



COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

July 5, 2018

Scott Davis
Schmidt Construction Company
2635 Delta Dr.
Colorado Springs, CO 80910

**Re: Vollmer Pit, Permit No. M-1983-035;
Technical Revision (TR-04) Preliminary Adequacy Review**

Dear Mr. Davis:

On May 30, 2018 the Division of Reclamation, Mining and Safety (Division) received a request for a Technical Revision (TR-04) addressing the following:

To update the approved reclamation plan for closure of the site to further mining

The submittal was called complete for the purpose of filing on June 7, 2018. **The decision date for TR-04 has been extended to September 30, 2018.** Please be advised that if you are unable to satisfactorily address any concerns identified in this review before the decision date, **it will be your responsibility to request an extension of the review period.** If there are outstanding issues that have not been adequately addressed prior to the end of the review period, and no extension has been requested, the Division may deny this Technical Revision (TR).

1. Structures Agreements - The site was approved for temporary cessation (TC) beginning May 13, 2013. Sometime beginning in 2015 (based on Google Earth history) a housing development encroached to within 200 feet of the affected area boundary on the south side of the site. This development includes several significant, valuable and permanent man-made structures, including houses, fences, streets and possible utilities. The Division has also note two houses on the north side of the pit, screened by the north visual berm, but that are within 200 feet of the affected area boundary. As the site is now out of TC and entering final reclamation, Rule 6.4.19 requires structure damage compensation agreements. Pursuant to Rule 6.4.19(a), the permittee must provide a notarized agreement between the permittee and the person(s) having an interest in the structure, that the permittee is to provide compensation for any damage to the structure. Please provide structures agreements for all valuable man-made structures within 200 feet of the affected area boundary.
 - a. In cases where an agreement cannot be obtained, pursuant to Rules Rule 6.4.19(a) and 6.5, please provide documentation an attempt to obtain and agreement was made and an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation during the final reclamation phase.

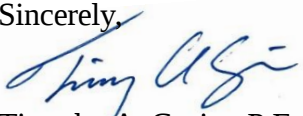


Mr. Scott Davis
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2. Bond Estimate – The Division has completed an estimate of the remaining reclamation liability and has included this detailed estimate for your review.

If you have any questions or need further information, please contact me at (303)866-3567 x8169.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tim A. Cazier", is written over a light blue rectangular background.

Timothy A. Cazier, P.E.
Environmental Protection Specialist

Enclosure

ec: DRMS file
Mark Heifner, consultant

COST SUMMARY WORK

Task description: Cost Summary

Site: Vollmer Pit

Permit Action: TR04

Permit/Job#: M1983035

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 7/3/2018

County: El Paso

Filename: M035-000

User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
DE1	Demolition	DEMOLISH	1	0.00	\$2,363.35
MA1	Haul away recycled asphalt	TRUCK1	1	9.90	\$8,618.00
MA2	Landfill disposal fees for milled asphalt	DEMOLISH	1	0.00	\$10,530.45
MB1	Mob/Demob Equipment	MOBILIZE	1	2.71	\$6,154.00
NV1	Push down North Visual Berm & flatten slopes	DOZER	1	15.10	\$1,947.00
NV2	Clear & Grub North Visual Berm (Ref. DRMS estimate - see Task NV2.1 worksheet)	NA	1	143.00	\$16,601.00
PF1	Rip northwest pit floor	RIPPER	1	9.30	\$1,250.00
SB1	South berm, west end - south side regrade	DOZER	1	2.06	\$265.00
SW1	Place growth media over 13.9 acres	SCRAPER1	1	18.36	\$9,122.00
SW2	Reveg 22.4 Acres	REVEGE	1	45.00	\$35,410.00
SW3	Shape east cut face & SE corner	NA	1	8.00	\$1,058.00
<u>SUBTOTALS:</u>				253.43	\$93,318

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$1,885.02

Performance bond: 1.05

Total = \$979.84

Job superintendent: 126.71

Total = \$9,256.17

Profit: 10.00

Total = \$9,331.80

TOTAL O & P = \$21,452.83

CONTRACT AMOUNT (direct + O & P) = \$114,770.83

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 0.00

Total = 0.00

Engineering work and/or contract/bid preparation: 0.00

Total = \$0.00

Reclamation management and/or administration: 5.00

\$5,738.54

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$27,191.37

TOTAL BOND AMOUNT (direct + indirect) = \$120,509.37

ROUNDED TOTAL BOND AMOUNT (direct + indirect) = \$120,510

DEMOLITION WORK

Task description: Demolition

Site: Vollmer Pit

Permit Action: TR04

Permit/Job#: M1983035

PROJECT IDENTIFICATION

Task #: DE1

State: Colorado

Abbreviation: None

Date: 7/3/2018

County: El Paso

Filename: M035-DE1

User: TC1

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 93.10 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Scale House	8'x30'x8.5'	Bldg. (SC) demo./off-site disposal in approved landfill - Max. 15 mile haul	2,040.00	CF	\$0.60	\$1,232.16
Concrete Pad 1 (south of scale house)	30'x15'	Demo. and on-site disposal in existing pit, 4 in. thick - Max. 200 ft. push	450.00	SF	\$0.41	\$183.15
Concrete Pad 2 (south of scale house)	10'x10'	Demo. and on-site disposal in existing pit, 4 in. thick - Max. 200 ft. push	100.00	SF	\$0.41	\$40.70
Asphalt near scale house	150'x15'	Pavement, bituminous, demolition only - 3 in. thick	250.00	SY	\$4.33	\$1,082.50

