SECTION 32

TEMPORARY STRUCTURES AND FACILITIES REMOVAL AND RECLAMATION

TABLE OF CONTENTS

SECTION	SECTION TITLE	PAGE NUMBER
32	TEMPORARY STRUCTURES AND FACILITIES REMOVAL AND RECLAMATION	32-1
32.1	Roads Removal and Reclamation	32-1
32.2	Coal Transportation Facilities Removal and Reclamation	32-1
32.2.1	Railroad Removal and Reclamation	32-1
32.3	Buildings and Support Facility Areas Removal and Reclamation	32-2
32.3.1	Facility Demolition and Removal	32-2
32.4	Casing and Sealing of Drill Holes	32-2
32.4.1	Transfer of Wells	32-3

SECTION 32

TEMPORARY STRUCTURES AND FACILITIES REMOVAL AND RECLAMATION

LIST OF TABLES

TABLE NUMBER	TABLE TITLE

SECTION 32

TEMPORARY STRUCTURES AND FACILITIES REMOVAL AND RECLAMATION

LIST OF FIGURES

FIGURE NUMBER	FIGURE TITLE
32-1	Typical Drill Hole Seal Plug

SECTION 32

TEMPORARY STRUCTURES AND FACILITIES REMOVAL AND RECLAMATION

LIST OF EXHIBITS

EXHIBIT NUMBER	EXHIBIT TITLE

SECTION 32

TEMPORARY STRUCTURES AND FACILITIES REMOVAL AND RECLAMATION

LIST OF APPENDICES

APPENDIX NUMBER	APPENDIX TITLE
32.A	Bond Calculation Worksheet Worse Case Bond Scenario 2014

SECTION 32

TEMPORARY STRUCTURES AND FACILITIES REMOVAL AND RECLAMATION

LIST OF REVISIONS DURING PERMIT TERM

REV. NUMBER	REVISION DESCRIPTION	DATE APPROVED

32 TEMPORARY STRUCTURES AND FACILITIES REMOVAL AND RECLAMATION

32.1 Roads Removal and Reclamation

Currently, Navajo Mine does not plan to retain any of the mine roads for postmining land use; however, prior to removal of roads NTEC will consult with the Navajo Nation and identify any roads that the Navajo Nation would like retained. If any roads are to be retained the permit will be changed to reflect the permanent status of the roads. Consequently, the following reclamation measures are planned:

1. Where a road traverses otherwise undisturbed land, the natural drainages will be restored unless re-establishment would not enhance environmental values;
2. All culverts will be removed along with the removal of the associated road. The culverts will be salvaged, if possible, otherwise they will be disposed of in one of the final pits;
3. Roadbeds will be ripped, plowed, and scarified;
4. Fill slopes will be ripped and rounded or reduced and shaped to conform to the surrounding terrain and to meet natural drainage restoration;
5. Cut slopes will be shaped to blend with the regraded or natural contour;
6. Terraces will be constructed as necessary to prevent excessive erosion and to provide long term stability in cut and fill slopes, and;
7. Road surfaces will be covered with topdressing and revegetated according to the reclamation plan outlined in this chapter.

The anticipated removal dates of road segments is shown in Section 23 – Roads, Table 23-1. The removal dates shown are the dates when the road segments are no longer required and removal can begin. Road segments that are in front of the advancing active pits will be mined out according to the mine plan.

The Primary Road anticipated removal dates are included in Table 23-1. Each Ancillary Road shall be reclaimed in accordance with the reclamation methods outlined above as soon as practicable after it is no longer needed for mining and reclamation operations.

32.2 Coal Transportation Facilities Removal and Reclamation

32.2.1 Railroad Removal and Reclamation

The railroad and service road will be removed when mining operations terminate or when the facilities are no longer required. The current plan for completion of mining operations is scheduled for the year 2016, though it is highly likely that operations will be extended beyond this date. The removal of the railroad will begin at the time of ultimate closure.

