June 29, 2016

Sean Mello Silt Sand & Gravel, LLC P.O. Box 1319 Carbondale, CO 81623



**COLORADO** Division of Reclamation, Mining and Safety Department of Natural Resources

1313 Sherman Street, Room 215 Denver, CO 80203

## RE: Grand River Park Project, Permit No. M-2006-046, Technical Revision (TR-1) Approval

Dear Mr. Mello:

On June 29, 2016 the Division of Reclamation, Mining and Safety (Division) <u>approved</u> the Technical Revision request (TR-1) submitted on June 24, 2016, addressing the following:

Revise the mining plan, reclamation plan, and bond calculations to reflect a phased approach

The terms of the TR-1 approved by the Division are hereby incorporated into Permit No. M-2006-046. All other conditions and requirements of the permit remain in full force and effect.

The estimated liability amount of *\$192,808* exceeds the *\$162,454* Financial Warranty currently held for this site. If you have not already done so, please submit additional bond in the amount of *\$30,354*. The revision will not be final until the bond is approved by the Division. *Pursuant to Section 34–32.5–117(4) of the Colorado Land Reclamation Act, adequate Financial Warranty must be submitted to the Division within 60 days of the mailing date of this letter.* The additional amount needs to be accepted prior to **Monday, August 29, 2016**. Please review the enclosed figures as soon as possible and contact our office if any calculation errors are noted.

Attached is a table summarizing input values that have been updated from the 2007 calculation. It is noted that no surety increases have occurred since the permit issuance in 2007.Values were taken directly TR-1. This table does not account for price changes resulting from inflation or other RS Means cost changes. Bond calculations are based on a combination of field observations and worst case scenario based on the approved reclamation permit.

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

If you require additional information, or have questions or concerns, please feel free to contact me. Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 970-254-8511 or via email at amy.yeldell@ state.co.us



Sean Mello June 29, 2016 Page 2

Sincerely,

Amy Geldell

*Amy Yeldell* Environmental Protection Specialist Department of Natural Resources Division of Reclamation, Mining and Safety Phone: (970) 254-8511 Fax: (970) 241-1516

Cc: Russ Means, Senior EPS / Field Office Supervisor, Grand Junction DRMS

<b>Table summarizing</b>	changes	to input values

Task	Form Used	Change	Justification
001	Demo	+	No demo originally accounted for. As indicated by Mr. Mello no structures related to mining will remain upon release.
002	Pumping	+	Additional discharge hose. Different pump with higher capacity. 3 pumps used. Less total job time. Values taken from GLA calculations lakes total ~30 ac surface, 20 ft deep, plus inflow for total of ~880ac-ft to be pumped.
003	Scrapper	-	Switch from truck and loader team to scrapper. Less total job time and slightly cheaper. * not included on GLA calculation in TR-1
004	Dozer	+	Never estimate using excellent operator always average, slightly less efficient. Increases hours and cost due to less production.
005	Scrapper	-	Larger scraper more efficient. Less hours but relatively same cost. Originally 42,753 cy, per TR-1 17,809 cy of topsoil.
006	Reveg	1	Added minimal tamarisk treatment. Added power mulcher for application before crimping. Ponderosa pine is not offered in 10 gallon pots so staff selected 2.25 in Diameter instead. Fremont Cottonwood is no longer available so staff selected Sandbar Willow as an alternative species. More total job hours for extra tasks. Originally 53 ac, per TR-1 22 ac
007	Mobilize	+	Larger scraper. No loader and truck team, used a scraper instead, less equipment. Update reveg equipment with actual pieces rather than general function, which required a power mulcher and drill seeder. Different pump, now 3 pumps instead of 2. Added support crew truck.
008	Mobilize	+	No secondary mobilization for reseeding failure areas accounted for. Requires reveg equipment and crew.
Indire	ct costs	-	Less total job hours due to more efficient equipment use. Pumping not factored in for hours needing superintendent.

## COST SUMMARY WORK

Grand R	iver Park Projec	et Per	rmit Action:	2016-06	Permit/Jol	b#: <u>M2006046</u>
ROJECT	IDENTIFICAT	<u>FION</u>				
Task #:	000	State:	Colorado		Abbreviation:	None
Date:	5/26/2016	County:	Garfield		Filename:	M046-000
User:	ACY					

## TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Demo of structures	DEMOLISH	1	10.00	\$1,782.82
002	Dewater Pit for Grading	PUMPING	1	709.59	\$51,559.00
003	Backfill Regulating Pond	SCRAPER1	2	7.69	\$5,154.00
004	Regrade 1000' of Highwall	DOZER	1	75.42	\$15,939.00
005	Replace 6" topsoil over disturbed areas	SCRAPER1	2	21.28	\$11,433.00
006	Reveg 22 acres	REVEGE	1	35.00	\$51,558.00
007	Initial Mobilization of Reclamation crew/equipment	MOBILIZE	1	6.53	\$10,407.00
008	Secondary Mobilization of Reclamation crew/equipment	MOBILIZE	1	2.53	\$1,566.00
		SUBTOTALS:			\$149,399

## **INDIRECT COSTS**

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

Liability insurance:	2.02	Total =	\$3,017.86
Performance bond:	1.05	Total =	\$1,568.69
Job superintendent:	79.22	Total =	\$5,900.31
Profit:	10.00	Total =	\$14,939.90
		TOTAL O & P =	\$25,426.76
		CONTRACT AMOUNT (direct + O & P) = $($	\$174,825.76
	o IE CE L ( ) )		

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	5.00	Total =	\$8,741.29
Reclamation management and/or administration:	5.00		\$8,741.29
CONTINGENCY:	0.00	Total =	\$0.00
	TOTAL	NDIRECT COST =	\$43,409.34
TOTAL BO	ND AMOUNT (	direct + indirect) =	\$192,808.34

## **DEMOLITION WORK**

	Task description:	Demo of str	ructures			
Site:	Grand River Park Proje	ct	Permit Action:	2016-06	Permit/J	lob#: <u>M2006046</u>
PROJE	CCT IDENTIFICATION	<u>I</u>				
Task #	: 001	State:	Colorado		Abbreviation:	None
Date	: 5/26/2016	County:	Garfield		Filename:	M046-001
User	: ACY					
	Agency or organizat	ion name:	DRMS			

## UNIT COSTS

## Location adjustment: 95.50 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Cement Fuel	30'W x 30'L x	Sidewalk, concrete,	140.00	SY	\$8.48	\$1,187.20
Containment	3'Н	demolition only, 4 in. thick - No reinforcing				
Scale Removal	15'W x 70'L	Loading and 5 mile haul, salvage allowed - Steel frame structures	19.00	CY	\$10.57	\$200.83
Scale Cement Ramps	(2) 15'W x 15'L	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 50 ft. push	450.00	SF	\$1.06	\$478.80

				<b>Total Cost</b>	
		Subtotal		(adjusted for	
Job Hours:	10.00	(unadjusted):	\$1,866.83	location):	\$1,782.82