Job Hours: 0.00

Subtotal
(unadjusted): \$2,538.51

Total Cost
(adjusted for
location): \$2,363.35

TRUCK/LOADER TEAM WORKTask description: Haul away recycled asphaltSite: Vollmer PitPermit Action: TR04Permit/Job#: M1983035PROJECT IDENTIFICATIONTask #: MA1State: ColoradoAbbreviation: NoneDate: 7/2/2018County: El PasoFilename: M035-MA1User: TC1Agency or organization name: DRMSHOURLY EQUIPMENT COSTShift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 15-18 cy, 6x4
-Loader:	CAT 928Hz
Support Equipment -Load Area:	NA
-Dump Area:	NA
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	40	NA	NA	NA	NA
Ownership cost/hour:	\$26.62	\$19.17	NA	NA	NA	NA
Operating cost/hour:	\$47.82	\$8.93	NA	NA	NA	NA
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	NA	NA	NA
Operator cost/hour:	\$25.65	\$41.26	NA	NA	NA	NA
Unit Subtotals:	\$100.09	\$69.36	NA	NA	NA	NA
Number of Units:	8	1	0	0	0	0
Group Subtotals:	Work: \$870.08		Support: \$0.00		Maint: \$0.00	

Total work team cost/hour: \$870.08MATERIAL QUANTITIESInitial volume: 1,019

CCY

Swell factor: 1.000Loose volume: 1,019

LCY

Source of estimated volume: DRMS estimate - see Task MA1.1 worksheetSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00HOURLY PRODUCTIONTruck Capacity:Truck Payload (weight) Basis:Material weight: 2,850 Pounds/LCYDescription: Gravel - Dry (1/4"-2" diam.)Rated Payload: 63,980 PoundsPayload Capacity: 22.45 LCY

Truck Bed (volume) Basis:

Struck Volume:	15.00	LCY
Heaped Volume:	18.00	LCY
Average Volume:	16.50	LCY
Adjusted Volume:	18.00	LCY

Final Truck Volume Based on Number of Loader Passes: 15.75 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	3.000	LCY (heaped)
Bucket Fill Factor:	0.875	Loose material - 1/2" to 3/4" (85 - 90%) 0.875
Adjusted Capacity:	2.625	LCY

Job Condition Corrections:

Site Altitude (ft.): 7000 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:

Number of Loading Tool Passes Required to Fill Truck: 6 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): 0.475 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 1/8" to 3/4" diameter -0.02	-0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.435	minutes
Net Load Time per Truck:		2.275	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	2.275	Minutes	Adjusted for site altitude:	2.275	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Very hard, smooth, asphalt or concrete, no tire penetration 1.2

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	84480.00	0.00	1.20	1.20	2952	28.770

Haul Time: **28.770** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	84480.00	0.00	1.20	1.20	2963	28.545

Return Time: **28.545** minutesTotal Truck Cycle Time: **60.990** minutes

Loading Tool unit
 Production 340.54 LCY/Hour Adjusted for job efficiency: 282.65 LCY/Hour
 Truck Unit Production
15.49 LCY/Hour Adjusted for job efficiency: 12.86 LCY/Hour
 Optimal No. of Trucks: 22 Truck(s) Selected Number of Trucks: 8 Truck(s)
 Adjusted hourly truck team production: 102.88 LCY/Hour
 Adjusted single truck/loader team production: 102.88 LCY/Hour
 Adjusted multiple truck/loader team production: **102.88** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **9.90** HoursUnit cost: \$8.457 /LCY Total job cost: **\$8,618**

