

STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY

Department of Natural Resources

1313 Sherman St., Room 215

Denver, Colorado 80203

Phone: (303) 866-3567

FAX: (303) 832-8106



September 12, 2012

P.J. Nichols
Northwest Aggregates, Inc.
2930 E. US Hwy 40, Suite 4
Craig, CO
81625

John W. Hickenlooper
Governor

Mike King
Executive Director

Loretta Piñeda
Director

RE: Wand Pit, Permit No. M-2010-007, Conversion Approval, Revision No. CN-1

Dear Mr. Nichols:

On September 12, 2012 the Division of Reclamation, Mining and Safety (Division) approved the Conversion application submitted on April 12, 2012, addressing the following:

Conversion of 110c to 112c permit, and addition of 97.05 acres to the permit area.

The terms of the CN-1 approved by the Division are hereby incorporated into Permit No. M-2010-007. All other conditions and requirements of the permit remain in full force and effect.

The estimated liability amount of \$111,828.00 exceeds the \$ 23,800.00 Financial Warranty currently held for this site. If you have not already done so, please submit additional bond in the amount of \$ 88,028.00. The revision will not be final until the bond is approved by the Division.

Please make arrangements with Barbara Coria at the Division of Reclamation, Mining and Safety Denver Office, phone no. 303.866.3567, ext. 8148 for submittal of the financial warranty. Any questions regarding completion, execution and/or submittal of financial warranty forms should also be directed to Barbara Coria.

If you require additional information, have questions or concerns, please contact me at the DRMS Grand Junction Field Office.

Sincerely,

A blue ink signature of Dustin Czaplak, written over the word "Sincerely,".

Dustin Czaplak
Environmental Protection Specialist
Department of Natural Resources
Division of Reclamation, Mining and Safety
101 South 3rd, Suite 301
Grand Junction, CO 81501
Phone: (970) 243-6299
Fax: (970) 241-1516

Enclosure: *DRMS Bond Calculation Worksheets*
Cc: Steve Baker, 3B Enterprises, LLC

COST SUMMARY WORK

Task description: CN1 FW Estimate

Site: Wand Pit

Permit Action: CN1

Permit/Job#: M2010007

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 9/5/2012

County: Moffat

Filename: M007-000

User: DMC

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
RECLAMATION OF PHASE 1 POND (110) AREA SOUTH OF ACCESS ROAD					
01a	Dewater pit	PUMPING	1	95.94	\$7,213.00
02a	Transport backfill material from stockpiles to slopes	LOADER	2	34.29	\$9,652.00
03a	Shape slopes to 3H:1V	DOZER	1	14.82	\$2,963.28
04a	Transport topsoil from stockpiles to disturbed areas	LOADER	2	6.22	\$1,752.00
05a	Spread topsoil	DOZER	1	2.16	\$432.49
06a	Revegetate disturbed areas	REVEGE	1	5.00	\$2,399.75
RECLAMATION OF PHASE 1 & 2 LAKE AREA NORTH OF ACCESS ROAD					
07a	Dewater pit	PUMPING	1	249.82	\$18,782.00
08a	Transport backfill material from stockpiles to slopes	LOADER	2	88.95	\$25,036.00
09a	Shape slopes to 3H:1V	DOZER	1	31.13	\$6,222.79
10a	Transport topsoil from stockpiles to disturbed areas	LOADER	2	12.44	\$3,504.00
11a	Spread topsoil	DOZER	1	4.33	\$864.99
12a	Revegetate disturbed areas	REVEGE	1	5.00	\$4,799.50
13a	Mobilize reclamation crew and equipment	MOBILIZE	1	2.57	\$3,815.36
<u>SUBTOTALS:</u>				552.67	\$87,437.16

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$1,766.23

Performance bond: 1.05

Total = \$918.09

Job superintendent: 128.80

Total = \$7,637.84

Profit: 10.00

Total = \$8,743.72

TOTAL O & P = \$19,065.88

CONTRACT AMOUNT (direct + O & P) = \$106,503.04

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 0.00

Total = 0.00

Engineering work and/or contract/bid preparation: 0.00

Total = \$0.00

Reclamation management and/or administration: 5.00

\$5,325.15

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$24,391.03

TOTAL BOND AMOUNT (direct + indirect) = \$111,828.00

PUMPING WORK

Task description: Dewater 110 PitSite: Wand PitPermit Action: CN1Permit/Job#: M2010007