#### PUMPING WORK

PROJECT IDENTIFICATION         Task # 002       State: Colorado       Abbreviation: None         Dire: 52602016       Coury: Garfield       Pilename: M046-002         Use: ACY	Task description: Dewa	ater Pit for Grading			
Tusk #:       002       State:       County:	e: Grand River Park Project	Permit Action	: 2016-06	Permit/Job#:	M2006046
Date: <u>52652016</u> County: <u>Gurfield</u> Fikename: <u>M046-002</u> Agency or organization name: <u>DRMS</u> <b>DOURLY FOUPMENT COST</b> Make and Model:       Submersible pump - 460v, 8 in.       3         Attachment 1:       Submersible pump - 460v, 8 in.       3         Attachment 1:       Discharge hose - 6 in. diam., 25 ft.       3         Attachment 1:       Discharge hose - 6 in. D., 25 ft.       9         Labor Unit 1:       Pump operator       1         Moreship Cost/Hour:       \$17.40       NA         Operating Cost/Hour:       \$17.266         Total Unit Cost/Hour:       \$172.66         PUMPING QUANTITIES         Initial Pond Volume: <u>600.00</u> gultons         Total Pond Inflow Surface       Unit inflow rate in         Area:       1.306.800       Sq. ft. <u>03516</u> Total Pond Inflow Volume       Phase IB and 2 lakes, 30 ac 20' deep <b>PUMPING TIME</b> Maximum Pump Capacity: <u>170,000</u> gpb/sq. ft.:       0.3516         Total Hond Inflow Volume: <u>543,478.086</u> gallons         Source of estimated volume:       Phase IB and 2 lakes, 30 ac 20' deep <b>PUMPING TIME</b> <u>105.</u>	PROJECT IDENTIFICATIO	<u>NC</u>			
IOURLY FOURPENT COST         Make and Model:       Description       Quantity         Attachment I:       Submersible pump - 460v, 8 in.       3         Attachment I:       Discharge hose - 6 in. diam., 25 ft.       3         Attachment I:       Discharge hose - 6 in. D., 25 ft.       9         Horsepower:       95         Silt Basi:       1 per day         Weigh:       0.700         Cost Breakdown:       \$17.40         Ownership Cost/Hour:       \$17.40         Operator Cost/Hour:       \$17.40         Operator Cost/Hour:       \$17.40         Operator Cost/Hour:       \$17.40         Operator Cost/Hour:       \$17.40         Total Vin Cost/Hour:       \$17.266         Disting Cost/Hour:       \$17.266         Disting Cost/Hour:       \$19.38         Initial Pond Volume:       \$195.50.348.00         gallons       Unit inflow rate in         Area:       1.306.800       \$3.6         Total Pond Volume:       \$195.50.348.00       gallons         Maximum Pump Capacity:       \$17.0000       gph/pump         Estimated Suction Head:       \$15       feet         Total Pond Iono Surite:       \$1.300.0       gph/pump<	Date: 5/26/2016			-	
IOURLY EQUIPMENT COST         Make and Model:       Description       Quantity         Attachment I:       Submershib pump - 450v, 8 in.       3         Attachment I:       Discharge hose - 6 in. diam., 25 ft.       9         Attachment I:       Discharge hose - 6 in. D., 25 ft.       9         Attachment I:       Discharge hose - 6 in. D., 25 ft.       9         Mill Basis:       1       1         Overeship Cost/Hour:       \$17.40       NA         Operating Cost/Hour:       \$17.40       NA         Operating Cost/Hour:       \$17.40       NA         Operating Cost/Hour:       \$17.40       NA         Operator Cost/Hour:       \$17.40       NA         Operator Cost/Hour:       \$17.266          Total Unit Cost/Hour:       \$17.266       Unit inflow rate in         Mae:	Agency or organization	name: DRMS			
Make and Model:       Description       Quantity         Make and Model:       Submersible pump - 460v, 8 in.       3         Attachment 1:       Suction hose - 6 in. 0. and 25 ft.       3         Attachment 2:       Discharge hose - 6 in. D., 25 ft.       9         Labor Unit 1:       Pump operator       1         Horsepower:       95         Shift Basis:       1 per day         Weigh:       0.70         (US Tons)       Core Breakdown:         Overership Cost/Hour:       \$17.40       NA         Operating Cost/Hour:       \$19.38       NA         Total Unit Cost/Hour:       \$72.66         PUMPING OUANTITIES       Unit inflow rate in gph/sq. ft:       0.3516         Total Pond Volume: <u>55.510.348.00</u> gallons       Unit inflow rate in gph/sq. ft:       0.3516         Total Pond Volume: <u>13.306,800</u> Sq. ft.       gph/sq. ft:       0.3516         PurPING TIME       Maximum Pump Capacity:       170.000       gph/pump         Source of estimated volume: <u>19.52.10.348.00</u> gallons       cet         CIP Pump Capacity:       170.000       gph/pump         Estimated Discharge Heat:       20       feet         Total Pond Volume: <u>15.400</u> feet       fee					
Make and Model:       Submersible pump - 460v, 8 in.       3         Attachment 1:       Suction hose - 6 in. Jo., 25 ft.       9         Labor Utit 1:       Pump operator       1         Horsepower:       95         Shift Basis:       1 per day         Weight:       0.70         (US Tons)       Utilization %         Ownership Cost/Hour:       \$17.40         NA       0         Operator Cost/Hour:       \$19.38         Total Unit Cost/Hour:       \$12.66         PUMPING QUANTITIES       Initial Pond Volume:         Initial Pond Volume:       195.510.348.00       gallons         Total Unit Cost/Hour:       \$12.66         PUMPING QUANTITIES       Initial Pond Volume:       195.510.348.00         Final Pond Volume:       195.510.348.00       gallons         Cure of estimated volume:       195.510.348.00       gallons         Source of estimated volume:       Phase IB and 2 lakes, 30 ac 20' deep         PUMPING TIME       20       feet         CPB Punp Capacity:       170.000       gph/pump         Estimated Suction Head:       35       feet         CPB Punp Capacity:       163.200       gph/pump         Sint Head:       35 <td></td> <td></td> <td></td> <td>Ouantity</td> <td></td>				Ouantity	
Attachment 2:       Discharge hose - 6 in. D., 25 ft.       9         Labor Unit 1:       Pump operator       1         Horsepower:       95         Shift Basis:       1 per day         Weight:       0.70         USTONS       Utilization %         Ownership Cost/Hour:       \$17.40         NA       Operating Cost/Hour:       \$19.38         Total Unit Cost/Hour:       \$19.38         Total Fleet Cost/Hour:       \$12.66         PUMPING OUANTITIES       Initial Pond Volume:         Initial Pond Volume:       195.510.348.00       gallons         Total Pond Inflow Surface       Unit inflow rate in         Area:       1.306.800       Sq. ft.       gph/sq. ft.:       0.3516         Total Pond Inflow Surface       Init inflow rate in       gph/sq. ft.:       0.3516         Total Pond Inflow Surface       Unit inflow rate in       gph/sq. ft.:       0.3516         PUMPING TIME       Maximum Pump Capacity:       170.000       gph/sq. ft.:       0.3516         Estimated Suction Head:       15       feet       feet         Total Pond Inflow Volume:       99.470.88       gallons       feet         CPB Pump Capacity:       170.000       gph/pump       fiet <td></td> <td>1</td> <td>in.</td> <td></td> <td></td>		1	in.		
Labor Unit 1:       Pump operator       1         Hersepower:       95         Shirf Basis:       1 per day         Weigh:       0.70         (US Tons)         Cost Breakdown:         Ovnership Cost/Hour:       \$17.40       NA         Operator Cost/Hour:       \$17.40       NA         Operator Cost/Hour:       \$19.38       NA         Total Uni Cost/Hour:       \$19.38       NA         Total Uni Cost/Hour:       \$72.66         PUMPING OUANTITES       Unit inflow rate in         Area:       1.306,800       \$q. ft.       gph/sq. ft.:       0.3516         Total Pond Volume:       195,510,348.00       gallons       Unit inflow rate in         Area:       1.306,800       \$q. ft.       gph/sq. ft.:       0.3516         Total Pond Inflow Volume:       195,510,348.00       gallons       Source of estimated volume:       Phase IB and 2 lakes, 30 ac 20' deep         PUMPING TIME       170,000       gph/pump       Estimated Suction Head:       25       feet         CPB Pump Capacity:       170,000       gph/pump       Site Alitude:       5,400       feet         Cold Justed Pumping Capacity:       489,600       gph       phours       Minum Pump Ca					
