COST SUMMARY WORK

Task description: **Post Inspection Update**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: ACY State: Colorado Abbreviation: None
Date: 7/20/2021 County: Mesa Filename: M114-ACY
User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01c	Rip Compacted Stockpile Areas - Lake 1	RIPPER	2	4.28	$2,229
01d	Transport Lake 1 Topsoil and Placement	TRUCK1	1	35.23	$40,647
01f	Lake 1 Revegetate Dry Rangeland	REVEGE	1	16.00	$19,959
03a	Drain lake 3 for grading banks	PUMPING	1	403.88	$28,130
03b	Lake 3 establish 3H:1V slope from 2H:1V	DOZER	2	7.38	$3,469
03c	Rip Compacted Areas - Lake 3	RIPPER	2	12.84	$6,686
03d	Transport Lake 3 Topsoil and Placement	TRUCK1	1	35.28	$40,710
03e	Revegetate Wetland Areas Lake 3	REVEGE	1	3.00	$25,030
03f	Lake 3 Revegetate Dry Rangeland	REVEGE	1	24.00	$71,282
04a	Drain lake 4 for grading banks	PUMPING	1	474.63	$33,058
04b	Lake 4 establish 3H:1V slope from 2H:1V	DOZER	2	2.92	$1,371
04c	Rip Compacted Areas - Lake 4	RIPPER	2	5.39	$2,808
04d	Transport Lake 4 Topsoil and Placement	TRUCK1	1	14.60	$16,842
04e	Revegetate Wetland Areas Lake 4	REVEGE	1	4.00	$9,880
04f	Lake 4 Revegetate Dry Rangeland	REVEGE	1	16.00	$29,938
05a	Structure Removal	DEMOLISH	1	8.00	$3,690
06a	Initial Mobilization	MOBILIZE	1	2.34	$6,680
06b	Secondary Mobilization	MOBILIZE	1	2.34	$1,387
		SUBTOTALS:		**1072.11**	**$343,796**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$6,945
Performance bond:	1.05	Total =	$3,610
Job superintendent:	200.00	Total =	$14,406
Profit:	10.00	Total =	$34,380
		TOTAL O & P =	$59,340
		CONTRACT AMOUNT (direct + O & P) =	$403,136

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.25	Total =	$17,133
Reclamation management and/or administration:	5.00		$20,157
CONTINGENCY:	3.00	Total =	$10,314
		TOTAL INDIRECT COST =	$107,444
		TOTAL BOND AMOUNT (direct + indirect) =	**$451,240**

BULLDOZER RIPPING WORK

Task description: **Rip Compacted Stockpile Areas - Lake 1**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 01C State: Colorado Abbreviation: None
Date: 7/20/2021 County: Mesa Filename: M114-01c
User: ACY

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper Ownership Cost/Hour:	$15.19	NA
Ripper Operating Cost/Hour:	$9.94	100
Operator Cost/Hour:	$40.04	NA
Total Unit Cost/Hour:	$260.26	

Total Fleet Cost/Hour: **$520.51**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 5.00 acres Rip Depth (ft): 2.00 Volume: 16,133 BCY or CCY

Source of estimated quantity: 5 ac stockpile

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	feet/pass
Average Ripping Width:	7.08	feet/pass
Average Ripping Length:	100.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.703	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.703 Acres/hr

Site Altitude:	4,470	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.58 Acres/hr
Adjusted Hourly Fleet Production: **1.17** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **4.28** Hours

Unit cost: $445.769 Per acre Total job cost: **$2,229**

TRUCK/LOADER TEAM WORK

Task description: **Transport Lake 1 Topsoil and Placement**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 01D State: Colorado Abbreviation: None
Date: 7/20/2021 County: Mesa Filename: M114-01d
User: ACY