PROJECT IDENTIFICATION

Task #: 01AState: ColoradoAbbreviation: NoneDate: 9/5/2012County: MoffatFilename: M007-01aUser: DMCAgency or organization name: DRMS

HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Centrifugal pump - 200M, 10 in.	2
Attachment 1:	Suction pipe - 10 in. diam., 25 ft.	2
Attachment 2:	Discharge pipe - 10 in. D., 25 ft.	2
Labor Unit 1:	Pump operator	1

Horsepower: 70Shift Basis: 1 per dayWeight: 1.95

(US Tons)

Cost Breakdown:

	Utilization %
Ownership Cost/Hour:	\$21.08
Operating Cost/Hour:	\$34.68
Operator Cost/Hour:	\$19.42
Total Unit Cost/Hour:	\$75.18

Total Fleet Cost/Hour: \$75.18

PUMPING QUANTITIES

Initial Pond Volume:	135.00		Conversion factor:	325850.5800
Final Pond Volume:	43,989,828.30	gallons		
Total Pond Inflow Surface Area:	20,000	Sq. ft.	Unit inflow rate in gph/sq. ft.:	0.3516
Total Pond Inflow Volume per Hour:	7,032.00	gallons		

Source of estimated volume: Approx 9 ac. pond, 15' depth

PUMPING TIME

Maximum Pump Capacity:	200,000	gph/pump
Estimated Suction Head:	10	feet
Estimated Discharge Head:	5	feet
Total Head:	15	feet
CPB Pump Capacity:	201,000	gph/pump
Site Altitude:	6,200	feet
Adjusted Pumping Capacity:	402,000	gph
Initial Unadjusted Pumping Time:	109.43	hours
Inflow during Initial Pumping:	769,494	gallons
Net Unadjusted Pumping Time:	111.34	Hours
Altitude Adjustment Factor:	0.9400	(3% rule)
Pump Efficiency Factor:	0.9167	(55 min./hr.)
Total Adjusted Pumping Time:	95.94	hours

JOB TIME AND COST

Total job time: 95.94 HoursUnit cost: \$0.000161 /GallonTotal job cost: \$7,213.00

WHEEL LOADER – LOAD AND CARRY WORKTask description: Transport backfill material from stockpiles to slopes in 110 areaSite: Wand Pit Permit Action: CN1 Permit/Job#: M2010007**PROJECT IDENTIFICATION**

Task #: 02A State: Colorado Abbreviation: None
 Date: 9/5/2012 County: Moffat Filename: M007-02a
 User: DMC

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: CAT 972H Horsepower: 287
 Attachment 1: ROPS Cab Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$36.70	NA
Operating Cost/Hour:	\$65.54	100
Operator Cost/Hour:	\$38.49	NA
Total Unit Cost/Hour:	\$140.73	
Total Fleet Cost/Hour:	\$281.46	

MATERIAL QUANTITIES

Initial volume: 14,815 CCY Swell factor: 1.125
 Loose volume: 16,667 LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTIONLoader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.525 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:	No adjustment - factor not applicable 0.00	0.000	(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:		-0.020	minutes
Adjusted Basic Cycle Time:		0.505	minutes

Rolling Resistance – Road Conditions

Haul: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0
 Return: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	350	0.00	5.00	5.00	0.3228	(Cat HB)
Return Route:	350	0.00	5.00	5.00	0.2912	(Cat HB)

Total Travel Time: 0.6140 minutes
 Total Cycle Time: 1.1190 minutes

Load Bucket Capacity

Rated Capacity: 5.60 LCY (heaped)
 Bucket Fill Factor: 0.975 Loose material - mixed moist aggregates (95-100%) 0.975
 Adjusted Capacity: 5.46 LCY

Job Condition Correction Factors

Site Altitude: 6200 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Unadjusted Hourly Unit Production: 292.77 LCY/Hour
 Adjusted Hourly Unit Production: 243.00 LCY/Hour
 Adjusted Hourly Fleet Production: 486.00 LCY/Hour

