


MINERALS PROGRAM INSPECTION REPORT

PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Daniels Sand Pit 2	MINE/PROSPECTING ID#: M-1973-007-SG	MINERAL: Sand and gravel	COUNTY: El Paso
INSPECTION TYPE: Surety-Related Inspection	INSPECTOR(S): Timothy A. Cazier	INSP. DATE: May 22, 2019	INSP. TIME: 12:30
OPERATOR: Continental Materials Corporation	OPERATOR REPRESENTATIVE: Andre Laroche, Joel Bolduc, Grant Smith	TYPE OF OPERATION: 112c - Construction Regular Operation	
REASON FOR INSPECTION: Surety Related	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$1,038,500.00	
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None	
WEATHER: Cloudy	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: August 1, 2019	

GENERAL INSPECTION TOPICS

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. No problems or possible violations were noted during the inspection. The mine operation was found to be in full compliance with Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials and/or for Hard Rock, Metal and Designated Mining Operations. Any person engaged in any mining operation shall notify the office of any failure or imminent failure, as soon as reasonably practicable after such person has knowledge of such condition or of any impoundment, embankment, or slope that poses a reasonable potential for danger to any persons or property or to the environment; or any environmental protection facility designed to contain or control chemicals or waste which are acid or toxic-forming, as identified in the permit.

(AR) RECORDS----- <u>Y</u>	(FN) FINANCIAL WARRANTY----- <u>Y</u>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>Y</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>NA</u>
(PW) PROCESSING WASTE/TAILING---- <u>Y</u>	(SF) PROCESSING FACILITIES----- <u>Y</u>	(TS) TOPSOIL----- <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>Y</u>	(FW) FISH & WILDLIFE----- <u>Y</u>	(RV) REVEGETATION---- <u>Y</u>
(SM) SIGNS AND MARKERS----- <u>Y</u>	(SP) STORM WATER MGT PLAN---- <u>NA</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>Y</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>Y</u>
(AT) ACID OR TOXIC MATERIALS----- <u>NA</u>	(OD) OFF-SITE DAMAGE----- <u>Y</u>	

Y = Inspected and found in compliance / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

OBSERVATIONS

This inspection was conducted by Tim Cazier (DRMS) as part of the review process for succession of operator application. Present for the inspection were Messrs. Andre Laroche, Joel Bolduc, Bruce Humphries, and Grant Smith. The purpose of this inspection was to assess mining disturbance and reclamation required in order to estimate the current reclamation liability costs.

The Daniels Sand Pit 2 is accessed from Bradley Road just west of South Academy Blvd, about one mile from I-25 in Colorado Springs. This is a 112c sand mine and was active during the time of the inspection.

Availability of Records: Annual fees are paid through January 2019. The previous inspection was on January 29, 2018. The approved post-mine land use is wildlife habitat. There are no open infractions. Both the surface and minerals are privately owned. The west pit (west of S. Academy Blvd.) is to be back filled in accordance with the approved permit.

Backfilling and Grading: Sufficient backfill material appeared to be available. Site representatives indicated the west pit is still being actively backfilled (see **Photos 1 and 2**)

Excess Spoil and Dev. Waste: No overburden piles were observed. Site representatives indicated there is no overburden, only topsoil and resource.

Financial Warranty: The \$1,038,500 bond held by the Division is adequate for the observed mine disturbance. An updated **bond calculation is attached** to this inspection report.

Fish and Wildlife: No impact to wildlife was observed.

Hydrologic Balance: Standing water was observed in the pit (see **Photo 3**) and assumed to be stormwater runoff based on the frequent rain storms prior to the inspection, and not exposed groundwater.

Gen. Compliance with Mine Plan: The operation appeared to be in compliance with the approved mine plan. Google Earth was used to measure the disturbed area, which was estimated to be approximately 2.25 acres, based on 2017 imagery. Highwalls were estimated to vary between 20 and 50 feet in height and did not appear to place any nearby structures at risk.

Off-site Damage: The operation appeared to be confined to the permit boundary, based on Google Earth review and site observations.

