

## COST SUMMARY WORK

Task description: \_\_\_\_\_

Site: United/Norwood Pit

Permit Action: 2018 Update

Permit/Job#: M1988037

### PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 12/5/2018

County: Montrose

Filename: M037-000

User: LJW

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Reduce highwalls to 3:1 and general site dozing	DOZER	2	21.34	\$11,099.00
002	General Dozing and Final Grading of slopes	DOZER	2	4.05	\$2,109.00
003	Rip 18.5 Acres Pit Floor	RIPPER	2	13.74	\$7,366.00
004	Distribute and grade topsoil	SCRAPER1	2	26.56	\$28,163.00
005	Revegetate 28 Acres Affected lands	REVEGE	1	32.00	\$49,388.00
006	slope compaction and dust control support	MISCTRUK	1	32.00	\$4,081.00
007	Mobilization / demob	MOBILIZE	1	4.66	\$9,532.00
<b><u>SUBTOTALS:</u></b>				<b>134.35</b>	<b>\$111,738</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02  
Performance bond: 1.05  
Job superintendent: 67.17  
Profit: 10.00

Total = \$2,257.11  
Total = \$1,173.25  
Total = \$4,906.77  
Total = \$11,173.80

TOTAL O & P = \$19,510.93

CONTRACT AMOUNT (direct + O & P) = \$131,248.93

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00  
Engineering work and/or contract/bid preparation: 0.00  
Reclamation management and/or administration: 5.81

Total = 500.00  
Total = \$0.00  
Total = \$7,625.56

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$27,636.49

**TOTAL BOND AMOUNT (direct + indirect) = \$139,374.49**

**BULLDOZER WORK**Task description: Reduce highwalls to 3:1 and general site dozingSite: United/Norwood PitPermit Action: 2018 UpdatePermit/Job#: M1988037**PROJECT IDENTIFICATION**Task #: 001State: ColoradoAbbreviation: NoneDate: 12/5/2018County: MontroseFilename: M037-001User: LJWAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$12.36	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$260.05Total Fleet Cost/Hour: \$520.09**MATERIAL QUANTITIES**Initial Volume: 12,000Swell factor: 1.330Loose volume: 15,960 LCYSource of estimated volume: Assumed 40' tall, 700 LN FT highwall +1630 CY Gen Doz.Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 120 feetUnadjusted hourly  
production: 1,093.1 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push  
gradient: 0 %Average site altitude: 7,300 feetMaterial weight: 2,900 lbs/LCYWeight description: Decomposed rock - 50% Rock, 50% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3421

Adjusted unit  
production: 373.95 LCY/hr

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Adjusted fleet  
production: 747.9 LCY/hr

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**JOB TIME AND COST**

Fleet size: 2 Dozer(s)

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Unit cost: \$0.695/LCY

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Total job time: 21.34 Hours

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Total job cost: \$11,099

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**BULLDOZER WORK**Task description: General Dozing and Final Grading of slopesSite: United/Norwood PitPermit Action: 2018 UpdatePermit/Job#: M1988037**PROJECT IDENTIFICATION**Task #: 002State: ColoradoAbbreviation: NoneDate: 12/5/2018County: MontroseFilename: M037-002User: LJWAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$110.70</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$95.46</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$12.36</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$260.05</u>	
Total Fleet Cost/Hour:	<u>\$520.09</u>	

**MATERIAL QUANTITIES**Initial Volume: 6,630Swell factor: 1.000Loose volume: 6,630 LCYSource of estimated volume: Visual estimates of current conditionsSource of estimated swell  
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 75 feetUnadjusted hourly  
production: 1,514.3 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push  
gradient: 0 %Average site altitude: 7,300 feetMaterial weight: 2,100 lbs/LCYWeight description: Earth - LoamJob Condition Correction FactorSource

Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.600	(FND-SF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5399

Adjusted unit  
production: 817.57 LCY/hr

Adjusted fleet  
production: 1635.14 LCY/hr

### **JOB TIME AND COST**

Fleet size: 2 Dozer(s)  
Unit cost: \$0.318/LCY

Total job time: 4.05 Hours  
Total job cost: \$2,109

## BULLDOZER RIPPING WORK

Task description: Rip 18.5 Acres Pit Floor

Site: United/Norwood Pit

Permit Action: 2018 Update

Permit/Job#: M1988037

### PROJECT IDENTIFICATION

Task #: 003

State: Colorado

Abbreviation: None

Date: 12/5/2018

County: Montrose

Filename: M037-003

User: LJW

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU  
Ripper Attachment: 3-Shank Ripper

