#### COST SUMMARY WORK

Task description: Cost Sur			<b>Cost Summary</b>				
Site:	Two Rive Reservoir	ers Sand, Gra r Project	vel and Per	mit Action:	TR-1	Permit/Job	o#:M2022013
<u>P</u> ]	ROJECT	IDENTIFIC	CATION				
	Task #:	000	State:	Colorado		Abbreviation:	None
	Date:	9/16/2024	County:	Weld		Filename:	000
	User:	JPL					
	Age	ency or organiz	zation name: DR	MS			

#### TASK LIST (DIRECT COSTS) Form Fleet Task Task Cost Description Used Size Hours 01A 423.90 \$41,661 Dewater pit - initial pumping PUMPING 1 122.39 01B Dewater pit - continual pumping PUMPING 1 \$12,029 02A Grade slope under liner DOZER 2 13.03 \$8,900 Haul liner material to pit area 1 02B TRUCK1 128.20 \$71,183 02C Mix material for liner DOZER 2 13.73 \$9.284 02D Compact liner COMPACT 2 15.96 \$8,169 Haul subsoil to grade over liner 03A TRUCK1 1 558.56 \$288,416 Grade subsoil over liner DOZER 2 148.48 03B \$100,254 03C Haul topsoil to pit area TRUCK1 1 8.09 \$4,178 03D Spread topsoil on pond bank DOZER 2 1.91 \$1,288 Seed banks of pond 1 9.00 03E REVEGE \$10,854 04A Process Area Decommissioning DEMOLISH 1 175.00 \$14,440 05A Rip processing area, wash pond area RIPPER 2 19.47 \$13,462 50.15 05C Haul topsoil to process and wash pond areas TRUCK1 1 \$25,895 2 05D Spread topsoil on process and wash pond areas DOZER 7.87 \$5,312 05E Seed processing area and wash pond area REVEGE 22.00 1 \$53,842 Mobilization and Demob. 06 MOBILIZE 1 0.50 \$4,143

#### **INDIRECT COSTS**

#### **OVERHEAD AND PROFIT:**

Liability insurance:	2.02	Total =	\$13,601
Performance bond:	1.05	Total =	\$7,070
Job superintendent:	858.87	Total =	\$68,083
Profit:	10.00	Total =	\$67,331
		TOTAL O & P =	\$156,084
		CONTRACT AMOUNT (direct + O & P) =	\$829,394

SUBTOTALS:

1718.24

\$673,310

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	\$500	Total =	\$500
Engineering work and/or contract/bid preparation:	6.00	Total =	\$49,764
Reclamation management and/or administration:	4.50		\$37,323
CONTINGENCY:	0.00	Total =	\$0

TOTAL INDIRECT COST = \$243,671

TOTAL BOND AMOUNT (direct + indirect) = \_\_\_\_\_\_\$916,981

	PUMPI	NG WORK		
Task description: Dev	vater pit - initial pump	oing		
Two Rivers Sand, Gravel a e: Reservoir Project	nd Permit Actio	n: TR-1	Permit/Job#:	M2022013
PROJECT IDENTIFICATI	ON			
			411 ·	
Task #: 01A Date: 9/16/2024	State: <u>Colorad</u> County: Weld	0		one 013-01A
User: JPL	County. <u>weld</u>			J13-01A
Agency or organization	n name: DRMS			
HOURLY EQUIPMENT CO	<u>OST</u>			
Desc	cription		Quantity	_
	nersible pump - 460v, 8		5	_
	ion hose - 6 in. diam., 2		5	-
	harge hose - 6 in. D., 25	o ft.	5	-
	p operator		1	-
Horsepower: 95				
Shift Basis: 1 per day				
Weight: 0.70 (US Tons)	)			
× .	,			
Cost Breakdown:		Utilization %		
Ownership Cost/Hour:	\$49.45	NA		
Operating Cost/Hour:	\$20.60	100		
Operator Cost/Hour:	\$28.23	NA		
Total Unit Cost/Hour:	\$98.28	_		
Total Fleet Cost/Hour:	\$98.28			
PUMPING QUANTITIES	<i>•••</i>			
Initial Pond Volume:	424 520 070 00		Conversion factor:	1 0000
Final Pond Volume:	434,529,979.00 434,529,979.00	gallons	Conversion factor:	1.0000
Total Pond Inflow Surface	+5+,527,577.00	gunons	Unit inflow rate in	
Area:	300,000	Sq. ft.	gph/sq. ft.:	0.0000
Total Pond Inflow Volume			•••••• <u> </u>	
per Hour:	0.00	gallons		
Source of estim	ated volume: <u>Exh L</u> ,	page 6		
PUMPING TIME				
Maximum I	Pump Capacity:	170,000	_ gph/pump	
	l Suction Head:	0	feet	
Estimated D	Discharge Head:	15	feet	
	Total Head:	15	feet	
CPB I	Pump Capacity: Site Altitude:	<u>168,000</u> 4,680	_ gph/pump feet	
		4,000	_ 1001	
Adjusted Pun	nping Capacity:	840,000	gph	
Initial Unadjusted	Pumping Time:	517.30	hours	
Inflow during I	nitial Pumping:	0	gallons	
Net Unadjusted		517.30	Hours	
	ustment Factor:	1.0000	(3% rule)	
Pump Ef Total Adjusted	ficiency Factor:	0.9167 474.21	(55 min./hr.) hours	
-		7/7.21	10015	
JOB TIME AND COST		Total job tin	ne: 474.21	Hours
Unit cost: \$0.000107	/Gallon	Total job co	st: \$46,605	
		5		

Task description: Dew	ater pit - continual pu	mping		
Two Rivers Sand, Gravel and te: Reservoir Project	d Permit Action	: 	Permit/Job#:	M2022013
PROJECT IDENTIFICATIO	DN			
Task #:       01B         Date:       9/16/2024         User:       JPL	State: <u>Colorado</u> County: <u>Weld</u>		Abbreviation: No Filename: Mo	one 013-01B
Agency or organization	name: DRMS			
HOURLY EQUIPMENT CO	<u>ST</u>			
Make and Model:SubmAttachment 1:SuctionAttachment 2:Disch	iption ersible pump - 460v, 8 i on hose - 6 in. diam., 25 arge hose - 6 in. D., 25 operator	ft.	Quantity           5           5           5           1	- - -
Horsepower: 95 Shift Basis: 1 per day Weight: 0.70 (US Tons)				
Cost Breakdown:		Utilization %		
Ownership Cost/Hour:	\$49.45	NA		
Operating Cost/Hour:	\$20.60	100		
Operator Cost/Hour:	\$28.23	NA		
Total Unit Cost/Hour:	\$98.28			
Total Fleet Cost/Hour:	\$98.28			
<b>PUMPING QUANTITIES</b>				
Initial Pond Volume:	112,151,304.00		Conversion factor:	1.0000
Final Pond Volume:	112,151,304.00	gallons		
Total Pond Inflow Surface			Unit inflow rate in	
Area:	300,000	Sq. ft.	gph/sq. ft.:	0.0000
Total Pond Inflow Volume per Hour:	0.00	gallons		
·	ted volume: Exh L, p			
		Jage 0		
PUMPING TIME		170.000	1 /	
	ump Capacity: Suction Head:	<u>170,000</u> 0	gph/pump feet	
	scharge Head:	15	feet	
	Total Head:	15	feet	
CPB Pr	ump Capacity:	168,000	gph/pump	
	Site Altitude:	4,680	feet	
Adjusted Pumj		840,000	gph	
Initial Unadjusted P		133.51	hours	
Inflow during In Net Unadjusted P		0 133.51	gallons Hours	
	stment Factor:	1.0000	(3%  rule)	
	ciency Factor:	0.9167	(55  min./hr.)	
Total Adjusted P		122.39	hours	
JOB TIME AND COST		Total job ti	me: <u>122.39</u>	Hours
Unit cost: \$0.000107	/Gallon	Total job c	ost: <b>\$12,029</b>	
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PUMPING WORK

# BULLDOZER WORK

Task description: Gra	nde slope under liner			
Two Rivers Sand, Gravel an te: Reservoir Project	nd Permit Action:	TR-1	Permit/Jo	b#: <u>M2022013</u>
PROJECT IDENTIFICATI	ON			
Task #:       02A         Date:       9/17/2024         User:       JPL	State: <u>Colorado</u> County: <u>Weld</u>		Abbreviation: Filename:	None M013-02A
Agency or organization	n name: DRMS			
<b>HOURLY EQUIPMENT CO</b>	<u>OST</u>			
Basic Machine:Cat D8T -Horsepower:310Blade Type:Semi-UnivAttachment:3-shank riShift Basis:1 per dayData Source:(CRG)	· 8SU versal	  		
<u>Cost Breakdown</u> :		_		
Ownership Cost/Hour: Operating Cost/Hour:	\$173.32 \$109.71	Utilization % NA 100		
Ripper own. Cost/Hour:	\$14.53	NA		
Ripper op. Cost/Hour:	\$3.98	50		
Operator Cost/Hour:	\$40.04	NA		
Total Fleet Cost/Hour:       \$683         MATERIAL QUANTITIES         Initial Volume:       14,502         Swell factor:       1.215         Loose volume:       17,620 LC         Source of estimated volume:       Source of estimated swell	Y	.4' length, 1' deep. pg	10 Ex L	
factor:				
HOURLY PRODUCTION Average push distance: Unadjusted hourly production:	50 feet 1,400.0 LCY/hr			
Materials consistency description	on: Partly consolidated	stockpile 1.1		
Average push20 %gradient:	6 0 feet			
Material weight: 1,60	0 lbs/LCY		_	
Weight description: Top	Soil			
weight description. <u>Top</u>	5011			

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.545	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4830

Adjusted unit production:	676.20 LCY/hr
Adjusted fleet production:	1352.4 LCY/hr

Fleet size:	2 Dozer(s)
Unit cost:	\$0.505/LCY

Total job time:	13.03 Hours
Total job cost:	\$8,900

# TRUCK/LOADER TEAM WORK

Two Rivers Sand, Gravel andPermSite:Reservoir Project			ction: TR-1		Permit/Job#: <u>M2022013</u>			
PROJECT IDENT	<b>TIFICATION</b>							
Task #:02B			orado	Abl	previation: <u>No</u>			
Date: <u>9/17/2</u> User: JPL	2024	County: <u>Wel</u>	d		Filename: MC	)13-02B		
	organization nar	ne: DRMS						
HOURLY EQUIP	MENT COST			Shift ba	sis: <u>1 per day</u>			
			Equipment Descr	iption				
Tr	uck Loader Tea		eneric 12-18 cy, 6x					
			AT 966H high lift					
Suppo	rt Equipment -L	oad Area: N 1000 Area: N						
Road Ma	intenance – Mot		AT 120M					
			ater Tanker, 2,500	Gal.				
Cost Breakdown:	Truck/Loa	1		Equipment		ance Equipment		
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck		
Utilization-machine:	100	75		NA	25	25		
Weight Street,	\$27.14	\$57.78	NA	NA	\$52.82	\$11.65		
Operating cost/hour:	\$62.81	\$34.69		NA	\$10.94	\$5.61		
%Utilization-riper:	NA	0		NA	NA	NA		
pper own. cost/hour:	NA	\$0.00		NA	\$0.00	\$0.00		
Ripper op. cost/hour:	NA	\$0.00		NA	\$0.00	\$0.00		
Operator cost/hour:	\$24.82	\$56.64	NA	NA	\$56.70	\$0.00		
Unit Subtotals:	\$114.77	\$149.10	NA	NA	\$120.46	\$17.26		
Number of Units:	2	1	0	0	1	1		
Group Subtotals:	Work:	\$378.64	Support:	\$0.00	Maint:	\$137.72		
Total work team cost	/hour: <b>\$516.36</b>							
	<u>\$01000</u>							
MATERIAL QUA	NTITIES							
Initial volume:	61,706	CC	Y Swell	factor: 1.000				
Loose volume:				Iactor. 1.000				
	· · · · · · · · · · · · · · · · · · ·							
	rce of estimated		L Page 10-11					
Source of estimated swell factor: Material Purchase Cost:			Handbook 00					