Processing Waste: Material is primarily processed offsite in an area outside the permit area southwest of the pit. However wash fines are transported via pipeline to sediment ponds east of S. Academy Blvd and south of the active pit. The "South" sediment pond (see **Photos 4 and 5**), near the intersection of Bradley Rd and S. Academy Blvd., is no longer being used and is under reclamation. The new sediment pond on the east end of the site was actively receiving fines during the inspection (see **Photo Photos 6 and 7**).

Roads: Haul and access roads did not appear to be a source of sediment that could be tracked offsite.

Reclamation Success: Reclamation has been initiated in the west pit area and the southwest corner of the "South" sediment pond near Bradley Rd and S. Academy Blvd.

Revegetation: No noxious weeds were observed.

Sediment Control: No erosion problems were observed and no BMPs were needed at the time of the inspection.

Support Facilities On-site: A conveyor system, loaders, and dump trucks were observed on site.

Signs and Markers: The permit sign was properly posted (see **Photo 8**) and boundary markers were observed to delineate the permit boundary (see **Photo 9**).

Storm Water MGT Plan: No oil or fuel spills observed. Stormwater drains to the pit and infiltrates.

Topsoil: Topsoil stockpiles were each labeled and observed on the east side of the active pit (see **Photo 10**) and near the south sediment pond (see **Photo 11**), now under reclamation.

Structures: The site is surrounded by industrial and commercial properties. Structures within the 200-foot offset of the affected area boundary include: roads (Bradley Rd, Milton E Proby Pkwy, and South Academy Blvd); utilities (owned by Qwest, Colorado Springs, and CenturyLink); several commercial properties west of the intersection of Drennan Rd and S. Academy Blvd; an irrigation ditch running through the middle of the site east of S. Academy Blvd; a school (off Bradley Rd) and school administration building (off Drennan Rd); and several private residences/structures. The SO applicant has been working on requesting and obtaining structures agreements for each of these structures. The number and responsible parties of these structures has presented a unique challenge to compliance with Rule 6.4.19. The SO applicant is continuing this effort.

Please contact Tim Cazier (303)866-3567 ext. 8169 or email at tim.cazier@state.co.us if you have any questions regarding this report.

PHOTOGRAPHS



Photo 1. Backfill in west pit (looking east).

PHOTOGRAPHS (cont.)



Photo 2. Backfill in west pit (looking south).



Photo 3. Stormwater in active pit (Looking SW).

PHOTOGRAPHS (cont.)



Photo 4. South sediment pond (looking north).



Photo 5. South sediment pond (looking NE).

PHOTOGRAPHS (cont.)



Photo 6. New sediment pond (looking NW).



Photo 7. New sediment pond (looking NE).

PHOTOGRAPHS (cont.)



Photo 8. Permit sign (at entrance)



Photo 9. Typical permit boundary marker (north side, overlooking Milton E Proby Pkwy).

PHOTOGRAPHS (cont.)



Photo 10. Labeled topsoil stockpile with sign (SE corner of South sediment pond).



Photo 11. Labeled topsoil stockpile with sign (SE corner of South sediment pond).

Inspection Contact Address

Paul Ainsworth
Continental Materials Corporation
440 S. LaSalle St. #3100
Chicago, IL 60605

Enclosure: Bond Estimate

ec: Jerry Schnabel, Castle Aggregate
Andre Laroche, Aggregate Industries
Joel Bolduc, Aggregate Industries

COST SUMMARY WORK

Task description: Cost Summary

Site: Daniels Sand Pit 2

Permit Action: 2019 Update

Permit/Job#: M1973007SG

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 7/29/2019

County: El Paso

Filename: M007-000

User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
E03	Forest/Shrub East Sediment Basin	REVEGE	1	80.00	\$7,617
E16	Backfill Reconstruction-S.side E. Sed basin	SCRAPER1	1	49.47	\$63,768
E17	Backfill Reconstruction-S.side New Sed basin	SCRAPER1	1	32.10	\$41,379
E18	Backfill Reconstruction-S. & SE sides of Sed basin	SCRAPER1	1	48.67	\$58,080
P09	Replace TS on Pit Floor	SCRAPER1	1	77.87	\$94,203
P10	Seed Pit Floor	REVEGE	1	220.00	\$74,397
P11	Replace TS on Pit Slopes	SCRAPER1	1	123.52	\$149,431
P12	Seed Pit Slopes	REVEGE	1	200.00	\$81,055
W01	Backfill West Sediment Basin	TRUCK1	1	80.83	\$55,117
W02	Replace TS West Sediment Basin	TRUCK1	1	35.81	\$27,729
W3A	Seed West Sediment Basin	REVEGE	1	40.00	\$11,690
W3B	Forest/Shrub West Sediment Basin	REVEGE	1	40.00	\$3,348
Z99	Mob / Demob Equipment	MOBILIZE	1	1.44	\$8,373
<u>SUBTOTALS:</u>				1029.71	\$676,187