Horsepower: 405  
Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper Ownership Cost/Hour:	\$12.36	NA
Ripper Operating Cost/Hour:	\$7.88	100
Operator Cost/Hour:	\$41.52	NA
Total Unit Cost/Hour:	\$267.92	
Total Fleet Cost/Hour:	\$535.85	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 18.50 acres Rip Depth (ft): 1.00 Volume: 29,847 BCY or CCY

Source of estimated quantity: Reclamation Plan/ current conditions

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth:	<u>2.63</u>	mph
Average Ripping Width:	<u>7.67</u>	degrees
Average Ripping Length:	<u>150.00</u>	feet
Average Dozer Speed:	<u>88.00</u>	feet
Average Maneuver Time:	<u>0.25</u>	feet
Production per unit area:	<u>0.811</u>	acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production:	<u>0.811</u>	Acres/hr
Site Altitude:	<u>7,300</u>	feet
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Adjusted Hourly Unit Production:	<u>0.67</u>	Acres/hr
Adjusted Hourly Fleet Production:	<u>1.35</u>	Acres/hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 13.75 Hours

Unit cost: \$398.128 Per acre Total job cost: \$7,366

**SCRAPER TEAM WORK**Task description: Distribute and grade topsoilSite: United/Norwood PitPermit Action: 2018 UpdatePermit/Job#: M1988037**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 12/5/2018County: MontroseFilename: M037-004User: LJWAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 657G
-Dozer:	Cat D9T - 9SU
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	NA	NA
Ownership cost/hour:	\$168.92	\$110.70	NA	NA	NA	NA
Operating cost/hour:	\$200.27	\$95.46	NA	NA	NA	NA
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$12.36	NA	NA	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Operator cost/hour:	\$31.05	\$41.52	NA	NA	NA	NA
Unit Subtotals:	\$400.23	\$260.05	NA	NA	NA	NA
Number of Units:	2	1	0	0	0	0
Group Subtotals:	Work:	\$1,060.51	Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: \$1,060.51**MATERIAL QUANTITIES**Initial volume: 37,644

CCY

Swell factor: 1.000Loose volume: 37,644

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**

Scraper Bowl (volume) Basis:

Material weight: 1,600 lbs/LCY  
 Material description: Top Soil  
 Rated Payload: 104,000 pounds  
 Payload Capacity: 65.00 LCY

Struck Volume: 32.00 LCY  
 Heaped Volume: 44.00 LCY  
 Average Volume: 38.00 LCY  
 Adjusted Capacity: 38.00 LCY

**Cycle Time:**

Scraper Loading Time: 1.00 Minutes  
 Maneuver and Spread Time: 0.60 Minutes

**Job Condition Correction:**

Site Altitude: 7300 feet

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

**Travel Time:**Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0**Haul Route:**

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	900.00	-5.00	5.00	0.00	3067	0.46

Haul Time: 0.46 minutes**Return Route:**

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	900.00	5.00	5.00	10.00	1913	0.61

Return Time: 0.61 minutes

Total Scraper team cycle time: 2.67 minutes  
 Adjusted for job conditions: 708.76 LCY/Hour  
 Selected Number of Scrapers: 1 Scraper(s)  
 Adjusted single scraper team (unit) hourly production: 708.76 LCY/Hour  
 Adjusted multiple scraper team (fleet) hourly production: 1,417.53 LCY/Hour

Unadjusted unit production/hour: 853.93 LCY/Hour

Optimal Number of Scrapers per push dozer: \_\_\_\_\_

**JOB TIME AND COST**Fleet size: 2 Team(s)Total job time: 26.56 HoursUnit cost: \$0.748 /LCYTotal job cost: \$28,163



**REVEGETATION WORK**Task description: Revegetate 28 Acres Affected landsSite: United/Norwood PitPermit Action: 2018 UpdatePermit/Job#: M1988037**PROJECT IDENTIFICATION**Task #: 005State: ColoradoAbbreviation: NoneDate: 12/5/2018County: MontroseFilename: M037-005User: LJWAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
6-24-24, 10-20-10, 15-15-15	100.00	pound	\$0.27	\$27.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$27.00</b>

