COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, Colorado 80203

December 19, 2014

Ben Frei
Albert Frei & Sons Inc.
P.O. Box 700
Henderson, CO 80640

Re: Hatchery Pit, DRMS File No. M-2014-043,
112 Construction Materials Reclamation Permit Application,
Third Adequacy Review

Dear Mr. Frei:

The Division of Reclamation Mining and Safety (DRMS) has reviewed your submittals received on December 4, 2014 and December 15, 2014 in which you provided responses to DRMS's adequacy review letter dated October 24, 2014 and November 24, 2014. Responses are fully adequate for the following comments: 9, 11, 16, 27, and 28, our follow-up comments for questions 3 through 5, 15, 20, 21, and 29 are addressed in the Memo from DRMS staff reviewing the slope stability Analysis; and we provided new comments, which are 30 and 31.

6.4.5 EXHIBIT E - Reclamation Plan

15) Please clarify how the inert material will be placed into the pit. It is DRMS's understanding that the applicant plans to place inert fill into the pit in two separate main phases. The first phase the applicant will place inert material from the pit floor to roughly 10 below the final site elevation. The second phase will consist of placing fines and other material to bring the site to the final elevation. DRMS would request the applicant place both phases of the inert fill in 2 to 4 foot lifts. DRMS believes this method would help mitigate void space and settling.

30) Please provide a seeding rate for the western wheatgrass described in option 2. In the application, the applicant stated in the reclamation plan for option 2 that they would like to request release of the site after seeding has occurred. DRMS will not release the site until there is well-established vegetation to control erosion or the site is being developed as commercial or industrial land. Please change the permit text to reflect that the site will not be eligible for final release until there is well established vegetation or commercial development.

General Comments and Questions

29) Please address and respond to the following 5 questions asked in the attached Memo from DRMS's staff. The attached memo addressed the review of slope stability provided by Deere and Adult.

31) Please review the attached financial warranty calculation. DRMS calculated the financial warranty for the worst-case scenario. DRMS estimated the financial warranty for a scenario were no inert fill is placed in Phase 2. In this case, DRMS would need to backfill all slopes to 3H1:1V, spread topsoil, and seed the entire site with the option 1 seed mix.

The current decision deadline for this application is December 24, 2014. Please provide responses to the above comments soon enough for the Division to review the responses and complete a follow-up exchange of comments and responses prior to the decision deadline. If you are unable to provide satisfactory responses to any inadequacies prior to the decision deadline, **it will be your responsibility to request an extension of time to allow for continued review of this application.** If there are still unresolved issues when the decision date arrives and no extension has been requested, the application will be denied.

If you need additional information please contact me at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203, by telephone at 303-866-3567, extension 8131, or by email at Tyler.ODonnell@state.co.us.

Sincerely,

Tyler O'Donnell

Tyler O'Donnell
Environmental Protection Specialist

Enclosure: DRMS Memo addressing slope stability
DRMS draft financial warranty calculation

cc: Tom Kaldenbach, DRMS
Peter Hays, DRMS

Steve O'Brian
Environment, Inc.
7985 Vance Dr., #205A
Arvada, CO 80003

Ed Lanyon
City of Thornton
Infrastructure Maintenance Center
12450 Washington St.
Thornton, CO 80241

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

1313 Sherman Street, Room 215
Denver, CO 80203

December 18, 2014

To: Tyler O'Donnell, Division of Reclamation, Mining & Safety

From: Peter Hays, Division of Reclamation, Mining & Safety

Re: Second review of Slope Stability Analysis, Albert Frei & Sons Inc., Hatchery Pit, File No. M-2014-043

The Division of Reclamation, Mining and Safety (Division) staff has reviewed the stability analysis response dated December 12, 2014.

Items #1 through #9 and Item #11 from the Slope Stability Analysis review memo dated November 21, 2014 were answered satisfactorily by the Applicant.

1. In response to Item #10, the Applicant stated electronic copies of the Geo Studio files for the Deere & Ault slope stability analysis data are available upon request. Please submit hard copies of the stability analysis data so the information is part of the public record and the Division can duplicate the Deere & Ault models accurately.