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$13,659

Performance bond: 1.05

Total = \$7,100

Job superintendent: 504.13

Total = \$34,982

Profit: 10.00

Total = \$67,619

TOTAL O & P = \$123,359

CONTRACT AMOUNT (direct + O & P) = \$799,546

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$0

Total = \$0

Engineering work and/or contract/bid preparation: 4.25

Total = \$33,981

Reclamation management and/or administration: 5.00

\$39,977

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$197,317

TOTAL BOND AMOUNT (direct + indirect) = \$873,504

REVEGETATION WORKTask description: **Forest/Shrub East Sediment Basin**Site: **Daniels Sand Pit 2**Permit Action: **2019 Update**Permit/Job#: **M1973007SG****PROJECT IDENTIFICATION**Task #: **E03**State: **Colorado**Abbreviation: **None**Date: **7/19/2019**County: **El Paso**Filename: **M007-E03**User: **TC1**Agency or organization name: **DRMS****FERTILIZING****Materials**

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

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			\$
Totals Seed Mix	0.00	0.00	\$0.00

Application

Description	Cost /Acre
	\$
Total Seed Application Cost/Acre	\$0.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / 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 / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
Cottonwood, Narrowleaf	45	Small potted, 4.00 inch diameter (MEANS)	\$1.76	\$0.00	\$79.20
Willow, Sandbar	80	Tubling, 3 cu. in. container (MEANS)	\$1.14	\$0.00	\$91.20
Totals Nursery Stock Cost / Acre					\$170.40

JOB TIME AND COST

No. of Acres:	29.8	Cost /Acre:	\$170.40
Estimated Failure Rate:	50%	Cost /Acre*:	\$170.40
*Selected Replanting Work Items:	NURSERY		

Initial Job Cost:	\$5,077.92
Reseeding Job Cost:	\$2,538.96
Total Job Cost:	\$7,617
Job Hours:	80.00

SCRAPER TEAM WORKTask description: **Backfill Retraction-S.side E. Sed basin**Site: **Daniels Sand Pit 2**Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: E16State: ColoradoAbbreviation: NoneDate: 7/29/2019County: El PasoFilename: M007-E16User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	100	NA	NA
Ownership cost/hour:	\$107.73	NA	NA	\$103.86	NA	NA
Operating cost/hour:	\$107.74	NA	NA	\$82.26	NA	NA
%Utilization-ripper:	NA	NA	NA	100	NA	NA
Ripper own. cost/hour:	NA	NA	NA	\$10.43	NA	NA
Ripper op. cost/hour:	NA	NA	NA	\$8.38	NA	NA
Operator cost/hour:	\$45.58	NA	NA	\$39.98	NA	NA
Unit Subtotals:	\$261.04	NA	NA	\$244.91	NA	NA
Number of Units:	4	0	0	1	0	0
Group Subtotals:	Work:	\$1,044.16	Support:	\$244.91	Maint:	\$0.00

Total work team cost/hour: **\$1,289.07****MATERIAL QUANTITIES**Initial volume: 29,973

CCY

Swell factor: 1.266Loose volume: **37,940**

LCY

Source of estimated volume: DRMS updated AM-03 Exhibit LSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: 2,700 lbs/LCY
 Material description: Sand and clay - Loose
 Rated Payload: 55,200 pounds
 Payload Capacity: 20.44 LCY

Struck Volume: 18.00 LCY
 Heaped Volume: 23.00 LCY
 Average Volume: 20.50 LCY
 Adjusted Capacity: **20.44** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
 Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5800 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2400.00	2.00	5.00	7.00	944	2.60

Haul Time: 2.60 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2400.00	-2.00	5.00	3.00	2666	1.11

