

COST SUMMARY WORK

Task description: Cost Summary of Reclamation Tasks

Site: Dollerschell Pit Permit Action: CN01 2015 Cost Estimate

Permit/Job#: M1986074

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 11/6/2015 County: Logan Filename: M074-000
User: ERR

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Minor Grading of Tract 1	DOZER	1	11.90	\$2,571.00
002	Replace Topsoil on Tract 1	SCRAPER1	1	16.02	\$8,245.00
003	Revegetate Tract 1	REVEGE	1	10.00	\$4,432.00
004	Minor Grading of Tract 6 Disturbance	DOZER	1	3.47	\$750.00
005	Revegetate Tract 6 Disturbance	REVEGE	1	4.00	\$1,646.00
006	Mob-Demob of Reclamation Equipment	MOBILIZE	1	1.74	\$3,599.00
<u>SUBTOTALS:</u>				47.13	\$21,243

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$429.11
Performance bond:	1.05	Total =	\$223.05
Job superintendent:	0.00	Total =	\$0.00
Profit:	10.00	Total =	\$2,124.30

TOTAL O & P = \$2,776.46

CONTRACT AMOUNT (direct + O & P) = \$24,019.46

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	<u>0.00</u>	Total =	<u>0.00</u>
Engineering work and/or contract/bid preparation:	<u>0.00</u>	Total =	<u>\$0.00</u>
Reclamation management and/or administration:	<u>5.00</u>		<u>\$1,200.97</u>

CONTINGENCY: 0.00 Total = \$0.00

TOTAL INDIRECT COST = \$3,977.43

TOTAL AMOUNT (direct + indirect) = \$25,220.43

TOTAL BOND AMOUNT (rounded) = \$25,300.00

BULLDOZER WORKTask description: **Minor Grading of Tract 1**Site: **Dollerschell Pit**Permit Action: **CN01 2015 Cost Estimate**Permit/Job#: **M1986074****PROJECT IDENTIFICATION**Task #: **001**State: **Colorado**Abbreviation: **None**Date: **11/6/2015**County: **Logan**Filename: **M074-001**User: **ERR**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:	\$69.05	NA
Operating Cost/Hour:	\$108.22	100
Ripper op. Cost/Hour:	\$0.75	10
Operator Cost/Hour:	\$38.01	NA

Total unit Cost/Hour: **\$216.02**Total Fleet Cost/Hour: **\$216.02****MATERIAL QUANTITIES**Initial Volume: **8,470**Swell factor: **1.125**Loose volume: **9,529 LCY**Source of estimated volume: **DRMS: 6" average over 10.5 acres**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: **-10 %**Average site altitude: **4,170 feet**Material weight: **2,650 lbs/LCY**Weight description: **Decomposed rock - 25% Rock, 75% Earth****Job Condition Correction Factor**Operator Skill: **0.900**Material consistency: **0.900**Source**(AB.AVG.)****(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:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5719

Adjusted unit
production: 800.66 LCY/hr
Adjusted fleet
production: **800.66 LCY/hr**

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.270/LCY

Total job time: **11.90 Hours**
Total job cost: **\$2,571**

SCRAPER TEAM WORKTask description: **Replace Topsoil on Tract 1**Site: **Dollerschell Pit**Permit Action: CN01 2015 Cost
EstimatePermit/Job#: M1986074**PROJECT IDENTIFICATION**Task #: 002State: ColoradoAbbreviation: NoneDate: 11/6/2015County: LoganFilename: M074-002User: ERRAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
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	NA	NA	25	NA	NA
Ownership cost/hour:	\$107.02	NA	NA	\$69.05	NA	NA
Operating cost/hour:	\$239.91	NA	NA	\$27.06	NA	NA
Ripper op. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Operator cost/hour:	\$33.56	NA	NA	\$38.01	NA	NA
Unit Subtotals:	\$380.50	NA	NA	\$134.11	NA	NA
Number of Units:	1	0	0	1	0	0
Group Subtotals:	Work:	\$380.50	Support:	\$134.11	Maint:	\$0.00

Total work team cost/hour: **\$514.61****MATERIAL QUANTITIES**Initial volume: 8,470

CCY

Swell factor: 1.115Loose volume: **9,444**

LCY

Source of estimated volume: ApplicationSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,100 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Earth - Loam</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>38.86 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes
 Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction:

Site Altitude: 4170 feet

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

Travel Time:Road Condition: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	675.00	-5.25	8.00	2.75	2800	0.46

Haul Time: 0.46 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	675.00	5.25	8.00	13.25	1201	0.59

Return Time: 0.59 minutesTotal Scraper team cycle time: 2.45 minutesAdjusted for job conditions: 589.47 LCY/HourSelected Number of Scrapers: 1 Scraper(s)Adjusted single scraper team (unit) hourly production: 589.47 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 589.47 LCY/HourUnadjusted unit production/hour: 710.20 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 16.02 HoursUnit cost: \$0.873 /LCY Total job cost: \$8,245

REVEGETATION WORKTask description: **Revegetate Tract 1**Site: **Dollerschell Pit**Permit Action: CN01 2015 Cost
EstimatePermit/Job#: M1986074**PROJECT IDENTIFICATION**Task #: 003
Date: 11/6/2015
User: ERRState: Colorado
County: LoganAbbreviation: None
Filename: M074-003Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
0-20-20, 4-8-12, 10-10-10	100.00	pound	\$0.21	\$21.10
			Total Fertilizer Materials Cost/Acre	\$21.10

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$52.71
Total Fertilizer Application Cost/Acre	\$52.71

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$88.58
Total Tilling Cost/Acre	\$88.58