Horsepower:       95         Shift Basis:       1 per day         Weigh:       0.707         (US Tons)       0         Cott Breakdown:       100         Operating Cost/Hour:       \$17.40       NA         Operator Cost/Hour:       \$17.40       NA         Operator Cost/Hour:       \$19.38       NA         Total Unit Cost/Hour:       \$72.66         EUMPING OUANTITIES       Initial Pond Volume:       600.00         Final Pond Volume:       195,510,348.00       gallons         Total Pond Inflow Surface       Unit inflow rate in       0.3516         Total Pond Inflow Surface       Unit inflow rate in       0.3516         Total Pond Inflow Volume:       per Hour:       459,470.88       gallons         Source of estimated volume:       Phase IB and 2 lakes, 30 ac 20' deep       20         EUMPING TIME       105       feet       1011         Maximum Pump Capacity:       170,000       gph/pump       feet         CPB Pump Capacity:       103,200       gph/pump       feet         CPB Pump Capacity:       139,033       hours         Influid Adjusted Pumping Time:       399,33       hours         Influid Adjusted Pumping Time:       174,08 </td <td></td> <td></td> <td>ft.</td> <td>-</td> <td></td>			ft.	-	
Shift Basis:       1 per day 0.70 UST ons)         Cost Breakdown: <ul> <li>UWization % Operating Cost/Hour:</li> <li>S17.40</li> <li>Wilization % Operator Cost/Hour:</li> <li>S15.88</li> <li>100</li> <li>Operator Cost/Hour:</li> <li>S19.38</li> <li>NA</li> </ul> Total Unit Cost/Hour:         S17.66             PUMPING OUANTITIES           Initial Pond Volume:         600.00 (1.306,800)       Conversion factor:         325850.5800           Final Pond Volume:         195,510,348.00 (2.306,800)         gallons         Unit inflow rate in gph/sq. ft.:         0.3516           Total Pond Inflow Volume:         459,470.88         gallons         Unit inflow rate in gph/sq. ft.:         0.3516           PUMPING TIME         Source of estimated volume:         Phase 1B and 2 lakes, 30 ac 20' deep         15           PUMPING TIME         15         feet         16         15           Estimated Suction Head:         15         feet         164         35           CPB Pump Capacity:         170,000         gph/pump         git/pump           Site Altitude:         5,400         feet         164           CPB Pump Capacity:         163,200         gph         gph           Initial	Labor Unit 1: Pump	operator		1	
Utilization %         Ownership Cost/Hour:       \$17.40       NA         Operating Cost/Hour:       \$355.88       100         Operator Cost/Hour:       \$19.38       NA         Total Unit Cost/Hour:       \$72.66         PUMPING OUANTITIES         Initial Pond Volume:       600.00         Final Pond Volume:       195,510,348.00         gallons       Unit inflow rate in         Total Pond Inflow Surface       Unit inflow rate in         per Hour:       459,470.88       gallons         Source of estimated volume:       Phase 1B and 2 lakes, 30 ac 20' deep         PUMPING TIME       15       feet         PUMPING Dachacity:       170,000       gph/pump         Estimated Suction Head:       15       feet         CPB Pump Capacity:       163,200       gph/pump         Site Altitude:       5,400       feet         CPB Pump Capacity:       163,200       gph/pump         Site Altitude:       5,400       feet         CPB Pump Capacity:       170,000       gph/pump         Site Altitude:       5,400       feet         CPB Pump Capacity:       163,200       gph/pump         Site Altitude:       5,400       feet	Shift Basis:1 per dayWeight:0.70				
Ownership Cost/Hour:       \$17.40       NA         Operator Cost/Hour:       \$19.38       100         Operator Cost/Hour:       \$19.38       NA         Total Unit Cost/Hour:       \$72.66	Cost Breakdown:		Litilization 9/		
Operating Cost/Hour:       \$35.88       100         Operator Cost/Hour:       \$19.38       NA         Total Unit Cost/Hour:       \$72.66         Total Fleet Cost/Hour:       \$72.66         PUMPING OUANTITIES         Initial Pond Volume:       600.00         gallons       Unit inflow rate in         Total Pond Inflow Surface       195,510,348.00         Area:       1,306,800       Sq. ft.         gph/sq. ft.:       0.3516         Source of estimated volume:       Phase IB and 2 lakes, 30 ac 20' deep         PUMPING TIME       Maximum Pump Capacity:       170,000         Estimated Suction Head:       15       feet         Total Head:       35       feet         CPB Pump Capacity:       163,200       gph/pump         Site Altitude:       5,400       feet         Adjusted Pumping Time:       399,33       hours         Inflow during Initial Pumping:       183,478,986       gallons         Net Unadjusted Pumping Time:       774.08       Hours         Altitude Adjusted Pumping Time:       709.60       hours         Pump Efficiency Factor:       0.9167       (55 min./hr.)         Notal Job time:       709.60       hours	Ownership Cost/Hour	\$17.40			
Operator Cost/Hour:       \$19.38       NA         Total Unit Cost/Hour:       \$72.66         Total Fleet Cost/Hour:       \$72.66         PUMPING QUANTITIES       Initial Pond Volume:       600.00       Conversion factor:       325850.5800         Final Pond Volume:       600.00       gallons       Unit inflow rate in       325850.5800         Total Pond Inflow Surface       Unit inflow rate in       gph/sq. ft.:       0.3516         Total Pond Inflow Volume       459.470.88       gallons       Unit inflow rate in         Source of estimated volume:       Phase IB and 2 lakes, 30 ac 20' deep       PUMPING TIME         PUMPING TIME       15       feet       feet         Total Head:       35       feet       feet         Total Head:       35       feet       CPB Pump Capacity:       163.200       gph/pump         Site Altitude:       5,400       feet       feet       feet       Adjusted Pumping Time:       399.33       hours         Inflow during Initial Pumping:       183.478.986       gallons       feet       feet       feet         Adjusted Pumping Time:       774.08       Hours       Hours       fustioned Adjusted Pumping Time:       foodo       f3% rule)       foodo       f3% rule)					
Total Unit Cost/Hour:       \$72.66         Total Fleet Cost/Hour:       \$72.66 <b>PUMPING OUANTITIES</b> <ul> <li>Initial Pond Volume:</li> <li><u>195,510,348.00</u></li> <li>gallons</li> <li>Unit inflow rate in</li> <li>Area:</li> <li><u>1,306,800</u></li> <li>Sq. ft.</li> <li>gph/sq. ft.:</li> <li><u>0.3516</u></li> </ul> <li>PUMPING Volume</li> <li>per Hour:</li> <li><u>459,470.88</u></li> <li>gallons</li> <li>Source of estimated volume:</li> <li><u>Phase 1B and 2 lakes, 30 ac 20' deep</u></li> <li>PUMPING TIME</li> <li>Maximum Pump Capacity:</li> <li><u>170,000</u></li> <li>gph/pump</li> <li>Estimated Suction Head:</li> <li><u>15</u></li> <li>feet</li> <li>Total Head:</li> <li><u>355</u></li> <li>feet</li> <li>CPB Pump Capacity:</li> <li><u>163,200</u></li> <li>gph</li> <li>Jnitial Unadjusted Pumping Time:</li> <li><u>399.33</u></li> <li>hours</li> <li>Inflow during Initial Pumping:</li> <li><u>174.08</u></li> <li>Hours</li> <li>Altitude Adjustment Factor:</li> <li><u>0.000</u></li> <li>(3% rule)</li> <li>Pump Efficiency Factor:</li> <li><u>0.9167</u></li> <li>(55 min./hr.)</li> <li>Total Job time:</li> <li><u>709.60</u></li> <li>Hours</li>					
Total Fleet Cost/Hour:       \$72.66 <b>PUMPING OUANTITIES</b> Initial Pond Volume:       600.00       Conversion factor:       325850.5800         Final Pond Volume:       195,510,348.00       gallons       Unit inflow rate in         Total Pond Inflow Surface       Unit inflow rate in       0.3516         Total Pond Inflow Volume       gallons       0.3516         Per Hour:       459,470.88       gallons         Source of estimated volume:       Phase IB and 2 lakes, 30 ac 20' deep <b>PUMPING TIME</b> 15       feet         Stimated Discharge Head:       20       feet         Total Head:       35       feet         CPB Pump Capacity:       163,200       gph/pump         Site Altitude:       5,400       feet         Adjusted Pumping Capacity:       489,600       gph         Inflow during Initial Pumping:       183,478,986       gallons         Inflow during Initial Pumping:       774.08       Hours         Altitude Adjusted Pumping Time:       709.60       hours         Altitude Adjustent Factor:       0.9167       (55 min./hr.)         Total Adjusted Pumping Time:       709.60       hours         Altitude Adjustent Factor:       0.09167       (55 min./hr.) <td></td> <td></td> <td>1.11</td> <td></td> <td></td>			1.11		