2. The Deere & Ault stability analysis was based on generalized conditions and produced a factor of safety less than 1.3 in three of the five models (cross-sections B-B, C-C and E-E). Since the factor of safety was less than 1.3, the Division will require the Applicant to obtain structure agreements for all property, including easement holders, and structure owners within two hundred feet of the affected land. Alternatively, the Applicant may revise the model perimeters to increase the factor of safety to 1.3 or greater. Please note the Division has not verified the 1.3 factor of safety for cross-section D-D.

3. Please review cross-sections C-C and D-D on Deere & Ault Figure 6 and Map Exhibit C-1 Mining Plan Map. It appears the offset distance and Monaco Street loading was illustrated on the incorrect cross-section. The stability analysis models, Deere & Ault Figures 1 and 2, appear to represent the cross-sections accurately.

4. Please update the stability analysis cross-section D-D model to include surcharge load from the proposed haul road.

5. Please update the stability analysis cross-section B-B model to include surcharge load from 88th Avenue.

The Division will verify the Applicant's stability analysis models using Clover Technology's Galena v6.0 slope stability software following the Applicant's response to this letter.

If you have any questions, please contact me at (303) 866-3567 Ext. 8124.

Sincerely,

Peter S. Hays
Environmental Protection Specialist

Cc: Tom Kaldenbach, Division of Reclamation, Mining & Safety

COST SUMMARY WORK

Task description: **Reclaim Hatchery Pit**

Site: **Hatchery Pit** Permit Action: New Application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #: 999 State: Colorado Abbreviation: None
Date: 12/19/2014 County: Adams Filename: M043-999
User: TOD

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Build Phase 1 slury wall	SITEMAINTENANCE	1	0.00	$190,680.00
002	Build Phase 2 slury wall	SITEMAINTENANCE	1	0.00	$258,825.00
003	Backfill slope D-D of phase 2 to 3H:1V	DOZER	2	48.86	$21,057.00
004	Backfill slope C-C of phase 2 to 3H:1V	DOZER	2	115.31	$49,696.00
005	Backfill slope B-B of phase 2 to 3H:1V	DOZER	2	68.09	$29,346.00
006	Backfill west slope of phase 2 to 3H:1V	DOZER	2	22.02	$9,488.00
008	Spread 10 inches of topsoil over 37.25 acres	SCRAPER1	1	46.98	$45,657.00
009	Revegetation	REVEGE	1	174.00	$24,280.00
010	Mobilization /demobilization	MOBILIZE	1	4.66	$7,552.00
		SUBTOTALS:		**479.92**	**$636,581**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02%	Total =	$12,858.94
Performance bond:	1.05%	Total =	$6,684.10
Job superintendent:	120.00 hrs	Total =	$9,019.20
Profit:	10.00%	Total =	$63,658.10
		TOTAL O & P =	$92,220.34
		CONTRACT AMOUNT (direct + O & P) =	$728,801.34

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	6.00%	Total =	$43,728.08
Reclamation management and/or administration:	5.00%		$36,440.07
CONTINGENCY:	0.00	Total =	$0.00
		TOTAL INDIRECT COST =	$172,888.49
		TOTAL BOND AMOUNT (direct + indirect) =	**$809,469.49**

SITE MAINTENANCE

Task description: **Build Phase 1 slury wall**

Site: **Hatchery Pit** Permit Action: New Application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 12/19/2014 County: Adams Filename: M043-001
User: TOD

Agency or organization name: DRMS

UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Build Phase 1 slurry wall	1.00	USER PROVIDED ITEM	63,560.00	sqft	$3.00	$190,680.00

Job Hours: 0.00 **Total Cost: $190,680.00**

SITE MAINTENANCE

Task description: **Build Phase 2 slury wall**

Site: **Hatchery Pit** Permit Action: New Application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 12/19/2014 County: Adams Filename: M043-002
User: TOD

Agency or organization name: DRMS

UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Build Phase 2 slurry wall	1.00	USER PROVIDED ITEM	86,275.00	sqft	$3.00	$258,825.00

Job Hours: 0.00 **Total Cost: $258,825.00**

BULLDOZER WORK

Task description: **Backfill slope D-D of phase 2 to 3H:1V**

Site: **Hatchery Pit** Permit Action: New Application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #:	003	State:	Colorado	Abbreviation:	None
Date:	12/19/2014	County:	Adams	Filename:	M043-003
User:	TOD				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D8T - 8U
Horsepower:	310
Blade Type:	Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$69.05	NA
Operating Cost/Hour:	$107.59	100
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$38.85	NA

