

COLORADO Division of Reclamation, Mining and Safety

Department of Natural Resources 1313 Sherman Street, Room 215 Denver, Colorado 80203

December 19, 2018

Daniel Robinson Robinson Sons Inc. 1228 East 7th Street Trinidad, CO 81082

Re: Robinson Sons Gravel Pit No. 1, Permit No. M-2008-076 Amendment Application (Revision No. AM-01), Adequacy Review No. 3

Mr. Robinson:

The Division of Reclamation, Mining and Safety (Division) has completed its adequacy review of your response submitted on December 17, 2018. The Division has revised its reclamation bond estimate (see enclosed) for the proposed operation based on the availability of fill material at the creek disturbance areas to backfill the pits and grade any steep slopes to 3H:1V. Please review the enclosed estimate and submit any comments at your earliest convenience.

If the Division receives no comments from you by the application decision date of **December 24, 2018**, the application will be approved with the required financial warranty set at the amount provided in the estimate, \$173,730.00. This amount will be an increase of \$120,915.00 from the currently held bond of \$52,815.00, and will be due within 60 days of the amendment approval date.

If you have any questions, you may call me at (303) 866-3567, ext. 8129, or email me at <u>amy.eschberger@state.co.us</u>.

Sincerely,

amy Eschberger

Amy Eschberger Environmental Protection Specialist

Encl: Division's revised bond estimate

Ec: Ben Langenfeld, Greg Lewicki and Associates at: benl@lewicki.biz



COST SUMMARY WORK

Task d	escription:	Cost Summary				
e: Rob	oinson Sons Gravel	Pit No. 1 Pe	rmit Action:	AM-01 Bond Estimate	Permit/Job	o#: M2008076
<u>PROJI</u>	ECT IDENTIFIC	ATION				
Tas	k #: 000	State:	Colorado		Abbreviation:	None
	10/10/2019	County:	Las Anima	c	Filename:	M076-000
D	Date: 12/10/2018	County.	Las Amma	3	r nename.	101070-000

TASK LIST (DIRECT COSTS)

Task		Form	Fleet	Task	Gent
	Description	Used	Size	Hours	Cost
001	Backfill 1,000 ft vertical highwall to 3H:1V in	LOADER	1	102.14	\$9,999.00
	Area 1				
002	Rip stockpiling/processing areas in Area 1	RIPPER	1	16.27	\$3,665.00
003	Retopsoil 17.14 ac at 8 in depth in Area 1	SCRAPER1] 1	35.36	\$27,421.00
004	Revegetate 17.14 ac in Area 1	REVEGE] 1	34.00	\$28,377.00
005	Grade 2.12 ac in Area 2	DOZER	1	9.48	\$2,099.00
006	Retopsoil 2.12 ac at 8 in depth in Area 2	SCRAPER1	1	6.89	\$5,340.00
007	Revegetate 2.12 ac in Area 2	REVEGE] 1	4.00	\$3,510.00
008	Demolition of scale and scale house	DEMOLISH	1	10.00	\$3,192.98
009	Backfill creek pits and grade slopes to 3H:1V	DOZER] 1	29.37	\$6,499.00
010	Haul topsoil to creek areas, spread at 8 in depth	TRUCK1] 1	37.03	\$23,183.00
011	Revegetate 6.74 ac creek areas	REVEGE] 1	14.00	\$11,159.00
012	Mobilization/Demobilization of Equipment	MOBILIZE	1	12.04	\$21,465.00
		<u>SUBTO</u>	TALS:	310.58	\$145,910

INDIRECT COSTS

OVERHEAD AND PROFIT:

2.02	Total =	\$2,947.38
1.05	Total =	\$1,532.06
0.00	Total =	\$0.00
10.00	Total =	\$14,591.00
	TOTAL O & P =	\$19,070.44
	CONTRACT AMOUNT (direct + O & P) = $($	\$164,980.44
	1.05 0.00	1.05 Total = 0.00 Total =

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	0.00	Total =	\$0.00
Reclamation management and/or administration:	5.00		\$8,249.02
CONTINGENCY:	0.00	Total =	\$0.00
	TOTAL IN	DIRECT COST =	\$27,819.46
TOTAL BO	ND AMOUNT (di	irect + indirect) =	\$173,729.46