PUMPING QUANTITIES         Initial Pond Volume:       600.00       conversion factor:       325850.5800         Final Pond Volume:       195,510,348.00       gallons       Unit inflow rate in         Total Pond Inflow Surface	—		_		
Initial Pond Volume:       600.00       Conversion factor:       325850.5800         Final Pond Volume:       195,510,348.00       gallons       Unit inflow rate in       gph/sq. ft.:       0.3516         Total Pond Inflow Surface       Area:       1,306,800       Sq. ft.       gph/sq. ft.:       0.3516         Total Pond Inflow Volume       per Hour:       459,470.88       gallons       gph/sq. ft.:       0.3516         Source of estimated volume:       Phase 1B and 2 lakes, 30 ac 20' deep       PUMPING TIME       170,000       gph/pump         Estimated Suction Head:       15       feet       feet       feet       Total Head:       35       feet         CPB Pump Capacity:       163,200       gph/pump       site Altitude:       5,400       feet         Adjusted Pumping Capacity:       163,200       gph       gph/pump       site Altitude:       5,400       feet         Adjusted Pumping Time:       774.08       Hours       Hours       Hours       Hours         Altitude Adjusted Pumping Time:       709.60       hours       jop.60       hours         Dump Efficiency Factor:       0.9167       (55 min./hr.)       hours       Jop.60       hours         Job time:       709.60       hours       Hours <td></td> <td>\$72.00</td> <td></td> <td></td> <td></td>		\$72.00			
Final Pond Volume:       195,510,348.00       gallons       Unit inflow rate in         Total Pond Inflow Surface		<b>COO OO</b>		Commission footom	225850 5800
Total Pond Inflow Surface			gallons	Conversion factor:	323850.5800
Area:       1,306,800       Sq. ft.       gph/sq. ft.:       0.3516         Total Pond Inflow Volume       per Hour:       459,470.88       gallons         Source of estimated volume:       Phase 1B and 2 lakes, 30 ac 20' deep <b>PUMPING TIME</b> Maximum Pump Capacity:       170,000       gph/pump         Estimated Suction Head:       15       feet         Estimated Discharge Head:       20       feet         CPB Pump Capacity:       163,200       gph/pump         Site Altitude:       5,400       feet         Adjusted Pumping Capacity:       489,600       gph         Initial Unadjusted Pumping Time:       399.33       hours         Inflow during Initial Pumping:       183,478,986       gallons         Net Unadjusted Pumping Time:       774.08       Hours         Altitude Adjustment Factor:       0.9167       (55 min./hr.)         Pump Efficiency Factor:       0.9167       (55 min./hr.)         Total Job time:       709.60       hours		195,510,546.00		Unit inflow rate in	
Total Pond Inflow Volume per Hour:       459,470.88       gallons         Source of estimated volume:       Phase 1B and 2 lakes, 30 ac 20' deep <b>PUMPING TIME</b> Maximum Pump Capacity:       170,000       gph/pump         Estimated Suction Head:       15       feet         Total Head:       35       feet         Total Head:       35       feet         CPB Pump Capacity:       163,200       gph/pump         Site Altitude:       5,400       feet         Adjusted Pumping Capacity:       489,600       gph         Inflow during Initial Pumping:       183,478,986       gallons         Net Unadjusted Pumping Time:       774.08       Hours         Altitude Adjustmen Factor:       0.9167       (55 min./hr.)         Pump Efficiency Factor:       0.9167       (55 min./hr.)         Total Adjusted Pumping Time:       709.60       hours		1.306.800	Sa. ft.		0.3516
per Hour:       459,470.88       gallons         Source of estimated volume:       Phase 1B and 2 lakes, 30 ac 20' deep <b>PUMPING TIME</b> Maximum Pump Capacity:       170,000       gph/pump         Estimated Suction Head:       15       feet         Estimated Discharge Head:       20       feet         Total Head:       35       feet         CPB Pump Capacity:       163,200       gph/pump         Site Altitude:       5,400       feet         Maximum Pumping Capacity:       489,600       gph         Net Unadjusted Pumping Time:       399,33       hours         Inflow during Initial Pumping:       183,478,986       gallons         Net Unadjusted Pumping Time:       774.08       Hours         Altitude Adjustment Factor:       1.0000       (3% rule)         Pump Efficiency Factor:       0.9167       (55 min./hr.)         Total Adjusted Pumping Time:       709.60       hours		1,000,000		Spin off. Inter	0.0010
PUMPING TIME         Maximum Pump Capacity:       170,000       gph/pump         Estimated Suction Head:       15       feet         Estimated Discharge Head:       20       feet         Total Head:       35       feet         CPB Pump Capacity:       163,200       gph/pump         Site Altitude:       5,400       feet         Adjusted Pumping Capacity:       489,600       gph         Initial Unadjusted Pumping Time:       399,33       hours         Inflow during Initial Pumping:       183,478,986       gallons         Net Unadjusted Pumping Time:       774.08       Hours         Altitude Adjustment Factor:       1.0000       (3% rule)         Pump Efficiency Factor:       0.9167       (55 min./hr.)         Total Adjusted Pumping Time:       709.60       hours		459,470.88	gallons		
Maximum Pump Capacity:170,000gph/pumpEstimated Suction Head:15feetEstimated Discharge Head:20feetTotal Head:35feetCPB Pump Capacity:163,200gph/pumpSite Altitude:5,400feetAdjusted Pumping Capacity:489,600gphInflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours	Source of estima	ited volume: Phase 1	1B and 2 lakes, 30 ac 20'	deep	
Maximum Pump Capacity:170,000gph/pumpEstimated Suction Head:15feetEstimated Discharge Head:20feetTotal Head:35feetCPB Pump Capacity:163,200gph/pumpSite Altitude:5,400feetAdjusted Pumping Capacity:489,600gphInflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours	PUMPING TIME				
Estimated Suction Head:15feetEstimated Discharge Head:20feetTotal Head:35feetCPB Pump Capacity:163,200gph/pumpSite Altitude:5,400feetAdjusted Pumping Capacity:489,600gphInitial Unadjusted Pumping Time:399.33hoursInflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours		umn Canacity.	170.000	onh/numn	
Estimated Discharge Head:20feetTotal Head:35feetCPB Pump Capacity:163,200gph/pumpSite Altitude:5,400feetAdjusted Pumping Capacity:489,600gphInitial Unadjusted Pumping Time:399.33hoursInflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hoursTotal job time:709.60Hours			,		
Total Head:35feetCPB Pump Capacity:163,200gph/pumpSite Altitude:5,400feetAdjusted Pumping Capacity:489,600gphInitial Unadjusted Pumping Time:399.33hoursInflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours			20		
Site Altitude:5,400feetAdjusted Pumping Capacity:489,600gphInitial Unadjusted Pumping Time:399.33hoursInflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours			35	feet	
Adjusted Pumping Capacity:489,600gphInitial Unadjusted Pumping Time:399.33hoursInflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours	CPB P	ump Capacity:	163,200	gph/pump	
Initial Unadjusted Pumping Time:399.33hoursInflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours		Site Altitude:	5,400	feet	
Initial Unadjusted Pumping Time:399.33hoursInflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours			100 606		
Inflow during Initial Pumping:183,478,986gallonsNet Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours					
Net Unadjusted Pumping Time:774.08HoursAltitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hours					
Altitude Adjustment Factor:1.0000(3% rule)Pump Efficiency Factor:0.9167(55 min./hr.)Total Adjusted Pumping Time:709.60hoursTotal job time:709.60			-		
Pump Efficiency Factor:       0.9167       (55 min./hr.)         Total Adjusted Pumping Time:       709.60       hours         JOB TIME AND COST       Total job time:       709.60       Hours					
Total Adjusted Pumping Time:       709.60       hours         JOB TIME AND COST       Total job time:       709.60       Hours					
Total job time: <b>709.60</b> Hours					
Unit cost: \$0,000136 /Gallon Total job cost: \$51,550	JOB TIME AND COST		Total job time	e: <u>709.60</u>	Hours
	Unit cost: \$0.000136	/Gallon	Total job cos	t: <b>\$51,559</b>	