# **HOURLY PRODUCTION**

<u>Truck Capacity:</u>		
Truck Payload (weight) Basi	<u>s:</u>	
Material weight:	1,600	Pounds/LCY
Description:	Top Soil	

Rated Payload:	50,300	Pounds
Payload Capacity:	31.44	LCY

<u>Truck Bed (volume) Basis:</u> Struck Volume: Heaped Volume: Average Volume: Adjusted Volume:	18.00 I 15.00 I	LCY LCY LCY LCY				
Final T	ruck Volume B	ased on Number of	Loader Passes:	15.75	LCY	
Loading Tool Capacity			5.1		T. 4	
			Buck	et Size Class: <u>N</u>	A	_
Rated Capacity: _ Bucket Fill Factor:	5.000	LCY (heaped)		110%) 1.050		-
Adjusted Capacity:	1.050 5.250	Other - moist lo	ani (100-	110%) 1.030		-
Aujusicu Capacity.	5.250					
Job Condition Corrections:		Sit	e Altitude (ft.):	<u>4680</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:	Ν	umber of Loading T	ool Passes Requ	ired to Fill	2	passes
Excavators and Front Shovels		C	I	Truck:	3	1
Machine Cycle Time vs Selected Value w						
Track Loaders – M	Material Descri	otion:				
Cycle Time Elements (min.):						
Load: NA	Ma	aneuver: NA		Dump: 0.10	0	
Wheel and Track	Loaders - Unad	ljusted Basic Loader	•	ad, dump, naneuver):	0.500 min	utes
Cycle Time Factors				Factor (min.)	Source	
Material:	No adjustmen	t - factor not applica	ble 0.00	0.000	(Cat HB)	
Stockpile:		t - factor not applica		0.000	(Cat HB)	
Truck Ownership:	~	t - factor not applica		0.000	(Cat HB)	_
Operation:		nt - factor not applic		0.000	(Cat HB)	_
Dump Target:	No adjustmen	<u>it - factor not applica</u> Net Cycle Time		0.000 0.000	(Cat HB) minutes	_
		Adjusted Loade	-	0.500	minutes	
			ne per Truck:	1.100	minutes	
<u>Truck Cycle Time:</u>			1 <u> </u>		_	
Truck Exchange Time:	0.50	Minutes	Adjusted	for site altitude:	0.500	Minutes
Truck Load Time:		Minutes	Ū.	for site altitude:	1.100	Minutes
Truck Maneuver and Dump Time:		Minutes	Adjusted	for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: maintained 3.0 Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Unit cost: \$1.073 /LCY

Seg #	Haul	Distance	Grade (%)	Roll. Res	Total Res	Velocity	Travel	
565 //	(Ft)	Distance		(%)	(%)	(fpm)	Time (min)	
1	800.0	00	0.00	3.00	3.00	2824	0.445	
Return Rou	ite:				Haul Time:	0.445	mir	nutes
Seg #		Distance	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)	
1	800.0	00	0.00	3.00	3.00	2874	0.314	
	1 .			Total True	Return Time: ck Cycle Time:			inutes inutes
Loading Too Produ ruck Unit Produ	ction	590.63	LCY/Hour		Adjusted for jo	b efficiency:	490.2	22 LCY/Ho
		289.97	LCY/Hour		Adjusted for jo	b efficiency:	240.6	57 LCY/Ho
otimal No. of Tr	ucks:	2	Truck(s)		Selected Numb	er of Trucks:	2	Truck(s)
		A	Adjusted Adjusted single djusted multiple	e truck/loader		on: 481	.34 I	LCY/Hour LCY/Hour LCY/Hour
JOB TIM	E AN		- 1					
Fleet	size:	1	Team(s)	Т	otal job time:	128.2	0	Hours

Total job cost: **\$66,195** 

# BULLDOZER WORK

Two Rivers Sand, Gravel and Reservoir Project       Permit Action: <u>TR.1</u> Permit/Job#: <u>M2022013</u> PROJECT IDENTIFICATION       Task #: <u>02C</u> State: <u>Colorado</u> Abbreviation: <u>None</u> Date: <u>9/17/2024</u> County: <u>Weld</u> Filename: <u>M013-02C</u> User: JPL	 #: <u>M2022013</u>							
Task #:       02C       State:       Colorado       Abbreviation:       None         Date:       9/17/2024       County:       Weld       M013-02C         User:       JPL       Agency or organization name:       DRMS         Agency or organization name:       DRMS         HOURLY EQUIPMENT COST         Basic Machine:       Cat D8T - 8SU         Horsepower:       310         Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Shift Basis:       1 per day         Data Source:       (CRG)         Cost Breakdown:       100         Operating Cost/Hour:       \$173.32         Ripper own.       \$14.53         Cost/Hour:       \$0.40         Total unit Cost/Hour:       \$337.99         Total unit Cost/Hour:       \$337.99         Total Unit Cost/Hour:       \$337.99         Total Unit Cost/Hour:       \$675.99         MATERIAL QUANTITIES       Initial Volume:         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY		ob#: _	Permit/Job	R-1	rmit Action:	nd Pe		
Date:       9/17/2024       County:       Weld       Filename:       M013-02C         User:       JPL       Agency or organization name:       DRMS         HOURLY EQUIPMENT COST         Basic Machine:       Cat D8T - 8SU         Horsepower:       310       Blade Type:       Semi-Universal         Attachment:       3-shank ripper       Shift Basis:       1 per day         Data Source:       (CRG)       Cost Breakdown:       NA         Ownership Cost/Hour:       \$173.32       NA       NA         Operating Cost/Hour:       \$109.71       100       Ripper own. Cost/Hour:       \$14.53       NA         Ripper op. Cost/Hour:       \$337.99       50.40       5       Operator Cost/Hour:       \$337.99         Total unit Cost/Hour:       \$337.99       5675.99       5675.99       5675.99         MATERIAL QUANTITIES       Initial Volume:       \$30,853       Swell factor:       1.215         Loose volume:       37,486 LCY       Initial Colume:       \$37,486 LCY						<u>ON</u>	T IDENTIFICAT	<u>PROJ</u>
Agency or organization name:       DRMS         HOURLY EQUIPMENT COST         Basic Machine:       Cat D8T - 8SU         Horsepower:       310         Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Shift Basis:       1 per day         Data Source:       (CRG)         Cost Breakdown: <u>Vitilization %</u> Ovnership Cost/Hour: <u>\$173.32</u> <u>NA</u> Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         CostHour:       \$0.40       5         Operator Cost/Hour:       \$337.99         Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volum:       37,486 LCY						State:	: 02C : 9/17/2024	Ta
HOURLY EQUIPMENT COST         Basic Machine:       Cat D8T - 8SU         Horsepower:       310         Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Shift Basis:       1 per day         Data Source:       (CRG)         Ownership Cost/Hour:         Shift Basis:       1 per day         Data Source:       (CRG)         Cost Breakdown:       \$1173.32         NA       Operating Cost/Hour:         Sipper own.       \$14.53         Cost/Hour:       \$0.40         Cost/Hour:       \$0.40         Cost/Hour:       \$14.53         NA       Operator Cost/Hour:         Stars       \$337.99         Total unit Cost/Hour:       \$337.99         Total Locost/Hour:       \$675.99         MATERIAL QUANTITIES       \$0,853         Swell factor:       1.215         Loose volume:       37,486 LCY					RWS	name' DI		ſ
Basic Machine:       Cat D8T - 8SU         Horsepower:       310         Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Shift Basis:       1 per day         Data Source:       (CRG)         Cost Breakdown:          Ownership Cost/Hour:       \$173.32         Data Source:       (CRG)         Cost Breakdown:          Ownership Cost/Hour:       \$109.71         Ripper own.       \$14.53         Cost/Hour:       \$0.40         Source:       \$0.40         Operator Cost/Hour:       \$0.40         Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES								
Horsepower: $310$ Blade Type:Semi-UniversalAttachment: $3$ -shank ripperShift Basis:1 per dayData Source:(CRG)Cost Breakdown:Ownership Cost/Hour:\$173.32NANAOperating Cost/Hour:\$109.71Ripper own.\$14.53Cost Hour:\$0.40Source:\$0.40Operator Cost/Hour:\$0.40Stal unit Cost/Hour:\$337.99Total unit Cost/Hour:\$337.99Total Fleet Cost/Hour:\$675.99MATERIAL QUANTITIESInitial Volume:30,853Swell factor:1.215Loose volume:37,486 LCY								
Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Shift Basis:       1 per day         Data Source:       (CRG)         Ownership Cost/Hour:         Shift Basis:       1 per day         Ownership Cost/Hour:       \$173.32         NA       0         Operating Cost/Hour:       \$109.71         Ripper own.       \$14.53         Cost/Hour:       \$0.40         Source:       \$0.40         Operator Cost/Hour:       \$337.99         Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY						850		
Attachment: $3$ -shank ripperShift Basis:1 per dayData Source:(CRG)Cost Breakdown:Utilization %Ownership Cost/Hour:\$173.32NANAOperating Cost/Hour:\$109.71Ripper own.\$14.53Cost/Hour:\$0.40Soperator Cost/Hour:\$0.40Soperator Cost/Hour:\$337.99Total unit Cost/Hour:\$337.99Total Fleet Cost/Hour:\$675.99MATERIAL QUANTITIESInitial Volume:30,853Swell factor:1.215Loose volume:37,486 LCY						1		
Shift Basis:1 per dayData Source:(CRG)Cost Breakdown:Ownership Cost/Hour:\$173.32NANAOperating Cost/Hour:\$109.71Ripper own.\$14.53Cost/Hour:\$0.40Source:\$0.40Operator Cost/Hour:\$337.99Total unit Cost/Hour:\$337.99Total Fleet Cost/Hour:\$675.99MATERIAL QUANTITIESInitial Volume: $30,853$ Swell factor:1.215Loose volume: $37,486$ LCY							21 <u> </u>	
Data Source: $(CRG)$ Cost Breakdown:Utilization %Ownership Cost/Hour:\$173.32NA\$109.71Operating Cost/Hour:\$109.71Ripper own.\$14.53Cost/Hour:\$0.40Cost/Hour:\$0.40Operator Cost/Hour:\$337.99Total unit Cost/Hour:\$337.99Total Fleet Cost/Hour:\$675.99MATERIAL QUANTITIESInitial Volume:30,853Swell factor:1.215Loose volume:37,486 LCY						pper	-	
Cost Breakdown:         Utilization %           Ownership Cost/Hour:         \$173.32         NA           Operating Cost/Hour:         \$109.71         100           Ripper own.         \$14.53         NA           Cost/Hour:         \$0.40         5           Operator Cost/Hour:         \$0.40         5           Operator Cost/Hour:         \$40.04         NA           Total unit Cost/Hour:         \$337.99           Total Fleet Cost/Hour:         \$675.99           MATERIAL QUANTITIES           Initial Volume:         30,853           Swell factor:         1.215           Loose volume:         37,486 LCY								-
Ownership Cost/Hour:         \$173.32         NA           Operating Cost/Hour:         \$109.71         100           Ripper own.         \$14.53         NA           Cost/Hour:         \$0.40         5           Operator Cost/Hour:         \$0.40         5           Operator Cost/Hour:         \$337.99           Total unit Cost/Hour:         \$337.99           Total Fleet Cost/Hour:         \$675.99           MATERIAL QUANTITIES           Initial Volume:         30,853           Swell factor:         1.215           Loose volume:         37,486 LCY <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Source: (CRG)</td> <td>I</td>							Source: (CRG)	I
Ownership Cost/Hour:         \$173.32         NA           Operating Cost/Hour:         \$109.71         100           Ripper own.         \$14.53         NA           Cost/Hour:         \$0.40         5           Operator Cost/Hour:         \$0.40         5           Operator Cost/Hour:         \$337.99           Total unit Cost/Hour:         \$337.99           Total Fleet Cost/Hour:         \$675.99           MATERIAL QUANTITIES           Initial Volume:         30,853           Swell factor:         1.215           Loose volume:         37,486 LCY <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>down</td> <td>Cost B</td>							down	Cost B
Ownership Cost/Hour:       \$173.32       NA         Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Cost/Hour:       \$0.40       5         Operator Cost/Hour:       \$0.40       5         Operator Cost/Hour:       \$337.99         Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY				Utilization %	[		<u>40 1111</u> .	<u>0031 DI</u>
Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Cost/Hour:       \$0.40       5         Operator Cost/Hour:       \$0.40       5         Operator Cost/Hour:       \$40.04       NA         Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY					\$173.32		in Cost/Hour	Own
Ripper own. Cost/Hour:       \$14.53       NA         Ripper op. Cost/Hour:       \$0.40       5         Operator Cost/Hour:       \$40.04       NA         Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY			_					
Cost/Hour:       \$14.33       NA         Ripper op. Cost/Hour:       \$0.40       5         Operator Cost/Hour:       \$40.04       NA         Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY			-	100	\$109.71			Ope
Ripper op. Cost/Hour:       \$0.40       5         Operator Cost/Hour:       \$40.04       NA         Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY				NA	\$14.53			
Operator Cost/Hour:       \$40.04       NA         Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY			_	5	\$0.40			Dime
Total unit Cost/Hour:       \$337.99         Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY			-				·	
Total Fleet Cost/Hour:       \$675.99         MATERIAL QUANTITIES         Initial Volume:       30,853         Swell factor:       1.215         Loose volume:       37,486 LCY			_	NA	\$40.04		or Cost/Hour:	Ope
Initial Volume:         30,853           Swell factor:         1.215           Loose volume: <b>37,486</b> LCY				-			et Cost/Hour: <b>\$67</b>	Total
Source of estimated volume: Assumed half the volume of liner material Ex L ng 11						Ŷ	olume:         30,853           factor:         1.215	Initi S'
Source of estimated volume. <u>Assumed han the volume of micrimaterial Ex Epg 11</u> Cat Handbook factor:			pg 11	of liner material Ex I				Sourc
HOURLY PRODUCTION							PRODUCTION	<u>HOUI</u>
Average push distance: 50 feet						50 feet	nuch distance.	Aver
Average push distance:     50 rect       Unadjusted hourly     1,400.0 LCY/hr       production:				-	Y/hr		ed hourly	Unad
Materials consistency description: Partly consolidated stockpile 1.1		_		kpile 1.1	consolidated s	on: Partly	consistency descript	Mate
Average push0 %gradient:							oush 0 %	
Average site altitude: 4,680 feet						) feet	site altitude: 4,6	
Material weight: 1,600 lbs/LCY								M-4
Weight description: Top Soil						J lbs/LCY	weight: $1,6$	iviate
Job Condition Correction Factor         Source		-						

