

COST SUMMARY WORK

Task description: Post inspection update

Site: Railhead Gravel Pit

Permit Action: 2019-05

Permit/Job#: M1995036

PROJECT IDENTIFICATION

Task #: ACY

State: Colorado

Abbreviation: None

Date: 6/6/2019

County: Mesa

Filename: M036-ACY

User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Regrade Pond Slopes to 3H:1V	DOZER	1	20.79	\$4,308
02a	Regrade Wetland Slopes to 10H:1V	DOZER	1	42.77	\$8,863
03a	Rip compacted areas	RIPPER	1	4.83	\$1,082
04a	Topsoil Replacement	DOZER	1	96.06	\$19,904
05a	Reveg-Wetlands	REVEGE	1	8.00	\$6,078
05b	Reveg-Dryland around pond	REVEGE	1	24.00	\$24,898
06a	Initial Mobilization	MOBILIZE	1	2.44	\$2,538
06b	Secondary Mobilization	MOBILIZE	1	2.44	\$1,503
<u>SUBTOTALS:</u>				201.33	\$69,174

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$1,397

Performance bond: 1.05

Total = \$726

Job superintendent: 100.67

Total = \$7,354

Profit: 10.00

Total = \$6,917

TOTAL O & P = \$16,395

CONTRACT AMOUNT (direct + O & P) = \$85,569

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

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

Total = \$500

Engineering work and/or contract/bid preparation: 4.25

Total = \$3,637

Reclamation management and/or administration: 5.41

\$4,629

CONTINGENCY: 3.00

Total = \$2,075

TOTAL INDIRECT COST = \$27,236

TOTAL BOND AMOUNT (direct + indirect) = \$96,410

BULLDOZER WORKTask description: **Regrade Pond Slopes to 3H:1V**Site: **Railhead Gravel Pit** Permit Action: **2019-05** Permit/Job#: **M1995036****PROJECT IDENTIFICATION**

Task #: **01A** State: **Colorado** Abbreviation: **None**
 Date: **6/6/2019** County: **Mesa** Filename: **M036-01a**
 User: **ACY**

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

Basic Machine: **Cat D8T - 8SU**
 Horsepower: **310**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.23	NA

Total unit Cost/Hour: **\$207.20**
 Total Fleet Cost/Hour: **\$207.20**

MATERIAL QUANTITIES

Initial Volume: **8,438**
 Swell factor: **1.230**
 Loose volume: **10,379 LCY**

Source of estimated volume: **5400 LF of 1.5:1 to 3:1 @ 15'H**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **75 feet**
 Unadjusted hourly production: **1,017.1 LCY/hr**

Materials consistency description: **Compacted fill or embankment 0.9**

Average push gradient: **0 %**
 Average site altitude: **4,524 feet**

Material weight: **2,100 lbs/LCY**Weight description: **Earth - Loam****Job Condition Correction Factor**

		<u>Source</u>
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:	0.800	(SSD-AC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4908

Adjusted unit production: 499.19 LCY/hr

Adjusted fleet production: **499.19** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.415/LCY

Total job time: **20.79** Hours

Total job cost: **\$4,308**

BULLDOZER WORKTask description: **Regrade Wetland Slopes to 10H:1V**Site: **Railhead Gravel Pit** Permit Action: **2019-05** Permit/Job#: **M1995036****PROJECT IDENTIFICATION**

Task #: **02A** State: **Colorado** Abbreviation: **None**
 Date: **6/6/2019** County: **Mesa** Filename: **M036-02a**
 User: **ACY**

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

Basic Machine: **Cat D8T - 8SU**
 Horsepower: **310**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.23	NA

Total unit Cost/Hour: **\$207.20**
 Total Fleet Cost/Hour: **\$207.20**

MATERIAL QUANTITIES

Initial Volume: **12,396**
 Swell factor: **1.230**
 Loose volume: **15,247 LCY**

Source of estimated volume: **1700 LF of 3:1 to 10:1 @ 15'H**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **125 feet**
 Unadjusted hourly production: **726.3 LCY/hr**

Materials consistency description: **Compacted fill or embankment 0.9**

Average push gradient: **0 %**
 Average site altitude: **4,524 feet**

Material weight: **2,100 lbs/LCY**Weight description: **Earth - Loam****Job Condition Correction Factor**