Agency 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:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	15	100	NA	NA
Ownership cost/hour:	$88.53	$67.72	$97.46	$97.46	NA	NA
Operating cost/hour:	$65.75	$67.62	$14.64	$97.63	NA	NA
%Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$15.19	$0.00	NA	NA
Ripper op. cost/hour:	NA	$0.00	$1.99	$0.00	NA	NA
Operator cost/hour:	$24.82	$35.97	$40.04	$40.04	NA	NA
Unit Subtotals:	$179.10	$171.31	$154.13	$235.13	NA	NA
Number of Units:	2	1	1	2	0	0
Group Subtotals:	Work:	$529.51	Support:	$624.39	Maint:	$0.00

Total work team cost/hour: **$1,153.90**

MATERIAL QUANTITIES

Initial volume: 21,414 CCY Swell factor: 1.000
Loose volume: **21,414** LCY

Source of estimated volume: 11.51 wetlands + 8.4 dryland @ 8”
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY
Description: Top Soil
Rated 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: **31.50** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	**7.875**	LCY

Job Condition Corrections: Site Altitude (ft.): 4470 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.830**	**0.830**	

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:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.490**	minutes
	Net Load Time per Truck:	**1.570**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.570	Minutes	Adjusted for site altitude:	1.570	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	1.00	8.00	9.00	983	1.312

Haul Time: **1.312** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	8.00	7.00	2470	0.679

Return Time: **0.679** minutes
Total Truck Cycle Time: **5.161** minutes

Loading Tool unit Production 870.97 LCY/Hour Adjusted for job efficiency: 722.90 LCY/Hour

Truck Unit Production 366.21 LCY/Hour Adjusted for job efficiency: 303.95 LCY/Hour

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

Adjusted hourly truck team production: 607.91 LCY/Hour
Adjusted single truck/loader team production: 607.91 LCY/Hour
Adjusted multiple truck/loader team production: **607.91** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **35.23** Hours

Unit cost: $1.898 /LCY Total job cost: **$40,647**

REVEGETATION WORK

Task description: **Lake 1 Revegetate Dry Rangeland**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 01F State: Colorado Abbreviation: None
Date: 7/20/2021 County: Mesa Filename: M114-01f
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Manure, 43.56 tons/ac.	1.00	acre	$2,063.06	$2,063.06
Sodium nitrate, 16-0-0	750.00	pound	$0.76	$570.00
			Total Fertilizer Materials Cost/Acre	**$2,633.06**

Application

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	$69.26
Tractor towed spreader (MEANS 32 01 90.13 0120)	$38.77
Total Fertilizer Application Cost/Acre	**$108.03**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$114.56
Weed control spraying (MEANS 31 31 16.13 3100)	$290.40
Total Tilling Cost/Acre	**$404.96**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Sand Dropseed	2.50	298.44	$24.38
Sandberg Bluegrass - VNS	2.00	42.47	$16.80
Galleta	2.50	9.13	$55.88
Globemallow, Scarlet (or copper)	0.50	5.66	$67.75
Winter Fat	0.25	0.64	$5.13
Yarrow, Western	0.50	30.40	$20.90
Kochia, Forage (Prostrate)	0.25	35.11	$2.24

Totals Seed Mix	8.50	421.84	**$193.07**

Application

Description	**Cost /Acre**
Drill Seeding (DRMS Survey Cost)	$232.00
Total Seed Application Cost/Acre	**$232.00**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, truck, non-aquatic areas, ann. [DMG]	$22.81
Total Mulch Application Cost/Acre	**$200.67**

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: 4.2 Cost /Acre: $4,081.79
Estimated Failure Rate: 50% Cost /Acre*: $1,340.70
*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **$17,143.52**
Reseeding Job Cost: **$2,815.47**
Total Job Cost: **$19,959**
Job Hours: **16.00**

PUMPING WORK

Task description: **Drain lake 3 for grading banks**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 03A State: Colorado Abbreviation: None
Date: 7/20/2021 County: Mesa Filename: M114-03a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Submersible pump - 460v, 8 in.	2
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	2
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	4
Labor Unit 1:	Pump operator	1

Horsepower: 95
Shift Basis: 1 per day
Weight: 0.70
(US Tons)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$32.04	NA
Operating Cost/Hour:	$9.38	100
Operator Cost/Hour:	$28.23	NA
Total Unit Cost/Hour:	$69.65	