**Application**

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$34.72
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$34.72</b>

**TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
<b>Total Tilling Cost/Acre</b>	<b>\$106.29</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Paloma	12.50	40.46	\$121.88
Thickspike Wheatgrass - Critana	11.00	38.89	\$64.57
Western Wheatgrass - Arriba	16.00	40.40	\$132.48
<b>Totals Seed Mix</b>	<b>39.50</b>	<b>119.75</b>	<b>\$318.93</b>

**Application**

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

<b>Total Seed Application Cost/Acre</b>	<b>\$232.00</b>
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**MULCHING and MISCELLANEOUS****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Curtail @ 4.0 pt/ac	1.00	ACRE	\$7.34	\$7.34
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
<b>Total Mulch Materials Cost/Acre</b>				<b>\$583.34</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: 28                      Cost /Acre: \$1,371.06  
 Estimated Failure Rate: 30%                      Cost /Acre\*: \$1,309.34  
 \*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: \$38,389.68  
 Reseeding Job Cost: \$10,998.46  
 Total Job Cost: \$49,388  
 Job Hours: 32.00

## MISCELLANEOUS TRUCK WORK

Task description: Slope compaction and dust control support

Site: United/Norwood Pit

Permit Action: 2018 Update

Permit/Job#: M1988037

### PROJECT IDENTIFICATION

Task #: 006

State: Colorado

Abbreviation: None

Date: 12/5/2018

County: Montrose

Filename: M037-006

User: LJW

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Make and Model: Water Tanker, 7,000 Gal.

Horsepower: 330

Attachment 1: \_\_\_\_\_

Shift Basis: 1 per day

Attachment 2: \_\_\_\_\_

Weight: 29.65

Labor Unit 1: Tanker Driver - 2+ rear axles

(US Tons)

Labor Unit 2: \_\_\_\_\_

### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$40.68</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$65.61</u>	<u>100</u>
Operator Cost/Hour:	<u>\$21.23</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$127.52</u>	
Total Fleet Cost/Hour:	<u>\$127.52</u>	

### JOB TIME AND COST

Fleet size: 1 Truck(s)

Total job time: 32.00 Hours

Unit cost: \$127.52 /Hour

Total job cost: \$4,081

**EQUIPMENT MOBILIZATION/DEMobilIZATION**Task description: Mobilization / demobSite: United/Norwood PitPermit Action: 2018 UpdatePermit/Job#: M1988037**PROJECT IDENTIFICATION**Task #: 007State: ColoradoAbbreviation: NoneDate: 12/5/2018County: MontroseFilename: M037-007User: LJWAgency or organization name: DRMS**EQUIPMENT TRANSPORT RIG COST**Shift basis: 1 per dayCost Data Source: CRG DataTruck Tractor Description: GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED,  
400 HP (2ND HALF, 2006)Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT  
TRAILER (25T, 50T, AND 100T)**Cost Breakdown:**

<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	66.13	\$123.06	\$125.45	2	\$497.02	\$250.90	\$500.00
Cat 657G	78.88	\$168.92	\$125.45	2	\$588.74	\$250.90	\$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
Water Tanker, 7,000 Gal.	29.65	\$40.68	\$117.55	1	\$158.23	\$117.55	\$250.00

Subtotals: **\$1,445.20** **\$796.69** **\$1,500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	\$12.23	1	\$12.23	\$12.23

Subtotals: **\$12.23** **\$12.23**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region: NORWOOD  
 Total one-way travel distance: 5.00 miles  
 Average Travel Speed: 30.00 mph

Total Non-Roadable Mob/Demob Cost \* \$9,528.10  
 \* two round trips with haul rig:  
 Total Roadable Mob/Demob Cost \*\* \$4.08  
 \*\* one round trip, no haul rig:

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.17	0.17
Return Time (Hours):	0.17	0.17
Loading Time (Hours):	1.00	NA
Unloading Time (Hours):	1.00	NA
Subtotals:	2.33	0.33

**JOB TIME AND COST**

Total job time: 4.67 Hours

Total job cost: \$9,532