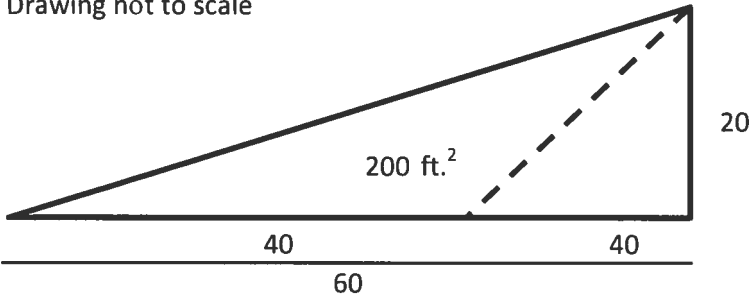
JOB TIME AND COST

Fleet size: 2 Loader(s) Total job time: 34.29 Hours
 Unit cost: \$0.579 /LCY Total job cost: \$9,652.00

Highwall reduction - backfill

Highwall Height (ft.)	20.00	
Length of Highwall (lft.)	2000.00	
- - - - Initial Slope	2.00	H:1V
———— Desired Slope	3.00	H:1V
Volume of material to be moved (ft. ³)	400,000	
Volume of material to be moved (yd. ³)	14,815	

All dimensions measured in feet
Drawing not to scale



BULLDOZER WORKTask description: Shape slopes to 3H:1V in 110 pit areaSite: Wand PitPermit Action: CN1Permit/Job#: M2010007**PROJECT IDENTIFICATION**Task #: 03AState: ColoradoAbbreviation: NoneDate: 9/5/2012County: MoffatFilename: M007-03aUser: DMCAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8UHorsepower: 310Blade Type: UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$58.56	NA
Operating Cost/Hour:	\$102.84	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.49	NA

Total unit Cost/Hour: \$199.89Total Fleet Cost/Hour: \$199.89**MATERIAL QUANTITIES**Initial Volume: 7,408Swell factor: 1.125Loose volume: 8,333 LCYSource of estimated volume: .5(14,815 cyd)Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly production: 1,627.0 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: 15 %Average site altitude: 6,200 feetMaterial weight: 2,650 lbs/LCYWeight description: Decomposed rock - 25% Rock, 75% Earth**Job Condition Correction Factor**

		<u>Source</u>
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:	0.800	(FND-RF)
Push gradient:	0.666	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3455

Adjusted unit production: 562.13 LCY/hr

Adjusted fleet production: **562.13 LCY/hr**

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.356/LCY

Total job time: **14.82 Hours**

Total job cost: **\$2,963.28**

WHEEL LOADER – LOAD AND CARRY WORKTask description: Transport topsoil from stockpiles to disturbed areas in 110 areaSite: Wand PitPermit Action: CN1Permit/Job#: M2010007**PROJECT IDENTIFICATION**Task #: 04AState: ColoradoAbbreviation: NoneDate: 9/5/2012County: MoffatFilename: M007-04aUser: DMCAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: CAT 972HAttachment 1: ROPS CabHorsepower: 287Shift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	\$36.70	NA
Operating Cost/Hour:	\$65.54	100
Operator Cost/Hour:	\$38.49	NA
Total Unit Cost/Hour:	\$140.73	
Total Fleet Cost/Hour:	\$281.46	

MATERIAL QUANTITIESInitial volume: 3,025

CCY

Swell factor: 1.000Loose volume: 3,025

LCY

Source of estimated volume: Estimate approx 2.5 ac. @ 9" depthSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.525 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:	No adjustment - factor not applicable 0.00	0.000	(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:		-0.020	minutes
Adjusted Basic Cycle Time:		0.505	minutes

Rolling Resistance – Road ConditionsHaul: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0Return: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0**Haul and Return Time**

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	350	0.00	5.00	5.00	0.3228	(Cat HB)
Return Route:	350	0.00	5.00	5.00	0.2912	(Cat HB)

Total Travel Time: 0.6140 minutes
 Total Cycle Time: 1.1190 minutes

Load Bucket Capacity

Rated Capacity: 5.60 LCY (heaped)
 Bucket Fill Factor: 0.975 Loose material - mixed moist aggregates (95-100%) 0.975
 Adjusted Capacity: 5.46 LCY

Job Condition Correction FactorsSite Altitude: 6200 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Unadjusted Hourly Unit Production: 292.77 LCY/Hour
 Adjusted Hourly Unit Production: 243.00 LCY/Hour
 Adjusted Hourly Fleet Production: 486.00 LCY/Hour

JOB TIME AND COST

Fleet size: 2 Loader(s) Total job time: 6.22 Hours
 Unit cost: \$0.579 /LCY Total job cost: \$1,752.00

