

COST SUMMARY WORK

Task description: Cost Summary

Site: Tierra Piedra Gravel Pit

Permit Action: 2019 Update

Permit/Job#: M2009081

**PROJECT IDENTIFICATION**

Task #: 000

State: Colorado

Abbreviation: None

Date: 1/2/2019

County: Archuleta

Filename: M081-000

User: LJW

Agency or organization name: DRMS

**TASK LIST (DIRECT COSTS)**

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Finish grade pit floor and upper banks	DOZER	1	2.16	\$469.00
002	Rip compacted pit floor	RIPPER	1	2.01	\$453.00
003	Topsoil replacement on pit floor and upper banks	DOZER	1	6.51	\$1,414.00
004	Revegetation	REVEGE	1	8.00	\$0.00
005	Mob/ Demob	MOBILIZE	1	2.86	\$1,854.00
<b><u>SUBTOTALS:</u></b>				<b>21.54</b>	<b>\$4,190</b>

**INDIRECT COSTS**

**OVERHEAD AND PROFIT:**

Liability insurance:	2.02	Total =	\$84.64
Performance bond:	1.05	Total =	\$44.00
Job superintendent:	10.77	Total =	\$786.75
Profit:	10.00	Total =	\$419.00
		TOTAL O & P =	\$1,334.39
		CONTRACT AMOUNT (direct + O & P) =	\$5,524.39

**LEGAL - ENGINEERING - PROJECT MANAGEMENT:**

Financial warranty processing (legal/related costs):	0.00	Total =	0.00
Engineering work and/or contract/bid preparation:	0.00	Total =	\$0.00
Reclamation management and/or administration:	5.00		\$276.22

CONTINGENCY: 0.00 Total = \$0.00

TOTAL INDIRECT COST = \$1,610.61

TOTAL BOND AMOUNT (direct + indirect) = \$5,800.61

**BULLDOZER WORK**

Task description: Finish grade pit floor and upper banks

Site: Tierra Piedra Gravel Pit

Permit Action: 2019 Update

Permit/Job#: M2009081

**PROJECT IDENTIFICATION**

Task #: 001

State: Colorado

Abbreviation: None

Date: 1/2/2019

County: Archuleta

Filename: M081-001

User: LJW

Agency or organization name: DRMS

**HOURLY EQUIPMENT COST**

Basic Machine: Cat D8T - 8SU

Horsepower: 310

Blade Type: Semi-Universal

Attachment: 3-shank ripper

Shift Basis: 1 per day

Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$8.93	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$217.42	
Total Fleet Cost/Hour:	\$217.42	

**MATERIAL QUANTITIES**

Initial Volume: 807

Swell factor: 1.165

Loose volume: 940 LCY

Source of estimated volume: Permit Application, site estimates

Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 50 feet

Unadjusted hourly production: 1,400.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %

Average site altitude: 6,200 feet

Material weight: 2,900 lbs/LCY

Weight description: Decomposed rock - 50% Rock, 50% Earth

Job Condition Correction Factor

Source

Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB)
Dozing method:	1.000	(GEN.)
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: 0.3110

Adjusted unit  
production: 435.40 LCY/hr  
Adjusted fleet  
production: 435.4 LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)  
Unit cost: \$0.499/LCY  
  
Total job time: 2.16 Hours  
Total job cost: \$469

# BULLDOZER RIPPING WORK

Task description: Rip compacted pit floor

Site: Tierra Piedra Gravel Pit

Permit Action: 2019 Update

Permit/Job#: M2009081

## PROJECT IDENTIFICATION

Task #: 002

State: Colorado

Abbreviation: None

Date: 1/2/2019

County: Archuleta

Filename: M81-002

User: LJW

Agency or organization name: DRMS

## HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU

Horsepower: 310

Ripper Attachment: 3-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper Ownership Cost/Hour:	\$8.93	NA
Ripper Operating Cost/Hour:	\$7.78	100
Operator Cost/Hour:	\$41.52	NA
Total Unit Cost/Hour:	\$225.20	
Total Fleet Cost/Hour:	<b>\$225.20</b>	