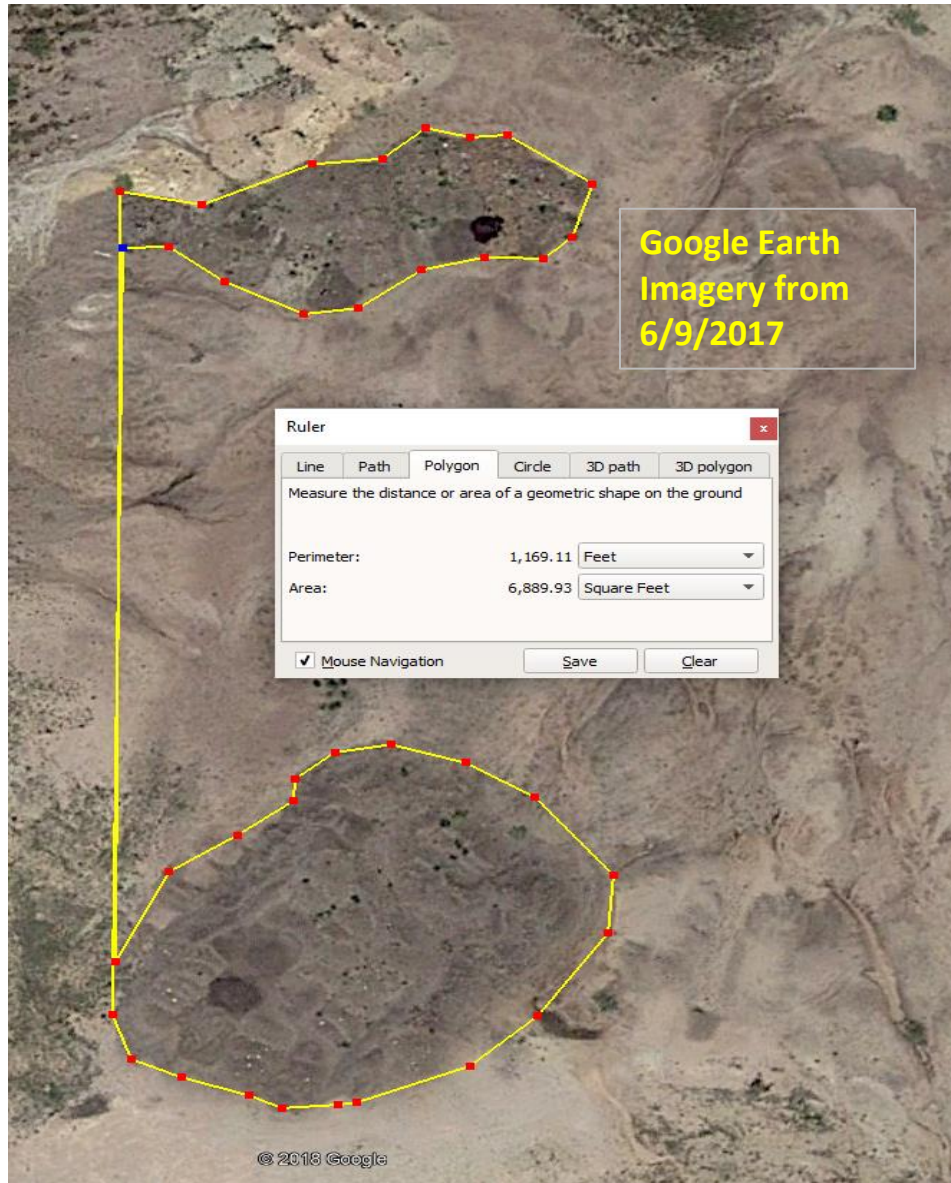


Task # MA1.1 Milled Asphalt Volume Estimate

Area:	6,880	ft ²
Avg. Height:	4	ft
Volume:	27,520	ft ³
Volume:	1,019	CY

Assumed Disposal Facility:
Colorado Springs LF

Distance from site:
16 miles, or
84480 feet



DEMOLITION WORK

Task description: Landfill disposal fees for milled asphalt

Site: Vollmer Pit

Permit Action: TR04

Permit/Job#: M1983035

PROJECT IDENTIFICATION

Task #: MA2

State: Colorado

Abbreviation: None

Date: 7/3/2018

County: El Paso

Filename: M035-MA2

User: TC1

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 93.10 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Dump disposal fees for milled asphalt	1,019 CY	Dump fees - Building construction materials.	1,019.00	CY	\$11.10	\$11,310.90

Job Hours: 0.00

Subtotal
(unadjusted): \$11,310.90

Total Cost
(adjusted for location): \$10,530.45

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob/Demob Equipment**Site: **Vollmer Pit**Permit Action: **TR04**Permit/Job#: **M1983035****PROJECT IDENTIFICATION**Task #: **MB1**State: **Colorado**Abbreviation: **None**Date: **7/3/2018**County: **El Paso**Filename: **M035-MB1**User: **TC1**Agency or organization name: **DRMS****EQUIPMENT TRANSPORT RIG COST**Shift basis: **1 per day**Cost Data Source: **CRG Data**Truck Tractor Description: **GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED,
400 HP (2ND HALF, 2006)**Truck Trailer Description: **GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT
TRAILER (25T, 50T, AND 100T)****Cost Breakdown:**

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

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 315D L 8'-6" Stick	19.05	\$25.87	\$88.67	1	\$114.54	\$88.67	\$250.00
Cat D6T XL	25.01	\$50.27	\$88.67	1	\$138.94	\$88.67	\$250.00
CAT 953D	17.10	\$35.09	\$88.67	1	\$123.76	\$88.67	\$250.00
Cat 631G	52.50	\$98.72	\$125.45	2	\$448.34	\$250.90	\$500.00
CAT 928Hz	13.91	\$19.17	\$88.67	1	\$107.84	\$88.67	\$250.00