BULLDOZER WORKTask description: Spread topsoil in 110 areaSite: Wand PitPermit Action: CN1Permit/Job#: M2010007**PROJECT IDENTIFICATION**Task #: 05AState: ColoradoAbbreviation: NoneDate: 9/5/2012County: MoffatFilename: M007-05aUser: DMCAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8UHorsepower: 310Blade Type: UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$58.56	NA
Operating Cost/Hour:	\$102.84	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.49	NA

Total unit Cost/Hour: \$199.89Total Fleet Cost/Hour: \$199.89**MATERIAL QUANTITIES**Initial Volume: 3,025Swell factor: 1.000Loose volume: 3,025 LCYSource of estimated volume: Estimate approx. 2.5 ac. @ 9" depthSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly production: 1,627.0 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**

		<u>Source</u>
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:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 1,398.08 LCY/hr

Adjusted fleet production: **1398.08** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.143/LCY

Total job time: **2.16** Hours

Total job cost: **\$432.49**

REVEGETATION WORKTask description: **Revegetate disturbed areas in 110 area**Site: **Wand Pit**Permit Action: **CN1**Permit/Job#: **M2010007****PROJECT IDENTIFICATION**Task #: **06A**State: **Colorado**Abbreviation: **None**Date: **9/5/2012**County: **Moffat**Filename: **M007-06a**User: **DMC**Agency 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
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$92.35
Weed control spraying (MEANS 31 31 16.13 3100)	\$145.20
Total Tilling Cost/Acre	\$237.55

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Orchardgrass - Paiute	0.30	3.72	\$0.63
Smooth Brome - Lincoln	1.60	5.33	\$2.08
Intermediate Wheatgrass - Oahe	2.50	5.34	\$5.35
Pubescent Wheatgrass - Luna	2.25	4.65	\$4.93
Sainfoin - Remont	2.50	1.09	\$6.88
Totals Seed Mix	9.15	20.12	\$19.87

Application

Description	Cost /Acre
Drill seeding {DMG}	\$90.11

Total Seed Application Cost/Acre	\$90.11
---	----------------

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost / Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$164.00	\$328.00
Total Mulch Materials Cost/Acre				\$328.00

Application

Description	Cost / Acre
Crimping, with tractor {DMG survey data}	\$65.89
Total Mulch Application Cost/Acre	\$65.89

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost / Acre
Cottonwood, Narrowleaf	5	Tubling, 10 cu. in. container {(MEANS)}	\$1.45	\$2.40	\$7.25
Willow, Sandbar	5	Tubling, 10 cu. in. container {(MEANS)}	\$3.85	\$2.40	\$19.25
Totals Nursery Stock Cost / Acre					\$26.50

JOB TIME AND COST

No. of Acres:	2.5	Cost /Acre:	\$767.92
Estimated Failure Rate:	25%	Cost /Acre*:	\$767.92
*Selected Replanting Work Items:	TILLING, SEEDING, NURSERY, MULCHING		
Initial Job Cost:	\$1,919.80		
Reseeding Job Cost:	\$479.95		
Total Job Cost:	\$2,399.75		
Job Hours:	5.00		

PUMPING WORK

Task description: Dewater Phase 1/2 Pit north of access road

Site: Wand Pit

Permit Action: CN1

Permit/Job#: M2010007

PROJECT IDENTIFICATION

Task #: 07A

State: Colorado

Abbreviation: None

Date: 9/5/2012

County: Moffat

Filename: M007-07a

User: DMC

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Centrifugal pump - 200M, 10 in.	2
Attachment 1:	Suction pipe - 10 in. diam., 25 ft.	2
Attachment 2:	Discharge pipe - 10 in. D., 25 ft.	2
Labor Unit 1:	Pump operator	1

Horsepower: 70

Shift Basis: 1 per day

Weight: 1.95

(US Tons)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$21.08	NA
Operating Cost/Hour:	\$34.68	100
Operator Cost/Hour:	\$19.42	NA
Total Unit Cost/Hour:	\$75.18	

Total Fleet Cost/Hour: \$75.18

PUMPING QUANTITIES

Initial Pond Volume:	<u>345.00</u>		Conversion factor:	<u>325850.5800</u>
Final Pond Volume:	<u>112,418,450.10</u>	gallons		
Total Pond Inflow Surface Area:	<u>42,000</u>	Sq. ft.	Unit inflow rate in gph/sq. ft.:	<u>0.3516</u>
Total Pond Inflow Volume per Hour:	<u>14,767.20</u>	gallons		