Total unit Cost/Hour: $215.48
Total Fleet Cost/Hour: **$430.96**

MATERIAL QUANTITIES

Initial Volume:	8,389
Swell factor:	1.115
Loose volume:	**9,354** LCY

Source of estimated volume: Slope is 850 feet long average depth is 21 feet
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 245 feet
Unadjusted hourly production: 410.8 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 25 %
Average site altitude: 5,100 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)

Push gradient:	0.422	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2330

Adjusted unit production: 95.72 LCY/hr

Adjusted fleet production: **191.44** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: $2.251/LCY

Total job time: **48.86** Hours

Total job cost: **$21,057**

BULLDOZER WORK

Task description: **Backfill slope C-C of phase 2 to 3H:1V**

Site: **Hatchery Pit** Permit Action: New Application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 12/19/2014 County: Adams Filename: M043-004
User: TOD

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8U
Horsepower: 310
Blade Type: Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$69.05	NA
Operating Cost/Hour:	$107.59	100
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$38.85	NA

Total unit Cost/Hour: $215.48
Total Fleet Cost/Hour: **$430.96**

MATERIAL QUANTITIES

Initial Volume: 21,886
Swell factor: 1.115
Loose volume: **24,403** LCY

Source of estimated volume: Slope is1450 feet long average depth is 23 feet
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 225 feet
Unadjusted hourly production: 454.1 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 25 %
Average site altitude: 5,100 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)

Push gradient:	0.422	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2330

Adjusted unit production: 105.81 LCY/hr

Adjusted fleet production: **211.62** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: $2.036/LCY

Total job time: **115.31** Hours

Total job cost: **$49,696**

BULLDOZER WORK

Task description: **Backfill slope B-B of phase 2 to 3H:1V**

Site: **Hatchery Pit** Permit Action: New Application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 12/19/2014 County: Adams Filename: M043-005
User: TOD

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8U
Horsepower: 310
Blade Type: Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$69.05	NA
Operating Cost/Hour:	$107.59	100
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$38.85	NA

Total unit Cost/Hour: $215.48
Total Fleet Cost/Hour: **$430.96**

MATERIAL QUANTITIES

Initial Volume: 15,937
Swell factor: 1.115
Loose volume: **17,770** LCY

Source of estimated volume: Slope is 1300 feet long average depth is 23 feet
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 185 feet
Unadjusted hourly production: 560.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 25 %
Average site altitude: 5,100 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)

Push gradient:	0.422	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2330

Adjusted unit production: 130.48 LCY/hr

Adjusted fleet production: **260.96** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: $1.651/LCY

Total job time: **68.09** Hours

Total job cost: **$29,346**

BULLDOZER WORK

Task description: **Backfill west slope of phase 2 to 3H:1V**

Site: **Hatchery Pit** Permit Action: New Application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
Date: 12/19/2014 County: Adams Filename: M043-006
User: TOD

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8U
Horsepower: 310
Blade Type: Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$69.05	NA
Operating Cost/Hour:	$107.59	100
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$38.85	NA

Total unit Cost/Hour: $215.48
Total Fleet Cost/Hour: **$430.96**

MATERIAL QUANTITIES

Initial Volume: 6,829
Swell factor: 1.115
Loose volume: **7,614** LCY

Source of estimated volume: Slope is 1475 feet long average depth is 10 feet
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 180 feet
Unadjusted hourly production: 574.7 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 20 %
Average site altitude: 5,100 feet

Material weight: 2,100 lbs/LCY

Weight description: Earth - Loam

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)

Push gradient:	0.545	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3009

Adjusted unit production: 172.93 LCY/hr

Adjusted fleet production: **345.86** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: $1.246/LCY

Total job time: **22.02** Hours

Total job cost: **$9,488**

SCRAPER TEAM WORK

Task description: **Spread 10 inches of topsoil over 37.25 acres**

Site: **Hatchery Pit** Permit Action: New application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 12/19/2014 County: Adams Filename: M043-008
User: TOD

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 631G
-Dozer:	Cat D8T - 8U
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	50	50
Ownership cost/hour:	$80.91	$69.05	NA	NA	$42.03	$10.57
Operating cost/hour:	$169.91	$107.59	NA	NA	$34.87	$18.11
Ripper op. cost/hour:	NA	$7.31	NA	NA	$0.00	$0.00
Operator cost/hour:	$39.02	$38.85	NA	NA	$38.23	$25.61
Unit Subtotals:	$289.83	$222.80	NA	NA	$115.13	$54.30
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work:	$802.46	Support:	$0.00	Maint:	$169.43