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9748

Adjusted unit production:	1,364.72 LCY/hr
Adjusted fleet production:	2729.44 LCY/hr

Fleet size:	2 Dozer(s)
Unit cost:	\$0.248/LCY

<b>13.73</b> Hours
\$9,284

## COMPACTION WORK

Task description: Comp	act liner			
Two Rivers Sand, Gravel and ite: <u>Reservoir Project</u>	Permit Action:	TR-1	Pe	ermit/Job#: <u>M2022013</u>
PROJECT IDENTIFICATION	<u>N</u>			
Task #:     02D       Date:     9/17/2024       User:     JPL	State: Colorado County: Weld		Abbrev File	iation: None name: M013-02D
Agency or organization na	ame: DRMS			
HOURLY EQUIPMENT COS				2.10
	<sup>•</sup> 815F - tamping foot	_	Horsepower: Shift Basis:	240
Compactor Type: <u>Soil</u>	- tamping loot	_	Data Source:	1 per day (CRG)
Cost Breakdown:				
			Utilization %	
Ownership Cost			<u>NA</u>	
Operating Cost Operator Cost			100 NA	
Total Unit Cost				
Total Fleet Cost	t/Hour: \$511.	71		
MATERIAL QUANTITIES				
Loose volume:	61,706	_ LCY	Shrink	tage factor: 0.910
Compacted volume:	56,152	CCY		
Source of esti Source of estimated sh		as hauled qu andbook	antity. ExL pg11	
Source of estimated si	ininkage lactor. <u>Cat n</u>	anuoook		
HOURINGPON				
HOURLY PRODUCTION		Unadjust	ed hourly productio	$\mathbf{n} = (\mathbf{W} \mathbf{x} \mathbf{S} \mathbf{x} \mathbf{L} \mathbf{x} \mathbf{C}) / \mathbf{P}$
	idth per pass (W):	Unadjust 6.50	ed <u>hourly productio</u> feet	$\mathbf{n} = (\mathbf{W} \mathbf{x} \mathbf{S} \mathbf{x} \mathbf{L} \mathbf{x} \mathbf{C}) / \mathbf{P}$
Compacted wi Average Com	pactor Speed (S):	6.50 8.00		$\mathbf{n} = (\mathbf{W} \mathbf{x} \mathbf{S} \mathbf{x} \mathbf{L} \mathbf{x} \mathbf{C}) / \mathbf{P}$
Compacted wi Average Com Compacted thicknes	pactor Speed (S):	6.50 8.00 10.00	feet mph inches	
Compacted wi Average Com Compacted thicknes Convers	pactor Speed (S): ss of each lift (L): ion Constant (C):	6.50 8.00 10.00 16.3	feet mph inches (5,280ft./1	<u>n = (W x S x L x C) / P</u> 2in./27cu.ft.)
Compacted wi Average Com Compacted thicknes Convers Required number of ma	pactor Speed (S): ss of each lift (L): sion Constant (C): achine passes (P):	6.50 8.00 10.00 16.3 4	feet mph inches (5,280ft./1 passes	2in./27cu.ft.)
Compacted wi Average Com Compacted thicknes Convers	pactor Speed (S): ss of each lift (L): sion Constant (C): achine passes (P):	6.50 8.00 10.00 16.3 4 2,119.00	feet mph inches (5,280ft./1	2in./27cu.ft.)
Compacted wi Average Com Compacted thicknes Convers Required number of ma Unadjusted Hourly	pactor Speed (S): ss of each lift (L): ion Constant (C): achine passes (P): Unit Production:	6.50 8.00 10.00 16.3 4 2,119.00	feet           mph           inches           (5,280ft./1           passes           CCY/hour	2in./27cu.ft.)
Compacted wi Average Com Compacted thicknes Convers Required number of ma Unadjusted Hourly	pactor Speed (S): ss of each lift (L): ion Constant (C): achine passes (P): Unit Production: Source	6.50 8.00 10.00 16.3 4 2,119.00 Site Altit	feet           mph           inches           (5,280ft./1           passes           CCY/hour	2in./27cu.ft.)
Compacted wi Average Com Compacted thicknes Convers Required number of ma Unadjusted Hourly Job Condition Correction Factors	pactor Speed (S):         ss of each lift (L):         sion Constant (C):         achine passes (P):         Unit Production:         Source         0         (CAT HB)	6.50 8.00 10.00 16.3 4 2,119.00 Site Altit	feet           mph           inches           (5,280ft./1           passes           CCY/hour	2in./27cu.ft.)
Compacted wi Average Com Compacted thicknes Convers Required number of ma Unadjusted Hourly Job Condition Correction Factors Altitude Adj:1.0	pactor Speed (S):	6.50 8.00 10.00 16.3 4 2,119.00 Site Altit	feet           mph           inches           (5,280ft./1           passes           CCY/hour	2in./27cu.ft.)
Compacted wi Average Com Compacted thicknes Convers Required number of ma Unadjusted Hourly Job Condition Correction Factors Altitude Adj: <u>1.0</u> Job Efficiency: <u>0.8</u> Net Correction: <u>0.83</u> Adjusted Hourly	pactor Speed (S):	6.50 8.00 10.00 16.3 4 2,119.00 Site Altit	feet mph inches (5,280ft./1 passes CCY/hour ude: <u>4,680</u> feet	2in./27cu.ft.)
Compacted wi Average Com Compacted thicknes Convers Required number of ma Unadjusted Hourly Job Condition Correction Factors Altitude Adj: <u>1.0</u> Job Efficiency: <u>0.8</u> Net Correction: <u>0.83</u> Adjusted Ho Adjusted Ho	pactor Speed (S):	6.50 8.00 10.00 16.3 4 2,119.00 Site Altit	feet mph inches (5,280ft./1 passes CCY/hour ude: <u>4,680</u> feet	2in./27cu.ft.)
Compacted wi Average Com Compacted thicknes Convers Required number of ma Unadjusted Hourly Job Condition Correction Factors Altitude Adj: <u>1.0</u> Job Efficiency: <u>0.8</u> Net Correction: <u>0.83</u> Adjusted Hourly	pactor Speed (S):	6.50 8.00 10.00 16.3 4 2,119.00 Site Altit ) 1,758.77 3,517.54	feet mph inches (5,280ft./1 passes CCY/hour ude: <u>4,680</u> feet CCY/Hour CCY/Hour	2in./27cu.ft.)

