# COST SUMMARY WORK

| ]   | Brownwo      | ood Pit     | Pe           | rmit Action: | SI01 | Permit/Jo     | b#: <u>M1979059</u> |
|-----|--------------|-------------|--------------|--------------|------|---------------|---------------------|
| PRO | <u>OJECT</u> | IDENTIFICAT | <u> TION</u> |              |      |               |                     |
|     | Task #:      | 000         | State:       | Colorado     |      | Abbreviation: | None                |
|     | Date:        | 7/11/2019   | County:      | Larimer      |      | Filename:     | M059-000            |
|     | User         | JLE         |              |              |      |               |                     |

# TASK LIST (DIRECT COSTS)

| Task | Description                       | Form<br>Used | Fleet<br>Size | Task<br>Hours | Cost      |
|------|-----------------------------------|--------------|---------------|---------------|-----------|
| 001  | Backfill southern portion of BNER | TRUCK1       | 1             | 40.40         | \$37,126  |
| 002  | Install clay liner, BNER          | TRUCK1       | 1             | 44.47         | \$52,333  |
| 002a | Dewater BNER                      | PUMPING      | 1             | 999.19        | \$58,283  |
| 003  | Replace Topsoil                   | DOZER        | 1             | 51.52         | \$14,595  |
| 004  | Revegetate Disturbed Areas        | REVEGE       | 1             | 8.21          | \$6,565   |
| 005  | Install clay liner, Pfeiff Pond   | TRUCK1       | 1             | 16.46         | \$19,374  |
| 005a | Dewater Dewater Pfeiff Pond       | PUMPING      | 1             | 343.71        | \$25,968  |
| 006  | Equipment Mob/Demob               | MOBILIZE     | 1             | 7.46          | \$15,966  |
|      |                                   | <u>SUBTO</u> | TALS:         | 1511.42       | \$230,210 |

# **INDIRECT COSTS**

#### OVERHEAD AND PROFIT:

| Liability insurance: | 2.02   | Total =                                | \$4,650   |
|----------------------|--------|--|-----------|
| Performance bond:    | 1.05   | Total =                                | \$2,417   |
| Job superintendent:  | 168.52 | Total =                                | \$11,694  |
| Profit:              | 10.00  | Total =                                | \$23,021  |
|                      |        | TOTAL O & P =                          | \$41,782  |
|                      |        | CONTRACT AMOUNT (direct + O & P) = $($ | \$271,992 |

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

| Financial warranty processing (legal/related costs): | \$500     | Total =        | \$500    |
|--|-----------|----------------|----------|
| Engineering work and/or contract/bid preparation:    | 4.25      | Total =        | \$11,560 |
| Reclamation management and/or administration:        | 5.00      |                | \$13,600 |
|  |           |                |          |
| CONTINGENCY:   | 3.00      | Total =        | \$6,906  |
|  |           |                |          |
|  | TOTAL I   | NDIRECT COST = | \$74,348 |
|  |           |                |          |
| TOTAL BO   | \$304,558 |                |          |

# TRUCK/LOADER TEAM WORK

| Task description:         | Backfill                      | southern porti | on of BNER         |               |                        |                |
|---------------------------|-------------------------------|----------------|--------------------|---------------|------------------------|----------------|
| Site: Brownwood Pit Perm  |                               |                | tion: SI01         |               | Permit/Job#:           | M1979059       |
| PROJECT IDENT             | PROJECT IDENTIFICATION        |                |                    |               |                        |                |
| Task #: 001               |                               | State: Color   | rado               | Abl           | previation: No         | ne             |
| Date: 7/11/2              | 2019 C                        | County: Larin  | ner                |               | Filename: NA           | L              |
| User: JLE                 |                               |                |                    |               |                        |                |
| Agency or o               | organization nam              | ne: DRMS       |                    |               |                        |                |
| HOURLY EQUIP              | MENT COST                     | -              |                    | Shift ba      | asis: <u>1 per day</u> |                |
|                           |                               |                | Equipment Descr    | iption        |                        |                |
| Tr                        | uck Loader Tear               | n - Truck: Ger | neric 15-18 cy, 6x | 4             |                        |                |
| Suppo                     | rt Equipment -L               | -Loader: CA    | AT 988H            |               |                        |                |
| Suppo                     | -Du                           | mp Area: Cat   | t D9T - 9SU        |               |                        |                |
| Road Ma                   | intenance – Moto              | or Grader: CA  | T 12M              |               |                        |                |
|                           | -Wat                          | ter Truck: Wa  | ter Tanker, 2,500  | Gal.          |                        |                |
| Cost Breakdown•           | Truck/Loa                     | der Team       | Support            | Equipment     | Mainten                | ance Equipment |
| <u>Cost Dicardown</u> .   | Truck                         | Loader         | Load Area          | Dump Area     | Motor                  | Water Truck    |
|                           |                               |                |                    | •             | Grader                 |                |
| %Utilization-machine:     | 100                           | 100            | NA                 | 100           | 25                     | 25             |
| Ownership cost/hour:      | \$28.38                       | \$91.83        | NA                 | \$121.49      | \$33.62                | \$9.27         |
| Operating cost/hour:      | \$55.36                       | \$95.52        | NA                 | \$105.84      | \$8.55                 | \$4.44         |
| %Utilization-riper:       | NA                            | 0              | NA                 | 15            | NA                     | NA             |
| Ripper own.<br>cost/hour: | NA                            | \$0.00         | NA                 | \$15.98       | \$0.00                 | \$0.00         |
| Ripper op. cost/hour:     | NA                            | \$0.00         | NA                 | \$1.45        | \$0.00                 | \$0.00         |
| Operator cost/hour:       | \$24.79                       | \$35.93        | NA                 | \$39.98       | \$45.39                | \$0.00         |
| Unit Subtotals:           | \$108.53                      | \$223.27       | NA                 | \$268.75      | \$87.56                | \$13.70        |
| Number of Units:          | 3                             | 1              | 0                  | 1             | 1                      | 1              |
| Group Subtotals:          | Work:                         | \$548.86       | Support:           | \$268.75      | Maint:                 | \$101.26       |
| Total work team cost/     | /hour: <u><b>\$918.87</b></u> |                |                    |               |                        |                |
| <u>MATERIAL QUA</u>       | <u>NTITIES</u>                |                |                    |               |                        |                |
| Initial volume:           | 30,000                        | CCY            | Y Swell            | factor: 1.060 |                        |                |
| Loose volume:             | 31,80                         | 0 LCY          | ζ                  |               |                        |                |

Source of estimated volume:AM03, Table E-1, Exhibit ESource of estimated swell factor:Cat HandbookMaterial Purchase Cost:\$0.00Total Cost:\$0.00

# **HOURLY PRODUCTION**

#### Truck Capacity: Truck Payload (we

| ck Payload (weight) Basi | <u>s:</u>   |      |         |
|--------------------------|-------------|------|---------|
| Material weight:         | 2,850       | Pour | nds/LCY |
| Description:             | Sand - Damp |      |         |
| Rated Payload:           | 63,980      | Pour | nds     |
| rtatea r ajroaa.         | 02,700      | 100  |         |