Return Time: 1.11 minutesTotal Scraper team cycle time: 5.31 minutesAdjusted for job conditions: 191.74 LCY/HourSelected Number of Scrapers: 4 Scraper(s)Adjusted single scraper team (unit) hourly production: 766.96 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 766.96 LCY/HourUnadjusted unit production/hour: 231.01 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 49.47 HoursUnit cost: \$1.681 /LCY Total job cost: \$63,768

SCRAPER TEAM WORKTask description: **Backfill Retraction-S.side New Sed basin**Site: **Daniels Sand Pit 2**Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: E17State: ColoradoAbbreviation: NoneDate: 7/29/2019County: El PasoFilename: M007-E17User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	100	NA	NA
Ownership cost/hour:	\$107.73	NA	NA	\$103.86	NA	NA
Operating cost/hour:	\$107.74	NA	NA	\$82.26	NA	NA
%Utilization-ripper:	NA	NA	NA	100	NA	NA
Ripper own. cost/hour:	NA	NA	NA	\$10.43	NA	NA
Ripper op. cost/hour:	NA	NA	NA	\$8.38	NA	NA
Operator cost/hour:	\$45.58	NA	NA	\$39.98	NA	NA
Unit Subtotals:	\$261.04	NA	NA	\$244.91	NA	NA
Number of Units:	4	0	0	1	0	0
Group Subtotals:	Work:	\$1,044.16	Support:	\$244.91	Maint:	\$0.00

Total work team cost/hour: **\$1,289.07****MATERIAL QUANTITIES**Initial volume: 15,323

CCY

Swell factor: 1.266Loose volume: **19,396**

LCY

Source of estimated volume: DRMS updated AM-03 Exhibit LSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: 2,700 lbs/LCY
 Material description: Sand and clay - Loose
 Rated Payload: 55,200 pounds
 Payload Capacity: 20.44 LCY

Struck Volume: 18.00 LCY
 Heaped Volume: 23.00 LCY
 Average Volume: 20.50 LCY
 Adjusted Capacity: **20.44** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
 Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5800 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3400.00	2.00	5.00	7.00	944	3.66

Haul Time: 3.66 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3400.00	-2.00	5.00	3.00	2666	1.48

Return Time: 1.48 minutesTotal Scraper team cycle time: 6.74 minutesAdjusted for job conditions: 151.06 LCY/HourSelected Number of Scrapers: 4 Scraper(s)Adjusted single scraper team (unit) hourly production: 604.23 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 604.23 LCY/HourUnadjusted unit production/hour: 182.00 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 32.10 HoursUnit cost: \$2.133 /LCY Total job cost: \$41,379

SCRAPER TEAM WORKTask description: **Backfill Retraction-S. & SE sides of Sed basin**Site: **Daniels Sand Pit 2**Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: E18State: ColoradoAbbreviation: NoneDate: 7/29/2019County: El PasoFilename: M007-E18User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D6T LGP
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	100	NA	NA
Ownership cost/hour:	\$107.73	NA	NA	\$59.16	NA	NA
Operating cost/hour:	\$107.74	NA	NA	\$50.06	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Ripper op. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Operator cost/hour:	\$45.58	NA	NA	\$39.98	NA	NA
Unit Subtotals:	\$261.04	NA	NA	\$149.20	NA	NA
Number of Units:	4	0	0	1	0	0
Group Subtotals:	Work:	\$1,044.16	Support:	\$149.20	Maint:	\$0.00

Total work team cost/hour: **\$1,193.36****MATERIAL QUANTITIES**Initial volume: 25,420

CCY

Swell factor: 1.266Loose volume: **32,177**

LCY

Source of estimated volume: DRMS updated AM-03 Exhibit LSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: 2,700 lbs/LCY
 Material description: Sand and clay - Loose
 Rated Payload: 55,200 pounds
 Payload Capacity: 20.44 LCY

Struck Volume: 18.00 LCY
 Heaped Volume: 23.00 LCY
 Average Volume: 20.50 LCY
 Adjusted Capacity: **20.44** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
 Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5800 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3000.00	2.00	5.00	7.00	944	3.23

Haul Time: 3.23 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3000.00	-2.00	5.00	3.00	2666	1.33