Total Fleet Cost/Hour: $69.65

PUMPING QUANTITIES

Initial Pond Volume: 288.00
Final Pond Volume: **93,844,967.04** gallons
Total Pond Inflow Surface Area: 1,045,440 Sq. ft.
Total Pond Inflow Volume per Hour: 183,788.35 gallons

Conversion factor: 325850.5800
Unit inflow rate in gph/sq. ft.: 0.1758

Source of estimated volume: 24 ac of ponds pumped 12’ down

PUMPING TIME

Maximum Pump Capacity:	170,000	gph/pump
Estimated Suction Head:	5	feet
Estimated Discharge Head:	25	feet
Total Head:	30	feet
CPB Pump Capacity:	165,600	gph/pump
Site Altitude:	4,470	feet

Adjusted Pumping Capacity:	331,200	gph
Initial Unadjusted Pumping Time:	283.35	hours
Inflow during Initial Pumping:	52,076,123	gallons
Net Unadjusted Pumping Time:	440.58	Hours
Altitude Adjustment Factor:	1.0000	(3% rule)
Pump Efficiency Factor:	0.9167	(55 min./hr.)
Total Adjusted Pumping Time:	403.88	hours

JOB TIME AND COST

Total job time: **403.88** Hours

Unit cost: $0.000193 /Gallon Total job cost: **$28,130**

BULLDOZER WORK

Task description: **Lake 3 establish 3H:1V slope from 2H:1V**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 03B State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-03b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $235.13
Total Fleet Cost/Hour: **$470.25**

MATERIAL QUANTITIES

Initial Volume: 7,963
Swell factor: 1.250
Loose volume: **9,954** LCY

Source of estimated volume: 4300LF of 20'H @ 2:1
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 65 feet
Unadjusted hourly production: 1,170.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -20 %
Average site altitude: 4,400 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

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:	0.800	(FND-RF)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5765

Adjusted unit production: 674.68 LCY/hr
Adjusted fleet production: **1349.36** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.348/LCY

Total job time: **7.38** Hours
Total job cost: **$3,469**

BULLDOZER RIPPING WORK

Task description: **Rip Compacted Areas - Lake 3**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 03C State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-03c
User: ACY

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper Ownership Cost/Hour:	$15.19	NA
Ripper Operating Cost/Hour:	$9.94	100
Operator Cost/Hour:	$40.04	NA
Total Unit Cost/Hour:	$260.26	

Total Fleet Cost/Hour: **$520.51**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 15.00 acres Rip Depth (ft): 2.00 Volume: 48,400 BCY or CCY

Source of estimated quantity: 15 ac stockpile, yard, office scale area

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	feet/pass
Average Ripping Width:	7.08	feet/pass
Average Ripping Length:	100.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.703	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.703 Acres/hr

Site Altitude:	4,470	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.58 Acres/hr
Adjusted Hourly Fleet Production: **1.17** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **12.85** Hours

Unit cost: $445.769 Per acre Total job cost: **$6,686**

TRUCK/LOADER TEAM WORK

Task description: **Transport Lake 3 Topsoil and Placement**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 03D State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-03d
User: ACY

Agency 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:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	15	100	NA	NA
Ownership cost/hour:	$88.53	$67.72	$97.46	$97.46	NA	NA
Operating cost/hour:	$65.75	$67.62	$14.64	$97.63	NA	NA
%Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$15.19	$0.00	NA	NA
Ripper op. cost/hour:	NA	$0.00	$1.99	$0.00	NA	NA
Operator cost/hour:	$24.82	$35.97	$40.04	$40.04	NA	NA
Unit Subtotals:	$179.10	$171.31	$154.13	$235.13	NA	NA
Number of Units:	2	1	1	2	0	0
Group Subtotals:	Work:	$529.51	Support:	$624.39	Maint:	$0.00

Total work team cost/hour: **$1,153.90**

MATERIAL QUANTITIES

Initial volume: 21,447 CCY Swell factor: 1.000
Loose volume: **21,447** LCY

Source of estimated volume: 4.94 ac wetlands + 15 dryland @ 8”
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY
Description: Top Soil
Rated 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: **31.50** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	**7.875**	LCY