		<u>Source</u>
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:	0.800	(SSD-AC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4908

Adjusted unit production: 356.47 LCY/hr

Adjusted fleet production: **356.47** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.581/LCY

Total job time: **42.77** Hours

Total job cost: **\$8,863**

BULLDOZER RIPPING WORK

Task description: Rip compacted areas

Site: Railhead Gravel Pit Permit Action: 2019-05 Permit/Job#: M1995036

PROJECT IDENTIFICATION

Task #: 03A State: Colorado Abbreviation: None
Date: 6/6/2019 County: Mesa Filename: M036-03a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper Ownership Cost/Hour:	\$8.93	NA
Ripper Operating Cost/Hour:	\$7.78	100
Operator Cost/Hour:	\$40.23	NA
Total Unit Cost/Hour:	\$223.91	
Total Fleet Cost/Hour:	\$223.91	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 3.10 acres Rip Depth (ft): 2.00 Volume: 10,003 BCY or CCY

Source of estimated quantity: Staff estimates 4500 LF haul road approx 30 ft wide

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 feet/pass
Average Ripping Width: 7.08 feet/pass
Average Ripping Length: 200.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 0.773 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.773 Acres/hr
Site Altitude: 4,525 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.64 Acres/hr
Adjusted Hourly Fleet Production: **0.64** Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **4.83** Hours

Unit cost: \$348.931 Per acre Total job cost: **\$1,082**

BULLDOZER WORKTask description: **Topsoil Replacement**Site: **Railhead Gravel Pit** Permit Action: **2019-05** Permit/Job#: **M1995036****PROJECT IDENTIFICATION**

Task #: **04A** State: **Colorado** Abbreviation: **None**
 Date: **6/6/2019** County: **Mesa** Filename: **M036-04a**
 User: **ACY**

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

Basic Machine: **Cat D8T - 8SU**
 Horsepower: **310**
 Blade Type: **Semi-Universal**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.23	NA

Total unit Cost/Hour: **\$207.20**
 Total Fleet Cost/Hour: **\$207.20**

MATERIAL QUANTITIES

Initial Volume: **15,058**
 Swell factor: **1.115**
 Loose volume: **16,790 LCY**

Source of estimated volume: **16 ac 7" deep**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **300 feet**
 Unadjusted hourly production: **291.4 LCY/hr**

Materials consistency description: **Partly consolidated stockpile 1.1**

Average push gradient: **0 %**
 Average site altitude: **4,524 feet**

Material weight: **2,100 lbs/LCY**Weight description: **Earth - Loam****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5998

Adjusted unit production: 174.78 LCY/hr

Adjusted fleet production: **174.78** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$1.186/LCY

Total job time: **96.06** Hours

Total job cost: **\$19,904**

REVEGETATION WORKTask description: Reveg-WetlandsSite: Railhead Gravel PitPermit Action: 2019-05Permit/Job#: M1995036**PROJECT IDENTIFICATION**Task #: 05AState: ColoradoAbbreviation: NoneDate: 6/6/2019County: MesaFilename: M036-05aUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	100.00	pound	\$0.34	\$34.00
			Total Fertilizer Materials Cost/Acre	\$34.00

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$34.72
Total Fertilizer Application Cost/Acre	\$34.72

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	1.50	58.54	\$43.50
Canada Wildrye	11.00	29.04	\$119.24
Red Top	0.50	57.28	\$4.23
Reed Canarygrass - VNS	3.50	40.66	\$17.29
Timothy - Climax	2.00	57.39	\$3.20
Creeping Foxtail	3.00	68.87	\$13.92
Totals Seed Mix	21.50	311.78	\$201.38

Application

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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
Hay, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$2.81	\$2.81
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$4.26	\$4.26
Total Mulch Materials Cost/Acre				\$583.07

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Weed spray, truck, aquatic area, nox. [DMG]	\$70.14
Weed spray, truck, non-aquatic areas, ann. [DMG]	\$23.91
Total Mulch Application Cost/Acre	\$255.61