Page 1 of 2

WHEEL LOADER - LOAD AND CARRY WORK

Robinson Sons Gravel Pit No	.1 Permit Action:	AM-01 Bond Estimate	Permit/Job#:	M2008076
PROJECT IDENTIFICATIO	N			
				NT
Task #: 001 Date: 12/10/2018	State: Colorado County: Las Anima	25	Abbreviation: Filename:	None M076-001
User: AME	County. Las Annia	as	Thename.	1070-001
Agency or organization	name: DRMS			
HOURLY EQUIPMENT CO	<u>DST</u>			
Basic Machine: CAT 95	50H	Horsep	ower:	197
Attachment 1: ROPS (Cab	Shift I	1	er day
		Data Sc	ource: (C	CRG)
Cost Breakdown:				
		Utilization %		
Ownership Cost/Hour:	\$26.14	NA		
Operating Cost/Hour:	\$30.84	100		
Operator Cost/Hour:	\$40.90	NA		
Total Unit Cost/Hour:	\$97.89			
Total Fleet Cost/Hour:	\$97.89			
TOTAL THEEL COST HOUL.	\$71.07			
	ψ97.09			
MATERIAL QUANTITIES	φ91.09			
MATERIAL QUANTITIES		Swell factor: 1	125	
MATERIAL QUANTITIES Initial volume: <u>18,000</u>	CCY	Swell factor: <u>1.</u>	125	
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20	ССҮ ,250 ССҮ LСҮ			
MATERIAL QUANTITIES Initial volume: <u>18,000</u> Loose volume: <u>20</u> Source of estima	0,250 CCY LCY tted volume: 1,000' L	x 18 ft H from vertical to		
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20	0,250 CCY LCY tted volume: 1,000' L	x 18 ft H from vertical to		
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estimated sou	0,250 CCY LCY tted volume: 1,000' L	x 18 ft H from vertical to		
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION	0,250 CCY LCY tted volume: 1,000' L swell factor: Cat Hand	x 18 ft H from vertical to	3H:1V	
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION	0,250 CCY LCY tted volume: 1,000' L swell factor: Cat Hand	x 18 ft H from vertical to		minutes
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION	0,250 CCY LCY tted volume: 1,000' L swell factor: Cat Hand	x 18 ft H from vertical to	3H:1V	minutes Source
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION Loader Cycle Time: Unadj Cycle Time Factors Material: Ma	CCY 0,250 LCY tted volume: 1,000' L swell factor: Cat Hand justed Basic Cycle Time aterial 1/8" to 3/4" diame	x 18 ft H from vertical to lbook (load, dump, maneuver): ter -0.02	3H:1V 0.500	
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION Loader Cycle Time: Unadj Cycle Time Factors Material: Ma Stockpile: Co	CCY 0,250 LCY tted volume: 1,000' L swell factor: Cat Hand justed Basic Cycle Time aterial 1/8" to 3/4" diame onveyor or dozer piled 10	x 18 ft H from vertical to lbook (load, dump, maneuver): ter -0.02 ft. high and up 0.00	3H:1V 0.500 Factor (min.) -0.020 0.000	Source (Cat HB) (Cat HB)
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION Loader Cycle Time: Unadj Cycle Time Factors Material: Ma Stockpile: Co Truck Ownership: Co	CCY 0,250 LCY tted volume: 1,000' L swell factor: Cat Hand justed Basic Cycle Time aterial 1/8" to 3/4" diame nveyor or dozer piled 10 ommon ownership of truc	x 18 ft H from vertical to lbook (load, dump, maneuver): ter -0.02 ft. high and up 0.00	3H:1V 0.500 Factor (min.) -0.020 0.000 -0.040	Source (Cat HB) (Cat HB) (Cat HB)
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION Loader Cycle Time: Unadj Cycle Time Factors Material: Ma Stockpile: Co Truck Ownership: Co Operation: Co	CCY J.250 LCY ated volume: 1,000' L swell factor: Cat Hand justed Basic Cycle Time aterial 1/8" to 3/4" diame onveyor or dozer piled 10 ommon ownership of truc onstant operation -0.04	x 18 ft H from vertical to lbook (load, dump, maneuver): ter -0.02 ft. high and up 0.00	3H:1V 0.500 Factor (min.) -0.020 0.000 -0.040 -0.040	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB)
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION Loader Cycle Time: Unadj Cycle Time Factors Material: Ma Stockpile: Co Truck Ownership: Co Operation: Co	CCY 2,250 CCY LCY ated volume: 1,000' L swell factor: Cat Hand justed Basic Cycle Time aterial 1/8" to 3/4" diame proveyor or dozer piled 10 promon ownership of truc notatant operation -0.04 prinal target 0.00	x 18 ft H from vertical to lbook (load, dump, maneuver): ter -0.02 ft. high and up 0.00 ks and loaders -0.04	0.500 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB)
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION Loader Cycle Time: Unadj Cycle Time Factors Material: Ma Stockpile: Co Truck Ownership: Co Operation: Co	CCY 2,250 CCY LCY atted volume: 1,000' L swell factor: Cat Hand justed Basic Cycle Time atterial 1/8" to 3/4" diame inveyor or dozer piled 10 pommon ownership of truc onstant operation -0.04 pominal target 0.00 Net Cyc	x 18 ft H from vertical to lbook (load, dump, maneuver): ter -0.02 ft. high and up 0.00 ks and loaders -0.04 cle Time Adjustment:	0.500 Factor (min.) -0.020 0.000 -0.040 -0.040 -0.040 -0.0100	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estimated s Source of estimated s HOURLY PRODUCTION Loader Cycle Time: Unadj Cycle Time Factors Material: Ma Stockpile: Co Operation: Co Dump Target: No	CCY LCY LCY tted volume: 1,000' L swell factor: Cat Hand justed Basic Cycle Time aterial 1/8" to 3/4" diame onveyor or dozer piled 10 ommon ownership of truc onstant operation -0.04 ominal target 0.00 Net Cyc Adjuste	x 18 ft H from vertical to lbook (load, dump, maneuver): ter -0.02 ft. high and up 0.00 ks and loaders -0.04	0.500 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB)
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION Loader Cycle Time: Unadj Cycle Time Factors Material: Ma Stockpile: Co Truck Ownership: Co Operation: Co	CCY LCY LCY tted volume: 1,000' L swell factor: Cat Hand justed Basic Cycle Time aterial 1/8" to 3/4" diame onveyor or dozer piled 10 ommon ownership of truc onstant operation -0.04 ominal target 0.00 Net Cyc Adjuste	x 18 ft H from vertical to lbook (load, dump, maneuver): ter -0.02 ft. high and up 0.00 ks and loaders -0.04 cle Time Adjustment:	0.500 Factor (min.) -0.020 0.000 -0.040 -0.040 -0.040 -0.0100	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes
MATERIAL QUANTITIES Initial volume: 18,000 Loose volume: 20 Source of estima Source of estimated s HOURLY PRODUCTION Loader Cycle Time: Unadj Cycle Time Factors Material: Ma Stockpile: Co Operation: Co Dump Target: No	cCY 0,250 LCY tted volume: 1,000' L swell factor: Cat Hand justed Basic Cycle Time aterial 1/8" to 3/4" diame onveyor or dozer piled 10 ommon ownership of truc onstant operation -0.04 ominal target 0.00 Net Cyc Adjust tions	x 18 ft H from vertical to lbook (load, dump, maneuver): ter -0.02 ft. high and up 0.00 ks and loaders -0.04 cle Time Adjustment:	3H:1V 0.500 Factor (min.) -0.020 0.000 -0.040 -0.040 0.000 -0.100 0.400	Source (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) (Cat HB) minutes

Haul and Return Time

	Length	Grade Res.	Rolling	Total Res.	Travel Time	Source
	(feet)	(%)	Res. (%)	(%)	(minutes)	Source
Haul Route:	350	2.00	8.00	10.00	0.4723	(Cat HB)
Return Route:	350	-2.00	8.00	6.00	0.3158	(Cat HB)

		Total Travel T Total Cycle T		minutes minutes
Load Bucket Capacity				
Rated Capac Bucket Fill Fac Adjusted Capac	tor: 1.100	LCY (heaped) Other - rock/dirt mixtures LCY	(100-120%) 1.100	
Job Condition Correcti Site Altitude: <u>6990</u> feet				
		Source		
Altitude Adj:	1.00	(CAT HB)		
Job Efficiency:	0.83	(1 shift/day)		
Net Correction:	0.83	multiplier		
U	nadjusted Hourly Unit I Adjusted Hourly Unit I		LCY/Hour LCY/Hour	
	Adjusted Hourly Fleet		LCY/Hour	
JOB TIME AND C	<u>OST</u>			
Fleet size:	1 Loader(s)	Total job time:	102.14	Hours