Job Condition Corrections: Site Altitude (ft.): 4470 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.830**	**0.830**	

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:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.490**	minutes
	Net Load Time per Truck:	**1.570**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.570	Minutes	Adjusted for site altitude:	1.570	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	1.00	8.00	9.00	983	1.312

Haul Time: **1.312** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	8.00	7.00	2470	0.679

Return Time: **0.679** minutes
Total Truck Cycle Time: **5.161** minutes

Loading Tool unit Production 870.97 LCY/Hour Adjusted for job efficiency: 722.90 LCY/Hour

Truck Unit Production 366.21 LCY/Hour Adjusted for job efficiency: 303.95 LCY/Hour

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

Adjusted hourly truck team production: 607.91 LCY/Hour
Adjusted single truck/loader team production: 607.91 LCY/Hour
Adjusted multiple truck/loader team production: **607.91** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **35.28** Hours

Unit cost: $1.898 /LCY Total job cost: **$40,710**

REVEGETATION WORK

Task description: **Revegetate Wetland Areas Lake 3**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 03E State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-03e
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Manure, 43.56 tons/ac.	1.00	acre	$2,063.06	$2,063.06
Sodium nitrate, 16-0-0	750.00	pound	$0.76	$570.00
			Total Fertilizer Materials Cost/Acre	**$2,633.06**

Application

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	$69.26
Tractor towed spreader (MEANS 32 01 90.13 0120)	$38.77
Total Fertilizer Application Cost/Acre	**$108.03**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$114.56
Total Tilling Cost/Acre	**$114.56**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	1.00	39.03	$28.48
Orchardgrass - Potomac	0.50	6.20	$2.13
Elk Sedge	0.10	0.23	$43.10
Slender Wheatgrass - Native	3.00	10.95	$13.88
Western Wheatgrass - Arriba	0.10	0.25	$0.65
Sweetvetch, Utah or Northern	0.50	0.23	$37.50
Red Top	1.00	114.55	$7.88
Reedgrass, Canadian (or Blue Joint)	0.20	20.57	$40.65
Reedgrass, Northern - Native	0.50	51.42	$68.33

Saltgrass, Inland	1.00	13.86	$42.80
Snowberry, Western	1.00	1.72	$63.50
Sumac, Skunkbrush	0.40	0.19	$8.40
Timothy, Alpine - Native	1.00	29.84	$24.25
Basin Wildrye - Trailhead	1.50	6.10	$23.12
Greasewood, Black	1.00	140.45	$19.00
Totals Seed Mix	12.80	435.59	**$423.65**

Application

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

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, truck, aquatic area, annuals [DMG]	$22.81
Total Mulch Application Cost/Acre	**$200.67**

NURSERY STOCK PLANTING

Common Name	**No / Acre**	**Type and Size**	**Planting Cost**	**Fertilizer Pellet Cost**	**Cost /Acre**
Cottonwood, Plains	22	Container, 2 gallon (MEANS)	$32.10	$2.40	$706.20
Totals Nursery Stock Cost / Acre					**$706.20**

JOB TIME AND COST

No. of Acres:	4.94	Cost /Acre:	$4,763.39
Estimated Failure Rate:	15%	Cost /Acre*:	$2,022.30
*Selected Replanting Work Items:	TILLING,SEEDING,NURSERY,MULCHING		

Initial Job Cost:	**$23,531.15**
Reseeding Job Cost:	**$1,498.52**
Total Job Cost:	**$25,030**
Job Hours:	**3.00**

REVEGETATION WORK

Task description: **Lake 3 Revegetate Dry Rangeland**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 03F State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-03f
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Manure, 43.56 tons/ac.	1.00	acre	$2,063.06	$2,063.06
Sodium nitrate, 16-0-0	750.00	pound	$0.76	$570.00
			Total Fertilizer Materials Cost/Acre	**$2,633.06**

