cost/Hour:	\$18.04	NA
Ripper Operating Cost/Hour:	\$10.15	100
Operator Cost/Hour:	\$40.23	NA
Total Unit Cost/Hour:	\$319.44	
Total Fleet Cost/Hour:	<b>\$638.88</b>	

### MATERIAL QUANTITIES

Selected estimating method: Seismic

#### Alternate Methods:

Seismic: 162,540 BCY Bank Volume: 162,540 BCY Midrange  
Area: NA acres Rip Depth (ft): NA Volume: NA BCY or CCY

Source of estimated quantity: See Appendix, Table 2.

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: 5,000 feet/second

#### Area:

Average Ripping Depth: NA mph  
Average Ripping Width: NA degrees  
Average Ripping Length: NA feet  
Average Dozer Speed: NA feet  
Average Maneuver Time: NA feet  
Production per unit area: NA acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 1,250.00 Cu. yds./hr  
Site Altitude: 7,200 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 1,037.50 Cu. yds./hr  
Adjusted Hourly Fleet Production: **2,075.00** Cu. yds./hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **78.33** Hours

Unit cost: \$0.308 Per cu. yd. Total job cost: **\$50,045**



**TRUCK/LOADER TEAM WORK**Task description: Load/Haul/Dump Ripped & Blasted Material-S. Widows PeakSite: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: S30State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-S30User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	NA	NA	100	100
Ownership cost/hour:	\$66.13	\$50.17	NA	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	NA	\$30.60	\$36.60
% Utilization-ripper:	NA	0	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:	\$25.65	\$36.13	NA	NA	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	NA	\$106.97	\$61.90
Number of Units:	3	1	0	0	1	1
Group Subtotals:	Work: \$585.07		Support: \$0.00		Maint: \$168.87	

Total work team cost/hour: \$753.94**MATERIAL QUANTITIES**Initial volume: 1,161,000

CCY

Swell factor: 1.120Loose volume: 1,300,320

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 3,250

Pounds/LCY

Description: Gravel - PitrunRated Payload: 87,000

Pounds

Payload Capacity: 26.77

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	26.77	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.825	Blasted rock - avg. blasted (75 - 90%) 0.825
Adjusted Capacity:	<b>6.188</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 7200 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 4 passes

**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	<b>0.510</b>	minutes
	Net Load Time per Truck:	<b>1.630</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.630	Minutes	Adjusted for site altitude:	1.630	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2700.00	-8.00	3.00	-5.00	2721	1.062

Haul Time: **1.062** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2700.00	8.00	3.00	11.00	1610	1.763

Return Time: **1.763** minutesTotal Truck Cycle Time: **6.122** minutes

## Loading Tool unit

Production 658.54 LCY/Hour Adjusted for job efficiency: 546.59 LCY/HourTruck Unit Production 242.58 LCY/Hour Adjusted for job efficiency: 201.34 LCY/HourOptimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)Adjusted hourly truck team production: 604.03 LCY/HourAdjusted single truck/loader team production: 546.59 LCY/HourAdjusted multiple truck/loader team production: **546.59** LCY/Hour**JOB TIME AND COST**Fleet size: 1 Team(s) Total job time: **2,378.99** HoursUnit cost: \$1.379 /LCY Total job cost: **\$1,793,614**

**BULLDOZER WORK**Task description: **Push ripped/blasted material transported w/ Loader & Trucks**Site: **Pikeview Quarry** Permit Action: 2019 Update Permit/Job#: M1977211**PROJECT IDENTIFICATION**

Task #: S31 State: Colorado Abbreviation: None  
 Date: 2/11/2019 County: El Paso Filename: M211-S31  
 User: TC1

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D10T - 10SU  
 Horsepower: 574  
 Blade Type: Semi-Universal  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$129.20</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$121.82</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.23</u>	<u>NA</u>

Total unit Cost/Hour: \$291.25  
 Total Fleet Cost/Hour: **\$1,165.01**

**MATERIAL QUANTITIES**

Initial Volume: 1,161,000  
 Swell factor: 1.124  
 Loose volume: **1,304,500 LCY**

Source of estimated volume: See Appendix, Table 2.; dry sand/gravel selected 4 swell fac  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 150 feet  
 Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: -30 %  
 Average site altitude: 7,200 feet

Material weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>0.800</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(S-BY-S)</u>