| Payload Capacity:                | 22.45            | LCY                     |                     |                    |          |         |
|----------------------------------|------------------|-------------------------|---------------------|--------------------|----------|---------|
|                                  |                  |                         |                     |                    |          |         |
| Truck Bed (volume) Basis:        |                  |                         |                     |                    |          |         |
| Struck Volume:                   | 15.00 I          | CY                      |                     |                    |          |         |
| Heaped Volume:                   | 18.00 I          | CY                      |                     |                    |          |         |
| Average Volume:                  | 16.50 I          | CY                      |                     |                    |          |         |
| Adjusted Volume:                 | 18.00 I          | .CY                     |                     |                    |          |         |
| Final T                          | ruck Volume B    | ased on Number of L     | loader Passes:      | 10.12              | LCY      |         |
| <u>Loading 1001 Capacity</u>     |                  |                         | Buck                | et Size Class: N   | A        |         |
| Rated Capacity:                  | 9.200            | LCY (heaped)            |                     |                    |          | _       |
| Bucket Fill Factor:              | 1.100            | Other - rock/dirt       | mixtures (10        | (-120%) 1.100      |          |         |
| Adjusted Capacity:               | 10.120           | LCY                     |                     |                    |          | -       |
| Job Condition Corrections:       |                  | Site                    | e Altitude (ft.):   | 4890 feet          |          |         |
|                                  |                  |                         | G                   |                    |          |         |
|                                  |                  | Loader                  | Source              | >                  |          |         |
| Altitude Adj:                    | 1.000            | 1.000                   | (CAT HB             | )                  |          |         |
| JOD Efficiency.                  | 0.850            | 0.850                   | (САТ ПВ             | )                  |          |         |
| Net Correction:                  | 0.830            | 0.830                   |                     |                    |          |         |
| Loading Tool Cycle Time:         | Νι               | umber of Loading To     | ol Passes Requ      | ired to Fill       | 1        | passes  |
| Excavators and Front Shovels     | <u>.:</u>        | -                       | -                   | Truck:             | 1        | -       |
| Machine Cycle Time vs.           | Job Condition    | Rating: NA              |                     |                    |          |         |
| Selected Value with              | ithin this Basic | Rating: NA              |                     |                    |          |         |
| Track Loaders – N                | Aaterial Descrip | tion:                   |                     |                    |          |         |
| Cycle Time Elements (min.):      |                  |                         |                     |                    |          |         |
| Load: NA                         | Ma               | neuver: NA              |                     | Dump: 0.100        | )        |         |
| Wheel and Track                  | Loaders - Unad   | ljusted Basic Loader    | Cycle Time (lo<br>n | ad, dump, 0.       | .575 min | ıtes    |
| Cycle Time Factors               |                  |                         |                     | Factor (min.)      | Source   |         |
| Material:                        | No adjustmen     | t - factor not applical | ble 0.00            | 0.000              | (Cat HB) | _       |
| Stockpile:                       | Conveyor or d    | lozer piled 10 ft. high | n or less           | 0.010              | (Cat HB) |         |
| Truck Ownership:                 | Independently    | owned trucks 0.04       |                     | 0.040              | (Cat HB) | _       |
| Operation:                       | Constant oper    | ation -0.04             |                     | -0.040             | (Cat HB) |         |
| Dump Target:                     | Nominal targe    | et 0.00                 |                     | 0.000              | (Cat HB) |         |
|                                  |                  | Net Cycle Time          | Adjustment:         | 0.010              | minutes  |         |
|                                  |                  | Adjusted Loader         | Cycle Time:         | 0.585              | minutes  |         |
|                                  |                  | Net Load Tin            | ne per Truck:       | 0.100              | minutes  |         |
| Truck Cycle Time:                |                  |                         |                     |                    |          |         |
| Truck Exchange Time:             | 0.50             | Minutes                 | Adjusted f          | for site altitude: | 0.500    | Minutes |
| Truck Load Time:                 | 0.100            | Minutes                 | Adjusted f          | for site altitude: | 0.100    | Minutes |
| Truck Maneuver and Dump<br>Time: | 0.90             | Minutes                 | Adjusted f          | for site altitude: | 0.900    | Minutes |

## Truck Travel (Haul & Return) Time: maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

| Route: |
|--------|
|        |
|        |

|        | Seg #        | Haul   | Distance | Grade (%)             | Roll. Res    | Total Res       | Velocity       | Travel        |         |          |
|--------|--------------|--------|----------|-----------------------|--------------|-----------------|----------------|---------------|---------|----------|
|        |              | (Ft)   |          |                       | (%)          | (%)             | (fpm)          | Time<br>(min) |         |          |
|        | 1            | 300.0  | 0        | 0.00                  | 3.00         | 3.00            | 2800           | 0.284         |         |          |
|        |              |        |          |                       |              | Haul Time:      | 0.284          | n             | ninutes |          |
|        | Return Rou   | ite:   |          |                       |              |                 |                |               |         |          |
|        | Seg #        | Haul   | Distance | Grade (%)             | Roll. Res    | Total Res       | Velocity       | Travel        |         |          |
|        |              | (Ft)   |          |                       | (%)          | (%)             | (fpm)          | (min)         |         |          |
|        | 1            | 300.0  | 0        | 0.00                  | 3.00         | 3.00            | 2949           | 0.137         |         |          |
|        |              |        |          |                       |              | Return Time:    | 0.137          | <b>,</b> J    | minutes |          |
|        |              |        |          |                       | Total True   | ck Cycle Time:  | 1.921          | . 1           | minutes |          |
| L      | oading Too   | l unit |          |                       |              |                 |                |               |         |          |
|        | Produ        | iction | 1,012.00 | LCY/Hour              |              | Adjusted for jo | ob efficiency: | 839           | ).96    | LCY/Hour |
| Truck  | Unit Produ   | iction | 316.09   | LCY/Hour              |              | Adjusted for jo | ob efficiency: | 262           | 2.35    | LCY/Hour |
| Optima | al No. of Tr | ucks:  | 3        | Truck(s)              |              | Selected Numb   | er of Trucks:  |               | 3       | Truck(s) |
|        |              |        |          | Adjusted              | hourly truck | team productio  | n: 787.        | 05            | LCY/Ho  | our      |
|        |              |        |          | Adjusted single       | truck/loader | team productio  | n: 787.        | 05            | LCY/Ho  | our      |
|        |              |        | Ac       | ljusted multiple      | truck/loader | team productio  | n: <b>787.</b> | 05            | LCY/Ho  | our      |
|        | JOB TIM      | IE ANI | D COST   |                       |              |                 |                |               |         |          |
|        | Elect        |        | 1        | $\mathbf{T}_{aam}(a)$ | т            | atal ich tima   | 40.44          | 0             | Houw    |          |
|        | rieet        | size:  | 1        | ream(s)               | 10           |                 | 40.40          | J             | _ Hours | 5        |
|        | Unit o       | cost:  | \$1.167  | /LCY                  | Т            | otal job cost:  | \$37,12        | 26            |         |          |

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## TRUCK/LOADER TEAM WORK

| Task description:                        | Install o                     | ay liner, B         | NER               | 2                 |               |                       |       |               |
|--|-------------------------------|---------------------|-------------------|-------------------|---------------|-----------------------|-------|---------------|
| Site: Brownwood Pit                      |                               | Permit Action: SI01 |                   |                   |               | Permit/Job#: M1979059 |       |               |
| PROJECT IDENT                            | <b>IFICATION</b>              |                     |                   |                   |               |                       |       |               |
| Task #: 002                              |                               | State: C            | olora             | ado               | Abb           | previation:           | Nor   | ie            |
| Date: $7/11/2$                           | 019 0                         | County: L           | arim              | er                |               | Filename:             | M0    | 59-002        |
| User. <u>JLE</u>                         | •                             |                     | 7                 |                   |               |                       |       |               |
| Agency or o                              | rganization nan               | ne: DRMS            | 5                 |                   |               |                       |       |               |
| HOURLY EQUIP                             | MENT COST                     |                     |                   |                   | Shift ba      | usis: <u>1 per da</u> | ıy    |               |
|  |                               |                     | ]                 | Equipment Descri  | ption         |                       |       |               |
| Tru                                      | ick Loader Tear               | m -Truck:           | Gen               | eric 15-18 cy, 6x | 4             |                       |       |               |
| Suppor                                   | t Equipment L                 | -Loader:            | $\frac{CA'}{Cat}$ |                   |               |                       |       |               |
| Suppor                                   | -Du-Du                        | imp Area:           |                   | Г 836Н            |               |                       |       |               |
| Road Maintenance – Motor Grader: CAT 12M |                               |                     |                   |                   |               |                       |       |               |
|  | -Wa                           | ter Truck:          | Wat               | er Tanker, 2,500  | Gal.          |                       |       |               |
| Cost Breakdown:                          | Truck/Loa                     | der Team            |                   | Support           | Equipment     | Mai                   | ntena | nce Equipment |
|  | Truck                         | Loader              |                   | Load Area         | Dump Area     | Motor<br>Grader       |       | Water Truck   |
| %Utilization-machine:                    | 100                           | 1                   | 100               | 50                | 50            |                       | 50    | 50            |
| Ownership cost/hour:                     | \$28.38                       | \$91                | .83               | \$121.49          | \$185.53      | \$33                  | .62   | \$9.27        |
| Operating cost/hour:                     | \$55.36                       | \$95                | .52               | \$52.92           | \$72.79       | \$17                  | .11   | \$8.87        |
| %Utilization-riper:                      | NA                            |                     | 0                 | 100               | NA            | ]                     | NA    | NA            |
| cost/hour:                               | NA                            | \$0                 | .00               | \$15.98           | \$0.00        | \$0                   | 0.00  | \$0.00        |
| Ripper op. cost/hour:                    | NA                            | \$0                 | .00               | \$9.64            | \$0.00        | \$0                   | 0.00  | \$0.00        |
| Operator cost/hour:                      | \$24.79                       | \$35                | .93               | \$39.98           | \$31.46       | \$45                  | .39   | \$0.00        |
| Unit Subtotals:                          | \$108.53                      | \$223               | .27               | \$224.02          | \$289.77      | \$96                  | 5.11  | \$18.14       |
| Number of Units:                         | 3                             |                     | 1                 | 1                 | 1             |                       | 1     | 1             |
| Group Subtotals:                         | Work:                         | \$548.86            |                   | Support:          | \$513.79      | Ma                    | int:  | \$114.25      |
| Total work team cost/                    | hour: <u><b>\$1,176.9</b></u> | 00                  |                   |                   |               |                       |       |               |
| MATERIAL QUA                             | <u>NTITIES</u>                |                     |                   |                   |               |                       |       |               |
| Initial volume:                          | 25,000                        | (                   | CCY               | Swell f           | factor: 1.220 |                       |       |               |