Application

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	$69.26
Tractor towed spreader (MEANS 32 01 90.13 0120)	$38.77
Total Fertilizer Application Cost/Acre	**$108.03**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$114.56
Weed control spraying (MEANS 31 31 16.13 3100)	$290.40
Total Tilling Cost/Acre	**$404.96**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Sand Dropseed	2.50	298.44	$24.38
Sandberg Bluegrass - VNS	2.00	42.47	$16.80
Galleta	2.50	9.13	$55.88
Globemallow, Scarlet (or copper)	0.50	5.66	$67.75
Winter Fat	0.25	0.64	$5.13
Yarrow, Western	0.50	30.40	$20.90
Kochia, Forage (Prostrate)	0.25	35.11	$2.24

Totals Seed Mix	8.50	421.84	**$193.07**

Application

Description	**Cost /Acre**
Drill Seeding (DRMS Survey Cost)	$232.00
Total Seed Application Cost/Acre	**$232.00**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, truck, non-aquatic areas, ann. [DMG]	$22.81
Total Mulch Application Cost/Acre	**$200.67**

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 Cost /Acre: $4,081.79
Estimated Failure Rate: 50% Cost /Acre*: $1,340.70
*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **$61,226.85**
Reseeding Job Cost: **$10,055.25**
Total Job Cost: **$71,282**
Job Hours: **24.00**

PUMPING WORK

Task description: **Drain lake 4 for grading banks**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 04A State: Colorado Abbreviation: None
Date: 7/20/2021 County: Mesa Filename: M114-04a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Submersible pump - 460v, 8 in.	2
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	2
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	4
Labor Unit 1:	Pump operator	1

Horsepower: 95
Shift Basis: 1 per day
Weight: 0.70
(US Tons)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$32.04	NA
Operating Cost/Hour:	$9.38	100
Operator Cost/Hour:	$28.23	NA
Total Unit Cost/Hour:	$69.65	

Total Fleet Cost/Hour: $69.65

PUMPING QUANTITIES

Initial Pond Volume: 324.00 Conversion factor: 325850.5800
Final Pond Volume: **105,575,587.92** gallons
Total Pond Inflow Surface Area: 1,176,120 Sq. ft. Unit inflow rate in gph/sq. ft.: 0.1758
Total Pond Inflow Volume per Hour: 206,761.90 gallons

Source of estimated volume: 27 ac of ponds pumped 12’ down

PUMPING TIME

Maximum Pump Capacity:	170,000	gph/pump
Estimated Suction Head:	5	feet
Estimated Discharge Head:	25	feet
Total Head:	30	feet
CPB Pump Capacity:	165,600	gph/pump
Site Altitude:	4,470	feet

Adjusted Pumping Capacity:	331,200	gph
Initial Unadjusted Pumping Time:	318.77	hours
Inflow during Initial Pumping:	65,908,843	gallons
Net Unadjusted Pumping Time:	517.77	Hours
Altitude Adjustment Factor:	1.0000	(3% rule)
Pump Efficiency Factor:	0.9167	(55 min./hr.)
Total Adjusted Pumping Time:	474.64	hours

JOB TIME AND COST

Total job time: **474.64** Hours

Unit cost: $0.000193 /Gallon Total job cost: **$33,058**

BULLDOZER WORK

Task description: **Lake 4 establish 3H:1V slope from 2H:1V**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 04B State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-04b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $235.13
Total Fleet Cost/Hour: **$470.25**

MATERIAL QUANTITIES

Initial Volume: 3,148
Swell factor: 1.250
Loose volume: **3,935** LCY

Source of estimated volume: 1700LF of 20'H @ 2:1
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 65 feet
Unadjusted hourly production: 1,170.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -20 %
Average site altitude: 4,400 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

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:	0.800	(FND-RF)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5765

Adjusted unit production: 674.68 LCY/hr
Adjusted fleet production: **1349.36** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.348/LCY

Total job time: **2.92** Hours
Total job cost: **$1,371**

BULLDOZER RIPPING WORK

Task description: **Rip Compacted Areas - Lake 4**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 04C State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-04c
User: ACY

