

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
<u>SUBTOTALS:</u>				21.54	\$4,190

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02
Performance bond: 1.05
Job superintendent: 10.77
Profit: 10.00

Total = \$84.64
Total = \$44.00
Total = \$786.75
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
Engineering work and/or contract/bid preparation: 0.00
Reclamation management and/or administration: 5.00

Total = 0.00
Total = \$0.00
Total = \$276.22

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$1,610.61

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

BULLDOZER WORKTask description: Finish grade pit floor and upper banksSite: Tierra Piedra Gravel PitPermit Action: 2019 UpdatePermit/Job#: M2009081**PROJECT IDENTIFICATION**Task #: 001State: ColoradoAbbreviation: NoneDate: 1/2/2019County: ArchuletaFilename: M081-001User: 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 QUANTITIESInitial Volume: 807Swell factor: 1.165Loose volume: 940 LCYSource of estimated volume: Permit Application, site estimatesSource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly
production: 1,400.0 LCY/hrMaterials consistency description: Compacted fill or embankment 0.9Average push
gradient: 0 %Average site altitude: 6,200 feetMaterial weight: 2,900 lbs/LCYWeight description: Decomposed rock - 50% Rock, 50% EarthJob Condition Correction FactorSource

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:	\$225.20	

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 WORKTask 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:	<u>\$93.62</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$73.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$8.93</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>\$217.42</u>	
Total Fleet Cost/Hour:	<u>\$217.42</u>	

MATERIAL QUANTITIESInitial 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#: M2009081**PROJECT IDENTIFICATION**Task #: 004
Date: 1/2/2019
User: LJWState: Colorado
County: ArchuletaAbbreviation: None
Filename: M081-004Agency or organization name: DRMS**FERTILIZING****Materials**

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

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
Total Tilling Cost/Acre	\$193.60

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
Totals Seed Mix	28.00	77.82	\$100.76

Application

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

MULCHING and MISCELLANEOUS

Materials

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

Application

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

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acres:	<u>1</u>	Cost /Acre:	<u>\$1,206.36</u>
Estimated Failure Rate:	<u>25%</u>	Cost /Acre*:	<u>\$1,012.76</u>
*Selected Replanting Work Items:	<u>SEEDING,MULCHING</u>		
Initial Job Cost:	<u>\$1,206.36</u>		
Reseeding Job Cost:	<u>\$253.19</u>		
Total Job Cost:	<u>\$1,460</u>		
Job Hours:	<u>8.00</u>		

EQUIPMENT MOBILIZATION/DEMobilIZATIONTask 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:**

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	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:	<u>PAGOSA SPRINGS</u>	
Total one-way travel distance:	<u>28.00</u>	miles
Average Travel Speed:	<u>60.00</u>	mph

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

Transportation Cycle Time:

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

JOB TIME AND COST

Total job time:	<u>2.87</u>	Hours
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Total job cost:	<u>\$1,854</u>
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