| Initial volume: | 25,000                  | CCY        | Swell factor:      | 1.220 |  |
|-----------------|-------------------------|------------|--------------------|-------|--|
| Loose volume:   | 30,500                  | LCY        |                    |       |  |
| Source          | e of estimated volume:  | AM03, Tab  | ole E-1, Exhibit E |       |  |
| Source of       | estimated swell factor: | Cat Handbo | ook                |       |  |
| Ν               | Material Purchase Cost: | \$0.00     |                    |       |  |
|                 | Total Cost:             | \$0.00     |                    |       |  |
|                 |                         |            |                    |       |  |

# **HOURLY PRODUCTION**

| Truck Capacity:               |
|-------------------------------|
| Truck Payload (weight) Basis: |
| M 1 . 1                       |

Material weight: 2,800 Pounds/LCY Description: Clay - Natural bed

| Rated Payload:   | 63,980                           |                          | Pounds |
|--|----------------------------------|--------------------------|--------|
| Payload Capacity:  | 22.85                            |                          | LCY    |
| Truck Bed (volume) Basis:         Struck Volume:         Heaped Volume:         Average Volume:         Adjusted Volume: | 15.00<br>18.00<br>16.50<br>18.00 | LCY<br>LCY<br>LCY<br>LCY |        |

| Final Truck Volume Based on Number of Loader Passes: | 9.43 | LCY |
|--|------|-----|
|--|------|-----|

Loading Tool Capacity

|                     |       | Bucket Size Class:                 | NA |
|---------------------|-------|------------------------------------|----|
| Rated Capacity:     | 9.200 | LCY (heaped)                       |    |
| Bucket Fill Factor: | 1.025 | Bank Clay; Earth (100%-105%) 1.025 |    |
| Adjusted Capacity:  | 9.430 | LCY                                |    |

### Job Condition Corrections:

Site Altitude (ft.): <u>4890</u> feet

|   | Truck  | Loader   | Source                                       |   |   |  |  |
|---|--|--|--|---|---|--|--|
| Altitude Adj:   | 1.000  | 1.000  | (CAT HB                                      | )   |   |  |  |
| Job Efficiency:   | 0.830  | 0.830  | (CAT HB                                      | )   |   |  |  |
| Net Correction:   | 0.830  | 0.830  |  |   |   |  |  |
| Loading Tool Cycle Time:  | . 1  | Number of Loading To   | ool Passes Requi                             | ired to Fil   | l   | 1  | passes   |
| Excavators and Front Shove  | els:   |  |  | IIUCK   | •   |  |  |
| Machine Cycle Time v  | s. Job Conditio  | on Rating: NA  |  |   |   |  |  |
| Selected Value  | within this Basi   | ic Rating: NA  |  |   |   |  |  |
| Track Loaders –   | Material Desci   | ription:   |  |   |   |  |  |
|   |  |  |  |   |   |  |  |
| Cycle Time Elements (min.)  | •  |  |  |   |   |  |  |
| Load: <u>NA</u>   | N  | Ianeuver: NA   |  | Dump:   | 0.100   | )  | _  |
| Load: <u>NA</u><br>Wheel and Trac   | N<br>k Loaders - Un  | Maneuver: NA<br>adjusted Basic Loader  | Cycle Time (lo<br>n                          | Dump:<br>ad, dump,<br>naneuver):  | 0.100   | .575   | -<br>minutes   |
| Load: <u>NA</u><br>Wheel and Trac   | N<br>k Loaders - Un  | Maneuver: NA<br>adjusted Basic Loader  | Cycle Time (lo<br>n                          | Dump:<br>ad, dump,<br>naneuver):<br>Factor  | 0.100<br>0.<br>(min.)   | .575   | -<br>minutes<br>rce  |
| Load: <u>NA</u><br>Load: <u>NA</u><br>Wheel and Trac<br>Cycle Time Factors<br>Material:   | k Loaders - Un   | Maneuver: <u>NA</u><br>adjusted Basic Loader<br>ken material 0.04  | Cycle Time (lo<br>n                          | Dump:<br>ad, dump,<br>naneuver):<br><u>Factor</u><br>0.0  | 0.100<br>0.<br>(min.)<br>40                                     | 575<br>Sou<br>(Cat 1   | – minutes<br>rce HB)   |
| Load: NA<br>Load: NA<br>Wheel and Trac<br>Cycle Time Factors<br>Material:<br>Stockpile:   | k Loaders - Un<br>Bank or bro<br>No adjustme   | Maneuver: NA<br>adjusted Basic Loader<br>ken material 0.04<br>ent - factor not applica   | Cycle Time (lo<br>n                          | Dump:<br>ad, dump,<br>naneuver):<br>Factor<br>0.0<br>0.0  | 0.100<br>0.<br>(min.)<br>40<br>00                               | 575<br>Sou<br>(Cat<br>(Cat   | -<br>minutes<br>rce<br>HB)<br>HB)  |
| Load: NA<br>Load: NA<br>Wheel and Trac<br>Cycle Time Factors<br>Material:<br>Stockpile:<br>Truck Ownership:                               | k Loaders - Un<br>Bank or bro<br>No adjustme<br>Common ov<br>0.04                                | Maneuver: NA<br>adjusted Basic Loader<br>ken material 0.04<br>ent - factor not applica<br>vnership of trucks and   | Cycle Time (lo<br>n<br>ble 0.00<br>loaders - | Dump:<br>ad, dump,<br>naneuver):<br>Factor<br>0.0<br>0.0<br>-0.0                                    | 0.100<br>0.<br>(min.)<br>40<br>00<br>40                         | 575<br>Sou<br>(Cat ]<br>(Cat ]<br>(Cat ]                               | minutes<br>rce<br>HB)<br>HB)<br>HB)  |
| Load: NA<br>Load: NA<br>Wheel and Trac<br>Cycle Time Factors<br>Material:<br>Stockpile:<br>Truck Ownership:<br>Operation:                 | k Loaders - Un<br>Bank or bro<br>No adjustme<br>Common ov<br>0.04<br>Constant op                 | Maneuver: NA<br>adjusted Basic Loader<br>ken material 0.04<br>ent - factor not applica<br>wnership of trucks and<br>eration -0.04  | Cycle Time (lo<br>n<br>ble 0.00<br>loaders - | Dump:<br>ad, dump,<br>naneuver):<br>Factor<br>0.0<br>0.0<br>-0.0                                    | 0.100<br>0.<br>(min.)<br>40<br>40<br>40                         | 575<br>Sou<br>(Cat ]<br>(Cat ]<br>(Cat ]<br>(Cat ]                     | minutes<br>rce<br>HB)<br>HB)<br>HB)<br>HB)   |
| Load: NA<br>Load: NA<br>Wheel and Trac<br>Cycle Time Factors<br>Material:<br>Stockpile:<br>Truck Ownership:<br>Operation:<br>Dump Target: | k Loaders - Un<br>Bank or bro<br>No adjustme<br>Common ov<br>0.04<br>Constant op<br>Small target | Maneuver: NA<br>adjusted Basic Loader<br>ken material 0.04<br>ent - factor not applica<br>vnership of trucks and<br>eration -0.04<br>0.04                                      | Cycle Time (lo<br>m<br>ble 0.00<br>loaders - | Dump:<br>ad, dump,<br>naneuver):<br>Factor<br>0.0<br>-0.0<br>-0.0<br>0.0                            | 0.100<br>0.<br>(min.)<br>40<br>00<br>40<br>40<br>40             | 575<br>Sou<br>(Cat 1<br>(Cat 1<br>(Cat 1<br>(Cat 1<br>(Cat 1           | minutes<br>rce<br>HB)<br>HB)<br>HB)<br>HB)<br>HB)                                    |
| Load: NA<br>Load: NA<br>Wheel and Trac<br>Cycle Time Factors<br>Material:<br>Stockpile:<br>Truck Ownership:<br>Operation:<br>Dump Target: | k Loaders - Un<br>Bank or bro<br>No adjustme<br>Common ov<br>0.04<br>Constant op<br>Small target | Maneuver: NA<br>adjusted Basic Loader<br>ken material 0.04<br>ent - factor not applica<br>vnership of trucks and<br>eration -0.04<br>0.04<br>Net Cycle Time                    | Cycle Time (lo<br>m<br>ble 0.00<br>loaders - | Dump:<br>ad, dump,<br>naneuver):<br>Factor<br>0.0<br>0.0<br>-0.0<br>0.0<br>0.0<br>0.0               | 0.100<br>0.<br>(min.)<br>40<br>00<br>40<br>40<br>40<br>00       | 575<br>Sou<br>(Cat 1<br>(Cat 1<br>(Cat 1<br>(Cat 1<br>(Cat 1<br>(Cat 1 | minutes<br>rce<br>HB)<br>HB)<br>HB)<br>HB)<br>HB)<br>HB)<br>ttes                     |
| Load: NA<br>Load: NA<br>Wheel and Trac<br>Cycle Time Factors<br>Material:<br>Stockpile:<br>Truck Ownership:<br>Operation:<br>Dump Target: | k Loaders - Un<br>Bank or bro<br>No adjustma<br>Common ov<br>0.04<br>Constant op<br>Small target | Maneuver: NA<br>adjusted Basic Loader<br>ken material 0.04<br>ent - factor not applica<br>vnership of trucks and<br>eration -0.04<br>0.04<br>Net Cycle Time<br>Adjusted Loader | Cycle Time (lo<br>n<br>ble 0.00<br>loaders - | Dump:<br>ad, dump,<br>naneuver):<br>Factor<br>0.0<br>0.0<br>-0.0<br>0.0<br>0.0<br>0.0<br>0.0<br>0.0 | 0.100<br>0.<br>(min.)<br>40<br>00<br>40<br>40<br>40<br>40<br>75 | 575<br>Sou<br>(Cat )<br>(Cat )<br>(Cat )<br>(Cat )<br>(Cat )<br>(Cat ) | minutes<br>rce<br>HB)<br>HB)<br>HB)<br>HB)<br>HB)<br>HB)<br>HB)<br>HB)<br>HB)<br>HB) |