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper Ownership Cost/Hour:	$15.19	NA
Ripper Operating Cost/Hour:	$9.94	100
Operator Cost/Hour:	$40.04	NA
Total Unit Cost/Hour:	$260.26	

Total Fleet Cost/Hour: **$520.51**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 6.30 acres Rip Depth (ft): 2.00 Volume: 20,328 BCY or CCY

Source of estimated quantity: 6.3ac Wash plant area

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	feet/pass
Average Ripping Width:	7.08	feet/pass
Average Ripping Length:	100.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.703	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.703 Acres/hr

Site Altitude:	4,470	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.58 Acres/hr
Adjusted Hourly Fleet Production: **1.17** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **5.40** Hours

Unit cost: $445.769 Per acre Total job cost: **$2,808**

TRUCK/LOADER TEAM WORK

Task description: **Transport Lake 4 Topsoil and Placement**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 04D State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-04d
User: ACY

Agency 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:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	15	100	NA	NA
Ownership cost/hour:	$88.53	$67.72	$97.46	$97.46	NA	NA
Operating cost/hour:	$65.75	$67.62	$14.64	$97.63	NA	NA
%Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$15.19	$0.00	NA	NA
Ripper op. cost/hour:	NA	$0.00	$1.99	$0.00	NA	NA
Operator cost/hour:	$24.82	$35.97	$40.04	$40.04	NA	NA
Unit Subtotals:	$179.10	$171.31	$154.13	$235.13	NA	NA
Number of Units:	2	1	1	2	0	0
Group Subtotals:	Work:	$529.51	Support:	$624.39	Maint:	$0.00

Total work team cost/hour: **$1,153.90**

MATERIAL QUANTITIES

Initial volume: 8,873 CCY Swell factor: 1.000
Loose volume: **8,873** LCY

Source of estimated volume: 1.95 ac wetlands + 6.3 dryland @ 8”
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY
Description: Top Soil
Rated 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: **31.50** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	**7.875**	LCY

Job Condition Corrections: Site Altitude (ft.): 4470 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.830**	**0.830**	

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:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.490**	minutes
	Net Load Time per Truck:	**1.570**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.570	Minutes	Adjusted for site altitude:	1.570	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	1.00	8.00	9.00	983	1.312

Haul Time: **1.312** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	8.00	7.00	2470	0.679

Return Time: **0.679** minutes
Total Truck Cycle Time: **5.161** minutes

Loading Tool unit Production 870.97 LCY/Hour Adjusted for job efficiency: 722.90 LCY/Hour

Truck Unit Production 366.21 LCY/Hour Adjusted for job efficiency: 303.95 LCY/Hour

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

Adjusted hourly truck team production: 607.91 LCY/Hour
Adjusted single truck/loader team production: 607.91 LCY/Hour
Adjusted multiple truck/loader team production: **607.91** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **14.60** Hours

Unit cost: $1.898 /LCY Total job cost: **$16,842**

REVEGETATION WORK

Task description: **Revegetate Wetland Areas Lake 4**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 04E State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-04e
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Manure, 43.56 tons/ac.	1.00	acre	$2,063.06	$2,063.06
Sodium nitrate, 16-0-0	750.00	pound	$0.76	$570.00
			Total Fertilizer Materials Cost/Acre	**$2,633.06**

Application

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	$69.26
Tractor towed spreader (MEANS 32 01 90.13 0120)	$38.77
Total Fertilizer Application Cost/Acre	**$108.03**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$114.56
Total Tilling Cost/Acre	**$114.56**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	1.00	39.03	$28.48
Orchardgrass - Potomac	0.50	6.20	$2.13
Elk Sedge	0.10	0.23	$43.10
Slender Wheatgrass - Native	3.00	10.95	$13.88
Western Wheatgrass - Arriba	0.10	0.25	$0.65
Sweetvetch, Utah or Northern	0.50	0.23	$37.50
Red Top	1.00	114.55	$7.88
Reedgrass, Canadian (or Blue Joint)	0.20	20.57	$40.65
Reedgrass, Northern - Native	0.50	51.42	$68.33