# TRUCK/LOADER TEAM WORK

Task description:	Haul su	bsoil to gra	ade ov	er liner			
<b>Two Rivers San</b> Site: <b>Reservoir Proje</b>		Perm	it Acti	on: 		Permit/Job#:	M2022013
PROJECT IDEN	<b>TIFICATION</b>						
Task #:         03A           Date:         9/17/           User:         JPL	2024		Colora Weld	do	Ab		one 013-03A
Agency or	organization nar	ne: DRM	IS				
HOURLY EQUI	PMENT COST	-				sis: <u>1 per day</u>	
		TT 1		quipment Descr			
1	ruck Loader Tea	m - Гruск: -Loader:		eric 12-18 cy, 6x 7 966H high lift	(4		
Supp	ort Equipment -L		NA	90011 lligh lift			
2 upp		imp Area:	NA				
Road Ma	aintenance – Mote		-	T 120M			
	-Wa	ter Truck:	Wate	er Tanker, 2,500	Gal.		
		1 5		<b>a</b>	<b>.</b>		
<u>Cost Breakdown</u> :	Truck/Loa Truck	der Team Loader		Support Load Area	Equipment Dump Area	Mainten Motor	ance Equipment Water Truck
	THUCK	Luadei		Load Area	Dump Area	Grader	Water Huek
6/Utilization-machine:	100		75	NA	NA	25	25
Ownership cost/hour:	\$27.14	\$57	7.78	NA	NA	\$52.82	\$11.65
Operating cost/hour:	\$62.81	\$34	4.69	NA	NA	\$10.94	\$5.61
%Utilization-riper:	NA		0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0	0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0	0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$50	6.64	NA	NA	\$56.70	\$0.00
Unit Subtotals:	\$114.77	\$149	9.10	NA	NA	\$120.46	\$17.26
Number of Units:	2		1	0	0	1	1
Group Subtotals:	Work:	\$378.64		Support:	\$0.00	Maint:	\$137.72
Total work team cos							
MATERIAL QUA	<u>ANTITIES</u>						
Initial volume			CCY	Swell	factor: 1.000		
Loose volume	: 273,8	15	LCY				
Sou	arce of estimated	volume:	Ex L	Pg 9, total for bo	oth slopes 273815	;	
	of estimated swe			landbook			
	Material Purcha		\$0.00				
	To	tal Cost: _	\$0.00	1			

# **HOURLY PRODUCTION**

<u>Truck Capacity:</u>		
Truck Payload (weight) Basi	<u>s:</u>	
Material weight:	1,600	Pounds/LCY
Description:	Top Soil	

Rated Payload:	50,300	Poun				
Payload Capacity:	31.44	LCY				
Truck Bed (volume) Basis:						
Struck Volume:	12.00	LCY				
Heaped Volume:	18.00	LCY				
Average Volume:	15.00	LCY				
Adjusted Volume:	18.00	LCY				
	10.00	201				
Final T	Truck Volume	Based on Number of	f Loader Passes:	15.75	LCY	
Loading Tool Capacity						
<u>Louding root cupuony</u>			D1			
		1		ket Size Class:	NA	
Rated Capacity:	5.000	LCY (heaped)				
Bucket Fill Factor:	1.050	Other - moist	loam (100	-110%) 1.050		
Adjusted Capacity:	5.250	LCY				
<b>Job Condition Corrections:</b>	_	S	Site Altitude (ft.):	: <u>4680</u> feet		
	Truck	Loader	Source	<u>د</u>		
Altitude Adj:	1.000	1.000	(CAT H			
Job Efficiency:	0.830	0.830	(CAT H			
Job Efficiency.	0.050	0.050	(em m	D)		
Net Correction:	0.830	0.830				
Net Confection.	0.050	0.050				
Loading Tool Cycle Time:	1	Number of Loading	Tool Passes Reg	uired to Fill		passes
Loading Tool Cycle Time.	1	Number of Loading	10011 asses Req	Truck:	3	passes
Excavators and Front Shovel	<u>s:</u>			11uck.		
Machine Cycle Time vs	s Job Conditio	n Rating: NA				
Selected Value v						
		ē				
Track Loaders –	Material Descr	ription:				
Cycle Time Elements (min.):						
•	_			_		
Load: NA	N	Ianeuver: NA		Dump: 0.10	00	
Wheel and Track	Loaders - Una	adjusted Basic Load	er Cycle Time (l	oad, dump,	0.500 <sup>mii</sup>	nutes
			1	maneuver):	0.500	
Cycle Time Factors				Factor (min.)	Source	
Material:	No adjustme	ent - factor not appli	cable 0.00	0.000	(Cat HB)	
Stockpile:		ent - factor not appli		0.000	(Cat HB)	
Truck Ownership:		ent - factor not appli		0.000	(Cat HB)	
Operation:	· ·	ent - factor not appli		0.000	(Cat HB)	
Dump Target:	2	ent - factor not appli		0.000	(Cat HB)	
Dump Target.	No aujustite		ne Adjustment:	0.000	minutes	
		•	ler Cycle Time:	0.500	minutes	
			Time per Truck:	1.100	minutes	
		INCLUDING I	me per fruck:	1.100	minutes	
Truck Cycle Time:						
TTUCK Cycle Tille:						
Truck Exchange Time	: 0.50	Minutes	Adjusted	for site altitude:	0.500	Minutes
Truck Load Time		Minutes	Ū.	for site altitude:	1.100	Minutes
			5			_
Truck Maneuver and Dump		Minutes	Adjusted	for site altitude:	0.900	Minutes
Time						

Truck Travel (Haul & Return) Time: maintained 3.0 Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:				1			
Seg #	Haul Distance	Grade (%)	Roll. Res	Total Res	Velocity	Travel Time	
	(Ft)		(%)	(%)	(fpm)	(min)	
1	600.00	0.00	3.00	3.00	2824	0.374	
				Haul Time:	0.374	minutes	
Return Rout		11		- <u>r</u> -			
Seg #	Haul Distance	Grade (%)	Roll. Res	Total Res	Velocity	Travel Time	
	(Ft)		(%)	(%)	(fpm)	(min)	
1	600.00	0.00	3.00	3.00	2874	0.244	
				Return Time:	0.244	minute	s
			Total True	ck Cycle Time:	3.118	8 minute	S
Loading Tool	unit						
Produc	ction 590.63	LCY/Hour		Adjusted for jo	ob efficiency:	490.22	LCY/Hour
Truck Unit Produc					1 07 1		
	303.08	LCY/Hour		Adjusted for jo	ob efficiency:	251.56	LCY/Hour
Pptimal No. of Tru	ucks: 2	Truck(s)		Selected Numb	er of Trucks:	2	Truck(s)
		Adjusted	l hourly truck	team production	on: 503	.11 LCY/	'Hour
		Adjusted single				.22 LCY/	'Hour
		Adjusted multiple	e truck/loader	team production	on: <b>490</b>	.22 LCY/	Hour
JOB TIM	E AND COST						
Fleet s	ize: 1	Team(s)	T	otal job time:	558.5	5 <b>6</b> Hou	ırs
Unit c	ost: \$1.053	/LCY	Т	otal job cost:	<b>\$288,</b> 4	16	

# BULLDOZER WORK

Two Rivers Sand, Gravel and				
Reservoir Project	Permit Action:	TR-1	Permit/Jol	b#: <u>M2022013</u>
<b>ROJECT IDENTIFICATION</b>	1			
Task #:       03B         Date:       9/17/2024         User:       JPL	State: Colorado County: Weld		Abbreviation: Filename:	None M013-03B
Agency or organization na	me: DRMS			
IOURLY EQUIPMENT COS	T			
Basic Machine:Cat D8T - 8SHorsepower:310Blade Type:Semi-UniversityAttachment:3-shank rippedShift Basis:1 per dayData Source:(CRG)	SU sal	- - - -		
ost Breakdown:		_		
Ownership Cost/Hour: Operating Cost/Hour:	\$173.32 \$109.71	Utilization % NA 100		
Ripper own. Cost/Hour:	\$14.53	NA		
Ripper op. Cost/Hour: Operator Cost/Hour:	\$0.00 \$40.04	0		
Total unit Cost/Hour: \$337.60				
Total Fleet Cost/Hour: <u>\$675.19</u>	)			
IATERIAL QUANTITIES Initial Volume: 273,815 Swell factor: 1.215	) 			
IATERIAL QUANTITIES Initial Volume: 273,815				
Initial Volume:       273,815         Swell factor:       1.215         Loose volume:       332,685 LCY         Source of estimated volume:       Source of estimated swell	Ex L pg 9			
IATERIAL QUANTITIES         Initial Volume:       273,815         Swell factor:       1.215         Loose volume:       332,685 LCY         Source of estimated volume:       -         Source of estimated swell       -         factor:       -         IOURLY PRODUCTION       -         Average push distance:       5	Ex L pg 9			
IATERIAL QUANTITIES         Initial Volume:       273,815         Swell factor:       1.215         Loose volume:       332,685 LCY         Source of estimated volume:	Ex L pg 9 Cat Handbook 0 feet ,400.0 LCY/hr	stockpile 1.1		
IATERIAL QUANTITIES         Initial Volume:       273,815         Swell factor:       1.215         Loose volume:       332,685 LCY         Source of estimated volume:       Source of estimated swell         factor:	Ex L pg 9 Cat Handbook 0 feet ,400.0 LCY/hr Partly consolidated	  stockpile 1.1		
IATERIAL QUANTITIES         Initial Volume:       273,815         Swell factor:       1.215         Loose volume:       332,685 LCY         Source of estimated volume:	Ex L pg 9 Cat Handbook 0 feet ,400.0 LCY/hr Partly consolidated eet			
IATERIAL QUANTITIES         Initial Volume:       273,815         Swell factor:       1.215         Loose volume:       332,685 LCY         Source of estimated volume:       Source of estimated swell         factor:	Ex L pg 9 Cat Handbook 0 feet ,400.0 LCY/hr Partly consolidated eet os/LCY			

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8002

\_\_\_\_\_

Adjusted unit production:	1,120.28 LCY/hr
Adjusted fleet production:	2240.56 LCY/hr

