



STATE OF  
COLORADO

Bowles - DNR, Brock <[brock.bowles@state.co.us](mailto:brock.bowles@state.co.us)>

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## RE: Ogilvy cost estimate

1 message

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**JC York** <[jcyork@j-tconsulting.com](mailto:jcyork@j-tconsulting.com)>

Mon, Oct 7, 2024 at 4:06 PM

To: "Bowles - DNR, Brock" <[brock.bowles@state.co.us](mailto:brock.bowles@state.co.us)>

Brock –

This looks fine. No issues from us.

Regards,

J.C.

J.C. York, P.E.

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**From:** Bowles - DNR, Brock <[brock.bowles@state.co.us](mailto:brock.bowles@state.co.us)>

**Sent:** Monday, October 7, 2024 3:24 PM

**To:** JC York <[jcyork@j-tconsulting.com](mailto:jcyork@j-tconsulting.com)>

**Subject:** Ogilvy cost estimate

JC,

Here is the estimate for the Ogilvy River Farm Pit, M-2024-006.

This is only for Phase 1A of the project and these are the parameters:

-Average 8 feet deep without exposing groundwater

-4.5:1 slopes, all highwall pushup, no cut and fill. The 4,445 cy of backfill is the difference of volume between the mined 2h:1v slope and 4.5h:1v slope over 1,500'.

-15.35 acres of topsoil at 1 foot deep = 24,764 cy

-The estimate does not include the slurry which will require a future TR and surety increase before construction of the slurry wall begins.

-The scale house and scale foundation were not included because with the access road move, these items are in the bottom of the pit and will be buried.

Brock

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**Brock Bowles**

**Environmental Protection Specialist**



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[brock.bowles@state.co.us](mailto:brock.bowles@state.co.us) | <https://drms.colorado.gov>

## COST SUMMARY WORK

Task description: Site wide reclamation

Site: Ogilvy River Farm Pit

Permit Action: 2024 New Permit

Permit/Job#: M2024006

### PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 10/7/2024

County: Weld

Filename: M006-000

User: BFB

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
100	Grade pond (Phase 1A), push up to 4.5h:1v, 1500 lf, 8' deep	DOZER	1	16.41	\$7,509
200	Topsoil top of pond area	SCRAPER1	1	27.84	\$86,275
300	Reveg top of pond	REVEGE	1	15.00	\$24,952
400	Mobilize equipment	MOBILIZE	1	7.46	\$16,498
<b><u>SUBTOTALS:</u></b>				<b>66.71</b>	<b>\$135,234</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$2,732

Performance bond: 1.05

Total = \$1,420

Job superintendent: 33.35

Total = \$2,644

Profit: 10.00

Total = \$13,523

TOTAL O & P = \$20,319

CONTRACT AMOUNT (direct + O & P) = \$155,553

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

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

Total = \$500

Engineering work and/or contract/bid preparation: 0.00

Total = \$0

Reclamation management and/or administration: 5.00

\$7,778

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$28,596

**TOTAL BOND AMOUNT (direct + indirect) = \$163,830**

**BULLDOZER WORK**Task description: Grade pond (Phase 1A), push up to 4.5h:1v, 1500 lf, 8' deepSite: Ogilvy River Farm Pit Permit Action: 2024 New Permit Permit/Job#: M2024006**PROJECT IDENTIFICATION**

Task #: 100 State: Colorado Abbreviation: None  
 Date: 10/7/2024 County: Weld Filename: M006-100  
 User: BFB

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

Basic Machine: Cat D9T - 9SU  
 Horsepower: 405  
 Blade Type: Semi-Universal  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$253.16</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$164.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.04</u>	<u>NA</u>

Total unit Cost/Hour: \$457.55  
 Total Fleet Cost/Hour: \$457.55

**MATERIAL QUANTITIES**

Initial Volume: 4,445  
 Swell factor: 1.060  
 Loose volume: 4,712 LCY

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

**HOURLY PRODUCTION**

Average push distance: 75 feet  
 Unadjusted hourly production: 1,514.3 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 25 %  
 Average site altitude: 4,600 feet

Material weight: 2,550 lbs/LCYWeight description: Gravel - Dry

<u>Job Condition Correction Factor</u>	<u>Source</u>
Operator Skill: <u>0.750</u>	<u>(AVG.)</u>
Material consistency: <u>1.000</u>	<u>(CAT HB)</u>
Dozing method: <u>1.000</u>	<u>(GEN.)</u>
Visibility: <u>1.000</u>	<u>(AVG.)</u>
Job efficiency: <u>0.830</u>	<u>(1 SHIFT/DAY)</u>

Spoil pile:	0.800	(FND-RF)
Push gradient:	0.422	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.1896

Adjusted unit production: 287.11 LCY/hr

Adjusted fleet production: **287.11** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$1.594/LCY

Total job time: **16.41** Hours

Total job cost: **\$7,509**

**SCRAPER TEAM WORK**Task description: Topsoil top of pond areaSite: Ogilvy River Farm PitPermit Action: 2024 New PermitPermit/Job#: M2024006**PROJECT IDENTIFICATION**Task #: 200State: ColoradoAbbreviation: NoneDate: 10/7/2024County: WeldFilename: M006-200User: BFBAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 631G
-Dozer:	NA
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	CAT 14M
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

**Cost Breakdown:**

## Scraper Work Team

## Support Equipment

## Maintenance Equipment

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	25	25
Ownership cost/hour:	\$442.19	NA	\$253.16	\$129.81	\$129.81	\$17.11
Operating cost/hour:	\$252.89	NA	\$82.18	\$44.57	\$22.28	\$9.20
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$57.52	NA	\$40.04	\$56.70	\$56.70	\$0.00
Unit Subtotals:	\$752.60	NA	\$375.37	\$231.07	\$208.79	\$26.31
Number of Units:	3	0	1	1	1	1
Group Subtotals:	Work: \$2,257.80		Support: \$606.44		Maint: \$235.10	