Return Time: 1.33 minutesTotal Scraper team cycle time: 6.16 minutesAdjusted for job conditions: 165.28 LCY/HourSelected Number of Scrapers: 4 Scraper(s)Adjusted single scraper team (unit) hourly production: 661.13 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 661.13 LCY/HourUnadjusted unit production/hour: 199.13 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 48.67 HoursUnit cost: \$1.805 /LCYTotal job cost: \$58,080

SCRAPER TEAM WORKTask description: **Replace TS on Pit Floor**Site: **Daniels Sand Pit 2**Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: P09State: ColoradoAbbreviation: NoneDate: 7/29/2019County: El PasoFilename: M007-P09User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	NA	100	NA
Ownership cost/hour:	\$107.73	NA	NA	NA	\$64.10	NA
Operating cost/hour:	\$107.74	NA	NA	NA	\$56.17	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	\$0.00	NA
Ripper op. cost/hour:	NA	NA	NA	NA	\$0.00	NA
Operator cost/hour:	\$45.58	NA	NA	NA	\$45.39	NA
Unit Subtotals:	\$261.04	NA	NA	NA	\$165.66	NA
Number of Units:	4	0	0	0	1	0
Group Subtotals:	Work:	\$1,044.16	Support:	\$0.00	Maint:	\$165.66

Total work team cost/hour: **\$1,209.82****MATERIAL QUANTITIES**Initial volume: 59,209

CCY

Swell factor: 1.215Loose volume: **71,939**

LCY

Source of estimated volume: DRMS updated AM-03 Exhibit LSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: 1,600 lbs/LCY
 Material description: Top Soil
 Rated Payload: 55,200 pounds
 Payload Capacity: 34.50 LCY

Struck Volume: 18.00 LCY
 Heaped Volume: 23.00 LCY
 Average Volume: 20.50 LCY
 Adjusted Capacity: **20.50** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
 Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5800 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	0.00	5.00	5.00	1292	1.70

Haul Time: 1.70 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	0.00	5.00	5.00	2359	1.12

Return Time: 1.12 minutesTotal Scraper team cycle time: 4.42 minutesAdjusted for job conditions: 230.97 LCY/HourSelected Number of Scrapers: 4 Scraper(s)Adjusted single scraper team (unit) hourly production: 923.89 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 923.89 LCY/HourUnadjusted unit production/hour: 278.28 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 77.87 HoursUnit cost: \$1.309 /LCYTotal job cost: \$94,203

REVEGETATION WORKTask description: Seed Pit FloorSite: Daniels Sand Pit 2Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: P10State: ColoradoAbbreviation: NoneDate: 7/29/2019County: El PasoFilename: M007-P10User: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

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

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$101.93
Total Tilling Cost/Acre	\$101.93

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Switchgrass - Blackwell	2.00	17.86	\$23.00
Big Bluestem - Native	4.00	11.94	\$47.27
Sand Lovegrass - Bend	0.50	17.22	\$7.13
Blue Grama - Native	0.50	8.16	\$6.86
Sand Bluestem - Garden Co.	4.00	10.38	\$98.10
Pubescent Wheatgrass - Greenleaf	2.00	4.13	\$7.30
Tall Wheatgrass - Jose	3.00	5.44	\$10.13
Thickspike Wheatgrass - Critana	1.00	3.54	\$6.88
Totals Seed Mix	17.00	78.66	\$206.65

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

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

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acres: 110.1 Cost /Acre: \$540.58
 Estimated Failure Rate: 25% Cost /Acre*: \$540.58
 *Selected Replanting Work Items: TILLING,SEEDING

Initial Job Cost: **\$59,517.86**
 Reseeding Job Cost: **\$14,879.46**
 Total Job Cost: **\$74,397**
 Job Hours: **220.00**

SCRAPER TEAM WORKTask description: Replace TS on Pit SlopesSite: Daniels Sand Pit 2Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: P11State: ColoradoAbbreviation: NoneDate: 7/29/2019County: El PasoFilename: M007-P11User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	NA	100	NA
Ownership cost/hour:	\$107.73	NA	NA	NA	\$64.10	NA
Operating cost/hour:	\$107.74	NA	NA	NA	\$56.17	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	\$0.00	NA
Ripper op. cost/hour:	NA	NA	NA	NA	\$0.00	NA
Operator cost/hour:	\$45.58	NA	NA	NA	\$45.39	NA
Unit Subtotals:	\$261.04	NA	NA	NA	\$165.66	NA
Number of Units:	4	0	0	0	1	0
Group Subtotals:	Work:	\$1,044.16	Support:	\$0.00	Maint:	\$165.66