Total job cost: **\$9,999**

Unit cost: _____\$0.494 /LCY

BULLDOZER RIPPING WORK

<i>a</i> .	Task description:					
Site			n: AM-01 Bond Es	stimate Permit	/Job#: <u>M20080</u>	76
		ENTIFICATION				
	Task #: 002 Date: 12/ User: AN	County: Las An		Abbreviat		2
	Agency	or organization name: DRMS				
	0 1	UIPMENT COST				
		Machine: Cat D8T - 8SU		Horsepower:	310	
	Ripper Att			Shift Basis:	1 per day	
				Data Source:	(CRG)	
	Cost Breakdown:	<u>.</u>	1	Utilization %		
		Ownership Cost/Hour:	\$93.62	NA		
	D.	Operating Cost/Hour:	\$73.35	100		
		er Ownership Cost/Hour:	\$8.93 \$7.78	NA 100		
	Kipj	Operator Cost/Hour:	\$41.52	NA		
		Total Unit Cost/Hour:	\$225.20			
		Total Fleet Cost/Hour: \$	225.20			
	MATERIAL (DUANTITIES	Selected estimating n	nethod: Area		
	Alternate Method		Selected estimating h	Area		
mia		Bank Volume	• NIA	BCY	NA	
smic: Area:	NA 10.80	acres Rip Depth (ft)		Volume: 34,84		BCY or 0
		Source of estimated quantity: DR				
		· · <u> </u>				
	HOURLY PRO	<u>JUCTION</u>				
	Seismic:	Seismic Velocity:	NA	feet/second		
	A	Seisine Verserty.	1121			
	<u>Area:</u>	Average Ripping Depth:	2.56	mph		
		Average Ripping Width:	7.08	degrees		
		Average Ripping Length:	300.00	feet		
		Average Dozer Speed:	88.00	feet		
		Average Maneuver Time: Production per unit area:	0.25 0.800	feet acres/hour		
		·	0.800			
	Job Condition Co					
	Un	adjusted Hourly Unit Production:	0.800	Acres/hr		
		Site Altitude:	6,990	feet		
		Altitude Adj:	1.00	(CAT HB)		
		Job Efficiency: Net Correction:	0.83	(1 shift/day) multiplier		
		Adjusted Hourly Unit Production Adjusted Hourly Fleet Production		Acres/hr Acres/hr		
	JOB TIME AN					
	Fleet size:	1 Grader(s)	Total job time:	16.27	Но	irs
				10.2/	H0	u1 5
	Unit cost:	\$339.348 Per acre	Total job cost:	\$3,665	,	

SCRAPER TEAM WORK

Site: Robinson Sons Gr	avel Pit No. 1	Permit A	ction:	AM-01 Bond E	stimate Perr	mit/Job#: M200	8076
PROJECT IDENT	TIFICATION						
Task #: 003 Date: 12/10/2	Sta 018 Coun		orado Anim	25		viation: None ename: M076-0	003
User: AME		<u> </u>					
Agency or o	rganization name:	DRMS					
HOURLY EQUIP	MENT			COSTS	hift basis: <u>1 per d</u>	ay	
		1	<u> </u>	ent Description			
		1	Cat 637 NA	'G			
Suppor	t Equipment -Load	Area: C	Cat D8'	T - 8SU			
Road Mai	-Dump - ntenance –Motor Gr		VA CAT 16	5M			
	-Water T			Fanker, 3,500 Gal			
		T		a			
<u>Cost Breakdown</u> :	Scraper Work Scraper	Dozer		Support Equi Load Area	Dump Area	Maintenance Motor Grader	Water Truc
%Utilization-machine:	100		NA	100	NA	100	1
Ownership cost/hour:	\$155.61		NA	\$93.62	NA	\$77.19	\$12.
Operating cost/hour:	\$166.86		NA	\$73.35	NA	\$63.34	\$26.
%Utilization-ripper:	NA		NA	NA ¢0.00	NA	50	1
Ripper own. cost/hour:	NA NA		NA NA	\$0.00 \$0.00	NA NA	\$4.07	\$0. \$0.
Ripper op. cost/hour: Operator cost/hour:	\$31.05		NA	\$0.00	NA	\$1.77 \$28.69	\$0.
Unit Subtotals:	\$353.51		NA	\$208.49	NA	\$175.05	\$38
Number of Units:	1		0	4200.19	0	1	φ50.
Group Subtotals:	Work:	\$353.5	1	Support:	\$208.49	Maint:	\$213.46
Total work team cost/ MATERIAL QUA Initial volume: Loose volume:			CY CY	Swell fac x 8 in depth, avg	tor: <u>1.215</u>		
	f estimated swell fac		at Hand				
<u></u>				Scraper B	owl (volume) Basi	s.	
Material weight:	1,600 lbs/LCY			Struck	Volume: 24.00		CY CY
Material description: Rated Payload:	Top Soil 81,600 pounds			Heaped Average			CY

<u>0.80</u> Minutes

<u>0.60</u> Minutes

Cycle Time:

Scraper Loading Time: Maneuver and Spread Time:

Job Condition Correction:

Site Altitude: 6990 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: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	1.00	3.00	4.00	2394	0.49

Haul Time: **0.49** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	-1.00	3.00	2.00	2960	0.39
				Return Time:	0.39	minutes
			Total Scrape	r team cycle time:	2.28	minutes
			Adjusted f	for job conditions:	633.42	LCY/Hour
			Selected Nu	mber of Scrapers:	1	Scraper(s)
	Adjuste	d single scrap	per team (unit) h	nourly production:	633.42	LCY/Hour
	Adjusted n	nultiple scrap	er team (fleet) h	nourly production:	633.42	LCY/Hour
Optima	Unadjusted unit pro al Number of Scrapers pe			LCY/Hour		
JOB T	IME AND COST					
Flee	t size: 1	Team(s)	Т	otal job time:	35.36	Hours

Fleet size:	1	Team(s)	Total job time:	35.36	Hours
Unit cost:	\$1.224	/LCY	Total job cost:	\$27,421	

REVEGETATION WORK

Site: Robinson S						
ne. Robinson S	Sons Gravel	Pit No. 1 Pe	rmit Action:	AM-01 Bond Estimate	Permit/Job	#: M2008076
PROJECT II	DENTIFIC	ATION				
	004 12/10/2018	State: County:	Colorado Las Animas	S	Abbreviation: _ Filename:	None M076-004
User:	AME				_	

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
Chisel plowing {DMG}		\$92.77
Weed control spraying (MEANS 31 31 16.13 3100)		\$193.60
	Total Tilling Cost/Acre	\$286.37