Source of estimated volume: Approx 9 ac. pond, 15' depth

PUMPING TIME

Maximum Pump Capacity:	<u>200,000</u>	gph/pump
Estimated Suction Head:	<u>10</u>	feet
Estimated Discharge Head:	<u>5</u>	feet
Total Head:	<u>15</u>	feet
CPB Pump Capacity:	<u>201,000</u>	gph/pump
Site Altitude:	<u>6,200</u>	feet
Adjusted Pumping Capacity:	<u>402,000</u>	gph
Initial Unadjusted Pumping Time:	<u>279.65</u>	hours
Inflow during Initial Pumping:	<u>4,129,616</u>	gallons
Net Unadjusted Pumping Time:	<u>289.92</u>	Hours
Altitude Adjustment Factor:	<u>0.9400</u>	(3% rule)
Pump Efficiency Factor:	<u>0.9167</u>	(55 min./hr.)
Total Adjusted Pumping Time:	<u>249.82</u>	hours

JOB TIME AND COST

Total job time: 249.82 Hours

Unit cost: \$0.000161 /Gallon

Total job cost: \$18,782.00

WHEEL LOADER – LOAD AND CARRY WORK

Task description: **Transport backfill material from stockpiles to slopes in Phase 1/2 pit north of access road**

Site: **Wand Pit** Permit Action: **CN1** Permit/Job#: **M2010007**

PROJECT IDENTIFICATION

Task #: **08A** State: **Colorado** Abbreviation: **None**
 Date: **9/5/2012** County: **Moffat** Filename: **M007-08a**
 User: **DMC**

Agency or organization name: **DRMS**

HOURLY EQUIPMENT COST

Basic Machine: **CAT 972H** Horsepower: **287**
 Attachment 1: **ROPS Cab** Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$36.70	NA
Operating Cost/Hour:	\$65.54	100
Operator Cost/Hour:	\$38.49	NA
Total Unit Cost/Hour:	\$140.73	
Total Fleet Cost/Hour:	\$281.46	

MATERIAL QUANTITIES

Initial volume: **31,111** CCY Swell factor: **1.125**
 Loose volume: **35,000** LCY

Source of estimated volume: **Division of Reclamation, Mining & Safety**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): **0.525** 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:	No adjustment - factor not applicable 0.00	0.000	(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:		-0.020	minutes
Adjusted Basic Cycle Time:		0.505	minutes

Rolling Resistance – Road Conditions

Haul: **Rutted dirt, little maintenance, no water, 2" tire penetration 5.0**
 Return: **Rutted dirt, little maintenance, no water, 2" tire penetration 5.0**

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	500	0.00	5.00	5.00	0.4611	(Cat HB)
Return Route:	500	0.00	5.00	5.00	0.4160	(Cat HB)

Total Travel Time: 0.8771 minutes
 Total Cycle Time: 1.3821 minutes

Load Bucket Capacity

Rated Capacity: 5.60 LCY (heaped)
 Bucket Fill Factor: 0.975 Loose material - mixed moist aggregates (95-100%) 0.975
 Adjusted Capacity: 5.46 LCY

Job Condition Correction Factors

Site Altitude: 6200 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

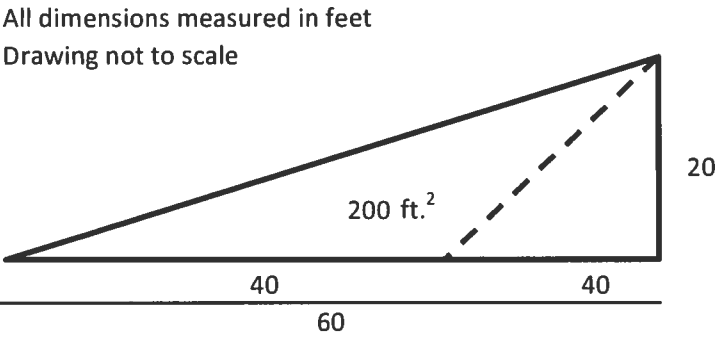
Unadjusted Hourly Unit Production: 237.03 LCY/Hour
 Adjusted Hourly Unit Production: 196.74 LCY/Hour
 Adjusted Hourly Fleet Production: 393.48 LCY/Hour