Subtotals: **\$933.42** **\$605.58** **\$1,500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Generic 15-18 cy, 6x4	\$100.09	8	\$800.72	\$800.72
Drill/Broadcast Seeder with Tractor (* 2 nd unit substituted for wood chipper cost)	\$30.89	2*	\$61.78	\$61.78
Power Mulcher (Bowie LD-90)	\$21.31	1	\$21.31	\$21.31
Generic 10-12 cy, 6x4	\$83.91	2	\$167.82	\$167.82

Subtotals: **\$1,051.63** **\$1,051.63**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>COLORADO SPRINGS</u>	
Total one-way travel distance:	<u>15.00</u>	miles
Average Travel Speed:	<u>35.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$5,252.56</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$901.40</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.43</u>	<u>0.43</u>
Return Time (Hours):	<u>0.43</u>	<u>0.43</u>
Loading Time (Hours):	<u>0.25</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.25</u>	<u>NA</u>
Subtotals:	<u>1.36</u>	<u>0.86</u>

JOB TIME AND COST

Total job time:	<u>2.71</u>	Hours
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Total job cost:	<u>\$6,154</u>
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BULLDOZER WORKTask description: **Push down North Visual Berm & flatten slopes**Site: **Vollmer Pit**Permit Action: **TR04**Permit/Job#: **M1983035****PROJECT IDENTIFICATION**Task #: **NV1**State: **Colorado**Abbreviation: **None**Date: **6/28/2018**County: **El Paso**Filename: **M035-NV1**User: **TC1**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D6T XL**Horsepower: **185**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$46.87	NA
Operating Cost/Hour:	\$41.52	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.52	NA

Total unit Cost/Hour: **\$128.91**Total Fleet Cost/Hour: **\$128.91****MATERIAL QUANTITIES**Initial Volume: **3,188**Swell factor: **1.250**Loose volume: **3,985 LCY**Source of estimated volume: **DRMS estimate - see Task NV1.1 worksheet**Source of estimated swell
factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **75 feet**Unadjusted hourly
production: **357.1 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push
gradient: **-15 %**Average site altitude: **7,000 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7388

Adjusted unit production: 263.83 LCY/hr

Adjusted fleet production: **263.83** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.489/LCY

Total job time: **15.10** Hours

Total job cost: **\$1,947**



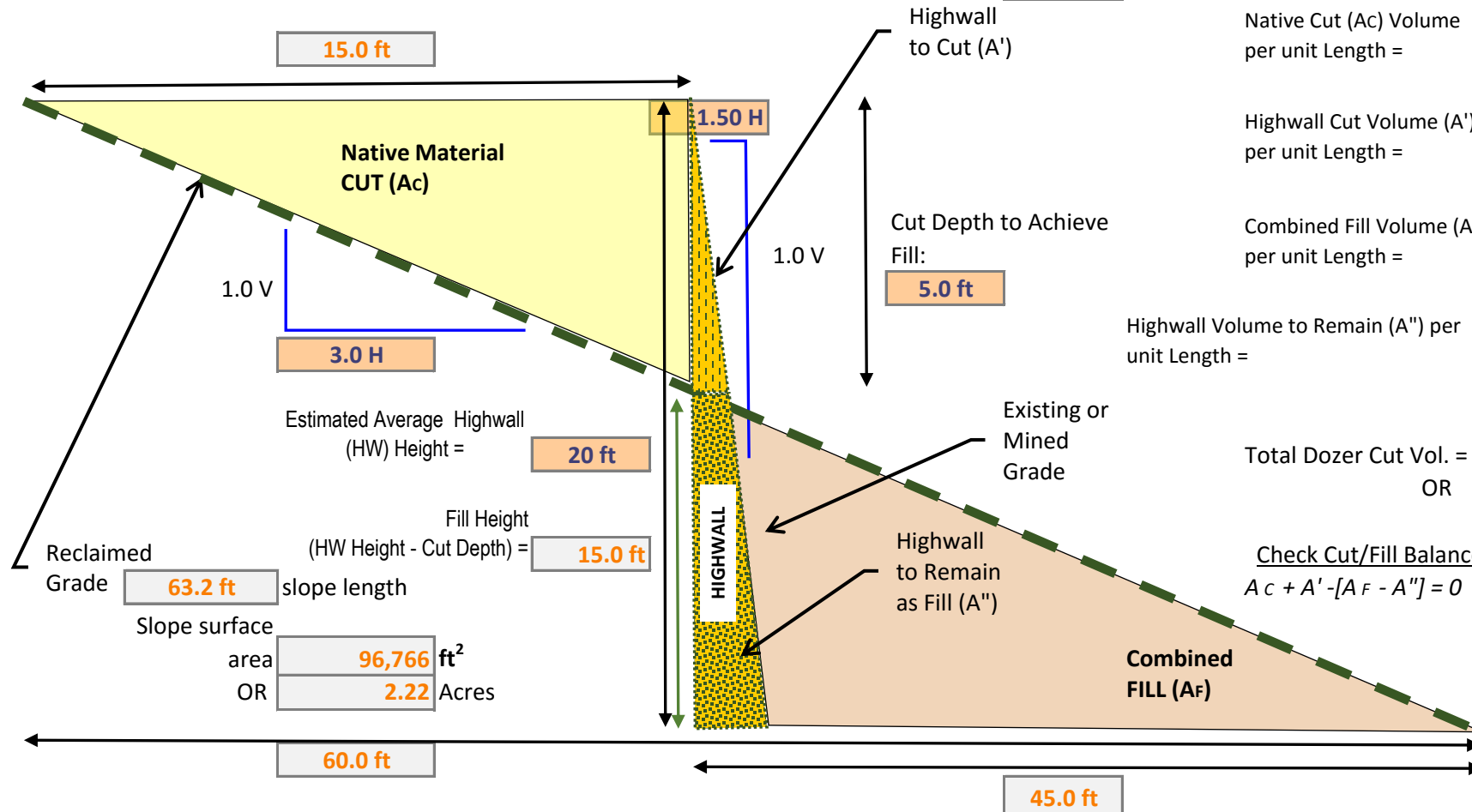
Task # NV1.1 North Visual Berm Cut/Fill Volume Estimate