Total work team cost/hour: \$1,209.82**MATERIAL QUANTITIES**Initial volume: 78,327

CCY

Swell factor: 1.215Loose volume: 95,167

LCY

Source of estimated volume: DRMS updated AM-03 Exhibit LSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>18.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>23.00</u>	LCY
Rated Payload:	<u>55,200 pounds</u>	Average Volume:	<u>20.50</u>	LCY
Payload Capacity:	<u>34.50 LCY</u>	Adjusted Capacity:	<u>20.50</u>	LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
 Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5800 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	3.00	5.00	8.00	822	2.58

Haul Time: 2.58 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	0.00	5.00	5.00	2359	1.12

Return Time: 1.12 minutesTotal Scraper team cycle time: 5.30 minutesAdjusted for job conditions: 192.62 LCY/HourSelected Number of Scrapers: 4 Scraper(s)Adjusted single scraper team (unit) hourly production: 770.49 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 770.49 LCY/HourUnadjusted unit production/hour: 232.08 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 123.52 HoursUnit cost: \$1.570 /LCY Total job cost: \$149,431

REVEGETATION WORKTask description: Seed Pit SlopesSite: Daniels Sand Pit 2Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: P12State: ColoradoAbbreviation: NoneDate: 7/29/2019County: El PasoFilename: M007-P12User: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

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

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$101.93
Total Tilling Cost/Acre	\$101.93

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Native	2.00	5.97	\$23.63
Sand Lovegrass - Bend	0.50	17.22	\$7.13
Blue Grama - Native	0.50	8.16	\$6.86
Little Bluestem - Native	1.00	5.97	\$13.57
Sideoats Grama - Butte	1.00	3.28	\$9.00
Sand Bluestem - Garden Co.	6.00	15.56	\$147.15
Pubescent Wheatgrass - Greenleaf	5.00	10.33	\$18.25
Thickspike Wheatgrass - Critana	5.00	17.68	\$34.38
Western Wheatgrass - Native	3.00	7.58	\$18.00
Prairie Sandreed - Goshen	2.00	12.53	\$20.70
Totals Seed Mix	26.00	104.28	\$298.66

Application

Description	Cost /Acre
Broadcast seeding [DMG]	\$267.22
Total Seed Application Cost/Acre	\$267.22

MULCHING and MISCELLANEOUS**Materials**

Description	Units / 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 / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres: 97.1
 Estimated Failure Rate: 25%
 *Selected Replanting Work Items: TILLING,SEEDING

Cost /Acre: \$667.81
 Cost /Acre*: \$667.81

Initial Job Cost: **\$64,844.35**
 Reseeding Job Cost: **\$16,211.09**
 Total Job Cost: **\$81,055**
 Job Hours: **200.00**

TRUCK/LOADER TEAM WORKTask description: **Backfill West Sediment Basin**Site: **Daniels Sand Pit 2**Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: W01State: ColoradoAbbreviation: NoneDate: 7/19/2019County: El PasoFilename: M007-W01User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	100	NA	NA
Ownership cost/hour:	\$68.27	\$52.71	NA	\$103.86	NA	NA
Operating cost/hour:	\$59.78	\$61.51	NA	\$82.26	NA	NA
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	NA	NA
Operator cost/hour:	\$24.79	\$35.93	NA	\$39.98	NA	NA
Unit Subtotals:	\$152.84	\$150.14	NA	\$226.10	NA	NA
Number of Units:	2	1	0	1	0	0
Group Subtotals:	Work: \$455.82		Support: \$226.10		Maint: \$0.00	

Total work team cost/hour: **\$681.92****MATERIAL QUANTITIES**Initial volume: 45,496

CCY

Swell factor: 1.000Loose volume: **45,496**

LCY

Source of estimated volume: AM-3, Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 2,900