JOB TIME AND COST

Fleet size: 2 Loader(s) Total job time: 88.95 Hours
 Unit cost: \$0.715 /LCY Total job cost: \$25,036.00

Highwall reduction - backfill

Highwall Height (ft.)	20.00
Length of Highwall (lft.)	4200.00
- - - - Initial Slope	2.00 H:1V
———— Desired Slope	3.00 H:1V
Volume of material to be moved (ft. ³)	840,000
Volume of material to be moved (yd. ³)	31,111



BULLDOZER WORKTask description: Shape slopes to 3H:1V in Phase 1/2 area north of access roadSite: Wand PitPermit Action: CN1Permit/Job#: M2010007**PROJECT IDENTIFICATION**Task #: 09AState: ColoradoAbbreviation: NoneDate: 9/5/2012County: MoffatFilename: M007-09aUser: DMCAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8UHorsepower: 310Blade Type: UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$58.56	NA
Operating Cost/Hour:	\$102.84	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.49	NA

Total unit Cost/Hour: \$199.89Total Fleet Cost/Hour: \$199.89**MATERIAL QUANTITIES**Initial Volume: 15,556Swell factor: 1.125Loose volume: 17,500 LCYSource of estimated volume: .5(31,111 cyd)Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly production: 1,627.0 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: 15 %Average site altitude: 6,200 feetMaterial weight: 2,650 lbs/LCYWeight description: Decomposed rock - 25% Rock, 75% Earth**Job Condition Correction Factor**

		<u>Source</u>
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:	0.800	(FND-RF)
Push gradient:	0.666	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3455

Adjusted unit production: 562.13 LCY/hr

Adjusted fleet production: **562.13 LCY/hr**

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.356/LCY

Total job time: **31.13 Hours**

Total job cost: **\$6,222.79**

WHEEL LOADER – LOAD AND CARRY WORK

Task description: **Transport topsoil from stockpiles to disturbed areas in Phase 1/2 area north of access road**

Site: **Wand Pit** Permit Action: **CN1** Permit/Job#: **M2010007**

PROJECT IDENTIFICATION

Task #: **10A** State: **Colorado** Abbreviation: **None**
 Date: **9/5/2012** County: **Moffat** Filename: **M007-10a**
 User: **DMC**

Agency or organization name: **DRMS**

HOURLY EQUIPMENT COST

Basic Machine: **CAT 972H** Horsepower: **287**
 Attachment 1: **ROPS Cab** Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$36.70	NA
Operating Cost/Hour:	\$65.54	100
Operator Cost/Hour:	\$38.49	NA
Total Unit Cost/Hour:	\$140.73	
Total Fleet Cost/Hour:	\$281.46	

MATERIAL QUANTITIES

Initial volume: **6,050** CCY Swell factor: **1.000**
 Loose volume: **6,050** LCY

Source of estimated volume: **Estimate approx 5 ac. @ 9" depth**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): **0.525** 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:	No adjustment - factor not applicable 0.00	0.000	(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:		-0.020	minutes
Adjusted Basic Cycle Time:		0.505	minutes

Rolling Resistance – Road Conditions

Haul: **Rutted dirt, little maintenance, no water, 2" tire penetration 5.0**
 Return: **Rutted dirt, little maintenance, no water, 2" tire penetration 5.0**

Haul and Return Time

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	350	0.00	5.00	5.00	0.3228	(Cat HB)
Return Route:	350	0.00	5.00	5.00	0.2912	(Cat HB)

Total Travel Time: 0.6140 minutes
 Total Cycle Time: 1.1190 minutes

Load Bucket Capacity

Rated Capacity: 5.60 LCY (heaped)
 Bucket Fill Factor: 0.975 Loose material - mixed moist aggregates (95-100%) 0.975
 Adjusted Capacity: 5.46 LCY

Job Condition Correction FactorsSite Altitude: 6200 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Unadjusted Hourly Unit Production: 292.77 LCY/Hour
 Adjusted Hourly Unit Production: 243.00 LCY/Hour
 Adjusted Hourly Fleet Production: 486.00 LCY/Hour

JOB TIME AND COST

Fleet size: 2 Loader(s) Total job time: 12.45 Hours
 Unit cost: \$0.579 /LCY Total job cost: \$3,504.00