PROJECT: Vollmer Pit
PERMIT No.: M-1983-035
HIGHWALL LOCATION: North Visual Berm

LEGEND

Input

Result



HIGHWALL CUT - FILL VOLUME ESTIMATE



Task # NV2.1 Clear & Grub North Berm Trees

Area: **2.38** Acres

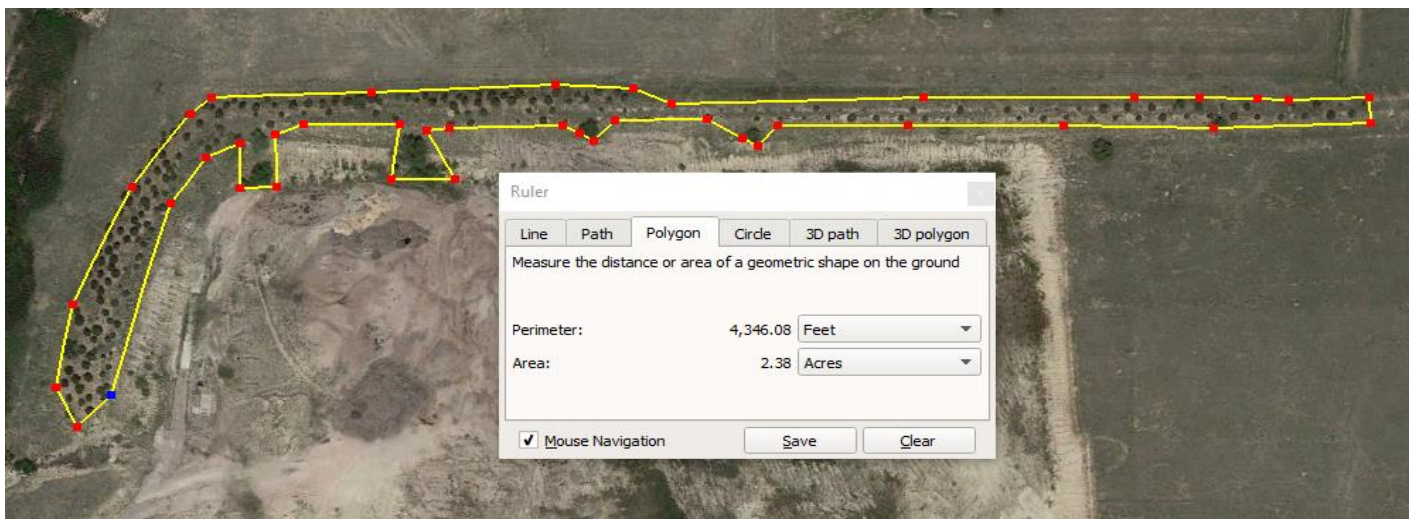
2016 RS Means Building Construction Cost Data

31 11 10.10 - Clear and Grub Site

0020 Cut and chip light trees to 6" diam.

0150 Grub stumps and remove

Crew*	Hours	Unit	\$/Unit	Cost	Total Hours
B-7	48	Acre	\$ 4,825.00	\$ 11,483.50	114.2
B-30	12	Acre	\$ 2,150.00	\$ 5,117.00	28.6
TOTAL Cost:				\$ 16,600.50	142.8