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:	<u>3</u>	Cost /Acre:	<u>\$1,447.07</u>
Estimated Failure Rate:	<u>40%</u>	Cost /Acre*:	<u>\$1,447.07</u>
*Selected Replanting Work Items:	<u>FERTILIZING,TILLING,SEEDING,MULCHING</u>		
Initial Job Cost:	<u>\$4,341.21</u>		
Reseeding Job Cost:	<u>\$1,736.48</u>		
Total Job Cost:	<u>\$6,078</u>		
Job Hours:	<u>8.00</u>		

REVEGETATION WORKTask description: **Reveg-Dryland around pond**Site: **Railhead Gravel Pit**Permit Action: 2019-05Permit/Job#: M1995036**PROJECT IDENTIFICATION**Task #: 05BState: ColoradoAbbreviation: NoneDate: 6/6/2019County: MesaFilename: M036-05bUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	100.00	pound	\$0.34	\$34.00
			Total Fertilizer Materials Cost/Acre	\$34.00

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$34.72
Total Fertilizer Application Cost/Acre	\$34.72

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Paloma	12.50	40.46	\$121.88
Crested Wheatgrass - Ephraim	6.00	27.55	\$22.50
Canby Bluegrass - Canbar	3.00	63.77	\$29.19
Sand Dropseed	0.50	59.69	\$5.55
Galleta	12.00	43.80	\$303.48
Saltbush, Four Wing	1.00	1.38	\$12.80
Totals Seed Mix	35.00	236.65	\$495.40

Application

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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
Hay, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$2.81	\$2.81
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$4.26	\$4.26
Total Mulch Materials Cost/Acre				\$583.07

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Weed spray, truck, aquatic area, nox. [DMG]	\$70.14
Weed spray, truck, non-aquatic areas, ann. [DMG]	\$23.91
Total Mulch Application Cost/Acre	\$255.61

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: 11 Cost /Acre: \$1,741.09
 Estimated Failure Rate: 30% Cost /Acre*: \$1,741.09
 *Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MU
LCHING

Initial Job Cost: **\$19,151.99**
 Reseeding Job Cost: **\$5,745.60**
 Total Job Cost: **\$24,898**
 Job Hours: **24.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Initial Mobilization**Site: **Railhead Gravel Pit**Permit Action: **2019-05**Permit/Job#: **M1995036****PROJECT IDENTIFICATION**Task #: **06A**State: **Colorado**Abbreviation: **None**Date: **6/6/2019**County: **Mesa**Filename: **M036-06a**User: **ACY**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 - 8SU	53.08	\$102.55	\$125.45	1	\$228.00	\$125.45	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	1	\$97.00	\$88.67	\$250.00

Subtotals: **\$429.21** **\$302.79** **\$750.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$76.10	1	\$76.10	\$76.10

Subtotals: **\$76.10** **\$76.10**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GRAND JUNCTION, CO	
Total one-way travel distance:	5.00	miles
Average Travel Speed:	45.00	mph
Total Non-Roadable Mob/Demob Cost *	\$2,521.09	
'* two round trips with haul rig:		
Total Roadable Mob/Demob Cost **	\$16.91	
** one round trip, no haul rig:		

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.11	0.11
Return Time (Hours):	0.11	0.11
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.22	0.22

JOB TIME AND COST

Total job time:	2.44	Hours
Total job cost:	\$2,538	

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Secondary Mobilization**Site: **Railhead Gravel Pit**Permit Action: **2019-05**Permit/Job#: **M1995036****PROJECT IDENTIFICATION**Task #: **06B**State: **Colorado**Abbreviation: **None**Date: **6/7/2019**County: **Mesa**Filename: **M036-06b**User: **ACY**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
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	1	\$97.00	\$88.67	\$250.00

Subtotals: **\$201.21** **\$177.34** **\$500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$76.10	1	\$76.10	\$76.10

Subtotals: **\$76.10** **\$76.10**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GRAND JUNCTION, CO	
Total one-way travel distance:	5.00	miles
Average Travel Speed:	45.00	mph
Total Non-Roadable Mob/Demob Cost *	\$1,486.54	
'* two round trips with haul rig:		
Total Roadable Mob/Demob Cost **	\$16.91	
** one round trip, no haul rig:		

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.11	0.11
Return Time (Hours):	0.11	0.11
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.22	0.22

JOB TIME AND COST

Total job time:	2.44	Hours
Total job cost:	\$1,503	