Total work team cost/hour: **$971.89**

MATERIAL QUANTITIES

Initial volume: 50,080 CCY Swell factor: 1.115
Loose volume: **55,839** LCY

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

HOURLY PRODUCTION

Material weight: 2,100 lbs/LCY
Material description: Earth - Loam
Rated Payload: 81,600 pounds
Payload Capacity: 38.86 LCY

Scraper Bowl (volume) Basis:

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 Minutes
Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction: Site Altitude: 5100 feet

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

Travel Time:

Road Condition: Hard, smooth, stabilized, surfaced, watered, maintained 2.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	625.00	-1.00	2.00	1.00	2872	0.49

Haul Time: **0.49** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	625.00	1.00	2.00	3.00	2890	0.44

Return Time: **0.44** minutes

Total Scraper team cycle time: **2.43** minutes
Adjusted for job conditions: 594.32 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,188.64 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,188.64** LCY/Hour

Unadjusted unit production/hour: 716.05 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **46.98** Hours

Unit cost: $0.818 /LCY Total job cost: **$45,657**

REVEGETATION WORK

Task description: **Revegetation**

Site: **Hatchery Pit** Permit Action: New Application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #: 009 State: Colorado Abbreviation: None
Date: 12/19/2014 County: Adams Filename: M043-009
User: TOD

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
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$98.01
Weed control spraying (MEANS 31 31 16.13 3100)	$145.20
Total Tilling Cost/Acre	**$243.21**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	0.56	9.14	$5.80
Buffalograss - Native/Plains	3.13	3.02	$42.13
Little Bluestem - Native	0.56	3.34	$8.00
Sideoats Grama - El Reno	1.13	3.71	$12.70
Intermediate Wheatgrass - Rush	1.38	2.95	$3.09
Oats - Russel	0.56	0.17	$0.18
Slender Wheatgrass - Native	1.48	5.40	$3.33
Thickspike Wheatgrass - Critana	9.00	31.82	$46.53
		59.54	**$121.76**

Totals Seed Mix	17.80		

Application

Description	**Cost /Acre**
Drill seeding (DRMS Cost Data)	$88.20
Total Seed Application Cost/Acre	**$88.20**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$265.00	$530.00
Total Mulch Materials Cost/Acre				**$530.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$65.89
Power mulcher (MEANS 32 91 13.16 0250)	$86.68
Total Mulch Application Cost/Acre	**$152.57**

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: 43.5
Estimated Failure Rate: 50%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,135.74
Cost /Acre*: $209.96

Initial Job Cost: **$49,404.69**
Reseeding Job Cost: **$4,566.63**
Total Job Cost: **$53,971**
Job Hours: **174.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization /demobilization**

Site: **Hatchery Pit** Permit Action: New Application 2014 Permit/Job#: M2014043

PROJECT IDENTIFICATION

Task #: 010 State: Colorado Abbreviation: None
Date: 12/19/2014 County: Adams Filename: M043-010
User: TOD

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 D8T - 8U	53.70	$69.05	$125.45	2	$388.99	$250.90	$500.00
Cat 627G	41.80	$69.99	$117.55	2	$375.09	$235.10	$500.00
CAT 14M	23.57	$45.44	$88.67	1	$134.11	$88.67	$250.00
Power Mulcher (Reinco M90)	6.00	$7.03	$88.67	1	$95.70	$88.67	$250.00
Subtotals:					**$993.89**	**$663.34**	**$1,500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 3,500 Gal.	$72.40	1	$72.40	$72.40
Subtotals:			**$72.40**	**$72.40**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	DENVER	
Total one-way travel distance:	10.00	miles
Average Travel Speed:	60.00	mph

Total Non-Roadable Mob/Demob Cost *	$7,527.97
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	$24.13
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.17	0.17
Return Time (Hours):	0.17	0.17
Loading Time (Hours):	1.00	NA
Unloading Time (Hours):	1.00	NA
Subtotals:	2.33	0.33

JOB TIME AND COST

Total job time:	**4.67**	Hours
Total job cost:	**$7,552**	