Fleet size:	2 Dozer(s)
Unit cost:	\$0.301/LCY

148.48 Hours	
\$100,254	

# TRUCK/LOADER TEAM WORK

Т	ask description:	Haul to	psoil to pit	area				
Site:	Two Rivers San Reservoir Proje	/	Perm	it Act	ion: TR-1		Permit/Job#:	M2022013
PR	OJECT IDEN	<b>TIFICATION</b>						
	Task #:         03C           Date:         9/17/2           User:         JPL	2024		Colora Weld	ado			one 013-03C
	Agency or	organization nan	ne: DRM	S				
<u>H(</u>	DURLY EQUIE	MENT COST	-			Shift ba	sis: <u>1 per day</u>	
				I	Equipment Descri	iption		
	Т	ruck Loader Tea	m -Truck:	Gen	eric 12-18 cy, 6x			
			-Loader:		T 966H high lift			
	Suppo	ort Equipment -L	oad Area: Imp Area:	NA NA				
	Road Ma	aintenance – Moto	1		Т 120М			
	itoud ini		ter Truck:		ter Tanker, 2,500	Gal.		
Co	st Breakdown:	Truck/Loa				Equipment		ance Equipment
		Truck	Loader		Load Area	Dump Area	Motor Grader	Water Truck
Utiliz	ation-machine:	100		75	NA	NA	25	25
Owner	rship cost/hour:	\$27.14	\$57	7.78	NA	NA	\$52.82	\$11.65
Opera	ating cost/hour:	\$62.81	\$34	1.69	NA	NA	\$10.94	\$5.61
	tilization-riper:	NA		0	NA	NA	NA	NA
pper	own. cost/hour:	NA	\$0	0.00	NA	NA	\$0.00	\$0.00
Rippe	er op. cost/hour:	NA	\$0	0.00	NA	NA	\$0.00	\$0.00
Ope	rator cost/hour:	\$24.82	\$56	5.64	NA	NA	\$56.70	\$0.00
	Unit Subtotals:	\$114.77	\$149	9.10	NA	NA	\$120.46	\$17.26
Nı	umber of Units:	2		1	0	0	1	1
G	roup Subtotals:	Work:	\$378.64		Support:	\$0.00	Maint:	\$137.72
	tal work team cost							
	Initial volume	: 3,895		CCY	Swell	factor: 1.000		
	Loose volume		5	LCY		1.000		
	Sou	arce of estimated of estimated swe Material Purcha	volume: ll factor:	3895	ExL pg 12 Handbook			

# **HOURLY PRODUCTION**

<u>Truck Capacity:</u>		
Truck Payload (weight) Basi	<u>s:</u>	
Material weight:	1,600	Pounds/LCY
Description:	Top Soil	

Rated Payload:	50,300	Pounds
Payload Capacity:	31.44	LCY

Truch Ded (values) Design						
<u>Truck Bed (volume) Basis:</u> Struck Volume:	12.00	LCY				
Heaped Volume:		LCY				
Average Volume:		LCY				
Adjusted Volume:		LCY				
5						
Final Tr	ruck Volume B	ased on Number of Loa	ler Passes:	15.75	LCY	
Loading Tool Capacity						
			Buck	et Size Class:	NA	
Rated Capacity:	5.000	LCY (heaped)				
Bucket Fill Factor:	1.050	Other - moist loam	(100-	110%) 1.050		
Adjusted Capacity:	5.250	LCY				
Job Condition Corrections:		Site A	titude (ft.):	<u>4680</u> feet		
	Truck	Loader	Source			
Altitude Adj:	1.000	1.000	(CAT HE			
Job Efficiency:	0.830	0.830	(CAT HE	B)		
Net Correction:	0.830	0.830				
	0.000	0.020				
Loading Tool Cycle Time:	Ν	umber of Loading Tool	Passes Requ		3	passes
Excavators and Front Shovels	<u>:</u>			Truck:		
Machine Cycle Time vs.						
Selected Value w						
Track Loaders – N	Aaterial Descrip	ption:				
Cycle Time Elements (min.):						
Load: NA	Ma	aneuver: NA		Dump: 0.1	00	
	_					
Wheel and Track	Loaders - Unad	ljusted Basic Loader Cy			0.500 <sup>min</sup>	utes
			n	naneuver):		
Cycle Time Factors	<u></u>		0.00	Factor (min.)	Source	
Material:		t - factor not applicable		0.000	(Cat HB)	
Stockpile:		t - factor not applicable		0.000	(Cat HB)	_
Truck Ownership:	*	t - factor not applicable		0.000	(Cat HB)	_
Operation: Dump Target:		nt - factor not applicable it - factor not applicable		0.000 0.000	(Cat HB) (Cat HB)	_
Dump Target.	No aujustitieti	Net Cycle Time Ac		0.000	minutes	_
		Adjusted Loader Cy	-	0.500	minutes	
		Net Load Time		1.100	minutes	
Truck Cycle Time:						
Truck Exchange Time:	0.50	Minutes	Adjusted	for site altitude:	0.500	Minutes
Truck Load Time:	1.100	Minutes	Adjusted	for site altitude:	1.100	Minutes
Truck Maneuver and Dump Time:		Minutes	Adjusted	for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: maintained 3.0 Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Unit cost: \$1.073 /LCY

Haul Rout		Distance	C rada $(0/)$	Roll. Res	Total Res	Velocity	Travel	
Seg #	(Ft)	Distance	Grade (%)	(%)	(%)	(fpm)	Time (min)	
1	800.0	00	0.00	3.00	3.00	2824	0.445	
					Haul Time:	0.445	minute	s
Return Ro	ute:							-
Seg #	Haul (Ft)	Distance	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)	
1	800.0	00	0.00	3.00	3.00	2874	0.314	
				Total Tru	Return Time: ck Cycle Time:			
Loading Too Produ Truck Unit Produ	uction	590.63	LCY/Hour		Adjusted for jo	bb efficiency:	490.22	LCY/Hour
		289.97	LCY/Hour		Adjusted for jo	b efficiency:	240.67	LCY/Hour
Optimal No. of T	rucks:	2	Truck(s)		Selected Numb	er of Trucks:	2	Truck(s)
		A		e truck/loader	t team production r team production r team production	on: 481	.34 LCY	7/Hour 7/Hour 7/Hour
JOB TIM	1E AN	D COST						
Fleet	size:	1	Team(s)	Т	otal job time:	8.09	He	ours