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## SCRAPER TEAM WORK

Task description: Site: Grand River Par	<u>Backfill Reg</u> k Proiect			2016-06	Perr	nit/Job#: M200	6046
PROJECT IDEN							
			~ • • •				
Task #: $003$			Colorado			viation: None	002
Date: $5/26/20$ User: ACY	016 Cour	nty: <u>(</u>	Garfield		F1I	ename: M046-0	003
Agency or	organization name:	DRM	S				
HOURLY EQUI	-			COSTS	hift basis: <u>1 per d</u>	av	
			Fauinme	ent Description		<u></u>	
	-Sc	raper:	Cat 631				
		Dozer:	NA				
Suppo	ort Equipment -Load -Dump		NA Cat D8	r 8811			
Road Ma	intenance –Motor G		NA	1 - 850			
	-Water 7		NA				
Cost Breakdown:	Sarapar Warl	Toom		Support Equi	mant	Maintananaa	Equipment
Cost Dreakuowii:	Scraper Work Scraper	Doz	zer	Support Equip Load Area	Dump Area	Maintenance Motor Grader	Water Tru
%Utilization-machine:	100		NA	NA	15	NA	
Ownership cost/hour:	\$104.50		NA	NA	\$82.01	NA	
Operating cost/hour:	\$129.95		NA	NA	\$11.88	NA	
%Utilization-ripper:	NA		NA	NA	NA	NA	
Ripper own. cost/hour:	NA		NA	NA	\$0.00	NA	
Ripper op. cost/hour:	NA		NA	NA	\$0.00	NA	
Operator cost/hour:	\$34.24		NA	NA	\$38.89	NA	
Unit Subtotals:	\$268.69		NA	NA	\$132.78	NA	
Number of Units:	2		0	0	1	0	
Group Subtotals:	Work:	\$537	7.38	Support:	\$132.78	Maint:	\$0.00
Total work team cost <u>MATERIAL QUA</u> Initial volume: Loose volume:			CCY LCY	Swell fact	or: <u>1.050</u>		
	rce of estimated volu			00' 3' deep			
	of estimated swell fa		Cat Hand				
HOURLY PROD	<u>UCTION</u>						
				Scraper Bo	owl (volume) Basi	is:	
Material weight:	3,400 lbs/LCY			Struck '	Volume: 24.00	L	CY
Material description:	Sand and gravel -	Wet		Heaped			CY
Rated Payload:	81,600 pounds			Average			CY
Payload Capacity:	24.00 LCY			Adjusted C	Capacity: <b>24.00</b>	L	CY

0.80 Minutes

<u>0.70</u> Minutes

#### Cycle Time:

Scraper Loading Time: Maneuver and Spread Time:

Job Condition Correction:

Site Altitude: 5400 feet

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

#### Travel Time:

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

#### Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1300.00	-1.00	8.00	7.00	962	1.41

