

## COST SUMMARY WORK

Task description: Surety Reduction Request due to completion of slurry wall, compacted clay liner, and French drain

Site: Hatchery Pit Permit Action: SR-01 Permit/Job#: M2014043

### PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None  
Date: 3/16/2022 County: Adams Filename: M043-000  
User: NCG

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Backfill and grade upper slopes	TRUCK1	1	86.53	\$130,130
002	Spread 10 inches of topsoil over 37.25 acres	SCRAPER1	1	49.29	\$73,424
003	Revegetation	REVEGE	1	43.50	\$36,788
004	Concrete demo from plant	DEMOLISH	1	0.00	\$12,119
005	Mobilization and Demobilization	MOBILIZE	1	4.72	\$16,236
<b><u>SUBTOTALS:</u></b>				<b>184.04</b>	<b>\$268,697</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$5,428
Performance bond:	1.05	Total =	\$2,821
Job superintendent:	92.02	Total =	\$6,628
Profit:	10.00	Total =	\$26,870
		TOTAL O & P =	\$41,747
		CONTRACT AMOUNT (direct + O & P) =	\$310,444

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	\$500	Total =	\$500
Engineering work and/or contract/bid preparation:	7.22	Total =	\$22,414
Reclamation management and/or administration:	5.30		\$16,454

CONTINGENCY: 0.00 Total = \$0

TOTAL INDIRECT COST = \$81,114

TOTAL AMOUNT (direct + indirect) = \$349,811

**TOTAL BOND AMOUNT (rounded) = \$350,000**

**TRUCK/LOADER TEAM WORK**Task description: **Backfill and grade upper slopes**Site: **Hatchery Pit**Permit Action: SR1Permit/Job#: M2014043**PROJECT IDENTIFICATION**Task #: 001State: ColoradoAbbreviation: NoneDate: 3/16/2022County: AdamsFilename: M043-001User: NCGAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 725
-Loader:	CAT 990H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 10,000 Gal.

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

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	50	100	25	25
Ownership cost/hour:	\$72.63	\$116.41	\$126.01	\$126.01	\$47.01	\$84.03
Operating cost/hour:	\$49.40	\$110.53	\$70.71	\$141.41	\$9.42	\$27.17
% Utilization-ripper:	NA	0	25	0	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$19.26	\$19.26	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$2.87	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$35.97	\$40.04	\$40.04	\$46.87	\$38.91
Unit Subtotals:	\$146.85	\$262.91	\$239.62	\$307.46	\$103.30	\$150.10
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$703.46		Support: \$547.08		Maint: \$253.40	

Total work team cost/hour: **\$1,503.94****MATERIAL QUANTITIES**Initial volume: 55,558

CCY

Swell factor: 1.115Loose volume: **61,947**

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 2,100

Pounds/LCY

Description: Earth - LoamRated Payload: 52,000

Pounds

Payload Capacity: 24.76

LCY

**Truck Bed (volume) Basis:**

Struck Volume:	14.50	LCY
Heaped Volume:	18.70	LCY
Average Volume:	16.60	LCY
Adjusted Volume:	18.70	LCY

Final Truck Volume Based on Number of Loader Passes: **11.81** LCY

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	11.250	LCY (heaped)
Bucket Fill Factor:	1.050	Moist loam or sandy clay (100% - 110%) 1.050
Adjusted Capacity:	<b>11.813</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 5100 feet

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

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 1 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): 0.600 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders -0.04	-0.040	(Cat HB)
Operation:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Dump Target:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		0.000	minutes
Adjusted Loader Cycle Time:		<b>0.600</b>	minutes
Net Load Time per Truck:		<b>0.100</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.100	Minutes	Adjusted for site altitude:	0.100	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	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	700.00	0.00	3.00	3.00	2244	0.569

Haul Time: **0.569** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	0.00	3.00	3.00	2884	0.396

Return Time: **0.396** minutesTotal Truck Cycle Time: **2.465** minutes

## Loading Tool unit

Production 1,181.25 LCY/Hour      Adjusted for job efficiency: 980.44 LCY/Hour  
Truck Unit Production 287.53 LCY/Hour      Adjusted for job efficiency: 238.65 LCY/Hour

Optimal No. of Trucks: 4 Truck(s)      Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 715.94 LCY/Hour  
Adjusted single truck/loader team production: 715.94 LCY/Hour  
Adjusted multiple truck/loader team production: **715.94** LCY/Hour

**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: **86.53** HoursUnit cost: \$2.101 /LCY      Total job cost: **\$130,130**

**SCRAPER TEAM WORK**Task description: **Spread 10 inches of topsoil over 37.25 acres**Site: **Hatchery Pit**Permit Action: SR1Permit/Job#: M2014043**PROJECT IDENTIFICATION**Task #: 002State: ColoradoAbbreviation: NoneDate: 3/16/2022County: AdamsFilename: M043-002User: NCGAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-Dozer:	Cat D9T - 9SU
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 10,000 Gal.