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Native	5.50	16.41	\$57.75
Blue Grama - Native	1.50	24.48	\$22.28
Sideoats Grama - Vaughn	4.50	14.77	\$46.08
Western Wheatgrass - Native	8.00	20.20	\$57.36
Totals Seed Mix	19.50	75.87	\$183.47

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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$68.78
Weed spray, hand, non-aquatic area, nox. [DMG]		\$184.32
	Total Mulch Application Cost/Acre	\$253.10

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
		Totals	Nursery Stoc	ck Cost / Acre	\$0.00

Estimate *Selected Replanti	No. of Acres: ed Failure Rate: ng Work Items:	30%	Cost /Acre: Cost /Acre*:	
Initial Job Cost:	\$26,240.31			
Reseeding Job Cost:	\$2,136.35			
Total Job Cost:	\$28,377			
Job Hours:	34.00		-	

BULLDOZER WORK

Task description:	Grade 2.	.12 ac in	Area 2			
Robinson Sons Grave	el Pit No. 1	Per	mit Action:	AM-01 Bond Estimate	Permit/Job#:	M2008076
PROJECT IDENTIF	ICATION					
Task #: 005		State:	Colorado		Abbreviation:	None
Date: $12/10/2018$		County:	Las Anima	26	Filename:	M076-005
User: AME	<u> </u>	Jounty.	Las Allilla	18	rnename.	1070-003
Agency or orga	 nization nam	ne: DR	RMS			
HOURLY EQUIPME		-				
Basic Machine: Cat Horsepower: 310	<u>t D8T - 8SU</u>					
	ni-Universal	1				
		L				
	hank ripper					
	er day					
Data Source: (Cl	RG)					
Cost Breakdown:						
				Utilization %		
Ownership Cost/Hour:			\$93.62	NA		
Operating Cost/Hour:			\$73.35	100		
Ripper own. Cost/Hour:			\$8.93	NA		
Ripper op. Cost/Hour:			\$3.89	50		
$\mathbf{K}_{\mathbf{D}}$			\$41.52	NA		
Operator Cost/Hour: Fotal unit Cost/Hour: Fotal Fleet Cost/Hour: MATERIAL QUANT			¢ 11.02			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour:	\$221.31 <u>SITIES</u> -0					
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00	\$221.31 <u>SITIES</u> -0					
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu	\$221.31 FITIES 0 0 0 0 LCY me: _2	2.12 ac x	 2 ft			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84	\$221.31 FITIES 0 0 0 0 LCY me: _2	2.12 ac x Cat Hand	 2 ft			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated swel	\$221.31 CITIES -0 -0 -0 -0 -0 -0 -0 -0 -0 -0		 2 ft			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated swel HOURLY PRODUCC	\$221.31 <u>SITIES</u> 0 0 0 0 0 0 0 0 0 0 0 0 0	Cat Hand	 2 ft			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated swel	\$221.31 <u>SITIES</u> 0 0 0 LCY me: <u>2</u> 1 factor: <u>C</u> <u>FION</u> 50		 2 ft book			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated swel HOURLY PRODUCT Average push distance:	\$221.31 CITIES .0	Cat Hand feet 00.0 LC	 2 ft book			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated volu Source of estimated swel HOURLY PRODUCT Average push distance: Jnadjusted hourly produ Materials consistency destinated set	\$221.31 CITIES .0	Cat Hand feet 00.0 LC	2 ft book			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANI Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated volu Source of estimated swel HOURLY PRODUCY Average push distance: Inadjusted hourly produ	\$221.31 CITIES .0	Cat Hand feet 00.0 LC Loose s	2 ft book			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated volu Source of estimated swel HOURLY PRODUCT Average push distance: Jnadjusted hourly produ Materials consistency destance: Average push gradient:	\$221.31 TITIES 0 0 0 LCY me:2 1 factor:0 FION ction:1,4 scription: 5 %	Cat Hand feet 00.0 LC Loose s	2 ft book			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated volu Source of estimated swel HOURLY PRODUC' Average push distance: Jnadjusted hourly produ Materials consistency des Average push gradient: Average site altitude:	\$221.31 STTIES .0 .1	Cat Hand feet 00.0 LC Loose s	2 ft book			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated volu Source of estimated swel HOURLY PRODUCY Average push distance: Jnadjusted hourly produ Materials consistency des Average push gradient: Average site altitude: Material weight: Weight description: ob Condition Correction	\$221.31 CITIES .0 .1	Cat Hand feet 00.0 LC Loose s LOOSE s LCY sed rock	2 ft book Y/hr stockpile 1.2			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated volu Source of estimated swel HOURLY PRODUCY Average push distance: Jnadjusted hourly produ Materials consistency des Average push gradient: Average site altitude: Material weight: Weight description: Operator	\$221.31 CITIES .0	Cat Hand feet 00.0 LC Loose s LOOSE s LCY sed rock 0.	2 ft book Y/hr stockpile 1.2 			
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated volu Source of estimated swel HOURLY PRODUCT Average push distance: Jnadjusted hourly produ Materials consistency des Average push gradient: Average site altitude: Material weight: Weight description: Operator Material consist	\$221.31 CITIES .0	Cat Hand feet 00.0 LC Loose s LOOSE s LCY sed rock 0. 1.	2 ft book Y/hr stockpile 1.2 - 25% Rock, 750 200	, 75% Earth		
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated volu Source of estimated swel HOURLY PRODUCT Average push distance: Jnadjusted hourly produ Materials consistency des Average push gradient: Average site altitude: Material weight: Weight description: Operator Material consist Dozing me	\$221.31 CITIES .0	feet 00.0 LC Loose s LCY sed rock 0. 1.	2 ft book Y/hr stockpile 1.2 	, 75% Earth , 75% Earth (AVG.) (CAT HB) (50% SL)		
Operator Cost/Hour: Total unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUANT Initial Volume: 6,84 Swell factor: 1.00 Loose volume: 6,84 Source of estimated volu Source of estimated volu Source of estimated swel HOURLY PRODUCT Average push distance: Jnadjusted hourly produ Materials consistency des Average push gradient: Average site altitude: Material weight: Weight description: Operator Material consist Dozing me	\$221.31 CITIES .0	Cat Hand feet 00.0 LC Loose s Loose s LCY sed rock 0. 1. 1. 1.	2 ft book Y/hr stockpile 1.2 - 25% Rock, 750 200	, 75% Earth		

Spoil pi	le:	0.800	(FND-RF)	
Push gradier	Push gradient:		(CAT HB)	
Altitud	le:	1.000	(CAT HB)	
Material Weigl	nt:	0.868	(CAT HB)	
Blade typ	e:	1.000	(PAT)	
Net correction	on:	0.5152		
Adjusted unit production:	72	1.28 LCY/hr		
Adjusted fleet production:	72	1.28 LCY/hr		