| Truck Exchange Time:             | 0.50  | Minutes | Adjusted for site altitude: | 0.500 | Minutes |
|----------------------------------|-------|---------|-----------------------------|-------|---------|
| Truck Load Time:                 | 0.100 | Minutes | Adjusted for site altitude: | 0.100 | Minutes |
| Truck Maneuver and Dump<br>Time: | 0.90  | Minutes | Adjusted for site altitude: | 0.900 | Minutes |

#### <u>Truck Travel (Haul & Return) Time:</u> penetration 4.0

Unit cost: \$1.716 /LCY

Road Condition: Rutted dirt, little maintenance, no water, 1" tire

Total job cost: \$52,333

|            | Haul Route   | e:      |          |                  |              |                   |                |               |           |
|------------|--------------|---------|----------|------------------|--------------|-------------------|----------------|---------------|-----------|
|            | Seg #        | Haul    | Distance | Grade (%)        | Roll. Res    | Total Res         | Velocity       | Travel        |           |
|            |              | (Ft)    |          |                  | (%)          | (%)               | (fpm)          | Time          |           |
| -          | 1            | 500.0   | 0        | 0.00             | 4.00         | 4.00              | 2204           | $(\min)$      |           |
|            | 1            | 500.0   | )0       | 0.00             | 4.00         | 4.00              | 2394           | 0.347         |           |
|            |              |         |          |                  |              | Haul Time:        | 0.347          | minute        | es        |
|            | Return Rou   | ite:    |          |                  |              |                   |                |               |           |
|            | Seg #        | Haul    | Distance | Grade (%)        | Roll. Res    | Total Res         | Velocity       | Travel        |           |
|            |              | (Ft)    |          |                  | (%)          | (%)               | (fpm)          | Time<br>(min) |           |
|            | 1            | 500.0   | 00       | 0.00             | 4.00         | 4.00              | 2910           | 0.207         |           |
|            |              |         |          |                  |              | Return Time:      | 0.207          | minu          | tes       |
|            |              |         |          |                  | Total Tru    | ck Cycle Time:    | 2.054          | minu          | tes       |
| -          |              |         |          |                  |              | 5                 |                |               |           |
| L          | oading Too   | ol unit | 0.42.00  |                  |              |                   | 1 65 1         | 702 (0        |           |
| <b>T</b> 1 | Produ        | lction  | 943.00   | LCY/Hour         |              | Adjusted for jo   | ob efficiency: | /82.69        | LCY/Hour  |
| Truck      | Unit Produ   | lction  | 275 16   | I CV/II.         |              | A directed for it | h officiences  | 228 62        | LCV/II.   |
|            |              |         | 275.40   | LC I/Hour        |              | Adjusted for jo   | ob efficiency: | 228.03        | LC I/Hour |
| Optima     | ıl No. of Tı | ucks:   | 3        | Truck(s)         |              | Selected Numb     | er of Trucks:  | 3             | Truck(s)  |
|            |              |         |          | Adjusted         | hourly truck | team productio    | n: 685.        | 90 LCY        | //Hour    |
|            |              |         |          | Adjusted single  | truck/loader | team productio    | n: 685.        | 90 LCY        | /Hour     |
|            |              |         | A        | djusted multiple | truck/loader | team productio    | n: <b>685.</b> | 90 LCY        | /Hour     |
|            |              |         |          |                  |              | -                 |                |               |           |
| 2          | JOB TIM      | IE AN   | D COST   |                  |              |                   |                |               |           |
|            | Fleet        | size:   | 1        | Team(s)          | Т            | otal job time:    | 44.47          | 7Н            | ours      |
|            |              |         |          |                  |              |                   |                |               |           |