Total work team cost/hour: \$3,099.34**MATERIAL QUANTITIES**Initial volume: 24,754

CCY

Swell factor: 1.215Loose volume: 30,076

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Scraper Bowl (volume) Basis:

Material weight: 1,600 lbs/LCY  
 Material description: Top Soil  
 Rated Payload: 81,600 pounds  
 Payload Capacity: 51.00 LCY

Struck Volume: 24.00 LCY  
 Heaped Volume: 34.00 LCY  
 Average Volume: 29.00 LCY  
 Adjusted Capacity: 29.00 LCY

Cycle Time:Scraper Loading Time: 0.80 MinutesManeuver and Spread Time: 0.70 MinutesJob Condition Correction:

Site Altitude: 4600 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	5.00	3.00	8.00	783	1.94

Haul Time: 1.94 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	-5.00	3.00	-2.00	2920	0.57

Return Time: 0.57 minutesTotal Scraper team cycle time: 4.01 minutesAdjusted for job conditions: 360.15 LCY/HourSelected Number of Scrapers: 3 Scraper(s)Adjusted single scraper team (unit) hourly production: 1,080.45 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 1,080.45 LCY/HourUnadjusted unit production/hour: 433.92 LCY/Hour

Optimal Number of Scrapers per push dozer: \_\_\_\_\_

**JOB TIME AND COST**Fleet size: 1 Team(s)Total job time: 27.84 HoursUnit cost: \$2.869 /LCYTotal job cost: \$86,275

REVEGETATION WORKTask description: Reveg top of pondSite: Ogilvy River Farm PitPermit Action: 2024 New PermitPermit/Job#: M2024006PROJECT IDENTIFICATIONTask #: 300State: ColoradoAbbreviation: NoneDate: 10/7/2024County: WeldFilename: M006-300User: BFBAgency or organization name: DRMSFERTILIZING**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

TILLING

Description	Cost /Acre
	\$
<b>Total Tilling Cost/Acre</b>	<b>\$0.00</b>

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Sand Dropseed	0.25	29.84	\$3.25
Russian Wildrye - Vinal	3.00	12.05	\$21.68
Intermediate Wheatgrass - Oahe	2.50	5.34	\$11.61
Pubescent Wheatgrass - Greenleaf	3.00	6.20	\$14.28
Slender Wheatgrass - Pryor	2.00	7.30	\$12.36
Western Wheatgrass - Arriba	2.00	5.05	\$18.07
<b>Totals Seed Mix</b>	<b>12.75</b>	<b>65.78</b>	<b>\$81.25</b>



**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$492.78	\$985.56
<b>Total Mulch Materials Cost/Acre</b>				<b>\$985.56</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$85.37
Power mulcher (MEANS 32 91 13.16 0350)	\$157.25
<b>Total Mulch Application Cost/Acre</b>	<b>\$242.63</b>

**NURSERY STOCK PLANTING**

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

**JOB TIME AND COST**

No. of Acres: 15.35                      Cost /Acre: \$1,546.08  
 Estimated Failure Rate: 25%                      Cost /Acre\*: \$317.89  
 \*Selected Replanting Work Items: SEEDING

Initial Job Cost: **\$23,732.33**  
 Reseeding Job Cost: **\$1,219.90**  
 Total Job Cost: **\$24,952**  
 Job Hours: **15.00**

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Mobilize equipment**Site: **Ogilvy River Farm Pit**Permit Action: **2024 New Permit**Permit/Job#: **M2024006****PROJECT IDENTIFICATION**Task #: **400**State: **Colorado**Abbreviation: **None**Date: **10/7/2024**County: **Weld**Filename: **M006-400**User: **BFB**Agency or organization name: **DRMS****EQUIPMENT TRANSPORT RIG COST**Shift basis: **1 per day**Cost Data Source: **CRG Data**Truck Tractor Description: **GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED,  
400 HP (2ND HALF, 2006)**Truck Trailer Description: **GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT  
TRAILER (25T, 50T, AND 100T)****Cost Breakdown:**

<b>Available Rig Capacities</b>	<b>0-25 Tons</b>	<b>26-50 Tons</b>	<b>51+ Tons</b>
Ownership Cost/Hour:	\$10.44	\$22.18	\$23.94
Operating Cost/Hour:	\$26.48	\$54.55	\$55.65
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$59.44	\$122.78	\$125.64

**NON ROADABLE EQUIPMENT:**

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D9T - 9SU	60.01	\$253.16	\$125.64	1	\$378.80	\$125.64	\$250.00
Cat 631G	52.50	\$442.19	\$125.64	3	\$1,703.49	\$376.92	\$750.00
CAT 14M	23.57	\$129.81	\$59.44	1	\$189.25	\$59.44	\$250.00

Subtotals: **\$2,271.54** **\$562.00** **\$1,250.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
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Subtotals: **\$0.00** **\$0.00**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	WINDSOR	
Total one-way travel distance:	26.00	miles
Average Travel Speed:	30.00	mph

Total Non-Roadable Mob/Demob Cost *	\$16,497.63
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	\$0.00
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.87	0.87
Return Time (Hours):	0.87	0.87
Loading Time (Hours):	1.00	NA
Unloading Time (Hours):	1.00	NA
Subtotals:	3.73	1.73

**JOB TIME AND COST**

Total job time:	7.47	Hours
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Total job cost:	\$16,498
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