Pounds/LCY

Description: Sand and gravel - DryRated Payload: 87,000

Pounds

Payload Capacity: 30.00

LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	30.00	LCY

Final Truck Volume Based on Number of Loader Passes: 29.25 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.975	Sand and gravel (95% - 100%) 0.975
Adjusted Capacity:	7.313	LCY

Job Condition Corrections:

Site Altitude (ft.): 5800 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.797	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill
Truck: 4 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	0.510	minutes
	Net Load Time per Truck:	1.630	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.630	Minutes	Adjusted for site altitude:	1.630	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	5.00	5.00	1845	1.141

Haul Time: **1.141** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	5.00	5.00	3005	0.738

Return Time: **0.738** minutesTotal Truck Cycle Time: **5.176** minutes

Loading Tool unit

Production	<u>778.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>645.96</u>	LCY/Hour
Truck Unit Production	<u>339.09</u>	LCY/Hour	Adjusted for job efficiency:	<u>281.44</u>	LCY/Hour

Optimal No. of Trucks:	<u>2</u>	Truck(s)	Selected Number of Trucks:	<u>2</u>	Truck(s)
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Adjusted hourly truck team production:	<u>562.88</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>562.88</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>562.88</u>	LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **80.83** HoursUnit cost: \$1.211 /LCY Total job cost: **\$55,117**

TRUCK/LOADER TEAM WORKTask description: **Replace TS West Sediment Basin**Site: **Daniels Sand Pit 2**Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: W02State: ColoradoAbbreviation: NoneDate: 7/19/2019County: El PasoFilename: M007-W02User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 980H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	100	NA
Ownership cost/hour:	\$68.27	\$52.71	NA	NA	\$64.10	NA
Operating cost/hour:	\$59.78	\$61.51	NA	NA	\$56.17	NA
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	NA
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	NA
Operator cost/hour:	\$24.79	\$35.93	NA	NA	\$45.39	NA
Unit Subtotals:	\$152.84	\$150.14	NA	NA	\$165.66	NA
Number of Units:	3	1	0	0	1	0
Group Subtotals:	Work: \$608.66		Support: \$0.00		Maint: \$165.66	

Total work team cost/hour: **\$774.32****MATERIAL QUANTITIES**Initial volume: 13,955

CCY

Swell factor: 1.429Loose volume: **19,936**

LCY

Source of estimated volume: AM-3, Exhibits C-2 & LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 87,000

Pounds

Payload Capacity: 54.38

LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: 29.25 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	7.500	LCY (heaped)
Bucket Fill Factor:	0.975	Sand and gravel (95% - 100%) 0.975
Adjusted Capacity:	7.313	LCY

Job Condition Corrections:

Site Altitude (ft.): 5800 feet

	Truck	Loader	Source
Altitude Adj:	0.960	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.797	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 4 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.550 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.510	minutes
Net Load Time per Truck:		1.630	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.625	Minutes
Truck Load Time:	1.630	Minutes	Adjusted for site altitude:	1.630	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.042	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5400.00	0.00	3.00	3.00	3005	2.589

Haul Time: **2.589** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5400.00	0.00	3.00	3.00	3005	1.964

Return Time: **1.964** minutesTotal Truck Cycle Time: **7.850** minutes

Loading Tool unit

Production 778.27 LCY/HourAdjusted for job efficiency: 645.96 LCY/Hour

Truck Unit Production

223.58 LCY/HourAdjusted for job efficiency: 185.57 LCY/HourOptimal No. of Trucks: 3 Truck(s)Selected Number of Trucks: 3 Truck(s)Adjusted hourly truck team production: 556.71 LCY/HourAdjusted single truck/loader team production: 556.71 LCY/HourAdjusted multiple truck/loader team production: **556.71** LCY/Hour**JOB TIME AND COST**Fleet size: 1 Team(s)Total job time: **35.81** HoursUnit cost: \$1.391 /LCYTotal job cost: **\$27,729**

REVEGETATION WORKTask description: Seed West Sediment BasinSite: Daniels Sand Pit 2Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: W3AState: ColoradoAbbreviation: NoneDate: 7/19/2019County: El PasoFilename: M007-W3AUser: TC1Agency or organization name: DRMS**FERTILIZING****Materials**