Total job cost: **\$4,178** 

## BULLDOZER WORK

PROJECT IDENTIFICATION         Task #:       03D         Date:       9/17/2024         County:       Weld         Date:       9/17/2024         County:       Weld         State:       County:         Weld       Filename:         M013-03         Agency or organization name:       DRMS         IDURLY EQUIPMENT COST         Blade Type:       Semi-Universal         Attachmen:       3-shank ripper         Shift Basis:       Ipper day         Data Source:       (CRG)         Ownership Cost/Hour:       \$173.32         NA       Operator Cost/Hour:         Cost/Hour:       \$173.32         NA       Operator Cost/Hour:         S0.00       0         Operator Cost/Hour:       \$30.00         Total Pleet Cost/Hour:       \$337.60         Total IPleet Cost/Hour:       \$323.60         Swell factor:       \$325         Swell factor:       \$325         Source of estimated volume:       £X L pg 12         Source of estimated swell       Cat Handbook         factor:       Cat Handbook         factor:       Diffect	Task description:	Spread topsoil on pond b				
Task #:       03D       State:       Colorado       Abbreviation:       None         Date:       9/17/2024       County:       Weld       Filename:       M013-03         User:       JPL       Agency or organization name:       DRMS <b>COURLY EOUIPMENT COST</b> Basic Machine:       Cat DST - 8SU         Horsepower:       310       Blade Type:       Semi-Universal         Attachmen:       -sshank ripper       Blade Type:       Semi-Universal         Data Source:       (CRG)       CostHour:       S173.32       NA         Operating Cost/Hour:       S173.32       NA       Operating CostHour:       S14.53       NA         Ripper op.       CostHour:       S0.00       0       Operator CostHour:       S40.04       NA         Total unit Cost/Hour:       S337.60       Source of estimated volume:       S47.51       Source of estimated swell         Cat Handbook       1215       Custome:       1215       Source of estimated swell       Cat Handbook         factor:		avel and Permit Actio		Permit/Jo	b#: <u>M2022013</u>	
Date:       9/17/2024       County:       Weld       Filename:       M013-03         User:       JPL       Agency or organization name:       DRMS         IOURLY EQUIPMENT COST         Basic Machine:       Cat D&T - 8SU         Horsepower:       310       Blade Type:       Semi-Universal         Attachment:       3-shank ripper       Shift Basis:       1 per day         Data Source:       (CRG)       NA         Ownership Cost/Hour:       \$173.32       NA         Operating Cost/Hour:       \$10.97.1       100         Ripper own.       \$14.53       NA         Operator Cost/Hour:       \$337.60       Total unit Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60       Total Volume:       \$37.60         Total onit Cost/Hour:       \$337.60       Total Piete Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$37.60       Total Piete Cost/Hour:       \$37.60         Total Piete Cost/Hour:       \$37.60       Total Piete Cost/Hour:       \$40.04       NA         Total unit Cost/Hour:       \$14.53       NA       Source of estimated swell       Cat Handbook         factor:       1.215       Cose volume:       4.732 LCY       Source of	<b>PROJECT IDENTIFIC</b>	CATION				
Ageney or organization name:       DRMS         DURLY EQUIPMENT COST         Basic Machine:       Cat D8T - 8SU         Horsepower:       310         Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Shift Basic:       1 per day         Data Source:       (CRG)         'over Breakdown:           Ownership Cost/Hour:       \$173.32       NA         Operator Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Operator Cost/Hour:       \$30.00       0         Operator Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$675.19 <b>DATE SENT Ex L pg 12</b> Source of estimated swell       Cat Handbook         factor:       I.215       Cose volume:       4.732 LCY         Source of estimated swell       Ex L pg 12       Source of estimated swell         factor:       I.400.0 LCY/hr	Date: 9/17/2024		lo		None M013-03D	
<b>IDURLY EQUIPMENT COST</b> Basic Machinis:       Cat DBT - 8SU         Horspower:       310         Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Shift Basis:       Iper day         Data Source:       (CRG)         cost       (CRG)         with Breakdown:       100         Ownership Cost/Hour:       \$173.32       NA         Operator Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Operator Cost/Hour:       \$30.00       0         Operator Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60         Total value: $$43.04$ NA         Operator Cost/Hour:       \$340.04       NA         Total Fleet Cost/Hour:       \$357.69 <b>DATES PREVENTION:</b> Source of estimated swell       Cat Handbook         factor:       Langbook         Source of estimated swell       Cat Handbook         factor:       Langbook         Morespansition consistency description:       Partly consolidated stockpile 1.1         Matrials consistency description:       Partly consolidated stockpile 1.1     <						
Basic Machine:       Cat D8T - 8SU         Horsepower:       310         Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Shift Basis:       1 per day         Data Source:       (CG)         Cost Breakdown:       \$173.32       NA         Ownership Cost/Hour:       \$173.32       NA         Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Operator Cost/Hour:       \$30.00       0         Operator Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$340.04         NA       NA         Source of estimated swell       Cat Handbook         factor:       Cat Handbook         factor:       Cat Handbook         Material consistency description:       Partly consolidated stockpile 1.1         Average push distance:       50 feet         Unadjusted hourly       1,400.0 LCY/hr         module:       0%         gradient:       4.680 feet         Material weight:	Agency or organ	ization name: DRMS				
Horsepower:       310         Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Shift Basis:       1 per day         Data Source:       (CGG)         Cost Breakdown:       \$173.32         Ownership Cost/Hour:       \$173.32         Shift Basis:       1 per day         Ownership Cost/Hour:       \$109.71         Ripper own.       \$14.53         Cost/Hour:       \$30.00         Operator Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60         Source of cost/Hour:       \$340.04         NA       NA         Source of estimated sovell       Cat Handbook         factor:       Cat Handbook         factor:       Cat Handbook         Materials consistency description:       Partly consolidated stockpile 1.1         Average push distance:       \$0 feet         Unadjusted hourly       1,400.0 LCY/hr         production:       0%         gradient:       4.680 feet	HOURLY EQUIPMEN	NT COST				
Blade Type:       Semi-Universal         Attachment:       3-shank ripper         Jer day       1         Data Source:       (CRG)         Yost Breakdown:       1         Ownership Cost/Hour:       \$173.32         NA       NA         Operating Cost/Hour:       \$109.71         Ripper own.       \$14.53         Cost/Hour:       \$0.00         Operator Cost/Hour:       \$40.04         NA       NA         Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60         Total Fleet Cost/Hour:       \$675.19         Material Volume:       3.895         Swell factor:       1.215         Loose volume:       4.732 LCY         Source of estimated volume:       Ex L pg 12         Source of estimated swell       Cat Handbook         factor:						
Attachnen: $3$ -shank ripper         1 per day       1         Data Source:       (CRG)         Cost Breakdown:       Utilization %         Operating Cost/Hour:       \$173.32       NA         Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Cost/Hour:       \$109.71       100         Ripper op. Cost/Hour:       \$109.71       100         Operator Cost/Hour:       \$10.00       0         Operator Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60         Total Volume: $3_{895}$ Swell factor:       1.215         Loose volume: $4,732$ LCY         Source of estimated swell       Cat Handbook         factor:       Cat Handbook         factor:						
Shift Basis: $1 \text{ per day}$ Data Source:       (CRG)         Cost Breakdown:       Utilization %         Ownership Cost/Hour:       \$173.32       NA         Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Cost/Hour:       \$0.00       0         Operator Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60         Total Fleet Cost/Hour:       \$675.19 <b>ATERIAL QUANTITIES</b> Initial Volume:       3.895         Swell factor:       1.215         Lose volume: <b>4.732</b> LCY         Source of estimated volume:       Ex L pg 12         Source of estimated swell       Cat Handbook         factor:       Cat Handbook         factor:	· · · · · · · · · · · · · · · · · · ·					
Data Source: $(CRG)$ Yest Breakdown:       Utilization %         Ownership Cost/Hour:       \$173.32       NA         Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Ocst/Hour:       \$0.00       0         Cost/Hour:       \$\$0.00       0         Operating Cost/Hour:       \$\$0.00       0         Operator Cost/Hour:       \$\$0.00       0         Operator Cost/Hour:       \$\$\$337.60       \$\$         Total unit Cost/Hour:       \$\$\$337.60       \$\$         Total unit Cost/Hour:       \$\$\$       \$\$         Source of cost/Hour:       \$\$\$       \$\$         Source of estimated volume: $$$       $$         Initial Volume:       $$       $$         Source of estimated swell       Cat Handbook       $$         factor:      $						
Cost Breakdown:       Utilization %         Ownership Cost/Hour:       \$173.32       NA         Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Ripper op. Cost/Hour:       \$0.00       0         Operator Cost/Hour:       \$0.00       0         Operator Cost/Hour:       \$\$0.00       0         Operator Cost/Hour:       \$\$337.60         Total unit Cost/Hour:       \$\$675.19 <b>ATERIAL QUANTITIES</b> Initial Volume:       3.895         Swell factor:       1.215         Loose volume: <b>4.732</b> LCY         Source of estimated volume:       Ex L pg 12         Source of estimated swell       Cat Handbook         factor:       Cat Handbook         Materials consistency description:       Partly consolidated stockpile 1.1         Average push distance:       50 feet         Unadjusted hourly       1,400.0 LCY/hr         production:       Partly consolidated stockpile 1.1         Average push       0 %         gradient:       4.680 feet         Material weight:       1,600 lbs/LCY						
Ownership Cost/Hour: $\$173.32$ NAOperating Cost/Hour: $\$109.71$ 100Ripper own. $\$14.53$ NACost/Hour: $\$0.00$ 0Operator Cost/Hour: $\$0.00$ 0Operator Cost/Hour: $\$337.60$ Total unit Cost/Hour: $\$337.60$ Total Fleet Cost/Hour: $\$337.60$ Total Fleet Cost/Hour: $\$337.60$ Total Fleet Cost/Hour: $\$337.60$ Swell factor: $1.215$ Loose volume: $4.732$ LCYSource of estimated volume: $Ex L pg 12$ Source of estimated swellCat Handbookfactor:Cat HandbookMaterials consistency description:Partly consolidated stockpile 1.1Average push gradient: $0\%$ gradient: $4.680$ feetMaterial weight: $1,600$ lbs/LCY	Data Source: (CR	(G)				
Ownership Cost/Hour:       \$173.32       NA         Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Ripper op. Cost/Hour:       \$0.00       0         Operator Cost/Hour:       \$30.00       0         Operator Cost/Hour:       \$337.60         Total unit Cost/Hour:       \$337.60         Total Fleet Cost/Hour:       \$675.19         MATERIAL QUANTITIES         Initial Volume: $\frac{3,895}{1.215}$ Swell factor: $\frac{1.215}{1.215}$ Loose volume: $\frac{4,732$ LCY         Source of estimated volume:       Ex L pg 12         Source of estimated swell       Cat Handbook         factor:       Cat Handbook         Materials consistency description:       Partly consolidated stockpile 1.1         Average push distance: $\frac{50}{9}$ feet         Unadjusted hourly       1,400.0 LCY/hr         production:       Partly consolidated stockpile 1.1         Average push       0 %         gradient: $4,680$ feet         Material weight:       1,600 lbs/LCY	Cost Breakdown:					
Operating Cost/Hour:       \$109.71       100         Ripper own.       \$14.53       NA         Cost/Hour:       \$0.00       0         Operator Cost/Hour:       \$30.00       0         Operator Cost/Hour:       \$30.00       0         Total unit Cost/Hour:       \$337.60       NA         Total unit Cost/Hour:       \$337.60       NA         Total Fleet Cost/Hour:       \$675.19       Source of cost/Hour:       \$675.19         MATERIAL QUANTITIES       Initial Volume:       3,895       Swell factor:       1.215         Loose volume:       4,732 LCY       Cat Handbook       Cat Handbook       factor:         Source of estimated volume:       Ex L pg 12       Cat Handbook       Cat Handbook         factor:						
Ripper own. Cost/Hour: $\$14.53$ NARipper op. Cost/Hour: $\$0.00$ 0Operator Cost/Hour: $\$0.00$ 0Operator Cost/Hour: $\$337.60$ Total unit Cost/Hour: $\$337.60$ Total Fleet Cost/Hour: $\$337.60$ State Cost/Hour: $\$337.60$ Total Fleet Cost/Hour: $\$337.60$ Total Fleet Cost/Hour: $\$337.60$ State Cost/Hour: $\$337.60$ Total Fleet Cost/Hour: $\$337.60$ State Cost/Hour: $$$237.60$ State Cost/Hour:State Cost/Hour:State Cost/Hour:State Cost/Hour:Ex L pg 12Source of estimated swellCat HandbookCat HandbookMaterials consistency description:Partly consolidated stockpile 1.1Average push distance: <td col<="" td=""><td></td><td></td><td></td><td></td><td></td></td>	<td></td> <td></td> <td></td> <td></td> <td></td>					
Cost/Hour:       \$14.33       NA         Ripper op. Cost/Hour:       \$0.00       0         Operator Cost/Hour:       \$337.60         Statum       \$37.60         Total unit Cost/Hour:       \$337.60         Total Pleet Cost/Hour:       \$337.60         Statum       \$675.19         Initial Volume:         3.895       \$swell factor:         1.215       Loose volume:         4.732 LCY       Source of estimated volume:         Source of estimated swell       Cat Handbook         factor:       Cat Handbook         Materials consistency description:       Partly consolidated stockpile 1.1         Average push distance:       50 feet         Unadjusted hourly       1,400.0 LCY/hr         production:       Partly consolidated stockpile 1.1         Average push       0 %         gradient:       4,680 feet         Material weight:       1,600 lbs/LCY		\$109.7	1 100			
Operator Cost/Hour:       \$40.04       NA         Total unit Cost/Hour:       \$337.60         Total Fleet Cost/Hour:       \$675.19         MATERIAL QUANTITIES         Initial Volume:       3,895         Swell factor:       1.215         Loose volume:       4,732 LCY         Source of estimated volume:       Ex L pg 12         Source of estimated swell       Cat Handbook         factor:       Cat Handbook         Materials consistency description:       50 feet         Unadjusted hourly       1,400.0 LCY/hr         materials consistency description:       Partly consolidated stockpile 1.1         Average push       0 %         gradient:       4,680 feet         Material weight:       1,600 lbs/LCY		\$14.53	3 NA			
Total unit Cost/Hour:       \$337.60         Total Fleet Cost/Hour:       \$675.19         ATERIAL QUANTITIES         Initial Volume:       3,895         Swell factor:       1.215         Loose volume:       4,732 LCY         Source of estimated volume:       Ex L pg 12         Source of estimated swell       Cat Handbook         factor:	Ripper op. Cost/Hour:	\$0.00	0 0			
Total unit Cost/Hour:       \$337.60         Total Fleet Cost/Hour:       \$675.19         ATERIAL QUANTITIES         Initial Volume:       3,895         Swell factor:       1.215         Loose volume:       4,732 LCY         Source of estimated volume:       Ex L pg 12         Source of estimated swell       Cat Handbook         factor:		\$40.04	4 NA			
Source of estimated volume:       Ex L pg 12         Source of estimated swell       Cat Handbook         factor:	IATERIAL QUANTI Initial Volume: <u>3,89:</u> Swell factor: <u>1.21</u> :	<u>TIES</u> 5				
Source of estimated swell factor:       Cat Handbook         factor:       Cat Handbook <b>IOURLY PRODUCTION</b> Image Push distance:         Average push distance:       50 feet         Unadjusted hourly       1,400.0 LCY/hr         production:	Loose volume: $4,732$	2 LCY				
Average push distance:       50 feet         Unadjusted hourly       1,400.0 LCY/hr         production:       Partly consolidated stockpile 1.1         Materials consistency description:       Partly consolidated stockpile 1.1         Average push       0 %         gradient:       4,680 feet         Material weight:       1,600 lbs/LCY	Source of estimated swel					
Unadjusted hourly       1,400.0 LCY/hr         production:       1,400.0 LCY/hr         Materials consistency description:       Partly consolidated stockpile 1.1         Average push       0 %         gradient:       4,680 feet         Average site altitude:       4,680 feet         Material weight:       1,600 lbs/LCY	HOURLY PRODUCT	ION				
Materials consistency description:       Partly consolidated stockpile 1.1         Average push       0 %         gradient:	Unadjusted hourly					
Average push     0 %       gradient:		scription: Partly consolidate	ted stockpile 1.1			
gradient:			•			
Average site altitude:4,680 feetMaterial weight:1,600 lbs/LCY		U %0				
Material weight: 1,600 lbs/LCY		1.680 feet				
	Average site altitude:	4,080 Ieel				
Weight description: Top Soil	Material weight:	1,600 lbs/LCY				
	Weight description:	Top Soil				
ob Condition Correction Factor Source	ob Condition Correction H	Factor_	Source			