Upon removal and reclamation of the railroad, all salvageable structures and equipment components will be disassembled and removed from the area. The unsalvageable materials, such as concrete, railroad ties and

unsuitable rail will be disposed of in one of the final pits or by other approved methods. The reclamation of the railroad and service road will follow the measures in listed above in steps 1 through 7. The Big Fill removal will consist of hauling 580,000 cubic yards of material to Hosteen Ramp 3 for final regrade material.

The Navajo Mine railroad shall remain in use for the life of the mine. The railroads shall be removed and reclaimed as stated in this Section.

32.3 Buildings and Support Facility Areas Removal and Reclamation

Revegetation will occur on areas such as topsoil stockpiles, ponds, diversions, roads, railroads and any other mine facilities when the feature in question is removed and the area is restored to FSC. The area will be ripped and disked as needed and reclaimed using normal reclamation procedures outlined in Section 37 – Post-Reclamation Vegetation.

32.3.1 Facility Demolition and Removal

Facility demolition and removal of all existing permit structures on the mine site includes the industrial complexes; water pipelines, intakes, and loadouts; electric power lines; explosive stores; coal facilities; water control structures; transportation facilities; and miscellaneous structures. A summary of demolition unit costs is presented in Table 12-B-1 in Appendix 32.A. Most of these costs were obtained from R.S. Means software "Cost Works 2009" Version 13.0.

All permit structures are tabulated in Worksheet 2 (Appendix 32.A). Structure dimensions are taken from existing plans, while unit costs are from Table 12-B-1 in Appendix 32.A. The resulting costs are totaled in Worksheet 16, Item 1 (Appendix 32.A).

32.4 Casing and Sealing of Drill Holes

Each exploration drill hole placed in areas not planned for disturbance during the permit term or placed in areas open to public or livestock access will be backfilled and sealed to eliminate hazards to people, livestock, wildlife, and machinery. The upper five feet of each exploration hole may be plugged with concrete and a metal post placed in the concrete for identification purposes. All of this is done in accordance with United States Geological Survey (USGS) Regulations covering exploration drilling.

Within the Permit Area any development drill holes, mine openings, bore holes, wells, or other openings will be plugged, cased, or managed. The typical drill hole seal/plug procedure is shown in Figure 32-1.

32.4.1 Transfer of Wells

The procedures and criteria used for casing and sealing exploratory and monitoring wells as discussed in this Section. In the event that groundwater wells are to be transferred for further use, regulatory approval will be necessary and shall comply with local, state, and federal regulations.