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Lovington	0.50	8.16	\$5.43
Switchgrass - Nebraska 28	0.40	3.57	\$2.12
Sideoats Grama - Butte	1.37	4.48	\$15.21
Little Bluestem - Pastura	0.67	4.00	\$10.59
Alfalfa - Ladak (inoculated)	0.80	3.86	\$2.50
Western Wheatgrass - Arriba	3.20	8.08	\$11.78
Needlegrass, Green - Lodorm	1.44	5.98	\$7.76
Totals Seed Mix	8.38	38.13	\$55.39

Application

Description	Cost /Acre
Drill seeding (DRMS Cost Data)	\$88.20
Total Seed Application Cost/Acre	\$88.20

MULCHING and MISCELLANEOUS**Materials**

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

Application

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

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: 10.5 Cost /Acre: \$305.98
 Estimated Failure Rate: 50% Cost /Acre*: \$232.17
 *Selected Replanting Work Items: TILLING,SEEDING

Initial Job Cost: **\$3,212.79**
 Reseeding Job Cost: **\$1,218.89**
 Total Job Cost: **\$4,432**
 Job Hours: **10.00**

BULLDOZER WORKTask description: **Minor Grading of Tract 6 Disturbance**Site: **Dollerschell Pit**Permit Action: CN01 2015 Cost
Estimate

Permit/Job#: M1986074

PROJECT IDENTIFICATION

Task #: 004

State: Colorado

Abbreviation: None

Date: 11/6/2015

County: Logan

Filename: M074-004

User: ERR

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:	\$69.05	NA
Operating Cost/Hour:	\$108.22	100
Ripper op. Cost/Hour:	\$0.75	10
Operator Cost/Hour:	\$38.01	NA

Total unit Cost/Hour: \$216.02

Total Fleet Cost/Hour: **\$216.02****MATERIAL QUANTITIES**

Initial Volume: 3,146

Swell factor: 1.115

Loose volume: **3,508 LCY**

Source of estimated volume: DRMS: 6" average over 3.9 acres

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 50 feet

Unadjusted hourly
production: 1,400.0 LCY/hrMaterials consistency description: **Compacted fill or embankment 0.9**Average push
gradient: -10 %

Average site altitude: 4,170 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

Job Condition Correction Factor

Operator Skill: 0.900

Material consistency: 0.900

Source

(AB.AVG.)

(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:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7214

Adjusted unit
production: 1,009.96 LCY/hr
Adjusted fleet
production: **1009.96** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.214/LCY

Total job time: **3.47** Hours
Total job cost: **\$750**

REVEGETATION WORKTask description: **Revegetate Tract 6 Disturbance**Site: **Dollerschell Pit**Permit Action: **CN01 2015 Cost Estimate**Permit/Job#: **M1986074****PROJECT IDENTIFICATION**Task #: **005**
Date: **11/6/2015**
User: **ERR**State: **Colorado**
County: **Logan**Abbreviation: **None**
Filename: **M074-005**Agency or organization name: **DRMS****FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
0-20-20, 4-8-12, 10-10-10	100.00	pound	\$0.21	\$21.10
			Total Fertilizer Materials Cost/Acre	\$21.10

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$52.71
Total Fertilizer Application Cost/Acre	\$52.71

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$88.58
Total Tilling Cost/Acre	\$88.58

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Lovington	0.50	8.16	\$5.43
Switchgrass - Nebraska 28	0.40	3.57	\$2.12
Sideoats Grama - Butte	1.37	4.48	\$15.21
Little Bluestem - Pastura	0.67	4.00	\$10.59
Alfalfa - Ladak (inoculated)	0.80	3.86	\$2.50
Western Wheatgrass - Arriba	3.20	8.08	\$11.78
Needlegrass, Green - Lodorm	1.44	5.98	\$7.76
Totals Seed Mix	8.38	38.13	\$55.39

Application

Description	Cost /Acre
Drill seeding (DRMS Cost Data)	\$88.20
Total Seed Application Cost/Acre	\$88.20

MULCHING and MISCELLANEOUS**Materials**

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

Application

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

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: 3.9 Cost /Acre: \$305.98
 Estimated Failure Rate: 50% Cost /Acre*: \$232.17
 *Selected Replanting Work Items: TILLING,SEEDING

Initial Job Cost: **\$1,193.32**
 Reseeding Job Cost: **\$452.73**
 Total Job Cost: **\$1,646**
 Job Hours: **4.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob-Demob of Reclamation Equipment**

Site: **Dollerschell Pit** Permit Action: **CN01 2015 Cost Estimate** Permit/Job#: **M1986074**

PROJECT IDENTIFICATION

Task #: **006** State: **Colorado** Abbreviation: **None**
 Date: **11/6/2015** County: **Logan** Filename: **M074-006**
 User: **ERR**

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:	\$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	\$69.05	\$125.45	1	\$194.50	\$125.45	\$250.00
Cat 637G	57.28	\$107.02	\$125.45	1	\$232.47	\$125.45	\$500.00
Drill/Broadcast Seeder with Tractor	25.00	\$39.59	\$88.67	1	\$128.26	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$39.59	\$88.67	1	\$128.26	\$88.67	\$250.00

Subtotals: **\$683.49** **\$428.24** **\$1,250.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
---------------------	---------------------	------------	--------------------------	----------------------------

Subtotals: **\$0.00** **\$0.00**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	STERLING	
Total one-way travel distance:	8.40	miles
Average Travel Speed:	45.00	mph

Total Non-Roadable Mob/Demob Cost *	\$3,598.54
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$0.00
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.19	0.19
Return Time (Hours):	0.19	0.19
Loading Time (Hours):	0.25	NA
Unloading Time (Hours):	0.25	NA
Subtotals:	0.87	0.37

JOB TIME AND COST

Total job time:	1.75	Hours
-----------------	------	-------

Total job cost:	\$3,599
-----------------	---------