* Crew components include equipment requiring mobilization to and from site

Crew	Equipment
B-7	Brush Chipper, crawler loader
B-30	Hyd. Excavator (1.5 CY), 2 dump trucks (12 CY, 400 HP)

BULLDOZER RIPPING WORK

Task description: Rip northwest pit floor

Site: Vollmer Pit

Permit Action: TR04

Permit/Job#: M1983035

PROJECT IDENTIFICATION

Task #: PF1

State: Colorado

Abbreviation: None

Date: 6/28/2018

County: El Paso

Filename: M035-PF1

User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D6T XL

Horsepower: 185

Ripper Attachment: 3-Shank Ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$46.87	NA
Operating Cost/Hour:	\$41.52	100
Ripper Ownership Cost/Hour:	\$3.40	NA
Ripper Operating Cost/Hour:	\$2.00	100
Operator Cost/Hour:	\$40.52	NA
Total Unit Cost/Hour:	\$134.31	
Total Fleet Cost/Hour:	\$134.31	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 5.90 acres Rip Depth (ft): 1.00 Volume: 9,519 BCY or CCY

Source of estimated quantity: DRMS estimate - See Task PF1.1 worksheet

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 1.64 mph
Average Ripping Width: 6.58 degrees
Average Ripping Length: 500.00 feet
Average Dozer Speed: 88.00 feet
Average Maneuver Time: 0.25 feet
Production per unit area: 0.764 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.764 Acres/hr

Site Altitude: 7,000 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.63 Acres/hr

Adjusted Hourly Fleet Production: **0.63** Acres/hr

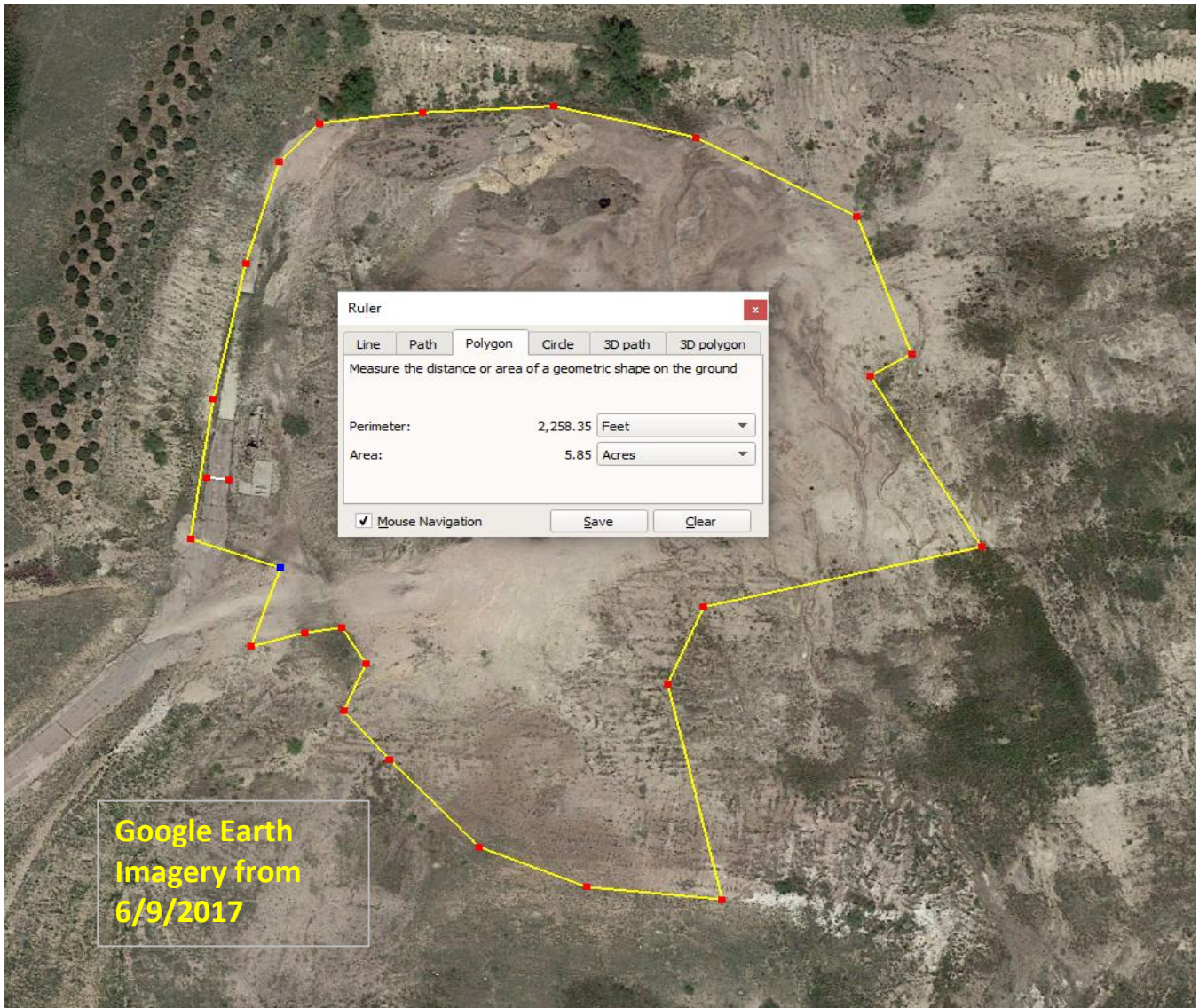
JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **9.30** Hours