TYPICAL DRILL HOLE SEAL/PLUG

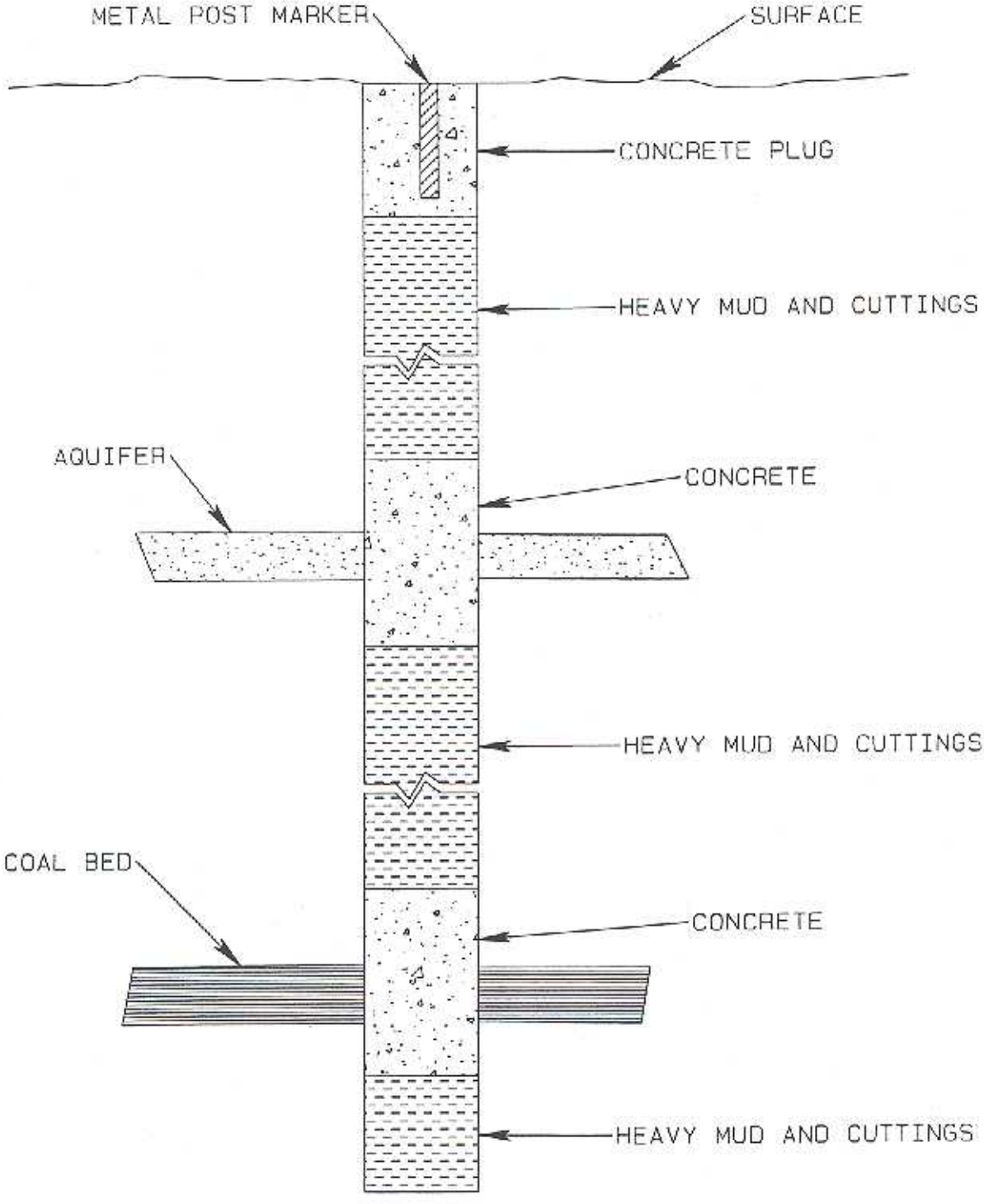


Figure 32-1

Appendix 32.A

Bond Calculation Worksheets
And Tables
Worst Case Bond Scenario 2014

Appendix 32.A

Bond Calculation Worksheets, Worse Case Bond Scenario 2014

Due to reformatting of the Navajo Mine PAP, the following references in this appendix have been changed, deleted or renumbered:

NM-0003F Paper Reference	NM-0003F Electronic Permit
Exhibit 12-11 to 12-13	Exhibit 50-1 to 50-3
Exhibit 12-14 to 12-16	Exhibit 50-6 to 50-8
Exhibit 12-17 to 12-19	Exhibit 50-11 to 50-13
Exhibit 12-20 to 12-21	Exhibit 50-15 to 50-16
Exhibit 12-22 was removed with 2009 Revision	
Exhibit 12-23	Exhibit 50-18
Exhibit 12-24 to 12-28	Exhibit 50-21 to 50-25
Exhibit 12-36 was removed with 2009 Revision	
Exhibit 12-37 to 12-38	Exhibit50-28 to 50-29
Exhibit 12-39	Exhibit 50-5
Exhibit 12-40	Exhibit 50-10
Exhibit 12-41	Exhibit 50-14

APPENDIX 12 - B

Table of Contents

Item	Title
Figure B-1	Worksheet Flow Diagram

WORKSHEETS

2 ..... Structure Demolition Worksheet
3 ..... Material Handling Worksheet
5 ..... Dozer Activities Worksheet
8 ..... Loader Activities Worksheet
9 ..... Truck Activities Worksheet
11 ..... Scraper Activities Worksheet
12 ..... Motor Grader Activities Worksheet
13 ..... Summary of Earth Moving Costs
14 ..... Revegetation Costs
15 ..... Other Reclamation Activities Costs
16 ..... Reclamation Bond Summary

TABLES

12-B-1 ..... Demolition Unit Costs
12-B-2 ..... Culvert Volumes
12-B-3 ..... Backfilling of Ponds and Impoundments
12-B-4 ..... Road Ripping
12-B-5 ..... Area I Bond Regrade Earthmoving Dozers
12-B-6 ..... Area II Bond Regrade Earthmoving Dozers
12-B-7 ..... Area III Bond Regrade Earthmoving Dozers
12-B-9 ..... Area II Bond Regrade Earthmoving Trucks

APPENDIX 12 - B

Table of Contents

Item | Title

TABLES (cont'd).