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7587

Adjusted unit production: 943.22 LCY/hr

Adjusted fleet production: **3772.88** LCY/hr

### **JOB TIME AND COST**

Fleet size: 4 Dozer(s)  
 Unit cost: \$0.309/LCY

Total job time: **345.76** Hours  
 Total job cost: **\$402,809**

**TRUCK/LOADER TEAM WORK**Task description: Place topsoil in S. Widows Peak areaSite: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: S40State: ColoradoAbbreviation: NoneDate: 2/12/2019County: El PasoFilename: M211-S40User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D9T - 9SU
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	NA	100	25	25
Ownership cost/hour:	\$66.13	\$50.17	NA	\$110.70	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$56.19	NA	\$95.46	\$7.65	\$9.15
% Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$25.65	\$36.13	NA	\$40.23	\$45.64	\$0.00
Unit Subtotals:	\$147.53	\$142.48	NA	\$246.39	\$84.03	\$34.45
Number of Units:	3	1	0	1	1	1
Group Subtotals:	Work: \$585.07		Support: \$246.39		Maint: \$118.48	

Total work team cost/hour: **\$949.94****MATERIAL QUANTITIES**Initial volume: 11,810

CCY

Swell factor: 1.000Loose volume: **11,810**

LCY

Source of estimated volume: See Appendix, Table 2; Haul distance from AM3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 87,000

Pounds

Payload Capacity: 54.38

LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: 24.75 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<b>8.250</b>	LCY

Job Condition Corrections:

Site Altitude (ft.): 7200 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.797</b>	<b>0.830</b>	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 3 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA  
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA      Maneuver: NA      Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Bank or broken material 0.04	0.040	(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:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		<b>0.510</b>	minutes
Net Load Time per Truck:		<b>1.120</b>	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.120	Minutes	Adjusted for site altitude:	1.120	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:  
maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	5.00	3.00	8.00	1123	2.437

Haul Time: **2.437** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	-5.00	3.00	-2.00	3706	0.737

Return Time: **0.737** minutesTotal Truck Cycle Time: **5.961** minutes

## Loading Tool unit

Production 851.00 LCY/Hour      Adjusted for job efficiency: 706.33 LCY/Hour  
Truck Unit Production 249.13 LCY/Hour      Adjusted for job efficiency: 206.78 LCY/Hour

Optimal No. of Trucks: 3 Truck(s)      Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 620.34 LCY/Hour  
Adjusted single truck/loader team production: 620.34 LCY/Hour  
Adjusted multiple truck/loader team production: **620.34** LCY/Hour

**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: **19.04** HoursUnit cost: \$1.531 /LCY      Total job cost: **\$18,085**



**REVEGETATION WORK**Task description: Revegetate S. Widows Peak - 14.6 Ac (ref. App, Table 1)Site: Pikeview QuarryPermit Action: 2019 UpdatePermit/Job#: M1977211**PROJECT IDENTIFICATION**Task #: S50State: ColoradoAbbreviation: NoneDate: 2/8/2019County: El PasoFilename: M211-S50User: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
<b>Total Tilling Cost/Acre</b>	<b>\$92.77</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.50	8.16	\$8.33
Crested Wheatgrass - Ephraim	1.00	4.59	\$3.75
Little Bluestem - Native	1.00	5.97	\$16.13
Sideoats Grama - El Reno	2.00	6.57	\$19.80
Russian Wildrye - Bozoiaky	2.00	8.03	\$12.96
Intermediate Wheatgrass - Oahe	4.00	8.54	\$15.72
Alfalfa - Ranger (inoculated)	1.00	4.82	\$2.66
Pubescent Wheatgrass - Greenleaf	4.00	8.26	\$15.28
Mahogany, Mountain	2.00	2.71	\$75.38
Western Wheatgrass - Arriba	4.00	10.10	\$33.12

Rabbitbrush, Rubber	1.00	14.90	\$65.84
Needlegrass, Green - Lodorm	1.00	4.16	\$4.98
<b>Totals Seed Mix</b>	<b>23.50</b>	<b>86.81</b>	<b>\$273.95</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

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

**NURSERY STOCK PLANTING**

<b>Common Name</b>	<b>No / Acre</b>	<b>Type and Size</b>	<b>Planting Cost</b>	<b>Fertilizer Pellet Cost</b>	<b>Cost /Acre</b>
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

