

COST SUMMARY WORK

Task description: Cost summary

Site: Kirtright Pit

Permit Action: SI02

Permit/Job#: M1986123

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 7/11/2019

County: Larimer

Filename: M123-000

User: JLE

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Haul fill material to the site	TRUCK1	1	447.85	\$3,849,499
002	Shoreline Grading, southwest affected land	SITEMAINT ENANCE	1	40.00	\$10,692
003	Revegetation of the affected land	REVEGE	1	25.00	\$13,466
004	Mobilization/Demobilization	MOBILIZE	1	4.44	\$8,575
<u>SUBTOTALS:</u>				517.29	\$3,882,232

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$78,421

Performance bond: 1.05

Total = \$40,763

Job superintendent: 258.64

Total = \$17,947

Profit: 10.00

Total = \$388,223

TOTAL O & P = \$525,355

CONTRACT AMOUNT (direct + O & P) = \$4,407,587

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$500

Total = \$500

Engineering work and/or contract/bid preparation: 4.25

Total = \$187,322

Reclamation management and/or administration: 5.00

\$220,379

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$933,557

TOTAL BOND AMOUNT (direct + indirect) = \$4,815,789

TRUCK/LOADER TEAM WORK

Task description: Haul fill material to the site

Site: Kirtright Pit

Permit Action: SI02

Permit/Job#: M1986123

PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 7/11/2019

County: Larimer

Filename: M123-001

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

		Equipment Description
Truck Loader Team -Truck:		Generic 15-18 cy, 6x4
-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, 5,000 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	50	25	25
Ownership cost/hour:	\$28.38	\$141.85	\$121.49	\$121.49	\$33.62	\$27.40
Operating cost/hour:	\$55.36	\$135.12	\$52.92	\$52.92	\$8.55	\$10.00
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$24.79	\$35.93	\$39.98	\$39.98	\$45.39	\$38.86
Unit Subtotals:	\$108.53	\$312.89	\$214.39	\$214.39	\$87.56	\$76.25
Number of Units:	33	1	1	1	1	1
Group Subtotals:	Work: \$3,894.38		Support: \$428.78		Maint: \$163.81	

Total work team cost/hour: \$4,486.97

MATERIAL QUANTITIES

Initial volume: 460,000

CCY

Swell factor: 1.000

Loose volume: 460,000

LCY

Source of estimated volume: 21.5 acres of exposed groundwater

Source of estimated swell factor: Cat Handbook

Material Purchase Cost: \$4.00

Total Cost: \$1,840,000.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,100

Pounds/LCY

Description: Earth - Loam

Rated Payload: 63,980

Pounds

Payload Capacity: 30.47 LCY

Truck Bed (volume) Basis:

Struck Volume:	<u>15.00</u>	LCY
Heaped Volume:	<u>18.00</u>	LCY
Average Volume:	<u>16.50</u>	LCY
Adjusted Volume:	<u>18.00</u>	LCY

Final Truck Volume Based on Number of Loader Passes: 12.38 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	<u>11.250</u>	LCY (heaped)
Bucket Fill Factor:	<u>1.100</u>	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<u>12.375</u>	LCY

Job Condition Corrections:

Site Altitude (ft.): 4840 feet

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

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:	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:		<u>-0.060</u>	minutes
Adjusted Loader Cycle Time:		0.540	minutes
Net Load Time per Truck:		0.100	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.50</u>	Minutes	Adjusted for site altitude:	<u>0.500</u>	Minutes
Truck Load Time:	<u>0.100</u>	Minutes	Adjusted for site altitude:	<u>0.100</u>	Minutes
Truck Maneuver and Dump Time:	<u>0.90</u>	Minutes	Adjusted for site altitude:	<u>0.900</u>	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Very hard, smooth, asphalt or concrete, no tire penetration 1.2

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	26400.00	0.00	1.20	1.20	2952	9.095

Haul Time: **9.095** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	26400.00	0.00	1.20	1.20	2963	8.944

Return Time: **8.944** minutesTotal Truck Cycle Time: **19.539** minutes

Loading Tool unit Production <u>1,237.50</u> LCY/Hour Truck Unit Production <u>38.00</u> LCY/Hour	Adjusted for job efficiency: <u>1,027.13</u> LCY/Hour Adjusted for job efficiency: <u>31.54</u> LCY/Hour
Optimal No. of Trucks: <u>33</u> Truck(s)	Selected Number of Trucks: <u>33</u> Truck(s)
Adjusted hourly truck team production: <u>1,040.85</u> LCY/Hour Adjusted single truck/loader team production: <u>1,027.13</u> LCY/Hour Adjusted multiple truck/loader team production: <u>1,027.13</u> LCY/Hour	

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **447.85** HoursUnit cost: \$4.368 /LCY Total job cost: **\$3,849,499**