**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	25	25
Ownership cost/hour:	\$223.48	\$126.01	NA	NA	\$47.01	\$84.03
Operating cost/hour:	\$193.77	\$141.41	NA	NA	\$9.42	\$27.17
%Utilization-ripper:	NA	NA	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:	\$47.07	\$40.04	NA	NA	\$46.87	\$38.91
Unit Subtotals:	\$464.32	\$307.46	NA	NA	\$103.30	\$150.10
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work: \$1,236.10		Support:	\$0.00	Maint:	\$253.40

Total work team cost/hour: **\$1,489.50****MATERIAL QUANTITIES**Initial volume: 50,080

CCY

Swell factor: 1.215Loose volume: **60,847**

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: 81,600 pounds  
 Payload Capacity: 51.00 LCY

Struck Volume: 24.00 LCY  
 Heaped Volume: 34.00 LCY  
 Average Volume: 29.00 LCY  
 Adjusted Capacity: **29.00** LCY

Cycle Time:Scraper Loading Time: 1.00 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 5100 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: Hard, smooth, stabilized, surfaced, watered, maintained 2.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	625.00	-1.00	2.00	1.00	2952	0.38

Haul Time: 0.38 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	625.00	1.00	2.00	3.00	2949	0.36

Return Time: 0.36 minutesTotal Scraper team cycle time: 2.34 minutesAdjusted for job conditions: 1,234.36 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 1,234.36 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 1,234.36 LCY/HourUnadjusted unit production/hour: 1,487.18 LCY/Hour

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

**JOB TIME AND COST**Fleet size: 1 Team(s)Total job time: 49.29 HoursUnit cost: \$1.207 /LCYTotal job cost: \$73,424

**REVEGETATION WORK**Task description: **Revegetation**Site: **Hatchery Pit**Permit Action: SR1Permit/Job#: M2014043**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 3/16/2022County: AdamsFilename: M043-003User: NCGAgency 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
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$114.56
Weed control spraying (MEANS 31 31 16.13 3100)	\$290.40
<b>Total Tilling Cost/Acre</b>	<b>\$404.96</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	0.56	9.14	\$7.69
Buffalograss - Native/Plains	3.13	3.02	\$37.77
Little Bluestem - Native	0.56	3.34	\$7.60
Sideoats Grama - El Reno	1.13	3.71	\$9.46
Intermediate Wheatgrass - Rush	1.38	2.95	\$3.86
Oats - Russel	0.56	0.17	\$0.18
Slender Wheatgrass - Native	1.48	5.40	\$6.85
Thickspike Wheatgrass - Critana	9.00	31.82	\$61.88

<b>Totals Seed Mix</b>	17.80	59.54	<b>\$135.28</b>
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**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>
			\$	\$
<b>Total Mulch Materials Cost/Acre</b>				<b>\$0.00</b>

**Application**

<b>Description</b>	<b>Cost /Acre</b>
	\$
<b>Total Mulch Application Cost/Acre</b>	<b>\$0.00</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:	43.5	Cost /Acre:	\$772.24
Estimated Failure Rate:	20%	Cost /Acre*:	\$367.28
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	<b>\$33,592.44</b>
Reseeding Job Cost:	<b>\$3,195.34</b>
Total Job Cost:	<b>\$36,788</b>
Job Hours:	<b>43.50</b>



## DEMOLITION WORK

Task description: Concrete demo from plant

Site: Hatchery Pit

Permit Action: SR1

Permit/Job#: M2014043

### PROJECT IDENTIFICATION

Task #: 004

State: Colorado

Abbreviation: None

Date: 3/16/2022

County: Adams

Filename: M043-004

User: NCG

Agency or organization name: DRMS

### UNIT COSTS

Location adjustment: 101.20 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Concrete Demolition From Plant	NA	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 200 ft. push	5,940.00	SF	\$2.02	\$11,975.04

Job Hours: 0.00

Subtotal  
(unadjusted): \$11,975.04

Total Cost  
(adjusted for location): \$12,118.74

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Mobilization and Demobilization**Site: **Hatchery Pit**Permit Action: **SR1**Permit/Job#: **M2014043****PROJECT IDENTIFICATION**Task #: **005**State: **Colorado**Abbreviation: **None**Date: **3/16/2022**County: **Adams**Filename: **M043-005**User: **NCG**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:	\$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
CAT 990H	83.34	\$116.41	\$147.95	1	\$264.36	\$147.95	\$250.00
Cat D9T - 9SU	66.13	\$145.27	\$147.95	2	\$586.44	\$295.90	\$500.00
CAT 12M	16.01	\$47.01	\$68.37	2	\$230.76	\$136.74	\$500.00
CAT 836H	54.88	\$223.80	\$147.95	1	\$371.75	\$147.95	\$250.00
Centrifugal pump - 200M, 10 in.	1.95	\$19.73	\$68.37	1	\$88.10	\$68.37	\$250.00
Cat 637G w/push- pull	59.59	\$223.48	\$147.95	2	\$742.86	\$295.90	\$500.00
Drill/Broadcast Seeder with Tractor	25.00	\$7.98	\$68.37	2	\$152.70	\$136.74	\$250.00

Subtotals: **\$2,436.97** **\$1,229.55** **\$2,500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Cat 725	\$146.85	1	\$146.85	\$146.85
Water Tanker, 10,000 Gal.	\$192.69	1	\$192.69	\$192.69
Fuel Tanker, 6x4, 210 HP	\$85.26	1	\$85.26	\$85.26

Subtotals:

**\$424.80****\$424.80**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region: DENVER  
 Total one-way travel distance: 10.00 miles  
 Average Travel Speed: 55.00 mph

Total Non-Roadable Mob/Demob Cost \* \$16,081.16  
 \*\* two round trips with haul rig:  
 Total Roadable Mob/Demob Cost \*\* \$154.47  
 \*\* one round trip, no haul rig:

**Transportation Cycle Time:**

	Non- Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.18	0.18
Return Time (Hours):	0.18	0.18
Loading Time (Hours):	1.00	NA
Unloading Time (Hours):	1.00	NA
Subtotals:	2.36	0.36

**JOB TIME AND COST**

Total job time: 4.73 Hours

Total job cost: \$16,236