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

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$101.93
Total Tilling Cost/Acre	\$101.93

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Switchgrass - Blackwell	2.00	17.86	\$23.00
Big Bluestem - Native	4.00	11.94	\$47.27
Sand Lovegrass - Bend	0.50	17.22	\$7.13
Blue Grama - Native	0.50	8.16	\$6.86
Sand Bluestem - Garden Co.	4.00	10.38	\$98.10
Pubescent Wheatgrass - Greenleaf	2.00	4.13	\$7.30
Tall Wheatgrass - Jose	3.00	5.44	\$10.13
Thickspike Wheatgrass - Critana	1.00	3.54	\$6.88
Totals Seed Mix	17.00	78.66	\$206.65

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

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

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acres: 17.3 Cost /Acre: \$540.58
 Estimated Failure Rate: 25% Cost /Acre*: \$540.58
 *Selected Replanting Work Items: TILLING,SEEDING

Initial Job Cost: **\$9,352.03**
 Reseeding Job Cost: **\$2,338.01**
 Total Job Cost: **\$11,690**
 Job Hours: **40.00**

REVEGETATION WORKTask description: Forest/Shrub West Sediment BasinSite: Daniels Sand Pit 2Permit Action: 2019 UpdatePermit/Job#: M1973007SGPROJECT IDENTIFICATIONTask #: W3BState: ColoradoAbbreviation: NoneDate: 7/19/2019County: El PasoFilename: M007-W3BUser: TC1Agency or organization name: DRMSFERTILIZING**Materials**

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

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			\$
Totals Seed Mix	0.00	0.00	\$0.00

Application

Description	Cost /Acre
	\$
Total Seed Application Cost/Acre	\$0.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / 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 / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
Cottonwood, Narrowleaf	45	Small potted, 4.00 inch diameter (MEANS)	\$1.76	\$0.00	\$79.20
Willow, Sandbar	80	Tubling, 3 cu. in. container (MEANS)	\$1.14	\$0.00	\$91.20
Totals Nursery Stock Cost / Acre					\$170.40

JOB TIME AND COST

No. of Acres:	13.1	Cost /Acre:	\$170.40
Estimated Failure Rate:	50%	Cost /Acre*:	\$170.40
*Selected Replanting Work Items:	NURSERY		

Initial Job Cost:	\$2,232.24
Reseeding Job Cost:	\$1,116.12
Total Job Cost:	\$3,348
Job Hours:	40.00

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob / Demob Equipment**Site: **Daniels Sand Pit 2**Permit Action: 2019 UpdatePermit/Job#: M1973007SG**PROJECT IDENTIFICATION**Task #: Z99State: ColoradoAbbreviation: NoneDate: 7/29/2019County: El PasoFilename: M007-Z99User: TC1Agency or organization name: DRMS**EQUIPMENT TRANSPORT RIG COST**Shift basis: 1 per dayCost Data Source: CRG DataTruck 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:**

Available Rig Capacities	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	\$141.54

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 D8T - 8SU	47.71	\$103.86	\$123.81	1	\$227.67	\$123.81	\$250.00
Cat 623G	41.35	\$107.73	\$123.81	4	\$926.16	\$495.24	\$1,000.00
Cat 740	36.49	\$68.27	\$123.81	3	\$576.24	\$371.43	\$750.00
CAT 14M	23.57	\$64.10	\$67.39	1	\$131.49	\$67.39	\$250.00
CAT 980H	33.12	\$52.71	\$123.81	1	\$176.52	\$123.81	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$18.15	\$67.39	1	\$85.54	\$67.39	\$250.00

Subtotals: **\$2,123.62** **\$1,249.07** **\$2,750.00****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:	<u>COLORADO SPRINGS</u>	
Total one-way travel distance:	<u>5.00</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$8,373.11</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$0.00</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.11</u>	<u>0.11</u>
Return Time (Hours):	<u>0.11</u>	<u>0.11</u>
Loading Time (Hours):	<u>0.25</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.25</u>	<u>NA</u>
Subtotals:	<u>0.72</u>	<u>0.22</u>

JOB TIME AND COST

Total job time:	<u>1.44</u>	Hours
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Total job cost:	<u>\$8,373</u>
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