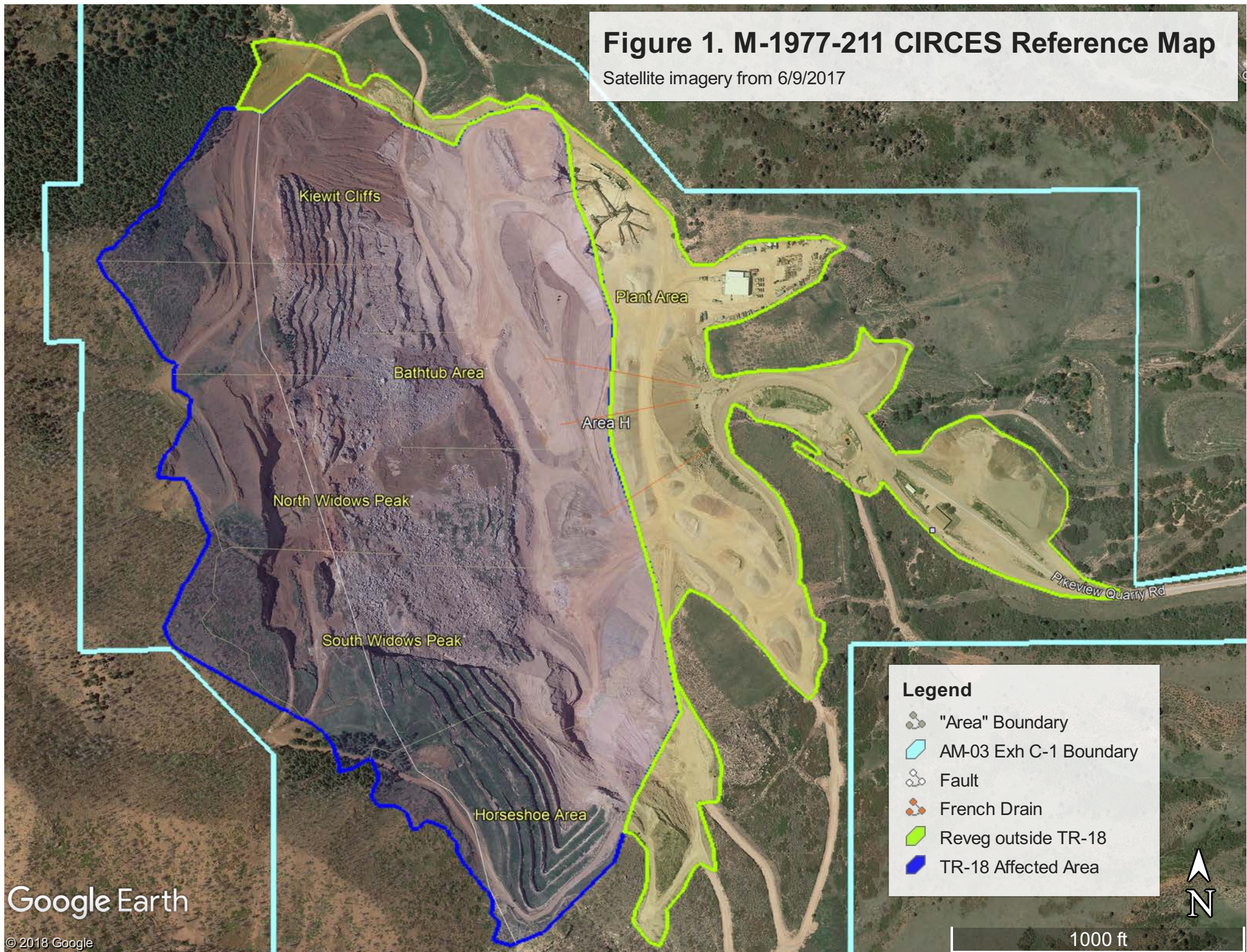
No. of Acres: 14.6 Cost /Acre: \$1,243.50  
 Estimated Failure Rate: 25% Cost /Acre\*: \$1,243.50  
 \*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **\$18,155.10**  
 Reseeding Job Cost: **\$4,538.78**  
 Total Job Cost: **\$22,694**  
 Job Hours: **29.00**