Fleet size:	1 Dozer(s)
Unit cost:	\$0.307/LCY

Total job time:	9.48 Hours
Total job cost:	\$2,099

Page 1 of 2

SCRAPER TEAM WORK

Site: Robinson Sons G	avel Pit No. 1	Permit Action:	AM-01 Bond E	stimate Peri	mit/Job#: <u>M2008</u>	8076
PROJECT IDENT	TIFICATION					
Task #: 006 Date: 12/10/2 User: AME		State: Colorado unty: Las Anir			viation: None ename: M076-0)06
Agency or c	organization name:	DRMS				
HOURLY EQUIP	<u>MENT</u>		COSTS	hift basis: <u>1 per d</u>	ay	
		Equipm	ent Description			
		Cat 63				
Suppor	- rt Equipment -Load	-Dozer: NA d Area: Cat Da	8T - 8SU			
	-Dumj	p Area: NA				
Road Man	intenance –Motor (-Water		16M Tanker, 3,500 Gal			
			<u>1411101, 0,000 Cu</u>			
Cost Breakdown:	Scraper Wo		Support Equi		Maintenance	Equipme Water
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	water
%Utilization-machine:	100	NA	100	NA	100	
Ownership cost/hour:	\$155.61	NA	\$93.62	NA	\$77.19	
Operating cost/hour:	\$166.86	NA	\$73.35	NA	\$63.34	
%Utilization-ripper:	NA	NA	NA to oo	NA	50	
Ripper own. cost/hour: Ripper op. cost/hour:	NA NA	NA NA	\$0.00 \$0.00	NA NA	\$4.07 \$1.77	
Operator cost/hour:	\$31.05	NA	\$41.52	NA	\$1.77	
Unit Subtotals:	\$353.51	NA	\$208.49	NA	\$175.05	
Number of Units:	¢555.51 1	0	¢200.49	0	1	
Group Subtotals:	Work:	\$353.51	Support:	\$208.49	Maint:	\$213
Total work team cost	NTITIES					
Initial volume: Loose volume:	2,280 2,770	CCY LCY	Swell fact	tor: <u>1.215</u>		
	rce of estimated vo		x 8 in depth, avg 2 ndbook	,000 ft distance		
	of estimated swell f		RUDOOK			
Source of				owl (volume) Bas	<u>is:</u>	
Source of			Scraper Bo	Volume: 24.00 Volume: 34.00	L0	CY CY CY

<u>0.80</u> Minutes

<u>0.60</u> Minutes

Cycle Time:

Scraper Loading Time: Maneuver and Spread Time:

Job Condition Correction:

Site Altitude: 6990 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: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	3.00	3.00	6.00	1477	1.41

Haul Time: **1.41** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	-3.00	3.00	0.00	2965	0.78
				Return Time:	0.78	minutes
			Total Scrape	er team cycle time:	3.59	minutes
			Adjusted	for job conditions:	402.28	LCY/Hour
			Selected Nu	umber of Scrapers:	1	Scraper(s)
	Adjuste	d single scrap	per team (unit) l	hourly production:	402.28	LCY/Hour
	Adjusted m	ultiple scrap	er team (fleet) l	hourly production:	402.28	LCY/Hour
Optima	Unadjusted unit pro al Number of Scrapers pe			LCY/Hour		
<u>JOB TI</u>	IME AND COST					
Fleet	t size: 1	Team(s)	Т	otal job time:	6.89	Hours

Unit cost: \$1.928 /LCY

Total job cost: \$5,340

REVEGETATION WORK

Task descrip	otion:	Revegetate 2.1	2 ac in Area 2			
Site: Robinson	Sons Gravel	Pit No. 1 P	ermit Action:	AM-01 Bond Estimate	Permit/Job#	: M2008076
PROJECT	IDENTIFIC	ATION				
Task #: Date: User:	007 12/10/2018 AME	State: County:				None M076-007
User:	AME ency or organiz	zation name: Г	PRMS			

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
Chisel plowing {DMG}		\$92.77
Weed control spraying (MEANS 31 31 16.13 3100)		\$193.60
	Total Tilling Cost/Acre	\$286.37

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Native	5.50	16.41	\$57.75
Blue Grama - Native	1.50	24.48	\$22.28
Sideoats Grama - Vaughn	4.50	14.77	\$46.08
Western Wheatgrass - Native	8.00	20.20	\$57.36
Totals Seed Mix	19.50	75.87	\$183.47

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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$68.78
Weed spray, hand, non-aquatic area, nox. [DMG]		\$184.32
	Total Mulch Application Cost/Acre	\$253.10

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
		Totals	Nursery Stoc	ck Cost / Acre	\$0.00

	No. of Acres: Failure Rate: Work Items:	30%	Cost /Acre: Cost /Acre*:	
Initial Job Cost: \$3 Reseeding Job Cost: \$2 Total Job Cost: \$3 Job Hours: 4,	264.24 3,510			

DEMOLITION WORK

	Task description:	Demolition	of scale and sca	le house		
Site:	Robinson Sons Gravel I	Pit No. 1	Permit Action:	AM-01 Bond Estimate	Permit/J	ob#: M2008076
<u>PROJE</u>	CT IDENTIFICATIO	N				
Task #	: 008	State:	Colorado	Ab	breviation:	None
Date	: 12/10/2018	County:	Las Animas		Filename:	M076-008
User	:: AME					
	Agency or organiza	tion name:	DRMS			

UNIT COSTS

Location adjustment: 91.50 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Truck Scale Demo	1,100 SF	Floor, concrete, demolition only, average reinforcing - 12 in. thick	1,100.00	SF	\$1.59	\$1,749.00
Scale House Demo	160 SF x 8 F	Demo. only, small or single buildings (single story) - Wood structures	1,280.00	CF	\$0.18	\$225.28
Loading and Off- site Disposal	40.7 CY + 47.4 CY	Loading and 2 mile haul, no salvage - Machine loading	88.10	CY	\$17.2 0	\$1,515.32

				Total Cost	
		Subtotal		(adjusted for	
Job Hours:	10.00	(unadjusted):	\$3,489.60	location):	\$3,192.98