Saltgrass, Inland	1.00	13.86	$42.80
Snowberry, Western	1.00	1.72	$63.50
Sumac, Skunkbrush	0.40	0.19	$8.40
Timothy, Alpine - Native	1.00	29.84	$24.25
Basin Wildrye - Trailhead	1.50	6.10	$23.12
Greasewood, Black	1.00	140.45	$19.00
Totals Seed Mix	12.80	435.59	**$423.65**

Application

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

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

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Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, truck, aquatic area, annuals [DMG]	$22.81
Total Mulch Application Cost/Acre	**$200.67**

NURSERY STOCK PLANTING

Common Name	**No / Acre**	**Type and Size**	**Planting Cost**	**Fertilizer Pellet Cost**	**Cost /Acre**
Cottonwood, Plains	22	Container, 2 gallon (MEANS)	$32.10	$2.40	$706.20
Totals Nursery Stock Cost / Acre					**$706.20**

JOB TIME AND COST

No. of Acres:	1.95	Cost /Acre:	$4,763.39
Estimated Failure Rate:	15%	Cost /Acre*:	$2,022.30
*Selected Replanting Work Items:	TILLING,SEEDING,NURSERY,MULCHING		

Initial Job Cost:	**$9,288.61**
Reseeding Job Cost:	**$591.52**
Total Job Cost:	**$9,880**
Job Hours:	**4.00**

REVEGETATION WORK

Task description: **Lake 4 Revegetate Dry Rangeland**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 04F State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-04f
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Manure, 43.56 tons/ac.	1.00	acre	$2,063.06	$2,063.06
Sodium nitrate, 16-0-0	750.00	pound	$0.76	$570.00
			Total Fertilizer Materials Cost/Acre	**$2,633.06**

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Globemallow, Scarlet (or copper)	0.50	5.66	$67.75
Winter Fat	0.25	0.64	$5.13
Yarrow, Western	0.50	30.40	$20.90
Kochia, Forage (Prostrate)	0.25	35.11	$2.24

Totals Seed Mix	8.50	421.84	**$193.07**

Application

Description	**Cost /Acre**
Drill Seeding (DRMS Survey Cost)	$232.00
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MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
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Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, truck, non-aquatic areas, ann. [DMG]	$22.81
Total Mulch Application Cost/Acre	**$200.67**

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: 6.3 Cost /Acre: $4,081.79
Estimated Failure Rate: 50% Cost /Acre*: $1,340.70
*Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **$25,715.28**
Reseeding Job Cost: **$4,223.21**
Total Job Cost: **$29,938**
Job Hours: **16.00**

DEMOLITION WORK

Task description: **Structure Removal**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 05A State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-05a
User: ACY

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 95.50 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Scale	24' x 28'	Loading and 2 mile haul, no salvage - Machine loading	25.00	CY	$18.25	$456.25
Office	24' x 28' x 8'	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	5,376.00	CF	$0.22	$1,171.97
Office Foundation	24' x 28' x 6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	672.00	SF	$1.05	$707.62
Scale	24' x 28'	Hauling only, per mile, 12-18 CY truck - 30 mph average speed	30.00	MI	$7.61	$228.30
Storage Building	30' x 60'	USER PROVIDED ITEM	300.00	-	$1.00	$300.00
Fuel Storage	-	USER PROVIDED ITEM	1,000.00	-	$1.00	$1,000.00

Job Hours: **8.00** **Subtotal (unadjusted):** **$3,864.14** **Total Cost (adjusted for location):** **$3,690.25**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Initial Mobilization**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 06A State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-06a
User: ACY

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:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	$21.28	$37.94	$47.67
Operating Cost/Hour:	$26.55	$50.48	$56.21
Operator Cost/Hour:	$20.54	$20.54	$20.54
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$68.37	$132.49	$147.95