# Figure 1. M-1977-211 CIRCES Reference Map

Satellite imagery from 6/9/2017





**APPENDIX A - COST ESTIMATING ASSUMPTIONS**  
**M-1977-211 PIKEVIEW 2019 BOND UPDATE ASSUMPTIONS**

**Table 1. "Topsoiling" and Revegetation Area Quantities.**

Task	Area	Area Cut <sup>(1)</sup> Ac	Bench Area <sup>(2, 3)</sup> (½ veg) Ac	Area Bench'd & Veg'd <sup>(4)</sup> Ac	Area Fill <sup>(1)</sup> Ac	Area to Veg. Ac	Notes
Bxy	Bathtub Area	6.6	3.6	0.0	6.1	10.9	1) Area Cut and Area Fill quantities are from the 2014 TR-18 Exhibit D, Table D-2. 2) Bench Area (½ veg) is obtained from measuring areas west of the fault line in Google Earth <sup>†</sup> using Exhibits F (TR-18) as an image overlay. 3) Based on "Close Up of Granite Benches" sections in Exhibits C (TR-18), ONLY half of the Bench Areas are used for for vegetative media and seeding. 4) Area Bench'd & Veg'd accounts for completed vegetation in the Horseshoe and South Widows Peak areas (Googel Earth <sup>†</sup> measurements).
Pxy	Plant Area	6.2	0.0	0.0	0.0	6.2	
Hxy	Horseshoe Area	8.8	0.0	5.0	3.2	7.0	
Sxy	South Widows Peak	11.6	4.5	2.1	7.4	14.6	
Nxy	North Widows Peak	10.0	5.4	0.0	6.6	13.9	
Kxy	Kiewit Cliffs Area	10.6	3.8	0.0	7.2	15.9	
	<b>Subtotal</b>	53.8	17.4	7.1	30.5	68.5	
Exy	East Area	32.1				32.1	Disturbed area east of TR-18, not addressed in TR-18. Measured in Google Earth <sup>†</sup>
	<b>TOTAL</b>	85.9	17.4	7.1	30.5	100.6	

† Google Earth image from 6/9/2017

**Table 2. Cut & Fill Quantities.**

Task	Area	Cut Volume BCY	Rippable Cut Volume (14%) <sup>(1)</sup> BCY	Drill/Blast Cut Volume BCY	Fill Volume LCY	Completed Fill <sup>(2)</sup> LCY	Surplus <sup>(3)</sup> LCY	Blasting Cost <sup>(4)</sup> \$1.39/CY	Blasting Hours Assume 1Hr/5K CY	Vol. to Topsoil (6 in.) see Table 1 LCY
Bxy	Bathtub Area	1,169,000	163,660	1,005,340	909,000	950,000	493,800	1,397,423	201	8,777
Pxy	Plant Area	400,000	56,000	344,000				478,160	69	5,001
Hxy	Horseshoe Area	530,000	74,200	455,800	147,000		489,000	633,562	91	5,663
Sxy	South Widows Peak	1,161,000	162,540	998,460	904,000		489,000	1,387,859	200	11,810
Nxy	North Widows Peak	1,176,000	164,640	1,011,360	908,000	250,000	504,000	1,405,790	202	11,205
Kxy	Kiewit Cliffs Area	1,161,000	162,540	998,460	841,000		552,000	1,387,859	200	12,834
	<b>Total</b>	5,597,000	783,580	4,813,420	3,709,000	1,200,000	2,527,800	6,690,654	963	55,289

- (1) The 14% of cut being rippable comes from the Mar 2013 PAR Response (AM-3, p. L-3) where it is stated 206,000 CY of the 1,446,000 CY is rippable.  
(2) The 1,200,000 CY (2.5 Mton) of completed fill comes from a 1/9/2019 email from P. Kos (Stantec) stating that amount has been placed in Area H.  
(3) The surplus volume is assumed to be used in the East Area, identified in AM-3 as Phase 5, Areas A1, A2, A3 and A4 (no add'l grading required).  
(4) \$0.61/Ton (Table L-1, AM-3 PAR Response, adjusted for inflation using CPI Inflation calculator to \$0.66/Ton. Based on (2) above use 2.1 Mton/MCY to get \$1.39/CY.

**Table 3. Building Demolition Quantities, Task D01.**

Task	Demo of buildings	Bldg. Height (ft)	Bldg. Width (ft)	Bldg. Length (ft)	Bldg. Vol. (ft3)	Notes
D01.1	Maintenance Shop	18.0	80.0	80.0	115200.0	Buried on site (ref 4th ¶, p. E-2, TR18); Width and length dimensions from Google Earth imagery, dated 6/9/2017.
D01.3	Office	9.0	42.0	72.0	27216.0	
D01.5	Office Outbldg	9.0	15.0	37.0	4995.0	
Task	Demo of Floors/Pads	Slab Thick (ft)	Slab Width (ft)	Slab Length (ft)	Slab Area (ft2)	Notes
D01.2	Maintenance Shop	0.5	80.0	80.0	6400.0	Buried on site (ref 4th ¶, p. E-2, TR18); Width and length dimensions from Google Earth imagery, dated 6/9/2017.
D01.4	Office	0.33	42.0	72.0	3024.0	
D01.6	Office Outbldg	0.33	15.0	37.0	555.0	