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8862

Adjusted unit production:	1,240.68 LCY/hr
Adjusted fleet production:	2481.36 LCY/hr

Fleet size:	2 Dozer(s)
Unit cost:	\$0.272/LCY

Total job time:	<b>1.91</b> Hours	
Total job cost:	\$1,288	

# **REVEGETATION WORK**

Task descr	iption:	Seed banks of p	ond				
Two Riv Site: <u>Reservo</u>	vers Sand, Gra ir Project	avel and Pe	rmit Action:	TR-1	Permit/Jol	o#: <u>M2022013</u>	
<b>PROJECT</b>	<b>IDENTIFIC</b>	CATION					
Task #: Date: User: As	03E 9/17/2024 JPL gency or organ	State: County:  ization name: DI	Colorado Weld		Abbreviation: Filename:	None M013-03E	

# **FERTILIZING**

# Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	200.00	pound	\$0.51	\$102.32
			Total Fertilizer Materials Cost/Acre	\$102.32

#### Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$43.12
Total Fertilizer Application Cost/Acre	\$43.12

# **TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$102.41
Weed control spraying (MEANS 31 31 16.13 3100)	\$338.80
Total Tilling Cost/Acre	\$441.21

### **SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	\$2.91
Blue Grama - Lovington	0.20	3.26	\$5.55
Indian Ricegrass - Paloma	1.90	6.15	\$39.01
Switchgrass - Pathfinder	0.90	8.04	\$12.11
Sand Dropseed	0.10	11.94	\$1.30
Kentucky Bluegrass - Ginger	0.10	4.94	\$0.41
Little Bluestem - Pastura	0.30	1.79	\$4.76
Sideoats Grama - Vaughn	1.80	5.91	\$44.26
Strawberry Clover (coated)	0.10	0.68	\$0.98

Smooth Brome - Manchar	0.30	1.00	\$1.57
Sheep Fescue - Covar	0.40	6.24	\$2.47
Tall Wheatgrass - Jose	1.10	1.99	\$6.32
Totals Seed Mix	7.30	55.84	\$121.66

#### Application

Description		Cost /Acre
Drill Seeding (DRMS Survey Cost)		\$236.64
	<b>Total Seed Application Cost/Acre</b>	\$236.64

#### **MULCHING and MISCELLANEOUS**

#### Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Curtail @ 4.0 pt/ac	1.00	ACRE	\$36.14	\$36.14
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$492.78	\$985.56
<b>Total Mulch Materials Cost/Acre</b>				\$1,021.70

#### Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$85.37
Weed spray, truck, non-aquatic area, nox. [DMG]		\$83.26
	<b>Total Mulch Application Cost/Acre</b>	\$168.64

### **NURSERY STOCK PLANTING**

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

No. of Acres:	4.8	Cost /Acre:	\$2,135.29
Estimated Failure Rate:	25%	Cost /Acre*:	\$358.30
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$10,249.39
Reseeding Job Cost:	\$429.96
Total Job Cost:	\$10,679
Job Hours:	9.00

## **DEMOLITION WORK**

	Task description:	Process Area	a Decommissio	ning		
Site:	Two Rivers Sand, Grav Reservoir Project	rel and	Permit Action:	TR-1	Permit	/Job#: <u>M2022013</u>
<u>PROJE</u>	CT IDENTIFICATIO	<u>N</u>				
Task	#: 04A	State:	Colorado		Abbreviation:	None
Dat	te: 9/17/2024	County:	Weld		Filename:	M013-04A
Use	er: JPL					

Agency or organization name: DRMS

# UNIT COSTS

## Location adjustment: 89.20 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Concrete pads	15x30,15x60,15x25	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	1,725.00	SF	\$2.31	\$3,990.10
Concrete supports - truck scales	Convert 10 CY (Exh L)	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft Max. 10,000 ft. haul	90.00	LF	\$6.94	\$624.53
Concrete supports - temp buildings	Convert 8 CY (Exh L)	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft Max. 10,000 ft. haul	72.00	LF	\$6.94	\$499.62
Fuel tanks	6,000 gallons	Comprehensive storage tank removal, non-leaking - 6,000 to 8,000 gal. tank	2.00	EA	\$5,536.95	\$11,073.90

				<b>Total Cost</b>	
		Subtotal		(adjusted for	
Job Hours:	175.00	(unadjusted): _	\$16,188.15	location):	\$14,439.83

## BULLDOZER RIPPING WORK

Task description:	<b>_</b> Rip processing area, wash	pond area				-
<b>Two Rivers Sa</b> Site: <b>Reservoir Pro</b>	nd, Gravel and Permit Action	n: 		Permit/Job#	#: <u>M2022013</u>	3
PROJECT IDE	<b>NTIFICATION</b>					
Task #:         05A           Date:         9/1'           User:         JPL	7/2024 County: Weld	)		reviation: _ Filename: _	None M013-05A	
Agency of	or organization name: DRMS					
HOURLY EQU	IPMENT COST					
Basic N	Iachine: Cat D8T - 8SU		Horsepower:	3	10	
Ripper Atta	chment: 3-Shank Ripper		Shift Basis: Data Source:		er day RG)	
<u>Cost Breakdown:</u>			Data Source.	(C.	KU)	
<u>COSt Dicardown.</u>			Utilization %			
	Ownership Cost/Hour:	\$173.32	NA	-		
Rinner	Operating Cost/Hour: Ownership Cost/Hour:	\$109.71 \$14.53	100 NA	-		
	or Operating Cost/Hour:	\$7.95	100	_		
	Operator Cost/Hour:	\$40.04	NA	_		
	Total Unit Cost/Hour:	\$345.55		_		
	Total Fleet Cost/Hour: \$6	91.09				
Alternate Methods nic: NA rea: 24.20	Bank Volume acres Rip Depth (ft)		BCY Volume:	39,043	NA	BCY o
			volume:	39,043	I	
	Source of estimated quantity: <u>Ex L</u>	pg 12-15				
HOURLY PRO	DUCTION					
<u>Seismic:</u>	Seismic Velocity:	NA	feet/sec	cond		
A #00;						
<u>Area:</u>	Average Ripping Depth:	2.56	feet/pas	SS		
	Average Ripping Width:	7.08	feet/pas			
	Average Ripping Length:	150.00	feet/pas			
	Average Dozer Speed:	88.00	feet/mi			
	Average Maneuver Time: Production per unit area:	0.25 0.748	minute acres/h	1		
Job Condition Corr		0.740	deres/ii	our		
	ljusted Hourly Unit Production:	0.748	Acres/ł	٦r		
Cila	Site Altitude:	4,680	feet			
	Altitude Adj:	1.00	(CAT I	HB)		
	Job Efficiency:	0.83	(1 shift	/		
	Net Correction:	0.83	multipl			
	Adjusted Hourly Unit Production	: 0.62	Acres/hr			
	Adjusted Hourly Fleet Production		Acres/hr			
JOB TIME ANI	) COST					
Fleet size:	2 Grader(s)	Total job tir	me:	19.48	Hours	
		i otar job til		17.70	110015	

Unit cost:	\$556.276	Per acre
Onn cost.	$\psi 550.270$	I er aere

Total job cost:

\$13,462

# TRUCK/LOADER TEAM WORK

Two Rivers Sar ite: Reservoir Proje		Perm	nit Act	ion: TR-1		Permit/Job#:	M2022013
PROJECT IDEN	<b>TIFICATION</b>						
Task #: 05C	12.0.2.4		Colora	ado		previation: <u>No</u>	
Date: <u>9/17/</u> User: JPL	/2024	County:	Weld			Filename: MO	013-05C
	organization nar	ne: DRN	/IS				
HOURLY EQUI	PMENT COST				Shift ba	sis: <u>1 per day</u>	
			1	Equipment Descr	iption		
Т	Fruck Loader Tea			neric 12-18 cy, 6x	:4		
Sunn	ort Equipment -L	-Loader:	CA' NA	T 966H high lift			
Supp		imp Area:	NA				
Road M	aintenance – Moto	-		Т 120М			
	-Wa	ter Truck:	Wat	ter Tanker, 2,500	Gal.		
Cost Breakdown:	Truck/Loa	dər Təam		Support	Equipment	Maintana	nce Equipment
<u>Cost Breakdown</u> .	Truck	Loader		Load Area	Dump Area	Motor Grader	Water Truck
Utilization-machine:	100		75	NA	NA	25	25
wnership cost/hour:	\$27.14	\$5	7.78	NA	NA	\$52.82	\$11.65
Operating cost/hour:	\$62.81	\$3	4.69	NA	NA	\$10.94	\$5.61
%Utilization-riper:	NA		0	NA	NA	NA	NA
oper own. cost/hour:	NA	\$	0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$	0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$5	6.64	NA	NA	\$56.70	\$0.00
Unit Subtotals:	\$114.77	\$14	9.10	NA	NA	\$120.46	\$17.26
Number of Units:	2		1	0	0	1	1
Group Subtotals:	Work:	\$378.64		Support:	\$0.00	Maint:	\$137.72
Total work team cos							
Initial volume	e: 19,521		CCY	Swell	factor: 1.000		
Loose volume	e: 19,52	1	LCY				
So	urce of estimated	volume:	Area	of 24.2 acres and	d depth of 6" ExL	pg12	
	of estimated swe	-		Iandbook			
	Material Purcha	-	\$0.00				
	Тс	tal Cost:	\$0.00	)			

#### HOURLY PRODUCTION

<u>Truck Capacity:</u>		
Truck Payload (weight) Basi	<u>s:</u>	
Material weight:	1,600	Pounds/LCY
Description:	Top Soil	