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## PUMPING WORK

| Tas       | sk description:  | Dewater l   | BNER  |  |   |                             |                   |
|-----------|--|---|---|--|---|-----------------------------|-------------------|
| Site: 1   | Brownwood Pit  |   | Permit Actio  | on: SI01   | Pe  | rmit/Job                    | #: M1979059       |
| PRO       | OJECT IDENTIFI   | CATION  |   |  |   |                             |                   |
|           | Task #:     002A       Date:     7/11/2019       User:     JLE                                       | Co  | State: Colorad<br>unty: Larimer   | lo   | Abbrevia<br>Filer                             | ation:<br>name:             | None<br>M059-002a |
|           | Agency or organ  | ization name  | DRMS  |  |   |                             |                   |
| HO        | URLY EQUIPME   | NT COST   |   |  |   |                             |                   |
|           | ake and Model:<br>Attachment 1:<br>Attachment 2:<br>Labor Unit 1:<br>Horsepower:<br>Shift Basis: 1 p | Description<br>Centrifugal<br>Suction hos<br>Discharge I<br>Pump opera<br>70<br>per day | n<br>pump - 125M, 8<br>se - 6 in. diam., 2<br>nose - 6 in. D., 2:<br>ator | 3 in.<br>5 ft.<br>5 ft.  | Q   | uantity<br>1<br>2<br>3<br>1 |                   |
|           | Weight:  | 1.50  |   |  |   |                             |                   |
| Cost      | (US<br>t <u>Breakdown:</u>   | S Tons)   |   | Utilization %  |   |                             |                   |
|           | Ownership Cost/H   | Hour:   | \$12.14   | NA 100   |   |                             |                   |
|           | Operating Cost/F   | lour:   | \$17.99   | 100<br>NA  |   |                             |                   |
|           | Total Unit Cost/F  | Iour:   | \$58.33   | NA   |   |                             |                   |
| PU        | Total Fleet Cost/  | Hour:   | \$58.33   |  |   |                             |                   |
|           | Initial Pond Volu<br>Final Pond Volu   | ume: 8  | 250.00  | gallons  | Conversion                                    | factor:                     | 325850.5800       |
| ,         | Total Pond Inflow Sur  | rface   | 77,500  | Sq. ft.  | Unit inflow<br>gph/                           | rate in<br>sq. ft.:         | 0.3516            |
|           | Fotal Pond Inflow Vol<br>per H   | lume<br>lour:   | 27,249.00   | gallons  |   |                             |                   |
|           | Source o   | f estimated vo  | olume: 10 Acr   | e BNER. Approx 25  | ' deen  |                             |                   |
| <u>PU</u> | MPING TIME   |   |   | ,  |   |                             |                   |
|           | Maxi   | imum Pump (   | Capacity:   | 125,000  | gph/pump                                      |                             |                   |
|           | ES<br>Estim  | timated Suction   | on Head:  | 20   | feet  |                             |                   |
|           | Esun   | Tor   | ge Head:  | 10   | leet  |                             |                   |
|           |  | CPB Pump (  | Capacity:   | 93.600   | gph/pump                                      |                             |                   |
|           |  | Site  | Altitude:   | 4,890  | feet  |                             |                   |
|           | Adjust<br>Initial Unad<br>Inflow d<br>Net Unad<br>Altitu   | ed Pumping (<br>justed Pumpin<br>uring Initial F<br>justed Pumpin<br>de Adjustmen       | Capacity:<br>ng Time:<br>ng Time:<br>tt Factor:                           | 93,600<br>870.33<br>23,715,551<br>1,123.70<br>0.9700<br>0.0167 | gph<br>hours<br>gallons<br>Hours<br>(3% rule) |                             |                   |
|           | Pu<br>Total Ad   | insted Pumpi  | y ractor:   | 0.910/   | (33 min./hi                                   | .)                          |                   |
|           | Total Adjusted Pumping Time: 999.19  |   |   |  | nouis   |                             |                   |

|            |            |         | Total job time: | 999.19   | Hours |
|------------|------------|---------|-----------------|----------|-------|
| Unit cost: | \$0.000554 | /Gallon | Total job cost: | \$58,283 |       |

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## BULLDOZER WORK

| Task description:   | Replace Topsoil  |               |                            |                     |
|---|--|---------------|----------------------------|---------------------|
| Site: Brownwood Pit   | Permit Action:   | SI01          | Permit/Jo                  | b#: <u>M1979059</u> |
| PROJECT IDENTIFI  | CATION   |               |                            |                     |
| Task #:       003         Date:       7/11/2019         User:       JLE   | State: Colorado<br>County: Larimer                                       |               | Abbreviation:<br>Filename: | None<br>M059-003    |
| Agency or organ   | nization name: DRMS  |               |                            |                     |
| HOURLY EQUIPME  | NT COST  |               |                            |                     |
| Basic Machine:CatHorsepower:403Blade Type:SerAttachment:1-sShift Basis:1 p  | t D9T - 9SU<br>5<br>mi-Universal<br>hank ripper<br>er day                |               |                            |                     |
| Data Source: (CI  | RG)  |               |                            |                     |
| Cost Breakdown:   | 1  | Utilization % |                            |                     |
| Ownership Cost/Hour:  | \$121.49   | NA<br>100     |                            |                     |
| Ripper own.   | \$103.84   | 100           |                            |                     |
| Cost/Hour:  | \$15.98  | NA            |                            |                     |
| Ripper op. Cost/Hour:   | \$0.00   | 0             |                            |                     |
| Total unit Cost/Hour:<br>Total Fleet Cost/Hour:<br>MATERIAL QUANT<br>Initial Volume: 12,2<br>Swell factor: 1.21<br>Loose volume: 14,8 | \$283.28<br><b>\$283.28</b><br><b>ITIES</b><br>250<br>5<br><b>84</b> LCY |               |                            |                     |
| Source of estimated volu<br>Source of estimated swe<br>factor:  | AM03, Table E-1, ExhIlCat Handbook                                       | ibit E        |                            |                     |
| HOURLY PRODUCT  | TION   |               |                            |                     |
| Average push distance:<br>Unadjusted hourly<br>production:  | 400 feet<br>305.6 LCY/hr   |               |                            |                     |
| Materials consistency description:  | Loose stockpile 1.2  |               |                            |                     |
| Average push gradient:  | 0 %  |               |                            |                     |
| Average site altitude:  | 4,890 feet   |               |                            |                     |
| Material weight:  | 1,600 lbs/LCY  |               |                            |                     |

| Weight description: To        | op Soil       |               |
|-------------------------------|---------------|---------------|
| Job Condition Correction Fact | or            | Source        |
| Operator Skill                | 0.750         | (AVG.)        |
| Material consistency          | 1.200         | (CAT HB)      |
| Dozing method                 | 1.100         | (50% SL)      |
| Visibility                    | 1.000         | (AVG.)        |
| Job efficiency                | 0.830         | (1 SHIFT/DAY) |
| Spoil pile                    | 0.800         | (FND-RF)      |
| Push gradient                 | : 1.000       | (CAT HB)      |
| Altitude                      | : 1.000       | (CAT HB)      |
| Material Weight               | : 1.438       | (CAT HB)      |
| Blade type                    | : 1.000       | (PAT)         |
| Net correction                | .: 0.9453     |               |
| Adjusted unit production:     | 288.88 LCY/hr |               |
| Adjusted fleet production:    | 288.88 LCY/hr |               |

| Fleet size: | 1 Dozer(s)  |
|-------------|-------------|
| Unit cost:  | \$0.981/LCY |

| Total job time: | <b>51.52</b> Hours |
|-----------------|--------------------|
| Total job cost: | \$14,595           |

# **REVEGETATION WORK**

| Т          | ask descrip       | otion:           | Revegetate Dist  | urbed Areas  |      |               |                     |
|------------|-------------------|------------------|------------------|--------------|------|---------------|---------------------|
| Site:      | Brownwo           | ood Pit          | Pe               | rmit Action: | SI01 | Permit/Jo     | b#: <u>M1979059</u> |
| <u>P</u> ] | ROJECT<br>Task #: | IDENTIFIC        | CATION<br>State: | Colorado     |      | Abbreviation: | None                |
|            | Date:<br>User:    | 7/11/2019<br>JLE | County:          | Larimer      |      | Filename:     | NA                  |
|            | Age               | ency or organiz  | zation name: DF  | RMS          |      |               |                     |

# **FERTILIZING**

#### Materials

| Description              | Units /<br>Acre | Unit  | Cost / Unit                                | Cost /Acre |
|--------------------------|-----------------|-------|--|------------|
| 10-34-0, 18-46-0, 5-10-5 | 250.00          | pound | \$0.34                                     | \$85.00    |
|                          |                 |       | Total Fertilizer<br>Materials<br>Cost/Acre | \$85.00    |

### Application

| Description                                       | Cost /Acre |
|---|------------|
| Truck whirlwind spreader (MEANS 32 01 90.13 0140) | \$14.81    |
|   |            |
| Total Fertilizer Application Cost/Acre            | \$14.81    |

## **TILLING**

| Description                                    | Cost /Acre |
|--|------------|
| Weed control spraying (MEANS 31 31 16.13 3100) | \$193.60   |
|  |            |
| Total Tilling Cost/Acre                        | \$193.60   |

## **SEEDING**

| Seed Mix                        | Rate –<br>PLS<br>LBS /<br>Acre | Seeds<br>per SQ.<br>FT | Cost /Acre |
|---------------------------------|--------------------------------|------------------------|------------|
| Alfalfa - Common                | 4.00                           | 19.28                  | \$10.20    |
| Switchgrass - Nebraska 28       | 5.00                           | 44.65                  | \$67.50    |
| Sideoats Grama - Vaughn         | 6.00                           | 19.70                  | \$50.25    |
| Thickspike Wheatgrass - Critana | 9.00                           | 31.82                  | \$61.88    |
| Totals Seed Mix                 | 24.00                          | 115.45                 | \$189.83   |

# Application

| Description                      | Cost /Acre |
|----------------------------------|------------|
| Drill Seeding (DRMS Survey Cost) | \$232.00   |