BULLDOZER WORK

Fask description:	Backfill cree	ek pits and grade	stopes to entry		
Robinson Sons Grav	el Pit No. 1	Permit Action:	AM-01 Bond Estimate	Permit/Job#:	M2008076
PROJECT IDENTI	FICATION				
Task #: 009		ate: Colorado		Abbreviation:	None
Date: $12/10/201$			p	Filename:	M076-010
User: AME	<u> </u>	Inty. Las Allina	<u> </u>	-	1070-010
	anization name:	DRMS			
HOURLY EQUIPM					
	at D8T - 8SU		_		
Horsepower: 31			_		
VI	emi-Universal		_		
	shank ripper		_		
	per day CRG)				
	.NU)		_		
Cost Breakdown:		1			
			Utilization %		
Ownership Cost/Hour:		\$93.62	NA		
Operating Cost/Hour:		\$73.35	100		
Ripper own. Cost/Hour:		\$8.93	NA		
Ripper op. Cost/Hour:		\$3.89	50		
Operator Cost/Hour:		\$41.52	NA		
Fotal unit Cost/Hour: Fotal Fleet Cost/Hour:	\$221.31 \$221.31				
Fotal unit Cost/Hour: Fotal Fleet Cost/Hour: MATERIAL QUAN ⁷ Initial Volume:10,	\$221.31 TITIES 164				
Fotal unit Cost/Hour: Fotal Fleet Cost/Hour: MATERIAL QUAN Initial Volume: <u>10,</u> Swell factor: <u>1.1</u> 2	\$221.31 TITIES 164				
Fotal unit Cost/Hour: Fotal Fleet Cost/Hour: MATERIAL QUAN Initial Volume: <u>10,</u> Swell factor: <u>1.1</u> 2	\$221.31 TITIES 164 24 420 LCY ume:1.4 a		c (S side), 3 ft deep to BF	GW	
Fotal unit Cost/Hour: Fotal Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.12 Loose volume: 11, Source of estimated volu	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a ell factor: Cat	· /	c (S side), 3 ft deep to BF	GW	
Fotal unit Cost/Hour: Fotal Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.12 Loose volume: 11, Source of estimated volu Source of estimated swe HOURLY PRODUCC	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a cll factor: Cat 2 CTION	Handbook	c (S side), 3 ft deep to BF	GW	
Fotal unit Cost/Hour: Fotal Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.12 Loose volume: 11, Source of estimated volu Source of estimated swe	\$221.31 TITIES 164 24 420 LCY ume: <u>1.4 a</u> cat is cat i	Handbook	 c (S side), 3 ft deep to BF	GW	
Fotal unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.12 Loose volume: 11, Source of estimated volu 5000000000000000000000000000000000000	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a oll factor: Cat CTION uction: 100 feat	Handbook et LCY/hr		GW	
Fotal unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.12 Loose volume: 11, Source of estimated volu 5000000000000000000000000000000000000	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a cat cat <td>Handbook</td> <td></td> <td>GW</td> <td></td>	Handbook		GW	
Fotal unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.12 Loose volume: 11, Source of estimated volu 5000000000000000000000000000000000000	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a oll factor: Cat CTION uction: 100 feat	Handbook et LCY/hr		GW	
Fotal unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.17 Loose volume: 11, Source of estimated volu 50 Source of estimated swe 10 HOURLY PRODUC 10 Average push distance: 10 Unadjusted hourly product 10 Materials consistency de 10 Average push gradient: 10	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a bill factor: Cat CTION uction: 100 fea escription: Cat 0 %	Handbook et LCY/hr ompacted fill or en		<u>- GW</u>	
Fotal unit Cost/Hour: Total Fleet Cost/Hour: Initial Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.12 Loose volume: 11, Source of estimated volu Source of estimated swe HOURLY PRODUC Average push distance: Unadjusted hourly product Materials consistency de Average push gradient: Average site altitude:	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a ell factor: Cat CTION uction: 852.6 d escription: Cat 0 % 6,990 feet	Handbook et LCY/hr ompacted fill or en			
Fotal unit Cost/Hour: Fotal Fleet Cost/Hour: Initial Volume: 10, Swell factor: 1.17 Loose volume: 11, Source of estimated volu 50 Source of estimated swe 10, HOURLY PRODUC 10, Average push distance: 11, Unadjusted hourly produce 10, Materials consistency de 10, Average push gradient: 10, Average site altitude: 11, Material weight: 10, Weight description: 10, Iob Condition Correction 10,	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a ell factor: Cat CTION uction: 100 feat escription: Cat 0 % 6,990 feet 2,900 lbs/LC Sand and grave n Factor Cat	Handbook et LCY/hr ompacted fill or en Y vel - Dry	nbankment 0.9		
Fotal unit Cost/Hour: Total Fleet Cost/Hour: Initial Volume: 10, Swell factor: 1.12 Loose volume: 11, Source of estimated volu Source of estimated volu Source of estimated swe HOURLY PRODUC Average push distance: Unadjusted hourly produce Average push gradient: Average site altitude: Material weight: Weight description: Iob Condition Correction Operator	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a ell factor: Cat CTION uction: 100 feat escription: Cat 0 % 6,990 feat	Handbook et LCY/hr ompacted fill or en Y Y vel - Dry 1.000	nbankment 0.9 <u>Source</u> (EXCL.)	<u>-</u>	
Fotal unit Cost/Hour: Total Fleet Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.12 Loose volume: 11, Source of estimated volu Source of estimated swe HOURLY PRODUC Average push distance: Unadjusted hourly produ Materials consistency de Average push gradient: Average site altitude: Material weight: Weight description: Iob Condition Correctio Operator Material consis	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a ell factor: Cat 1 CTION uction: 100 feat escription: Cat 0 % 6,990 feet	Handbook et LCY/hr ompacted fill or en Y Y vel - Dry 1.000 0.900		<u>GW</u>	
Fotal unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.17 Loose volume: 11, Source of estimated volu Source of estimated swe HOURLY PRODUC Average push distance: Unadjusted hourly product Materials consistency de Average push gradient: Average site altitude: Material weight: Weight description: Iob Condition Correction Operator Material consis Dozing m	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a ell factor: Cat 2 CTION uction: 100 fea escription: Cat 2 escription: Cat 2 0 % 6,990 feet 2,900 lbs/LC Sand and grave n Factor r Skill: estency: eethod:	Handbook et LCY/hr ompacted fill or en Y Y vel - Dry 1.000 0.900 1.100	Source (EXCL.) (CAT HB)) (50% SL)	• GW	
Fotal unit Cost/Hour: Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 10, Swell factor: 1.17 Loose volume: 11, Source of estimated volu Source of estimated swe HOURLY PRODUC Average push distance: Unadjusted hourly product Materials consistency de Average push gradient: Average site altitude: Material weight: Weight description: Iob Condition Correction Operator Material consis Dozing m	\$221.31 TITIES 164 24 420 LCY ume: 1.4 a ull factor: Cat 2TION action: 852.6 d escription: Cat component 6,990 feet 2,900 lbs/LC Sand and grave n Factor stency: estency: stency: ibility:	Handbook et LCY/hr ompacted fill or en Y Y vel - Dry 1.000 0.900		-	