Unit cost: \$211.816 Per acre Total job cost: **\$1,250**



Task # PF1.1 Rip Northwest Pit Floor



BULLDOZER WORKTask description: South berm, west end - south side regradeSite: Vollmer PitPermit Action: TR04Permit/Job#: M1983035**PROJECT IDENTIFICATION**Task #: SB1State: ColoradoAbbreviation: NoneDate: 7/3/2018County: El PasoFilename: M035-SB1User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D6T XLHorsepower: 185Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$46.87</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$41.52</u>	<u>100</u>
Ripper own.		
Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.52</u>	<u>NA</u>

Total unit Cost/Hour: \$128.91Total Fleet Cost/Hour: \$128.91**MATERIAL QUANTITIES**Initial Volume: 481Swell factor: 1.250Loose volume: 601 LCYSource of estimated volume: DRMS estimate - see Task SB1.1 worksheetSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly production: 444.6 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: -15 %Average site altitude: 7,000 feetMaterial weight: 2,550 lbs/LCYWeight description: Earth - Dry packedJob Condition Correction FactorSource

Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(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:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6567

Adjusted unit
production: 291.97 LCY/hr
Adjusted fleet
production: 291.97 LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.442/LCY

Total job time: 2.06 Hours
Total job cost: \$265



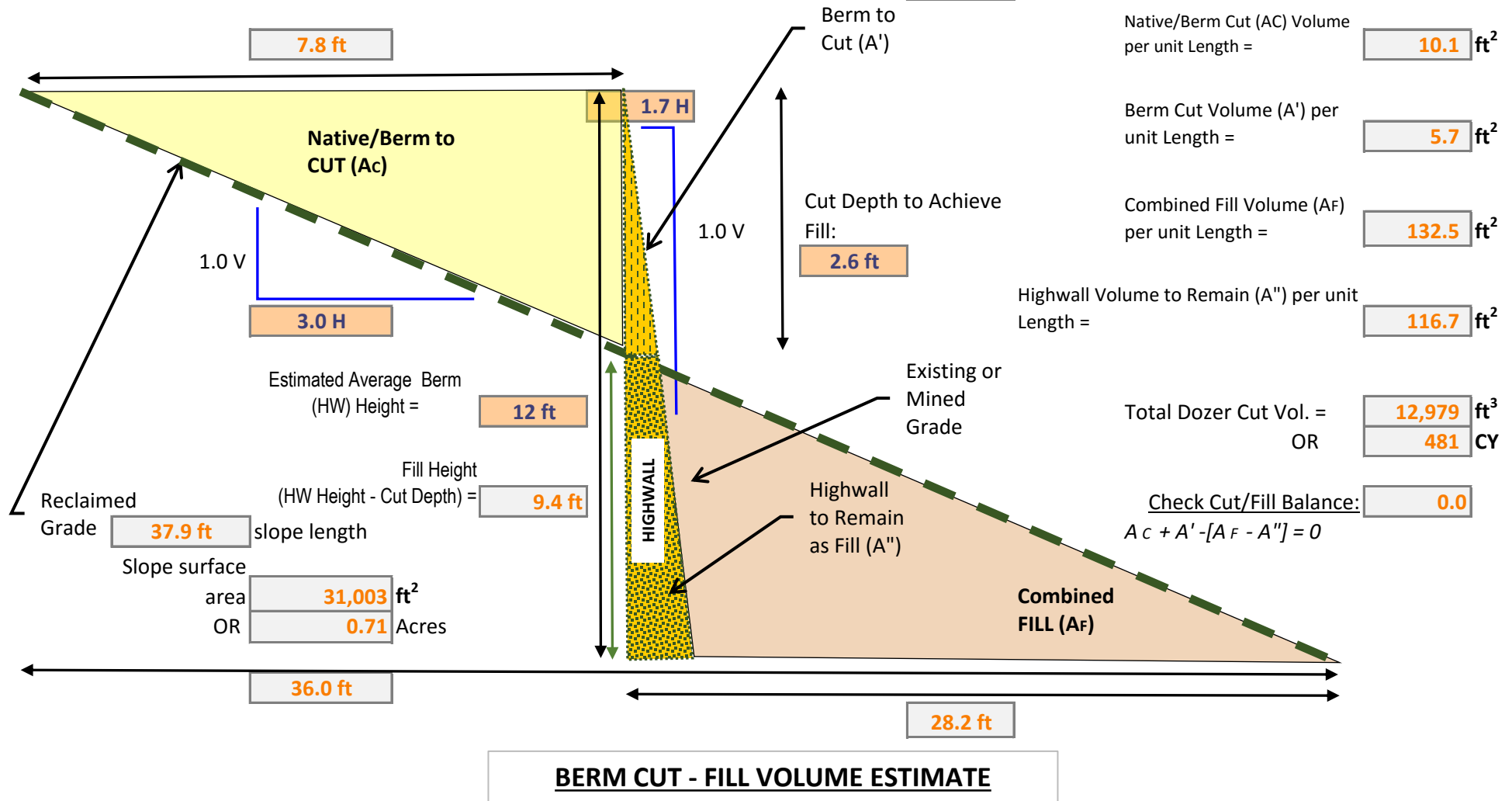
Task # SB1.1 South berm, west end - south side regrade