Rated Payload:	50,300	Pounds
Payload Capacity:	31.44	LCY

True la De la (contrare a) De sier						
Truck Bed (volume) Basis: Struck Volume:	12.00	LCY				
Heaped Volume:		LCY				
Average Volume:		LCY				
Adjusted Volume:		LCY				
Aujusted Volume.	10.00					
Final 1	Fruck Volume E	Based on Number of Lo	ader Passes:	15.75	LCY	
Loading Tool Capacity			Dualat	Cine Classe	NIA	
	5 000		Bucket	Size Class:	NA	
Rated Capacity:	5.000	LCY (heaped)	(100.11	00/) 1.050		
Bucket Fill Factor:	1.050	Other - moist loam	(100-1)	0%) 1.050		
Adjusted Capacity:	5.250	LCY				
Job Condition Corrections:	_	Site A	Altitude (ft.): <u>46</u>	5 <u>80</u> feet		
	Truck	Loader	Source			
Altitude Adj:	1.000	1.000	(CAT HB)			
Job Efficiency:	0.830	0.830	(CAT HB)			
NAC	0.920	0.020				
Net Correction:	0.830	0.830				
Loading Tool Cycle Time:	Ν	Number of Loading Too	l Passes Requir		3	passes
Excavators and Front Shovel	s:			Truck:		
Machine Cycle Time v Selected Value v						
Track Loaders –	Material Descri	ption:				
Cycle Time Elements (min.):						
Load: NA	M	aneuver: NA		Dump: 0.1	00	
Wheel and Track	c Loaders - Una	djusted Basic Loader C	•	l, dump, neuver):	0.500 mir	nutes
Cycle Time Factors				Factor (min.)	Source	
Material:	No adjustmen	nt - factor not applicable	e 0.00	0.000	(Cat HB)	
Stockpile:		nt - factor not applicable		0.000	(Cat HB)	
Truck Ownership:		nt - factor not applicable		0.000	(Cat HB)	
Operation:		ent - factor not applicable		0.000	(Cat HB)	
Dump Target:		nt - factor not applicable		0.000	(Cat HB)	
		Net Cycle Time A		0.000	minutes	
		Adjusted Loader C	ycle Time:	0.500	minutes	
		Net Load Time	per Truck:	1.100	minutes	
Truck Cycle Time:						
Truck Exchange Time	e: 0.50	Minutes	Adjusted for	r site altitude:	0.500	Minutes
Truck Load Time	: 1.100	Minutes	Adjusted for	r site altitude:	1.100	Minutes
Truck Maneuver and Dum Time	-	Minutes	Adjusted for	r site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: maintained 3.0 Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Seg #	Haul Dis (Ft)	tance	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)	
1	1900.00		0.00	3.00	3.00	2824	0.834	
Return Rou	itai				Haul Time:	0.834	minu	tes
Seg #	Haul Dis (Ft)	tance	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)	
1	1900.00		0.00	3.00	3.00	2874	0.696	
				Total True	Return Time: ck Cycle Time:			
Loading Too Produ Jck Unit Produ	ction	590.63	LCY/Hour		Adjusted for jo	b efficiency:	490.22	LCY/Hour
		234.49	LCY/Hour		Adjusted for jo	b efficiency:	194.63	LCY/Hour
imal No. of Tr	ucks:	3	Truck(s)		Selected Numb	er of Trucks:	2	Truck(s)
		P		e truck/loader	team productio team productio team productio	n: 389.	26 LC	Y/Hour Y/Hour Y/Hour
JOB TIM	E AND C	COST						
Fleet	size:	1	Team(s)	Т	otal job time:	50.15	5 H	Hours
					otal job cost:	\$25,89		

# BULLDOZER WORK

Task description:	Spread topsoil on process a	nd wash pond areas		
Two Rivers Sand, Grave e: Reservoir Project	l and Permit Action:	TR-1	Permit/Job	#: <u>M2022013</u>
PROJECT IDENTIFICA	TION			
Task #: 05D	State: Colorado		Abbreviation:	None
Date: 9/17/2024	County: Weld		Filename:	M013-05D
User: JPL				
Agency or organizat	tion name: DRMS			
HOURLY EQUIPMENT	COST			
Basic Machine: Cat D8	ST - 8SU			
Horsepower: 310				
· · · · · · · · · · · · · · · · · · ·	Jniversal			
Attachment: <u>3-shanl</u> Shift Basis: 1 per d	k ripper			
Data Source: (CRG)				
Cost Breakdown:		Utilization %		
Ownership Cost/Hour:	\$173.32	NA		
Operating Cost/Hour:	\$109.71	100		
Ripper own. Cost/Hour:	\$14.53	NA		
Ripper op. Cost/Hour:	\$0.00	0		
Operator Cost/Hour:	\$40.04	NA		
Total Fleet Cost/Hour:	675.19 ES			
Initial Volume: 19,521				
Swell factor: $1.000$				
Loose volume: 19,521 I	LCY			
Source of estimated volume: Source of estimated swell factor:	Area of 24.2 acres. I Cat Handbook	Depth of 6" Ex L pg 12		
HOURLY PRODUCTION	N			
Average push distance:	50 feet			
Unadjusted hourly production:	1,400.0 LCY/hr			
Materials consistency descri	ption: <u>Partly consolidated</u>	stockpile 1.1		
Average push 0	%			
gradient:				
Average site altitude: 4,	,680 feet			
Material weight: 1,	,600 lbs/LCY			
Weight description:	op Soil			
Job Condition Correction Fact	tor	Source		

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8862

Adjusted unit production:	1,240.68 LCY/hr
Adjusted fleet production:	2481.36 LCY/hr

Fleet size:	2 Dozer(s)
Unit cost:	\$0.272/LCY

Total job time:	<b>7.87</b> Hours
Total job cost:	\$5,312

# **REVEGETATION WORK**

Two Rivers Sand, Gravel and ite: <u>Reservoir Project</u>				TR-1	Permit/Jol	o#: M2022013	
<u>PI</u>	ROJECT Task #:	IDENTIFIC	CATION State:	Colorado		Abbreviation:	None
	1  ask  #.	9/17/2024	County:			Abbreviation. Filename:	M013-05E

# **FERTILIZING**

#### Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	200.00	pound	\$0.51	\$102.32
			Total Fertilizer Materials Cost/Acre	\$102.32

#### Application

Description		Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)		\$43.12
	Total Fertilizer Application Cost/Acre	\$43.12

## TILLING

Description		Cost /Acre
Chisel plowing {DMG}		\$102.41
Weed control spraying (MEANS 31 31 16.13 3100)		\$338.80
	<b>Total Tilling Cost/Acre</b>	\$441.21

## **SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	\$2.91
Blue Grama - Lovington	0.20	3.26	\$5.55
Indian Ricegrass - Paloma	1.90	6.15	\$39.01
Switchgrass - Pathfinder	0.90	8.04	\$12.11
Sand Dropseed	0.10	11.94	\$1.30
Kentucky Bluegrass - Ginger	0.10	4.94	\$0.41
Little Bluestem - Pastura	0.30	1.79	\$4.76
Sideoats Grama - Vaughn	1.80	5.91	\$44.26
Strawberry Clover (coated)	0.10	0.68	\$0.98

Smooth Brome - Manchar	0.30	1.00	\$1.57
Sheep Fescue - Covar	0.40	6.24	\$2.47
Tall Wheatgrass - Jose	1.10	1.99	\$6.32
Totals Seed Mix	7.30	55.84	\$121.66

#### Application

Description		Cost /Acre
Drill Seeding (DRMS Survey Cost)		\$236.64
	Total Seed Application Cost/Acre	\$236.64

#### **MULCHING and MISCELLANEOUS**

#### Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Curtail @ 4.0 pt/ac	1.00	ACRE	\$36.14	\$36.14
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$492.78	\$985.56
<b>Total Mulch Materials Cost/Acre</b>				\$1,021.70

#### Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$85.37
Weed spray, truck, non-aquatic area, nox. [DMG]		\$83.26
	Total Mulch Application Cost/Acre	\$168.64

### **NURSERY STOCK PLANTING**

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

No. of Acres:	24.2	Cost /Acre:	\$2,135.29
Estimated Failure Rate:	25%	Cost /Acre*:	\$358.30
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$51,674.02
Reseeding Job Cost:	\$2,167.72
Total Job Cost:	\$53,842
Job Hours:	22.00

## EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description	1: <u>Mo</u>	bilization and De	mob.				
Two Rivers S te: <u>Reservoir Pr</u>	Sand, Gravel an oject	nd Permit	Action: <u>TR-1</u>			Permit/Job#: <u>M</u>	2022013
PROJECT IDE	<u>ENTIFICATI(</u>	<u>ON</u>					
Task #: 06	5 /17/2024	State: Co	olorado eld			eviation: <u>None</u> ilename: <u>M013</u>	
Agency	or organization	name: DRMS					
EQUIPMENT	TRANSPOR <sup>*</sup>	<u>F RIG COST</u>					
Truc	ck Tractor Descr	ciption: GENE	RIC ON-HIGH	WAY TR		rce: <u>CRG Da</u> DR, 6X4, DIESEI	ita
Tru	ick Trailer Descr	ription: Gl		DING GOO	P (2ND HALF, OSENECK, DF 2 (25T, 50T, AN	ROP DECK EQU	IPMENT
Cost Breakdown:		T					
Available Rig	Capacities ip Cost/Hour:	0-25 Tons \$10.44	26-50 Tons \$22.18		<u>+ Tons</u> 23.94		
	ng Cost/Hour:	\$26.48	\$54.55		55.65		
	or Cost/Hour:	\$22.52	\$22.52		522.52		
	er Cost/Hour:	\$0.00	\$23.53		23.53		
	nit Cost/Hour:	\$59.44	\$122.78		125.64		
NON ROADAL						Detrom Trin	DOT Permit
Machine	Weight/	Owner ship	Haul Rig	Fleet	Haul Trip	Return Trip Cost/hr/ fleet	Cost/ fleet
Description	Unit (TONS)	Cost/hr/ unit	Cost/hr/uni	Size	Cost/hr/ fleet		
Cat D8T - 8SU	(TONS) 52.21	\$187.01	t \$125.64	2	\$625.30	\$251.28	\$250.00
	J4.41		\$59.44	1	\$117.22	\$59.44	
CAT 966H high lift	25.80	\$57.78	\$39.44	1	φ117.22		\$250.00
		\$57.78	\$59.44	2	\$333.20	\$118.88	\$250.00 \$500.00
lift	25.80						

Subtotals: \$1,636.19 \$674.12 \$1,750.00

\$59.44

\$250.00

\$112.26

#### **ROADABLE EQUIPMENT:**

15.53

\$52.82

CAT 120M

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Generic 12-18 cy, 6x4	\$114.77	2	\$229.54	\$229.54
Water Tanker, 2,500 Gal.	\$34.10	1	\$34.10	\$34.10

\$59.44

1

Subtotals: **\$263.64** 

54 \$263.64 CIRCES Cost Estimating Software

## **EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region: Total one-way travel distance:	GREELEY 5.00	miles
Average Travel Speed:	40.00	mph
Total Non-Roadable Mob/Demob Cost *	\$4,077.58	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	\$65.91	_
1 · · · · · · · · · · · · · · · · · · ·		-

Transportation Cycle Time:

Haul Time (Hours): Return Time (Hours):	Non- Roadable Equipment 0.13 0.13	Roadable Equipment 0.13 0.13
Loading Time (Hours):	0.13	0.13 NA
Unloading Time (Hours):	0.00	NA
Subtotals:	0.25	0.25

#### JOB TIME AND COST

Total job time: **0.50** Hours

Total job cost: **\$4,143**