Haul Time: **1.41** minutes

#### Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1300.00	1.00	8.00	9.00	1348	1.03
				Return Time:	1.03	minutes
			Total Scrape	r team cycle time:	3.94	minutes
			Adjusted f	for job conditions:	303.35	LCY/Hour
			Selected Nu	mber of Scrapers:	1	Scraper(s)
	Adjuste	a single scrap	oer team (unit) h	nourly production:	303.35	LCY/Hour
	Adjusted m	ultiple scrap	er team (fleet) h	nourly production:	606.70	LCY/Hour
Optima	Unadjusted unit pro- al Number of Scrapers pe			LCY/Hour		
JOB TI	ME AND COST					
Fleet	t size: 2	Team(s)	Т	otal job time:	7.69	Hours

Fleet size:	2	Team(s)	Total job time:	7.69	Hour
Unit cost:	\$1.105	/LCY	Total job cost:	\$5,154	

Page 1 of 2

## BULLDOZER WORK

			'Highwall			
Grand River Park	Project	Perr	nit Action:	2016-06	Permit/Job#:	M2006046
PROJECT IDENT	IFICATIO	<u>N</u>				
Task #:         004           Date:         5/26/201           User:         ACY	6	State: County:	Colorado Garfield		Abbreviation: Filename:	None M046-004
Agency or or	ganization n	ame: DR	MS			
HOURLY EQUIPM	MENT CO	<u>ST</u>				
	Cat D8T - 85	SU				
L	310 Semi-Univer					
	Benn-Oniver B-shank ripp					
	l per day					
	(CRG)					
	end)					
Cost Breakdown:			1			
Ownership Cost/Hour	<b></b>		\$82.01	<u>Utilization %</u> NA		
Operating Cost/Hour			\$79.23	100		
Ripper own. Cost/Hour			\$8.40	NA		
Ripper op. Cost/Hour			\$2.81	50		
Operator Cost/Hour			\$38.89	NA		
Total unit Cost/Hour: Total Fleet Cost/Hour:						
Total Fleet Cost/Hour: MATERIAL QUAN	\$211.34 NTITIES					
Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume:35	\$211.34					
Total Fleet Cost/Hour: <u>MATERIAL QUAN</u> Initial Volume: <u>35</u> Swell factor: <u>1</u> .	\$211.34 NTITIES 5,000					
Total Fleet Cost/Hour: <u>MATERIAL QUAN</u> Initial Volume: <u>35</u> Swell factor: <u>1</u> .	\$211.3 NTITIES 5,000 099 3,462 LCY Jume:					
Total Fleet Cost/Hour:         MATERIAL QUAN         Initial Volume:       35         Swell factor:       1.         Loose volume:       38         Source of estimated vo	\$211.3 NTITIES 5,000 099 8,462 LCY olume: vell factor:	4 Applicatio				
Total Fleet Cost/Hour:         MATERIAL QUAN         Initial Volume:       35         Swell factor:       1.         Loose volume:       38         Source of estimated vo       Source of estimated sw	\$211.3 NTITIES 5,000 099 8,462 LCY blume: vell factor: CTION :	4 Applicatio	book			
Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 35 Swell factor: 1. Loose volume: 38 Source of estimated vo Source of estimated sw HOURLY PRODU Average push distance	\$211.3 <b>NTITIES</b> 5,000 099 <b>3,462</b> LCY blume: vell factor: CTION : duction:	4 Application Cat Hand 60 feet 1,246.9 LC	book Y/hr	  mbankment 0.9		
Total Fleet Cost/Hour:         MATERIAL QUAN         Initial Volume:       35         Swell factor:       1.         Loose volume:       38         Source of estimated vo       Source of estimated sw         HOURLY PRODUC       Average push distance         Unadjusted hourly product       State	\$211.3: NTITIES 5,000 099 3,462 LCY olume: vell factor: CTION : duction: description:	4 Application Cat Hand 50 feet 1,246.9 LCY Compac	book Y/hr	  mbankment 0.9		
Total Fleet Cost/Hour:         MATERIAL QUAN         Initial Volume:       35         Swell factor:       1.         Loose volume:       38         Source of estimated vo       Source of estimated sw         HOURLY PRODUC       Average push distance         Unadjusted hourly proc       Materials consistency of         Average push gradient       1000000000000000000000000000000000000	\$211.3 NTITIES 5,000 099 3,462 LCY olume: vell factor: CTION : duction: description: : :0% 5,400 f	4 Application Cat Hand 50 feet 1,246.9 LCY Compac	book Y/hr			
Total Fleet Cost/Hour:         MATERIAL QUAN         Initial Volume:       35         Swell factor:       1.         Loose volume:       38         Source of estimated vo       Source of estimated sw         HOURLY PRODUC       Average push distance         Materials consistency of       Average push gradient         Average push gradient       Average site altitude:	\$211.3:         NTITIES         5,000         099         3,462 LCY         olume:         vell factor:         CTION         :       0         duction:       5,400 f	4 Application Cat Handl 60 feet 1,246.9 LC Compace feet	book Y/hr 	  mbankment 0.9		
Total Fleet Cost/Hour:         MATERIAL QUAN         Initial Volume:       35         Swell factor:       1.         Loose volume:       38         Source of estimated vo       38         Source of estimated vo       38         Source of estimated vo       38         Materials consistency of       38         Average push distance       10         Materials consistency of       38         Average push gradient       39         Average site altitude:       38         Material weight:       39         Weight description:       30         Job Condition Correcting       30	\$211.3           NTITIES           5,000           099           3,462 LCY           olume:           vell factor:           CTION           :         0           description:           :         0 %           5,400 f           3,400 l           Sand and and toon Factor	4 Application Cat Handl 60 feet 1,246.9 LCY Compact Feet bs/LCY and gravel - V	book Y/hr cted fill or en  Wet	Source		
Total Fleet Cost/Hour:         MATERIAL QUAN         Initial Volume:       35         Swell factor:       1.         Loose volume:       38         Source of estimated vo       38         Source of estimated vo       30         Source of estimated sw       400         HOURLY PRODUC       40         Average push distance       10         Unadjusted hourly proof       40         Materials consistency of       40         Average push gradient       40         Average site altitude:       10         Material weight:       10         Weight description:       10         Job Condition Correction       10	\$211.3:         NTITIES         5,000         099         3,462 LCY         olume:         vell factor:         CTION         :          description:         :             description:         :                description:         :          :           3,400 I	4 <u>Applicatio</u> Cat Handl 60 feet 1,246.9 LCY <u>Compac</u> 6eet bs/LCY nd gravel - V 0.	V/hr cted fill or en Wet 750	Source (AVG.)		
Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: 35 Swell factor: 1. Loose volume: 38 Source of estimated vo Source of estimated vo Source of estimated sw HOURLY PRODU Average push distance Unadjusted hourly prod Materials consistency of Average push gradient Average site altitude: Material weight: Weight description: Job Condition Correcti Operato Material cons	\$211.3:         NTITIES         5,000         099         3,462 LCY         olume:         vell factor:         CTION         :       0         duction:       0          0.9%          0.9%          0.9%          0.9%          0.9%          0.9%          0.9%          0.9%          3,400 f          Sand and and and and and and and and and	4 Application Cat Handl 60 feet 1,246.9 LCY Compact Feet bs/LCY nd gravel - V 0.1 0.1	book Y/hr cted fill or en wet 750 900	Source (AVG.) (CAT HB))		
Total Fleet Cost/Hour: MATERIAL QUAN Initial Volume: <u>35</u> Swell factor: <u>1</u> . Loose volume: <u>38</u> Source of estimated vo Source of estimated vo Source of estimated sw HOURLY PRODU Average push distance Unadjusted hourly prod Materials consistency of Average push gradient Average site altitude: Material weight: Weight description: Job Condition Correcti Operato Material cons Dozing to	\$211.3:         NTITIES         5,000         099         3,462 LCY         olume:         vell factor:         CTION         :       0         duction:       0          0.9%          0.9%          0.9%          0.9%          0.9%          0.9%          0.9%          0.9%          3,400 f          Sand and and and and and and and and and	4 Application Cat Handl 50 feet 1,246.9 LCY Compace Feet bs/LCY nd gravel - V 0.7 0.7	V/hr cted fill or en Wet 750	Source (AVG.)		