BULLDOZER WORKTask description: Spread topsoil in Phase 1/2 area north of access roadSite: Wand PitPermit Action: CN1Permit/Job#: M2010007**PROJECT IDENTIFICATION**Task #: 11AState: ColoradoAbbreviation: NoneDate: 9/5/2012County: MoffatFilename: M007-11aUser: DMCAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8UHorsepower: 310Blade Type: UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$58.56	NA
Operating Cost/Hour:	\$102.84	100
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.49	NA

Total unit Cost/Hour: \$199.89Total Fleet Cost/Hour: \$199.89**MATERIAL QUANTITIES**Initial Volume: 6,050Swell factor: 1.000Loose volume: 6,050 LCYSource of estimated volume: Estimate approx. 5 ac. @ 9" depthSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly production: 1,627.0 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**

		<u>Source</u>
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:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit production: 1,398.08 LCY/hr

Adjusted fleet production: **1398.08 LCY/hr**

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.143/LCY

Total job time: 4.33 Hours

Total job cost: **\$864.99**

REVEGETATION WORKTask description: Revegetate disturbed areas in Phase 1/2 areaSite: Wand PitPermit Action: CN1Permit/Job#: M2010007PROJECT IDENTIFICATIONTask #: 12AState: ColoradoAbbreviation: NoneDate: 9/5/2012County: MoffatFilename: M007-12aUser: DMCAgency or organization name: DRMSFERTILIZING**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
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$92.35
Weed control spraying (MEANS 31 31 16.13 3100)	\$145.20
Total Tilling Cost/Acre	\$237.55

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Orchardgrass - Paiute	0.30	3.72	\$0.63
Smooth Brome - Lincoln	1.60	5.33	\$2.08
Intermediate Wheatgrass - Oahe	2.50	5.34	\$5.35
Pubescent Wheatgrass - Luna	2.25	4.65	\$4.93
Sainfoin - Remont	2.50	1.09	\$6.88
Totals Seed Mix	9.15	20.12	\$19.87

Application

Description	Cost /Acre
Drill seeding {DMG}	\$90.11

Total Seed Application Cost/Acre	\$90.11
---	----------------

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$164.00	\$328.00
Total Mulch Materials Cost/Acre				\$328.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$65.89
Total Mulch Application Cost/Acre	\$65.89

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
Cottonwood, Narrowleaf	5	Tubling, 10 cu. in. container {(MEANS)}	\$1.45	\$2.40	\$7.25
Willow, Sandbar	5	Tubling, 10 cu. in. container {(MEANS)}	\$3.85	\$2.40	\$19.25
Totals Nursery Stock Cost / Acre					\$26.50

JOB TIME AND COST

No. of Acres: 5 Cost /Acre: \$767.92
 Estimated Failure Rate: 25% Cost /Acre*: \$767.92
 *Selected Replanting Work Items: TILLING, SEEDING, NURSERY,
MULCHING

Initial Job Cost: \$3,839.60
 Reseeding Job Cost: \$959.90
 Total Job Cost: \$4,799.50
 Job Hours: 5.00

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilize reclamation crew and equipment**Site: **Wand Pit**Permit Action: **CN1**Permit/Job#: **M2010007****PROJECT IDENTIFICATION**Task #: **13A**State: **Colorado**Abbreviation: **None**Date: **9/5/2012**County: **Moffat**Filename: **M007-13a**User: **DMC**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 972H	28.00	\$36.70	\$117.55	2	\$308.50	\$235.10	\$250.00
Cat D8T - 8U	53.70	\$65.28	\$125.45	1	\$190.73	\$125.45	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$39.59	\$88.67	1	\$128.26	\$88.67	\$250.00
Centrifugal pump - 200M, 10 in.	1.95	\$7.66	\$88.67	1	\$96.33	\$88.67	\$250.00

Subtotals: **\$723.82** **\$537.89** **\$1,000.00****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	\$25.30	1	\$25.30	\$25.30

Subtotals: **\$25.30** **\$25.30**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	CRAIG	
Total one-way travel distance:	5.00	miles
Average Travel Speed:	35.00	mph

Total Non-Roadable Mob/Demob Cost *	\$3,808.13
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$7.23
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.14	0.14
Return Time (Hours):	0.14	0.14
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.29	0.29

JOB TIME AND COST

Total job time:	2.57	Hours
-----------------	------	-------

Total job cost:	\$3,815.36
-----------------	------------