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
Submersible pump - 460v, 8 in.	0.70	$14.98	$68.37	1	$83.35	$68.37	$250.00
Cat D8T - 8SU	53.08	$112.65	$147.95	2	$521.20	$295.90	$250.00
Cat 740	36.49	$88.53	$132.49	1	$221.02	$132.49	$250.00
CAT 980H	33.12	$67.72	$132.49	2	$400.42	$264.98	$500.00
Drill/Broadcast Seeder with Tractor	25.00	$7.98	$68.37	1	$76.35	$68.37	$250.00
Power Mulcher (Bowie LD-90)	6.00	$14.98	$68.37	1	$83.35	$68.37	$250.00
Subtotals:					**$1,385.69**	**$898.48**	**$1,750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	$48.74	2	$97.48	$97.48
Subtotals:			**$97.48**	**$97.48**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	FRUITA	
Total one-way travel distance:	3.00	miles
Average Travel Speed:	35.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$6,662.95
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$16.71

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.09	0.09
Return Time (Hours):	0.09	0.09
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.17	0.17

JOB TIME AND COST

Total job time:	**2.34**	Hours
Total job cost:	**$6,680**	

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Secondary Mobilization**

Site: **15 Road Gravel Pit** Permit Action: 2021-05 Permit/Job#: M2002114

PROJECT IDENTIFICATION

Task #: 06B State: Colorado Abbreviation: None
Date: 7/21/2021 County: Mesa Filename: M114-06b
User: ACY

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:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	$21.28	$37.94	$47.67
Operating Cost/Hour:	$26.55	$50.48	$56.21
Operator Cost/Hour:	$20.54	$20.54	$20.54
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$68.37	$132.49	$147.95

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
Drill/Broadcast Seeder with Tractor	25.00	$7.98	$68.37	1	$76.35	$68.37	$250.00
Power Mulcher (Bowie LD-90)	6.00	$14.98	$68.37	1	$83.35	$68.37	$250.00
Subtotals:					**$159.70**	**$136.74**	**$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, 1 T. Crew	$48.74	2	$97.48	$97.48
Subtotals:			**$97.48**	**$97.48**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	FRUITA	
Total one-way travel distance:	3.00	miles
Average Travel Speed:	35.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$1,370.22	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$16.71	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.09	0.09
Return Time (Hours):	0.09	0.09
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.17	0.17

JOB TIME AND COST

Total job time:	**2.34**	Hours
Total job cost:	**$1,387**	

2021-05 CIRCES Update

M-2002-114

Bond is sufficient

① Lake 1

complete

A - Dewater 9 ft D x 26.7ac → 240.3 ac/ft +1,163,052 inflow

B - Place overburden for 11.51ac wetland shelf 9 ft x 11.51ac → 167,125 cy

E - Reveg wetland 11.51ac

F - Reveg dryland 8.4ac half completed → 4.2 remaining

D - Topsoil 8.4ac around lake + 11.51 wetland 8" x 19.91 → 21,414.31 cy

C - Rip stockpile area ~5ac

③ Lake 3 (NW) ~24ac pit + 15ac yard

A - Dewater 12 ft D x 24ac → 288ac/ft +1,045,440 inflow

B - Regrade slopes 2:1 → 3:1 @ 20' H

perimeter ~4300 LF cut/fill → 7963cy

D - Topsoil 8" D @ 50' perimeter 4300 LF − (4.94ac) + 15ac ↓ → 19.94ac → 21,44:

C - Rip yard area ~15ac

E - Reveg Wetland → 4.94ac

F - Reveg Dryland → 15ac

④ Lake 4 (NE) ~27 ac pit + 6.3ac plant

A - Dewater 12 ft D x 27ac → 324ac/ft +1,174,320 inflow

B - Regrade slopes 2:1 → 3:1 @ 20' H

adjacent to pit 3 ~1700 LF cut/fill → 3,148 cy

D - Topsoil 8" D @ 50' perimeter 1700 LF (1.95ac) + 6.3ac plant → 8.25ac → 8,873.0 cy

C - Rip Plant area 6.3ac

E - Reveg Wetland 1.95ac

F - Reveg Dryland 6.3ac

(5) Structure Demo

No change from 2018 calc

(6) A Mob 1

B Mob 2