Task # 004

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:	0.676	(CAT HB)
Blade type:	1.000	(PAT)
Net correction:	0.4090	
Adjusted unit production:	509.98 LCY/hr	
Adjusted fleet production:	509.98 LCY/hr	

# JOB TIME AND COST

Fleet size:	1 Dozer(s)
Unit cost:	\$0.414/LCY

Total job time:	<b>75.42</b> Hours
Total job cost:	\$15,939

## SCRAPER TEAM WORK

Site: Grand River Par	k Project	Permit Action:	2016-06	Permi	t/Job#: <u>M2000</u>	5046
PROJECT IDEN	TIFICATION					
Task #: 005	S	State: Colorado		Abbrevi	ation: None	
Date: $5/26/20$		unty: Garfield			name: M046-(	005
User: ACY						
Agency or	organization name:	DRMS				
HOURLY EQUIE	<u>PMENT</u>		COSTS	hift basis: <u>1 per day</u>	<u>/</u>	
			ent Description			
		craper: Cat 631	G			
Suppo	- ort Equipment -Load	Dozer: NA d Area: NA				
Suppo		p Area: NA				
Road Ma	aintenance – Motor (	Grader: NA				
	-Water	Truck: NA				
Cost Breakdown:	Scraper Wor	rk Toom	Support Equip	ament	Maintenance	Equipment
<u>Cost Dicardown</u> .	Scraper	Dozer	Load Area		Motor Grader	Water Tr
%Utilization-machine:	100	NA	NA	NA	NA	
Ownership cost/hour:	\$104.50	NA	NA	NA	NA	
Operating cost/hour:	\$129.95	NA	NA	NA	NA	
%Utilization-ripper:	NA	NA	NA	NA	NA	
Ripper own. cost/hour:	NA	NA	NA	NA	NA	
Ripper op. cost/hour:	NA	NA	NA	NA	NA	
Operator cost/hour:	\$34.24	NA	NA	NA	NA	
Unit Subtotals:	\$268.69	NA	NA	NA	NA	
Number of Units:	2	0	0	0	0	
Group Subtotals:	Work:	\$537.38	Support:	\$0.00	Maint:	\$0.00
Total work team cost	t/hour: <u><b>\$537.38</b></u>					
MATERIAL QUA	<u>ANTITIES</u>					
Initial volume:	17,809	CCY	Swell fact	tor: <u>1.215</u>		
Loose volume:	21,638	LCY				
	rce of estimated vo		le 2 (1,111 cy + 1	6,698 cy)		
Source	of estimated swell f	factor: Cat Hand	lbook			
HOURLY PROD	<u>UCTION</u>					
			Scraper Bo	owl (volume) Basis:		
			Beruper Bo		-	
Material weight:	1,600 lbs/LCY			Volume: 24.00	-	CY
Material weight: Material description: Rated Payload:	1,600 lbs/LCY Top Soil 81,600 pounds			Volume:         24.00           Volume:         34.00	L0	CY CY CY

<u>0.80</u> Minutes

<u>0.70</u> Minutes

#### Cycle Time:

Scraper Loading Time: Maneuver and Spread Time:

Job Condition Correction:

Site Altitude: 5400 feet

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

#### Travel Time:

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

#### Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	-2.00	8.00	6.00	1069	0.70

Haul Time: **0.70** minutes

#### Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	2.00	8.00	10.00	1183	0.64
				Return Time:	<b>0.64</b> 1	ninutes
			Total Scrap	er team cycle time:	2.84	minutes
			Adjusted	for job conditions:	508.52	LCY/Hour
			Selected N	umber of Scrapers:	1	Scraper(s)
	Adjuste	d single scra	per team (unit)	hourly production:	508.52	LCY/Hour
	Adjusted n	nultiple scra	per team (fleet)	hourly production:	1,017.04	LCY/Hour
Optima	Unadjusted unit pro- al Number of Scrapers pe			_ LCY/Hour		
JOB T	ME AND COST					
Flee	t size: 2	Team(s)	r	Fotal job time:	21.28	Hours

Unit cost: \_\_\_\_\_\$0.528 /LCY

Total job cost: \_\_\_\_\_\_\$11,433

## **REVEGETATION WORK**

Task de	escription:	Reveg 22 acres			
Site: Grai	nd River Park Pro	ject Permit Action	2016-06	Permit/Job	o#: M2006046
<u>PROJE</u>	CT IDENTIFIC	ATION			
Tasl	c#: 006	State: Colorado		Abbreviation:	None
Da	ate: 5/26/2016	County: Garfield		Filename:	M046-006
	ser: ACY				

## **FERTILIZING**

#### Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	250.00	pound	\$0.33	\$82.50
			Total Fertilizer Materials	
			Cost/Acre	\$82.50

#### Application

Description		Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)		\$21.34
	Total Fertilizer Application Cost/Acre	\$21.34

## **TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$107.59
Total Tilling Cost/Acre	\$107.59

#### **SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.30	11.71	\$6.86
Bluebunch Wheatgrass - Secar	2.40	7.71	\$16.44
Bottlebrush Squirreltail	0.90	3.97	\$22.42
Muttongrass	0.20	4.13	\$7.37
Western Wheatgrass - Arriba	3.20	8.08	\$11.81
Saltgrass, Inland	0.50	6.93	\$23.54
Totals Seed Mix	7.50	42.53	\$88.44

## Application

CIRCES Cost Estimating Software

Description		Cost /Acre
Drill seeding (MEANS 32 92 19.13 0020)		\$434.00
	Total Seed Application Cost/Acre	\$434.00

### **MULCHING and MISCELLANEOUS**

#### Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Garlon @ 1.0 pt/ac	0.50	ACRE	\$5.31	\$2.66
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$246.00	\$492.00
Total Mulch Materials Cost/Acre				\$494.66

## Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$66.02
Power mulcher (MEANS 32 91 13.16 0350)		\$97.14
Weed spray, truck, non-aquatic area, nox. [DMG]		\$62.72
	<b>Total Mulch Application Cost/Acre</b>	\$225.88