SITE MAINTENANCETask description: Shoreline Grading, southwest affected landSite: Kirtright PitPermit Action: SI02Permit/Job#: M1986123PROJECT IDENTIFICATIONTask #: 002State: ColoradoAbbreviation: NoneDate: 7/11/2019County: LarimerFilename: M123-002User: JLEAgency or organization name: DRMSUNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Grade SE corner of affected land	40.00	Cat D9T - 9SU	40.00	EA	\$267.31	\$10,692.40

Job Hours: 40.00Total Cost: \$10,692.40

REVEGETATION WORKTask description: **Revegetation of the affected land**Site: **Kirtright Pit**Permit Action: SI02Permit/Job#: M1986123**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 7/11/2019County: LarimerFilename: M123-003User: JLEAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost / Acre
10-34-0, 18-46-0, 5-10-5	100.00	pound	\$0.34	\$34.00
			Total Fertilizer Materials Cost/Acre	\$34.00

Application

Description	Cost / Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$36.15
Total Fertilizer Application Cost/Acre	\$36.15

TILLING

Description	Cost / Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$101.93
Total Tilling Cost/Acre	\$101.93

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost / Acre
Switchgrass - Blackwell	1.13	10.05	\$12.94
Sideoats Grama - Butte	2.25	7.39	\$20.25
Thickspike Wheatgrass - Critana	5.50	19.44	\$37.81
Totals Seed Mix	8.88	36.88	\$71.00

Application

Description	Cost / Acre
Drill Seeding (DRMS Survey Cost)	\$232.00

Total Seed Application Cost/Acre	\$232.00
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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
Cottonwood, Plains	1.4	Small potted, 4.00 inch diameter (MEANS)	\$1.76	\$0.00	\$2.46
Totals Nursery Stock Cost / Acre					\$2.46

JOB TIME AND COST

No. of Acres:	25	Cost /Acre:	\$477.54
Estimated Failure Rate:	20%	Cost /Acre*:	\$305.46
*Selected Replanting Work Items:	SEEDING,NURSERY		

Initial Job Cost:	\$11,938.50
Reseeding Job Cost:	\$1,527.30
Total Job Cost:	\$13,466
Job Hours:	25.00

COST SUMMARY WORKTask description: **Cost summary**Site: **Kirtright Pit**Permit Action: SI02Permit/Job#: M1986123**PROJECT IDENTIFICATION**Task #: 000State: ColoradoAbbreviation: NoneDate: 7/11/2019County: LarimerFilename: M123-000User: JLEAgency or organization name: DRMS**TASK LIST (DIRECT COSTS)**

Task	Description	Form Used	Fleet Size	Task Hours	Cost
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004	Mobilization/Demobilization	MOBILIZE	1	4.44	\$8,575
<u>SUBTOTALS:</u>				517.29	\$3,882,232

INDIRECT COSTSOVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$78,421

Performance bond: 1.05

Total = \$40,763

Job superintendent: 258.64

Total = \$17,947

Profit: 10.00

Total = \$388,223

TOTAL O & P = \$525,355

CONTRACT AMOUNT (direct + O & P) = \$4,407,587

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$500

Total = \$500

Engineering work and/or contract/bid preparation: 4.25

Total = \$187,322

Reclamation management and/or administration: 5.00

\$220,379

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$933,557

TOTAL BOND AMOUNT (direct + indirect) = \$4,815,789

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization/Demobilization**Site: **Kirtright Pit**Permit Action: **SI02**Permit/Job#: **M1986123****PROJECT IDENTIFICATION**Task #: **004**State: **Colorado**Abbreviation: **None**Date: **7/11/2019**County: **Larimer**Filename: **M123-004**User: **JLE**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:	\$17.20	\$29.63	\$38.69
Operating Cost/Hour:	\$26.56	\$47.02	\$55.69
Operator Cost/Hour:	\$23.63	\$23.63	\$23.63
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$67.39	\$123.81	\$141.54

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 D9T - 9SU	60.01	\$121.49	\$141.54	2	\$526.06	\$283.08	\$500.00
CAT 990H	83.34	\$141.85	\$141.54	1	\$283.39	\$141.54	\$250.00
CAT 12M	16.01	\$33.62	\$67.39	1	\$101.01	\$67.39	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$18.15	\$67.39	2	\$171.08	\$134.78	\$500.00

Subtotals: **\$1,081.54** **\$626.79** **\$1,500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Generic 15-18 cy, 6x4	\$108.53	33	\$3,581.49	\$3,581.49
Light Duty Pickup, 4x4, 3/4 T.	\$167.39	1	\$167.39	\$167.39
Fuel Tanker, 6x4, 210 HP	\$81.32	2	\$162.64	\$162.64

Subtotals: **\$3,911.52** **\$3,911.52**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	LOVELAND	
Total one-way travel distance:	5.00	miles
Average Travel Speed:	45.00	mph

Total Non-Roadable Mob/Demob Cost *	\$7,705.79
* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$869.23
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.11	0.11
Return Time (Hours):	0.11	0.11
Loading Time (Hours):	1.00	NA
Unloading Time (Hours):	1.00	NA
Subtotals:	2.22	0.22

JOB TIME AND COST

Total job time:	4.44	Hours
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Total job cost:	\$8,575
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