12-B-10 .....Area III Bond Regrade Earthmoving Trucks and Loader
12-B-11 ..... Area I Bond Reclamation Topsoil Material Movement Trucks
12-B-12 .....Area II Bond Reclamation Topsoil Material Movement Trucks
12-B-13 .....Area III Bond Reclamation Topsoil Material Movement Trucks
12-B-14 .....Area I Bond Reclamation Mitigation Material Movement Trucks
12-B-15 ..... Area II Bond Reclamation Mitigation Material Movement Trucks
12-B-16 .....Area III Bond Reclamation Mitigation Material Movement Trucks
12-B-17 ..... Area II Bond Regrade Earthmoving Scrapers
12-B-18 .....Area III Bond Regrade Earthmoving Scrapers
12-B-19 .....Area I Bond Reclamation Topsoil Material Movement Scrapers
12-B-20 ..... Area II Bond Reclamation Topsoil Material Movement Scrapers
12-B-21 .....Area III Bond Reclamation Topsoil Material Movement Scrapers
12-B-22 .....Area III Bond Reclamation Topsoil Material Movement Scrapers
12-B-23 .....Equipment Ownership and Operating Costs
12-B-24 .....Equipment Operator Wage Rates
12-B-25 .....Drill and Blast Quantities
12-B-26 .....Bond Equipment Availabilities