Spoil pile:		0.700	(FND-MF)
Push gradie	Push gradient:		(CAT HB)
Altitud	Altitude:		(CAT HB)
Material Weight:		0.793	(CAT HB)
Blade type:		1.000	(PAT)
Net correction	on:	0.4561	
Adjusted unit production:	38	8.87 LCY/hr	
Adjusted fleet production:	38	8.87 LCY/hr	

Fleet size:	1 Dozer(s)
Unit cost:	\$0.569/LCY

Total job time:	29.37 Hours
Total job cost:	\$6,499

TRUCK/LOADER TEAM WORK

Task description:	Haul to	psoil to creek a	areas, spread at 8 ir	n depth				
Site: Robinson Sons C	Gravel Pit No. 1	Permit A	ction: <u>AM-01 Bon</u>	d Estimate	Permit/Job#: <u>M</u>	2008076		
PROJECT IDEN	TIFICATION							
Task #: 010		-	orado	Ab	breviation: No	ne		
Date: 12/10	/2018		Animas			076-011		
User: <u>AME</u>								
Agency or	organization nar	ne: DRMS						
HOURLY EQUI	PMENT COST	<u>[</u>		Shift bas	sis: <u>1 per day</u>			
			Equipment Descri	ption				
Т	Truck Loader Tea		Generic 8-10 cy, 6x4					
Supp	ort Equipment -L		CAT 950H NA					
Supp			Cat D8T - 8SU					
Road Maintenance – Motor Grader: CAT 16M								
	-Wa	ter Truck: V	Vater Tanker, 3,500	Gal.				
Cost Breakdown:	Truck/Lo	ader Team	Support	Equipment	Maintenar	ce Equipment		
<u>Cost Dicakdown</u> .	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck		
%Utilization-machine:	100	10	0 NA	100	100	100		
Ownership cost/hour:	\$15.87	\$26.14		\$93.62	\$77.19	\$12.39		
Operating cost/hour:	\$40.15	\$30.84	4 NA	\$73.35	\$63.34	\$26.02		
%Utilization-riper:	NA		0 NA	NA	NA	NA		
Ripper own. cost/hour:	NA	\$0.0	0 NA	\$0.00	\$0.00	\$0.00		
Ripper op. cost/hour:	NA	\$0.0	0 NA	\$0.00	\$0.00	\$0.00		
Operator cost/hour:	\$0.00	\$40.9		\$41.52	\$28.69	\$0.00		
Unit Subtotals:	\$56.02	\$97.8	9 NA	\$208.49	\$169.22	\$38.41		
Number of Units:	2		1 0	1	1	1		
Group Subtotals:	Work:	\$209.93	Support:	\$208.49	Maint:	\$207.63		
Total work team cos	st/hour: <u>\$626.05</u>							
MATERIAL QU	ANTITIES							
Initial volume Loose volume			CY Swell	factor: <u>1.215</u>				
	urce of estimated of estimated swe		74 ac x 8 in depth, to at Handbook	psoil from Area 1				
Source	Material Purch		0.00			·		
			0.00					
HOURLY PRO	DUCTION							
Truck Capacity:								
<u>Truck Payload (wei</u> Material v			Pounds/LCY					
	iption: Top So	oil						
Rated Pa	yload: 27,280		Pounds					
Payload Ca	pacity: <u>17.05</u>		LCY					

Truck Bed (volume) Basis: Struck Volume:	8.00 I	LCY				
Heaped Volume:		LCY				
Average Volume:		LCY				
Adjusted Volume:		LCY				
Final '	Truck Volume I	Based on Number of	Loader Passes	9.46	LCY	
Loading Tool Capacity	Truck volume i	Dused on Humber of	Louder 1 asses.	2.40	LC1	
<u> </u>			Buc	ket Size Class: <u>N</u>	A	_
Rated Capacity:	4.300	LCY (heaped)				
Bucket Fill Factor:	1.100	Other - rock/dirt	mixtures (100	-120%) 1.100		- _
Adjusted Capacity:	4.730	LCY				
Job Condition Corrections:		Sit	e Altitude (ft.):	<u>5990</u> feet		
	Truck	Loader	Source			
Altitude Adj:	1.000	1.000	(CAT HE	·		
Job Efficiency:	0.830	0.830	(CAT HE	3)		
Net Correction:	0.830	0.830				
Loading Tool Cycle Time:	Number	of Loading Tool Pas	ses Required to	Fill Truck	2 p	asses
Excavators and Front Shovel		or <u>Louding</u> 10011 as	ses requires to		<u> </u>	
		D				
Machine Cycle Time vs Selected Value w						
Track Loaders –	Material Descri [.]	ntion.				
Cycle Time Elements (min.):	······	F				
Load: NA	Ma	aneuver: NA		Dump: 0.100)	
W/L . 1 1 T 1 T 1	- 		(1		500	4
Wheel and Track Loaders -	Unadjusted Bas	sic Loader Cycle 1 in	ie (load, dump, i	· · · · ·	. <u>500</u> minu	ites
Cycle Time Factors	Matarial 1/9"	to 3/4" diameter -0.0	2	Factor (min.)	Source	_
Material: Stockpile:		lozer piled 10 ft. high		-0.020	(Cat HB) (Cat HB)	_
Truck Ownership:		ership of trucks and	•	-0.040	(Cat HB)	_
	Constant opera		1044613 0.04	-0.040	(Cat HB)	_
Uneration:				0.000	(Cat HB)	-
Operation: Dump Target:	Nominal targe	et 0.00				
Dump Target:	Nominal targe		e Adjustment:			_
*	Nominal targe	Net Cycle Tim		-0.100	minutes minutes	_
*	Nominal targe	Net Cycle Tim Adjusted Loade			minutes	_
*	Nominal targe	Net Cycle Tim Adjusted Loade	er Cycle Time:	-0.100 0.400	minutes minutes	_
Dump Target:		Net Cycle Tim Adjusted Loade	er Cycle Time: me per Truck:	-0.100 0.400	minutes minutes	_ Minute
Dump Target: Truck Cycle Time:	0.50	Net Cycle Tim Adjusted Loade Net Load Ti	r Cycle Time: me per Truck: Adjusted	-0.100 0.400 0.500	minutes minutes minutes	-
Dump Target: <u>Truck Cycle Time:</u> Truck Exchange Time:	0.50	Net Cycle Tim Adjusted Loade Net Load Ti Minutes	er Cycle Time: me per Truck: Adjusted Adjusted	-0.100 0.400 0.500	minutes minutes minutes 0.500	Minute Minute