### **Total Seed Application Cost/Acre**

## \$232.00

# **MULCHING and MISCELLANEOUS**

#### Materials

| Description                     | Units /<br>Acre | Unit | Cost / Unit | Cost /Acre |
|---------------------------------|-----------------|------|-------------|------------|
|                                 |                 |      | \$          | \$         |
| Total Mulch Materials Cost/Acre |                 |      |             | \$0.00     |

## Application

| Description |                                   | Cost /Acre |
|-------------|-----------------------------------|------------|
|             |                                   | \$         |
|             | Total Mulch Application Cost/Acre | \$0.00     |

## **NURSERY STOCK PLANTING**

| Common Name | No /<br>Acre | Type and Size | Planting<br>Cost | Fertilizer<br>Pellet Cost | Cost /Acre |
|-------------|--------------|---------------|------------------|---------------------------|------------|
|             |              |               |                  |                           | \$         |
|             |              |               |                  |                           |            |
|             |              | Totals        | Nursery Stoc     | k Cost / Acre             | \$0.00     |

# JOB TIME AND COST

\_\_\_\_

| No. of Acres:                    | 8.21    | Cost /Acre:  | \$715.24 |
|----------------------------------|---------|--------------|----------|
| Estimated Failure Rate:          | 20%     | Cost /Acre*: | \$421.83 |
| *Selected Replanting Work Items: | SEEDING |              |          |
|                                  |         |              |          |

| \$5,872.12 |
|------------|
| \$692.64   |
| \$6,565    |
| 8.21       |
|            |

## TRUCK/LOADER TEAM WORK

| PROJECT IDENTIFICATION         Task #:       005       State:       Colorado       Abbreviation:       None         Date:       7/11/2019       County:       Larimer       Filename:       M059-0         User:       JLE       ORMS       Agency or organization name:       DRMS         MOURLY EQUIPMENT COST         Shift basis: 1 per day         Equipment Description         Truck Loader Team -Truck:       Generic 15-18 cy, 6x4         -Loader:       CAT 988H         Support Equipment -Load Area:       Cat D9T - 9SU         -Dump Area:       CAT 836H         Road Maintenance –Motor Grader:       CAT 12M         -Water Truck:       Water Tanker, 2,500 Gal. | -005        |
|--|-------------|
| Task #:       005       State:       Colorado       Abbreviation:       None         Date:       7/11/2019       County:       Larimer       Filename:       M059-(         User:       JLE       Agency or organization name:       DRMS       DRMS         HOURLY EQUIPMENT COST       Shift basis: 1 per day         Equipment Description       Equipment Description         Truck Loader Team -Truck:       Generic 15-18 cy, 6x4  | -005        |
| Agency or organization name:       DRMS         HOURLY EQUIPMENT COST       Shift basis: 1 per day         Equipment Description       Equipment Description         Truck Loader Team -Truck:       Generic 15-18 cy, 6x4         -Loader:       CAT 988H         Support Equipment -Load Area:       Cat D9T - 9SU         -Dump Area:       CAT 836H         Road Maintenance –Motor Grader:       CAT 12M         -Water Truck:       Water Tanker, 2,500 Gal.   |             |
| HOURLY EQUIPMENT COSTShift basis: 1 per dayEquipment DescriptionTruck Loader Team -Truck:Generic 15-18 cy, 6x4-Loader:CAT 988HSupport Equipment -Load Area:Cat D9T - 9SU-Dump Area:CAT 836HRoad Maintenance –Motor Grader:CAT 12M-Water Truck:Water Tanker, 2,500 Gal.   |             |
| Equipment DescriptionTruck Loader Team -Truck:<br>-Loader:Generic 15-18 cy, 6x4-Loader:CAT 988HSupport Equipment -Load Area:<br>-Dump Area:Cat D9T - 9SU-Dump Area:CAT 836HRoad Maintenance –Motor Grader:<br>-Water Truck:CAT 12M-Water Truck:Water Tanker, 2,500 Gal.  |             |
| Truck Loader Team -Truck:<br>-Loader:Generic 15-18 cy, 6x4-Loader:<br>-Loader:CAT 988HSupport Equipment -Load Area:<br>-Dump Area:Cat D9T - 9SU-Dump Area:<br>-Water Truck:CAT 836HRoad Maintenance –Motor Grader:<br>-Water Truck:CAT 12M-Water Truck:Water Tanker, 2,500 Gal.  |             |
| -Loader:CAT 988HSupport Equipment -Load Area:<br>-Dump Area:Cat D9T - 9SU-Dump Area:CAT 836HRoad Maintenance -Motor Grader:<br>-Water Truck:CAT 12M-Water Truck:Water Tanker, 2,500 Gal.   |             |
| Support Equipment -Load Area:<br>-Dump Area:Cat D9T - 9SU-Dump Area:CAT 836HRoad Maintenance –Motor Grader:<br>-Water Truck:CAT 12M-Water Truck:Water Tanker, 2,500 Gal.   |             |
| -Dump Area:     CAT 836H       Road Maintenance –Motor Grader:     CAT 12M       -Water Truck:     Water Tanker, 2,500 Gal.  |             |
| -Water Truck: Water Tanker, 2,500 Gal.   |             |
|  |             |
|  |             |
| Cost Breakdown:Truck/Loader TeamSupport EquipmentMaintenance   | e Equipmen  |
| Truck     Loader     Load Area     Dump Area     Motor     W       Grader     W  | Vater Truck |
| %Utilization-machine:         100         100         50         50         50   | 50          |
| Ownership cost/hour:         \$28.38         \$91.83         \$121.49         \$185.53         \$33.62   | \$9.27      |
| Operating cost/hour:         \$55.36         \$95.52         \$52.92         \$72.79         \$17.11   | \$8.87      |
| %Utilization-riper: NA 0 100 NA NA   | NA          |
| Ripper own.         NA         \$0.00         \$15.98         \$0.00         \$0.00  | \$0.00      |
| Ripper op. cost/hour:         NA         \$0.00         \$9.64         \$0.00         \$0.00   | \$0.00      |
| Operator cost/hour:         \$24.79         \$35.93         \$39.98         \$31.46         \$45.39  | \$0.00      |
| Unit Subtotals:         \$108.53         \$223.27         \$224.02         \$289.77         \$96.11  | \$18.14     |
| Number of Units:         3         1         1         1         1   | 1           |
| Group Subtotals: Work: \$548.86 Support: \$513.79 Maint: \$1   | 5114.25     |
| Total work team cost/hour: <b>\$1,176.90</b>   |             |
| MATERIAL QUANTITIES  |             |
|  |             |

| Loose volume:                     | 12,200                 | LCY                        |
|-----------------------------------|------------------------|----------------------------|
| Sourc                             | e of estimated volume: | AM03, Table E-1, Exhibit E |
| Source of estimated swell factor: |                        | Cat Handbook               |
| Material Purchase Cost:           |                        | \$0.00                     |
|                                   | Total Cost:            | \$0.00                     |
|                                   |                        |                            |

# **HOURLY PRODUCTION**

# Truck Capacity:

| Truck Ca  | apacit | <u>y:</u> |      |        |    |
|-----------|--------|-----------|------|--------|----|
| Truck Pay | yload  | (weig     | (ht) | Basis: |    |
|           |        |           |      |        | ۰. |

Material weight: 2,800 Pounds/LCY Description: Clay - Natural bed

| Rated Payload:    | 63,980 | Pounds |
|-------------------|--------|--------|
| Payload Capacity: | 22.85  | LCY    |