BOND CALCULATION WORKSHEETS

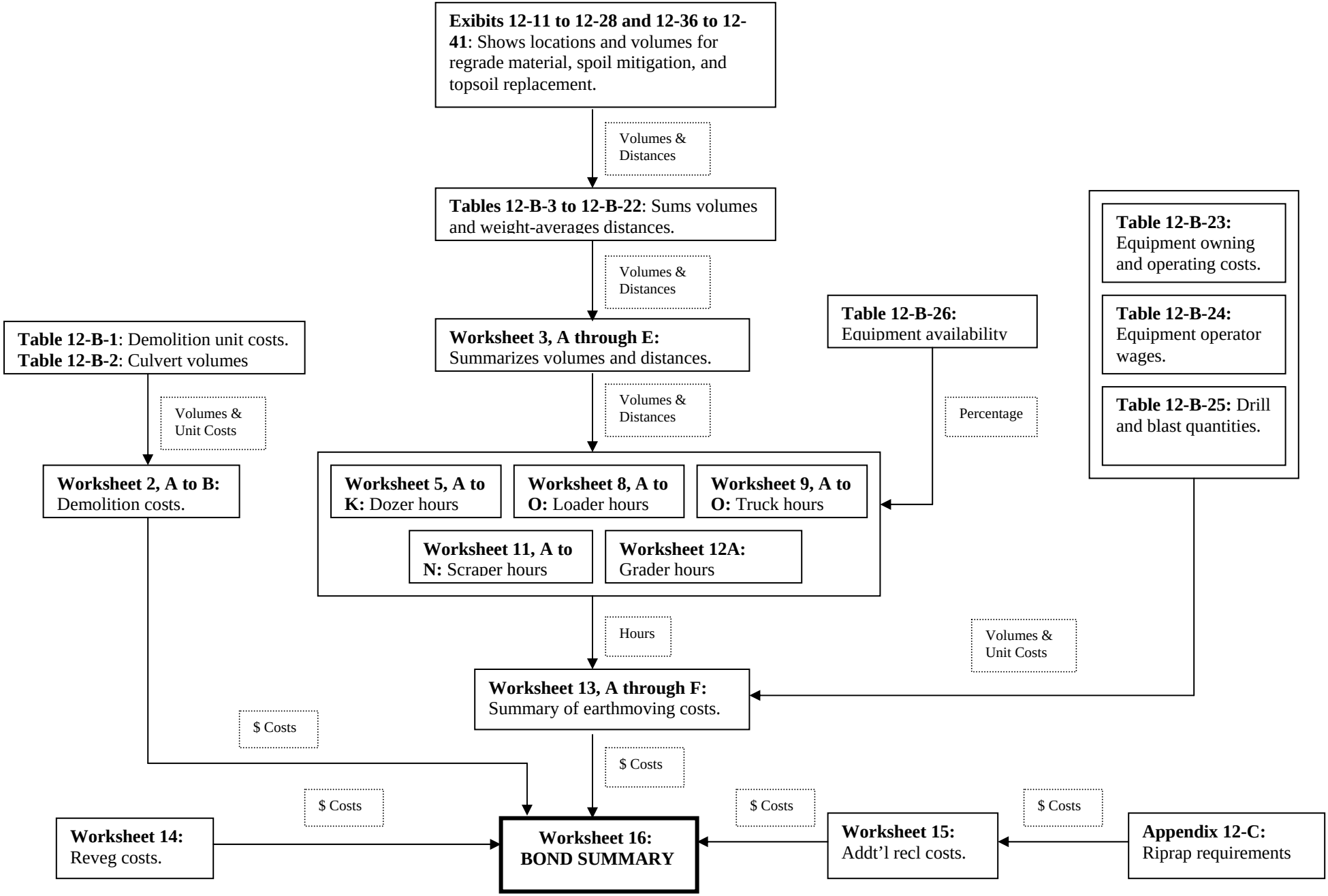
WORST CASE BOND SCENARIO 2014

Updated September 2011

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT
BOND AMOUNT CALCULATION

FIGURE 12-B-1

FLOWCHART



WORKSHEET NO. 1

DESCRIPTION OF WORST CASE BONDING RECLAMATION SCENARIO

Determination of Maximum Reclamation Requirements

The point at which reclamation liabilities will be greatest occurs during the first year of the five-year term ending in 2014 (see Worksheet 1, APPENDIX 12-B). The open volume of North and South Barber are at the maximum during year 1. As Hosteen and Yazzie pits progress, the final pit associated continually decreases in length.

The Yazzie, Hosteen, North Barber, South Barber, Lowe, Dixon, and Area 4 North pits will all require reclaiming at the end of 2014. Dozers will be utilized to push the maximum amount of material into the pits. Any material the dozers cannot move in a cost effective manner will be moved by scrapers or trucks and loaders. Any areas that do not pass the spoil sampling tests will be mitigated by one of the approved methods in the permit prior to topsoil placement. For the purpose of this reclamation bond calculation, the mitigation rates utilized for regarded areas are 5.0% for Area 1 and 2; and 10.8% for Area 3 and 4 North. After all spoil is regraded, final pits will be shaped to their final contours, and mitigation material will be placed where required; topsoil will be placed, revegetation will occur with a 20% failure rate and the mine facilities will be removed. Facility areas will be mitigated as required and topsoiled. At this time, the mine will be ready to begin phased bond release with the ultimate goal of total bond release. It will be necessary to move and place approximately 133,000,000 cubic yards of material during the reclamation effort. The majority (approximately 120,000,000 cubic yards) will be moved and placed during the primary grading effort. Therefore, the major effort for this reclamation bond calculation is focused on primary grading.