## MATERIAL QUANTITIES

Selected estimating method: Area

### Alternate Methods:

Seismic: NA

Bank Volume: NA

BCY

NA

Area: 1.25 acres

Rip Depth (ft): 1.00

Volume: 2,017

BCY or CCY

Source of estimated quantity: Application

## HOURLY PRODUCTION

### Seismic:

Seismic Velocity: NA feet/second

### Area:

Average Ripping Depth:	<u>2.56</u>	mph
Average Ripping Width:	<u>7.08</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>0.748</u>	acres/hour

### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.748 Acres/hr

Site Altitude: 6,200 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.62 Acres/hr

Adjusted Hourly Fleet Production: 0.62 Acres/hr

## JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 2.01 Hours

Unit cost: \$362.534 Per acre Total job cost: \$453

**BULLDOZER WORK**Task description: Topsoil replacement on pit floor and upper banksSite: Tierra Piedra Gravel PitPermit Action: 2019 UpdatePermit/Job#: M2009081**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 1/2/2019County: ArchuletaFilename: M081-003User: LJWAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$8.93	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$217.42	
Total Fleet Cost/Hour:	\$217.42	

**MATERIAL QUANTITIES**Initial Volume: 807Swell factor: 1.429Loose volume: 1,153 LCYSource of estimated volume: 1 Acre, 6" deepSource of estimated swell  
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 400 feetUnadjusted hourly  
production: 183.3 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push  
gradient: 0 %Average site altitude: 6,200 feetMaterial weight: 1,600 lbs/LCYWeight description: Top Soil**Job Condition Correction Factor****Source**

Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9668

Adjusted unit  
production: 177.21 LCY/hr  
Adjusted fleet  
production: 177.21 LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)  
Unit cost: \$1.227/LCY  
  
Total job time: 6.51 Hours  
Total job cost: \$1,414

REVEGETATION WORKTask description: RevegetationSite: Tierra Piedra Gravel PitPermit Action: 2019 UpdatePermit/Job#: M2009081PROJECT IDENTIFICATIONTask #: 004State: ColoradoAbbreviation: NoneDate: 1/2/2019County: ArchuletaFilename: M081-004User: LJWAgency or organization name: DRMSFERTILIZING**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
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
<b>Total Tilling Cost/Acre</b>	<b>\$193.60</b>

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Crested Wheatgrass - Standard	6.00	27.55	\$23.04
Smooth Brome - Lincoln	8.00	26.63	\$34.88
Alfalfa - NK Spredor 3 (creeping)	4.00	19.28	\$10.44
Sainfoin - Remont	10.00	4.36	\$32.40
<b>Totals Seed Mix</b>	<b>28.00</b>	<b>77.82</b>	<b>\$100.76</b>

**Application**

Description	Cost /Acre



**EQUIPMENT MOBILIZATION/DEMobilIZATION**Task description: Mob/ DemobSite: Tierra Piedra Gravel PitPermit Action: 2019 UpdatePermit/Job#: M2009081**PROJECT IDENTIFICATION**Task #: 005State: ColoradoAbbreviation: NoneDate: 1/2/2019County: ArchuletaFilename: M081-005User: LJWAgency or organization name: DRMS**EQUIPMENT TRANSPORT RIG COST**Shift basis: 1 per day  
Cost 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
<b>Total Unit Cost/Hour:</b>	<b>\$88.67</b>	<b>\$117.55</b>	<b>\$125.45</b>

**NON ROADABLE EQUIPMENT:**

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	53.08	\$102.55	\$125.45	1	\$228.00	\$125.45	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00

Subtotals: **\$332.21**    **\$214.12**    **\$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: PAGOSA SPRINGS  
 Total one-way travel distance: 28.00 miles  
 Average Travel Speed: 60.00 mph

Total Non-Roadable Mob/Demob Cost \* \$1,842.12  
 \* two round trips with haul rig:  
 Total Roadable Mob/Demob Cost \*\* \$11.41  
 \*\* one round trip, no haul rig:

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.47	0.47
Return Time (Hours):	0.47	0.47
Loading Time (Hours):	0.25	NA
Unloading Time (Hours):	0.25	NA
Subtotals:	1.43	0.93

**JOB TIME AND COST**

Total job time: 2.87 Hours

Total job cost: \$1,854