Time:

| Struck Volume:              | 15.00            | ICV                  |                      |                            |           |         |
|-----------------------------|------------------|----------------------|----------------------|----------------------------|-----------|---------|
| Heaped Volume:              | 18.00            |                      |                      |                            |           |         |
| Average Volume:             | 16.50            | LCY                  |                      |                            |           |         |
| Adjusted Volume:            | 18.00            | LCY                  |                      |                            |           |         |
|                             | 10.00            | Lei                  |                      |                            |           |         |
| Final 7                     | Fruck Volume F   | Based on Number of   | of Loader Passes:    | 9.43                       | LCY       |         |
| Loading Tool Capacity       |                  |                      |                      |                            |           |         |
|                             | 0.000            |                      | Buck                 | ket Size Class: <u>N</u>   | JA        |         |
| Rated Capacity:             | 9.200            | Deals Clean E        | ) $(1000/ 1050/$     | 1.025                      |           | _       |
| Bucket Fill Factor:         | 1.025            | Bank Clay; E         | arth (100%-105%)     | ) 1.025                    |           | -       |
| Adjusted Capacity:          | 9.430            |                      |                      |                            |           |         |
| Job Condition Corrections:  |                  |                      | Site Altitude (ft.): | <u>4890</u> feet           |           |         |
|                             | Truck            | Loader               | Source               |                            |           |         |
| Altitude Adj:               | 1.000            | 1.000                | (CAT HI              | 3)                         |           |         |
| Job Efficiency:             | 0.830            | 0.830                | (CAT HE              | 3)                         |           |         |
| Net Correction:             | 0.830            | 0.830                |                      |                            |           |         |
| Loading Tool Cycle Time:    | N                | umber of Loading     | Tool Passes Requ     | ired to Fill               |           | passes  |
| Excavators and Front Shovel | s.               | 6                    | 1                    | Truck:                     | 1         | 1       |
| Machina Cycla Time yr       | Job Condition    | Poting: NA           |                      |                            |           |         |
| Selected Value w            | ithin this Basic | Rating: NA           |                      |                            |           |         |
| Track Loaders – I           | Material Descri  | ption:               |                      |                            |           |         |
| Cycle Time Elements (min.): |                  |                      |                      |                            |           |         |
| Load: NA                    | Μ                | aneuver: NA          |                      | Dump: 0.10                 | 0         |         |
| Wheel and Track             | Loaders - Una    | djusted Basic Load   | der Cycle Time (le   | bad, dump, 0<br>maneuver): | 0.575 min | utes    |
| Cycle Time Factors          |                  |                      |                      | Factor (min.)              | Source    |         |
| Material:                   | Bank or brok     | en material 0.04     |                      | 0.040                      | (Cat HB)  | _       |
| Stockpile:                  | No adjustme      | nt - factor not appl | icable 0.00          | 0.000                      | (Cat HB)  |         |
| Truck Ownership:            | Common ow        | nership of trucks a  | nd loaders -         | -0.040                     | (Cat HB)  |         |
| Operation:                  | Constant ope     | ration -0.04         |                      | -0.040                     | (Cat HB)  |         |
| Dump Target:                | Small target     | 0.04                 |                      | 0.040                      | (Cat HB)  |         |
|                             |                  | Net Cycle Ti         | me Adjustment:       | 0.000                      | minutes   |         |
|                             |                  | Adjusted Load        | der Cycle Time:      | 0.575                      | minutes   |         |
|                             |                  | Net Load             | Time per Truck:      | 0.100                      | minutes   |         |
| Truck Cycle Time:           |                  |                      |                      |                            |           |         |
| Truck Exchange Time         | : 0.50           | Minutes              | Adjusted             | for site altitude:         | 0.500     | Minutes |
| Truck Load Time             | : 0.100          | Minutes              | Adjusted             | for site altitude:         | 0.100     | Minutes |
| Truck Maneuver and Dump     | 0.90             | Minutes              | Adjusted             | for site altitude:         | 0.900     | Minutes |

#### Truck Travel (Haul & Return) Time: penetration 4.0

Road Condition: Rutted dirt, little maintenance, no water, 1" tire

| Haul | Route: |
|------|--------|

|       | Seg #       | Haul I        | Distance | Grade (%)        | Roll. Res    | Total Res       | Velocity       | Travel        |         |          |
|-------|-------------|---------------|----------|------------------|--------------|-----------------|----------------|---------------|---------|----------|
|       |             | (Ft)          |          |                  | (%)          | (%)             | (fpm)          | Time<br>(min) |         |          |
|       | 1           | 300.00        | )        | 0.00             | 4.00         | 4.00            | 2394           | 0.263         |         |          |
|       |             |               |          |                  |              | Haul Time:      | 0.263          | 1             | minutes |          |
|       | Return Ro   | ute:          |          |                  |              |                 | -              |               |         |          |
|       | Seg #       | Haul I        | Distance | Grade (%)        | Roll. Res    | Total Res       | Velocity       | Travel        |         |          |
|       |             | (Ft)          |          |                  | (%)          | (%)             | (fpm)          | Time<br>(min) |         |          |
|       | 1           | 300.00        | )        | 0.00             | 4.00         | 4.00            | 2910           | 0.138         |         |          |
|       |             |               |          |                  |              | Return Time:    | 0.138          | 3             | minutes |          |
|       |             |               |          |                  | Total Tru    | ck Cycle Time:  | 1.901          | L             | minutes |          |
| L     | oading Too  | ol unit       |          |                  |              |                 |                |               |         |          |
|       | Prod        | uction        | 943.00   | LCY/Hour         |              | Adjusted for jo | ob efficiency: | 78            | 2.69    | LCY/Hour |
| Truck | Unit Prod   | uction _      | 297.63   | LCY/Hour         |              | Adjusted for jo | ob efficiency: | 24            | 7.04    | LCY/Hour |
| Optim | al No. of T | rucks:        | 3        | Truck(s)         |              | Selected Numb   | er of Trucks:  |               | 3       | Truck(s) |
|       |             |               |          | Adjusted         | hourly truck | team productio  | n: 741.        | 11            | LCY/H   | our      |
|       |             |               |          | Adjusted single  | truck/loader | team productio  | n: 741.        | 11            | LCY/H   | our      |
|       |             |               | A        | djusted multiple | truck/loader | team productio  | n: <b>741.</b> | 11            | LCY/H   | our      |
|       | JOB TIN     | <u>1E ANI</u> | D COST   |                  |              |                 |                |               |         |          |
|       | Fleet       | size:         | 1        | Team(s)          | Т            | otal job time:  | 16.4           | 6             | Hour    | S        |
|       | Unit        | cost:         | \$1.588  | /LCY             | Т            | otal job cost:  | \$19,3'        | 74            |         |          |

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## PUMPING WORK

| Task description:   | Dewater Dewate                         | r Pfeiff Po  | nd                |                                       |             |
|---------------------|--|--------------|-------------------|---------------------------------------|-------------|
| te: Brownwood Pit   | Per                                    | rmit Action  | : SI01            | Permit/Job#:                          | M1979059    |
| PROJECT IDENTI      | FICATION                               |              |                   |                                       |             |
| Task #: 005A        | State:                                 | Colorado     |                   | Abbreviation: N                       | Jone        |
| Date: 7/11/201      | 9 County:                              | Larimer      |                   | Filename: N                           | A059-005a   |
| User: JLE           |  |              |                   |                                       |             |
| Agency or org       | anization name: DR                     | MS           |                   |                                       |             |
| HOURLY EQUIPM       | ENT COST                               |              |                   |                                       |             |
|                     | Description                            |              |                   | Quantity                              |             |
| Make and Model:     | Centrifugal pump                       | - 125M, 8 i  | n.                | 1                                     |             |
| Attachment 1        | : Suction hose - 6 in                  | 1. diam., 25 | ft.               | 2                                     |             |
| Attachment 2        | : Discharge hose - 6                   | in. D., 25   | ft.               | 45                                    |             |
| Labor Unit 1        | : Pump operator                        |              |                   | 1                                     | _           |
| Horsepower:         | 70                                     |              |                   |                                       |             |
| Shift Basis:        | per day                                |              |                   |                                       |             |
| Weight:             | 1.50                                   |              |                   |                                       |             |
| (                   | JS Ions)                               |              |                   |                                       |             |
| Cost Breakdown:     |  | I            |                   |                                       |             |
| Oumanshin Cas       | ¢77.6                                  | 0            | Utilization %     |                                       |             |
| Ownership Cos       | $\frac{1}{1001}$ $\frac{327.06}{10.6}$ | 0            | 100               | -                                     |             |
| Operating Cos       | $\frac{1}{1001}$ $\frac{19.0}{19.0}$   | <u>/</u>     | 100<br>NA         | -                                     |             |
| Total Unit Cos      | t/Hour: \$75.5                         | 5            | INA               | -                                     |             |
| Total Elect Co      | \$75.5                                 | 5            |                   |                                       |             |
| Total Fleet Co      | st/Hour: \$/5.3                        | 22           |                   |                                       |             |
| PUMPING QUANT       | <u>TTIES</u>                           |              |                   |                                       |             |
| Initial Pond V      | olume: 100.                            | .00          |                   | Conversion factor:                    | 325850.5800 |
| Final Pond V        | olume: 32,585,0                        | )58.00       | gallons           |                                       |             |
| Total Pond Inflow S | Jurface                                |              |                   | Unit inflow rate in                   |             |
|                     | Area: 29,3                             | 75           | Sq. ft.           | gph/sq. ft.:                          | 0.3516      |
| Total Pond Inflow V | olume                                  |              |                   |                                       |             |
| per                 | Hour: 10,328                           | 8.25         | gallons           |                                       |             |
| Source              | of estimated volume:                   | 4 Acre P     | feiff Pond, Appro | x. 25' deep                           |             |
| PUMPING TIME        |  |              |                   |                                       |             |
| Ma                  | aximum Pump Capacity                   | y:           | 125,000           | gph/pump                              |             |
| ]                   | Estimated Suction Head                 | d:           | 20                | feet                                  |             |
| Est                 | imated Discharge Head                  | 1:           | 10                | feet                                  |             |
|                     | Total Head                             | d:           | 30                | feet                                  |             |
|                     | CPB Pump Capacity                      | y:           | 93,600            | gph/pump                              |             |
|                     | Site Altitude                          | e:           | 4,890             | feet                                  |             |
| A 1*                | ate d Dumming Com. it                  |              | 02 (00            | are la                                |             |
|                     | sted Pumping Capacity                  | y:           | 95,600            | gpn                                   |             |
| Initial Uni         | ajustea Pumping Time                   | e:           | 348.13            | nours                                 |             |
|                     | during initial Pumping                 | <u> </u>     | 3,393,384         | ganons                                |             |
| Net Una             | tudo Adjustment Fast                   | e:           | 380.33            | 1000000000000000000000000000000000000 |             |
| Altı                | uue Aujustment Facto                   | r:           | 0.9700            | (5% rule)                             |             |
| Total /             | diusted Dumping Time                   | I:           | 0.910/            | (33  mm./nr.)                         |             |
| Iotal A             | ajusted Pumping 11me                   | e:           | 343.72            | nours                                 |             |