### **NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
Ash, Green	1	Small potted, 2.25 inch diameter (MEANS)	\$1.63	\$2.40	\$1.63
Currant, Golden or Yellow	7	Container, 5 gallon (MEANS)	\$48.04	\$2.40	\$336.28
Cottonwood, Narrowleaf	2	Small potted, 2.25 inch diameter (MEANS)	\$1.63	\$2.40	\$3.26
Pine, Ponderosa	1	Small potted, 2.25 inch diameter (MEANS)	\$1.63	\$2.40	\$1.63
Willow, Sandbar	2	Small potted, 2.25 inch diameter (MEANS)	\$1.63	\$2.40	\$3.26
Sumac, Skunkbrush	5	Container, 5 gallon (MEANS)	\$50.44	\$2.40	\$252.20
		Totals	Nursery Stoc	ek Cost / Acre	\$598.26

#### JOB TIME AND COST

	No. of Acres:	22	Cost /Acre:	\$2,052.67	
Estimate	ed Failure Rate:	20%	Cost /Acre*:	\$1,454.41	
*Selected Replanti	ng Work Items:	FERTILIZING,TII	LLING,SEEDING,MU		
		LCHING			
Initial Job Cost:	\$45,158.74				
Reseeding Job Cost:	\$6,399.40				
Total Job Cost:	\$51,558				
Job Hours:	35.00				

## EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description:	Ini	tial Mobilization	of Reclamation	a crew/equ	iipment		
e: Grand River P	ark Project	Permit	Action: 2016	-06	1	Permit/Job#: <u>M</u>	12006046
PROJECT IDEN	TIFICATI	ON					
Task #: 007		State: Co	olorado		Abbre	eviation: None	
Date: 5/26 User: ACY	/2016 K	County: Ga	arfield		Fi	lename: M046	5-007
Agency of	r organizatio	n name: DRMS					
EQUIPMENT T	RANSPOR	<u>T RIG COST</u>					
					Shift ba		
					Cost Data Sour	rce: CRG Da	nta
Truck	Tractor Desc	ription: GENE	RIC ON-HIGH	WAY TR	UCK TRACTO	DR, 6X4, DIESEI	L POWERED.
1 aon		r			(2ND HALF,		- · · <b>- · · · ·</b> · · · · · · · · · · · · · · ·
Truck	Trailer Desc	ription: G	ENERIC FOLD			ROP DECK EQU	IPMENT
		1			(25T, 50T, AN	•	
Cost Breakdown:							
Available Rig Ca	pacities	0-25 Tons	26-50 Tons	51-	+ Tons		
Ownership	Cost/Hour:	\$16.63	\$18.37	\$	22.33		
Operating		\$44.38	\$46.13		50.07		
	Cost/Hour:	\$27.66	\$27.66	\$	27.66		
Helper	Cost/Hour:	\$0.00	\$25.39	\$	25.39		
Total Unit	Cost/Hour:	\$88.67	\$117.55	\$1	25.45		
NON ROADABI	-		1				
Machine	Weight/	Owner ship	Haul Rig	Fleet	Haul Trip	Return Trip	DOT Permit
Description	Unit (TONS)	Cost/hr/ unit	Cost/hr/uni t	Size	Cost/hr/ fleet	Cost/hr/ fleet	Cost/ fleet
Cat 631G	52.50	\$91.86	\$125.45	2	\$434.62	\$250.90	\$500.00
Cat D8T - 8SU	53.08	\$73.32	\$125.45	1	\$198.77	\$125.45	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$39.59	\$88.67	1	\$128.26	\$88.67	\$250.00
Power Mulcher (Reinco M90)	6.00	\$7.03	\$88.67	1	\$95.70	\$88.67	\$250.00
Submersible pump - 460v, 8 in.	0.70	\$7.32	\$88.67	3	\$287.98	\$266.01	\$250.00

Subtotals: \$1,145.33 \$819.70 \$1,500.00

#### **ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$42.14	1	\$42.14	\$42.14
		Subtotals:	\$42.14	\$42.14

## **EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region: Total one-way travel distance: Average Travel Speed:	SILT, CO 6.00 45.00	miles mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	\$10,395.99	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	\$11.24	_

Transportation Cycle Time:

	Non- Roadable	Roadable
	Equipment	Equipment
Haul Time (Hours):	0.13	0.13
Return Time (Hours):	0.13	0.13
Loading Time (Hours):	1.50	NA
Unloading Time (Hours):	1.50	NA
Subtotals:	3.27	0.27

#### JOB TIME AND COST

Total job time: 6.53 Hours

Total job cost: \$10,407

## EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description	n: Sec	ondary Mobiliza	tion of Reclama	tion crew	/equipment			
e: Grand River	Park Project	Permit	Action: _2016-	06	Permit/Job#: M20060		006046	
PROJECT IDI	ENTIFICATI	<u>ON</u>						
Task #: 00	)8	State: Co	olorado		Abbre	eviation:	None	
	26/2016	County: Ga	arfield		Fi	lename:	M046-	008
User: A	CY							
Agency	or organization	name: DRMS						
	-							
<b>EQUIPMENT</b>	TRANSPOR	<u>F RIG COST</u>						
					Shift ba	sis: 1	per day	
				C	Cost Data Sour		RG Data	
	ck Tractor Descr ck Trailer Descr		RIC ON-HIGH ENERIC FOLD	400 HP ING GOO	(2ND HALF,	2006) ROP DECK		-
Cost Breakdown:	<u>.</u>							
Available Rig		0-25 Tons	26-50 Tons		Tons			
	ip Cost/Hour:	\$16.63	\$18.37		2.33			
	ng Cost/Hour:	\$44.38	\$46.13		50.07			
1	or Cost/Hour:	\$27.66	\$27.66		.7.66			
1	er Cost/Hour:	\$0.00	\$25.39		5.39			
Total Un	nit Cost/Hour:	\$88.67	\$117.55	\$12	25.45			
NON ROADA	BLE EOUIPN	TENT:						
Machine	1		Haul Rig	Fleet	Haul Trin	Return T	rin	DOT Permit
Description	Weight/ Unit	Owner ship Cost/hr/ unit	Cost/hr/uni	Size	Haul Trip Cost/hr/	Cost/hr/		Cost/ fleet
Description	(TONS)		t	SIZE	fleet	2004,111/		
Drill/Broadcast Seeder with Tractor	25.00	\$39.59	\$88.67	1	\$128.26	\$88.67		\$250.00

Subtotals: \$223.96 \$177.34 \$500.00

\$88.67

\$250.00

#### **ROADABLE EQUIPMENT:**

6.00

\$7.03

Power Mulcher

(Reinco M90)

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$42.14	1	\$42.14	\$42.14
		Subtotals:	\$42.14	\$42.14

\$88.67

1

\$95.70

## **EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	SILT, CO	,
Total one-way travel distance:	6.00	miles
Average Travel Speed:	45.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	\$1,554.93	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	\$11.24	

Transportation Cycle Time:

Non- Roadable Equipment 0.13 0.13 0.50 0.50	Roadable Equipment 0.13 0.13 NA NA
0.50	NA
1.27	0.27
	Roadable           Equipment           0.13           0.13           0.50           0.50

#### JOB TIME AND COST

Total job time: 2.53 Hours

Total job cost: \$1,566