Hau	l Route	:							_
Seg		Haul D	istance	Grade (%)	Roll. Res	Total Res	Velocity	Travel	
		(Ft)			(%)	(%)	(fpm)	Time (min)	
1		2600.0	0	2.00	3.00	5.00	2218	1.241	-
						Haul Time:	1.241	minutes	3
Retu	urn Rou	te:							_
Seg		Haul D	istance	Grade (%)	Roll. Res	Total Res	Velocity	Travel	
		(Ft)			(%)	(%)	(fpm)	Time (min)	
1		2600.0	0	-2.00	3.00	1.00	2913	0.920	
						Return Time:	0.920	minut	es
					Total Tru	ck Cycle Time:	3.961	minut	es
Loadin	g Tool	unit							
	Produc		567.60	LCY/Hour		Adjusted for j	ob efficiency:	471.11	LCY/Hour
Truck Unit	Produc	tion							
		—	143.30	LCY/Hour		Adjusted for j	ob efficiency:	118.94	LCY/Hour
Optimal No.	. of Tru	cks:	4	Truck(s)		Selected Num	ber of Trucks:	2	Truck(s)
				Adjuste	d hourly true	k team producti	on: 237	.87 LC	Y/Hour
				Adjusted sing	le truck/loade	er team production	on: 237	.87 LC	Y/Hour
				Adjusted multip	le truck/loade	er team production	on: 237	.87 LC	Y/Hour
JO	JOB TIME AND COST								
]	Fleet si	ze:	1	Team(s)]	Fotal job time:	37.0.	3 H	lours
	Unit co	ost:	\$2.632	/LCY	,	Total job cost:	\$23,1	83	

REVEGETATION WORK

Task descrip	otion:	Revegetate 6.74	ac creek are	as		
Site: Robinsor	n Sons Gravel	Pit No. 1 Pe	ermit Action:	AM-01 Bond Estimate	Permit/Job#:	M2008076
PROJECT	IDENTIFIC	ATION				
Task #: Date: User:	011 12/10/2018 AME	State: County:	Colorado Las Anima	8		None M076-012
Age	ency or organiz	zation name:	RMS			

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
Chisel plowing {DMG}		\$92.77
Weed control spraying (MEANS 31 31 16.13 3100)		\$193.60
	Total Tilling Cost/Acre	\$286.37

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Native	5.50	16.41	\$57.75
Blue Grama - Native	1.50	24.48	\$22.28
Sideoats Grama - Vaughn	4.50	14.77	\$46.08
Western Wheatgrass - Native	8.00	20.20	\$57.36
Totals Seed Mix	19.50	75.87	\$183.47

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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$68.78
Weed spray, hand, non-aquatic area, nox. [DMG]		\$184.32
	Total Mulch Application Cost/Acre	\$253.10

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
	\$0.00				

No. of Acres: Estimated Failure Rate: *Selected Replanting Work Items:		30%	Cost /Acre: Cost /Acre*:	
Initial Job Cost: Reseeding Job Cost:	\$10,318.54 \$840.08			
Total Job Cost: Job Hours:				

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task descripti	on: Mo	obilization/Demob	ilization of Equ	ipment			
ite: Robinson Sons Gravel Pit No. 1 Permit Action: AM-01 Bond Estimate Permit/Job#: M2008076							
<u>PROJECT II</u>	DENTIFICAT	ION					
Task #:	012	State: Co	olorado		Abbreviatio	on: None	
	12/10/2018		s Animas		Filenan		3
	AME		.5 1 11111110				
Agen	cy or organizatio	n name: DRMS					
EQUIPMEN	<u>I IKANSPUR</u>	<u>RT RIG COST</u>			Shift basis:	1 per day	
				(Cost Data Source:	CRG Data	
					-		
Tr	uck Tractor Des	cription: GENE	RIC ON-HIGHV		JCK TRACTOR, 62		WERED,
					(2ND HALF, 2006)		
Т	ruck Trailer Des	cription: G			SENECK, DROP I		ENT
			Т	RAILER	(25T, 50T, AND 10	(T0	
Cost Breakdow	n						
Available Rig		0-25 Tons	26-50 Tons		- Tons		
	ship Cost/Hour:	\$16.63	\$18.37		22.33		
1 0		\$44.38	\$46.13		50.07		
	ator Cost/Hour:	\$27.66	\$27.66		27.66		
Helper Cost/Hour: \$0		\$0.00	\$25.39	\$25.39			
Total Unit Cost/Hour: \$88.		\$88.67	\$117.55	\$125.45			
NON ROAD	ABLE EQUIP	MENT:					
Machine	Weight/	Owner ship	Haul Rig	Fleet	Haul Trip	Return Trip	DOT Permit
Description	Unit	Cost/hr/ unit	Cost/hr/unit	Size	Cost/hr/ fleet	Cost/hr/ fleet	Cost/ fleet
Description	(TONS)		cost in/unit				
CAT 950H	20.13	\$26.14	\$88.67	2	\$229.62	\$177.34	\$500.00
Cat D8T - 8SU		\$102.55	\$125.45	2	\$456.00	\$250.90	\$750.00
Cat 637G	57.28	\$155.61	\$125.45	2	\$562.12	\$250.90	\$500.00
CAT 16M	28.73	\$77.19	\$117.55	1	\$194.74	\$117.55	\$500.00
		+				,	

Subtotals: **\$1,442.48 \$796.69 \$2,250.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet	Haul Trip Cost/hr/		Return Trip Cost/hr/ fleet
		Size	fleet		Cost/III/ Heet
Generic 8-10 cy, 6x4	\$85.75	2	\$171.50		\$171.50
Water Tanker, 3,500 Gal.	\$38.41	1	\$38.41		\$38.41
Drill/Broadcast Seeder with	\$36.08	1	\$36.08		\$36.08
Tractor					
		SI	ubtotals:	\$245.99	\$245.99
		51	iototais.	Ψ2=3.77	ΨΔ=3.77

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: Total one-way travel distance: Average Travel Speed:	TRINIDAD 23.00 45.00	miles
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	\$21,213.73	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	\$251.46	

Transportation Cycle Time:

	Non- Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.51	0.51
Return Time (Hours):	0.51	0.51
Loading Time (Hours):	2.50	NA
Unloading Time (Hours):	2.50	NA
Subtotals:	6.02	1.02

JOB TIME AND COST

Total job time: **12.04** Hours

Total job cost: \$21,465