|            |            |         | Total job time: | 343.72   | Hours |
|------------|------------|---------|-----------------|----------|-------|
| Unit cost: | \$0.000718 | /Gallon | Total job cost: | \$25,968 |       |

# EQUIPMENT MOBILIZATION/DEMOBILIZATION

| Task description:                         | Eq             | uipment Mob/De        | mob          |         |               |                 |             |
|---|----------------|-----------------------|--------------|---------|---------------|-----------------|-------------|
| e: Brownwood Pi                           | t              | Permit                | Action: SI01 |         |               | Permit/Job#: M  | 1979059     |
| PROJECT IDEN                              | TIFICATI       | <u>[ON</u>            |              |         |               |                 |             |
| Task #: 006                               |                | State: Co             | olorado      |         | Abbre         | eviation: None  |             |
| Date: 7/11                                | /2019          | County: La            | rimer        |         | Fi            | ilename: M059   | 0-006       |
| User: <u>JLE</u>                          |                |                       |              |         |               |                 |             |
| Agency of                                 | r organizatior | n name: DRMS          |              |         |               |                 |             |
| EQUIPMENT T                               | RANSPOR        | T RIG COST            |              |         |               |                 |             |
|   |                |                       |              |         | Shift ba      | sis: 1 per da   | y           |
|   |                |                       |              |         | Cost Data Sou | rce: CRG Da     | ta          |
| Truck                                     | Tractor Desc   | ription: GENE         | RIC ON-HIGHV | VAY TR  | UCK TRACTO    | DR, 6X4, DIESEL | POWERED,    |
|   |                | I                     |              | 400 HP  | (2ND HALF,    | 2006)           |             |
| Truck                                     | Trailer Desc   | ription: G            | ENERIC FOLD  | ING GOO | SENECK, DF    | ROP DECK EQU    | IPMENT      |
|   |                | I                     | Г            | RAILER  | (25T, 50T, AN | ND 100T)        |             |
| ~ ~                                       |                |                       |              |         |               | ,               |             |
| Cost Breakdown:                           |                |                       |              |         |               |                 |             |
| Available Rig Ca                          | pacities       | 0-25 Tons             | 26-50 Tons   | 51      | + Tons        |                 |             |
| Ownership                                 | Cost/Hour:     | \$17.20               | \$29.63      | \$      | 38.69         |                 |             |
| Operating                                 | Cost/Hour:     | \$26.56               | \$47.02      | \$      | 55.69         |                 |             |
| Operator                                  | Cost/Hour:     | \$23.63               | \$23.63      | \$      | 23.63         |                 |             |
| Helper                                    | Cost/Hour:     | \$0.00                | \$23.53      | \$      | 23.53         |                 |             |
| Total Unit                                | Cost/Hour:     | \$67.39               | \$123.81     | \$1     | 41.54         |                 |             |
|   | eost noun      | <i><b>Q</b></i> (1.5) | ¢125.01      | ψı      |               |                 |             |
| NON ROADABI                               | LE EQUIP       | MENT:                 |              |         |               |                 |             |
| Machine                                   | Weight/        | Owner ship            | Haul Rig     | Fleet   | Haul Trip     | Return Trip     | DOT Permit  |
| Description                               | Unit           | Cost/hr/ unit         | Cost/hr/unit | Size    | Cost/hr/      | Cost/hr/ fleet  | Cost/ fleet |
| r   | (TONS)         |                       |              |         | fleet         |                 |             |
| Cat D9T - 9SU                             | 65.36          | \$137.47              | \$141.54     | 1       | \$279.01      | \$141.54        | \$250.00    |
| Generic 15-18 cv.                         | 10.51          | \$28.38               | \$67.39      | 3       | \$287.31      | \$202.17        | \$750.00    |
| 6x4                                       |                |                       |              |         |               |                 |             |
| CAT 988H                                  | 54.46          | \$91.83               | \$141.54     | 1       | \$233.37      | \$141.54        | \$250.00    |
| CAT 836H                                  | 54.88          | \$185.53              | \$141.54     | 1       | \$327.07      | \$141.54        | \$250.00    |
| CAT 12M                                   | 16.01          | \$33.62               | \$67.39      | 1       | \$101.01      | \$67.39         | \$250.00    |
| Drill/Broadcast<br>Seeder with<br>Tractor | 25.00          | \$18.15               | \$67.39      | 2       | \$171.08      | \$134.78        | \$500.00    |
| Centrifugal pump<br>- 125M, 8 in.         | 1.50           | \$10.72               | \$67.39      | 1       | \$78.11       | \$67.39         | \$250.00    |

Subtotals: \$1,476.96 \$896.35 \$2,500.00

## **ROADABLE EQUIPMENT:**

| Machine Description            | Total Cost/hr/<br>unit | Fleet Size | Haul Trip<br>Cost/hr/ fleet | Return Trip<br>Cost/hr/ fleet |
|--------------------------------|------------------------|------------|-----------------------------|-------------------------------|
| Water Tanker, 2,500 Gal.       | \$65.88                | 1          | \$65.88                     | \$65.88                       |
| Fuel Tanker, 6x4, 210 HP       | \$81.32                | 2          | \$162.64                    | \$162.64                      |
| Light Duty Pickup, 4x4, 3/4 T. | \$167.39               | 1          | \$167.39                    | \$167.39                      |

| Truck/Loader Worksheet Cont'd | Task # 001  |             | Page 20 of 20 |
|-------------------------------|---|-------------|---------------|
|                               | Subtotals:  | \$395.91    | \$395.91      |
| EQUIPMENT HAUL DISTANCE an    | <u>d Time</u>   |             |               |
| Nearest Major City or Tow     | n within project area region:                             | LOVELAND    |               |
| Te                            | otal one-way travel distance:                             | 5.00        | miles         |
|                               | Average Travel Speed:                                     | 30.00       | mph           |
| Total Non-R<br>'* t           | oadable Mob/Demob Cost *<br>wo round trips with haul rig: | \$15,834.43 |               |
| Total Ro<br>**                | adable Mob/Demob Cost ** * one round trip, no haul rig:   | \$131.97    |               |
| Transportation Cycle Time:    |   |             |               |

|                         | Non-      |           |
|-------------------------|-----------|-----------|
|                         | Roadable  | Roadable  |
|                         | Equipment | Equipment |
| Haul Time (Hours):      | 0.17      | 0.17      |
| Return Time (Hours):    | 0.17      | 0.17      |
| Loading Time (Hours):   | 1.70      | NA        |
| Unloading Time (Hours): | 1.70      | NA        |
| Subtotals:              | 3.73      | 0.33      |

| Total job time: | 7.47     | Hours |
|-----------------|----------|-------|
| Total job cost: | \$15,966 |       |