PROJECT: Vollmer Pit
PERMIT No.: M-1983-035
HIGHWALL LOCATION: South Berm, West End, South side

LEGEND

Input

Result



SCRAPER TEAM WORKTask description: Place growth media over 13.9 acresSite: Vollmer PitPermit Action: TR04Permit/Job#: M1983035**PROJECT IDENTIFICATION**Task #: SW1State: ColoradoAbbreviation: NoneDate: 6/28/2018County: El PasoFilename: M035-SW1User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 631G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
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	NA	NA	NA
Ownership cost/hour:	\$98.72	NA	NA	NA	NA	NA
Operating cost/hour:	\$108.19	NA	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	\$41.46	NA	NA	NA	NA	NA
Unit Subtotals:	\$248.37	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	\$496.74	Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: **\$496.74****MATERIAL QUANTITIES**Initial volume: 11,500

CCY

Swell factor: 1.250Loose volume: **14,375**

LCY

Source of estimated volume: P. 24 of TR-04Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: 2,550 lbs/LCY
 Material description: Earth - Dry packed
 Rated Payload: 81,600 pounds
 Payload Capacity: 32.00 LCY

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

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

Site Altitude: 7000 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	1650.00	-3.00	5.00	2.00	2806	0.98

Haul Time: 0.98 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1650.00	3.00	5.00	8.00	1446	1.21

Return Time: 1.21 minutesTotal Scraper team cycle time: 3.69 minutesAdjusted for job conditions: 391.38 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 782.76 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 782.76 LCY/HourUnadjusted unit production/hour: 471.54 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 18.36 HoursUnit cost: \$0.635 /LCYTotal job cost: \$9,122

REVEGETATION WORKTask description: Reveg 22.4 AcresSite: Vollmer PitPermit Action: TR04Permit/Job#: M1983035PROJECT IDENTIFICATIONTask #: SW2State: ColoradoAbbreviation: NoneDate: 7/3/2018County: El PasoFilename: M035-SW2User: 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
Chisel plowing {DMG}	\$90.60
Total Tilling Cost/Acre	\$90.60

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alfalfa - Common	1.00	4.82	\$2.55
Canada Wildrye	2.00	5.28	\$21.18
Intermediate Wheatgrass - Oahe	2.00	4.27	\$7.68
Streambank Wheatgrass - Sodar	2.00	6.52	\$12.18
Needle and Thread	3.00	7.92	\$124.50
Needlegrass, Green - Lodorm	3.00	12.47	\$14.61
Totals Seed Mix	13.00	41.28	\$182.70

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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$261.00	\$522.00
Total Mulch Materials Cost/Acre				\$522.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$66.02
Power mulcher (MEANS 32 91 13.16 0350)	\$99.32
Weed spray, truck, non-aquatic areas, ann. [DMG]	\$23.35
Total Mulch Application Cost/Acre	\$188.69

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: 22.4 Cost /Acre: \$1,215.99
 Estimated Failure Rate: 30% Cost /Acre*: \$1,215.99
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: \$27,238.18
 Reseeding Job Cost: \$8,171.45
 Total Job Cost: \$35,410
 Job Hours: 45.00

DOZERGRADER WORKTask description: Shape east cut face & SE cornerSite: Vollmer PitPermit Action: TR04Permit/Job#: M1983035PROJECT IDENTIFICATIONTask #: SW3State: ColoradoAbbreviation: NoneDate: 7/5/2018County: El PasoFilename: M035-SW3User: TC1Agency or organization name: DRMSHOURLY EQUIPMENT COSTBasic Machine: Cat D6T XL

Horsepower: _____

Blade Type: _____

Attachment: 3-shank ripperShift Basis: 1 per day

Data Source: _____

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$46.87	NA
Operating Cost/Hour:	\$41.52	100
Ripper own. Cost/Hour:	\$3.40	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.52	NA

Total unit Cost/Hour: \$132.31Total Fleet Cost/Hour: \$132.31JOB TIME AND COSTFleet size: 1 Dozer(s)Unit cost: \$132.31/LCYTotal job time: 8.00 HoursTotal job cost: \$1,058