WORKSHEET NO. 2
STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Structure	Length [ft]	Width [ft]	Height [ft]	Number	Construction	Building				Floors, Surfaces & Walls				Footings			
						Volume [yd3]	Unit Cost	Ref	Cost	Area [ft2]	Unit Cost	Ref	Cost	Length [ft]	Unit Cost	Ref	Cost
Area 3																	
Area 3 Guard House	16	16	11	1	Steel Building	2,688	0.24	1	$645	256	4.94	9a	$1,265	64.0	9.73	12a	$623
Area 3 Field Office	60	147	14	1	Steel Building	123,480	0.24	1	$29,635	8,820	4.94	9a	$43,592	414	9.73	12a	$4,029
Area 3 Field Office	40	80	14	1	Steel Building	44,800	0.24	1	$10,752	3,200	4.94	9a	$15,816	240	9.73	12a	$2,336
Area 3 Field Office	20	19	14	1	Steel Building	5,320	0.24	1	$1,277	380	4.94	9a	$1,878	78.0	9.73	12a	$759
Area 3 Field Office	32	10	14	1	Steel Building	4,480	0.24	1	$1,075	320	4.94	9a	$1,582	84.0	9.73	12a	$817
Area 3 Field Office	33	141	14	1	Steel Building	65,142	0.24	1	$15,634	4,653	4.94	9a	$22,997	348	9.73	12a	$3,387
Area 3 Field Office Sidewalk	900	5		1	Concrete	-	-	-	-	4,500	0.75	27	$3,375	-	-	-	-
Area 3 Parking Lot	393	168		1	Asphalt	-	-	-	-	66,024	0.59	28	$39,113	-	-	-	-
Area 3 Entrance Road	319	32		1	Asphalt	-	-	-	-	10,208	0.59	28	$6,047	-	-	-	-
Area 3 Walkway to Maint Shop	215	10		1	Asphalt	-	-	-	-	2,150	0.59	28	$1,274	-	-	-	-
Area 3 Wash Facility	80	36	32	1	Concrete Building	92,160	0.34	2	$31,334	2,880	4.94	9a	$14,234	232	9.73	12a	$2,258
Area 3 Pump House	12	12	20	1	Concrete Building	2,880	0.34	2	$979	144	4.94	9a	$712	48.0	9.73	12a	$467
Area 3 Shop - Ambulance	30	54	15	1	Steel Building	23,490	0.24	1	$5,638	1,620	4.94	9a	$8,007	168	9.73	12a	$1,635
Area 3 Shop - Small bays	102	151	23	1	Steel Building	354,246	0.24	1	$85,019	15,402	4.94	9a	$76,123	506	9.73	12a	$4,924
Area 3 Shop - Truck Bays	154	89.5	44	1	Steel Building	603,695	0.24	1	$144,887	13,783	4.94	9a	$68,121	487	9.73	12a	$4,739
Area 3 Shop - Lube Bays	30	89.5	25	1	Steel Building	67,125	0.24	1	$16,110	2,685	4.94	9a	$13,270	239	9.73	12a	$2,326
Area 3 Shop - Warehouse Add.	78	84	20	1	Steel Building	131,040	0.24	1	$31,450	6,552	4.94	9a	$32,383	324	9.73	12a	$3,153
Area 3 Shop - Lube Dock	103	30	15	1	Steel Building	46,350	0.24	1	$11,124	3,090	4.94	9a	$15,272	266	9.73	12a	$2,589
Area 3 Shop - Sidewalk	133	5		1	Concrete	-	-	-	-	665	0.75	27	$499	-	-	-	-
Area 3 Shop - Driveway	370	30		1	Concrete	-	-	-	-	11,100	0.79	29	$8,796	-	-	-	-
Area 3 Shop - Driveway	120	17		1	Concrete	-	-	-	-	2,040	0.79	29	$1,617	-	-	-	-
Area 3 Shop - Driveway	102	10		1	Concrete	-	-	-	-	1,020	0.79	29	$808	-	-	-	-
Area 3 Cable Shop	40	16	12	1	Steel Building	7,680	0.24	1	$1,843	640	4.94	9a	$3,163	1,344	9.73	12a	$13,079
Area 3 Cable Shop Sidewalk	88	8		1	Concrete	-	-	-	-	704	0.75	27	$528	-	-	-	-
Area 3 Cable Shop Pad	20	20		1	Concrete	-	-	-	-	400	4.94	9a	$1,977	-	-	-	-
Area 3 Ready Line	600	2	6	1	Concrete w/rods	7,200	2.94	30	$21,187	-	-	-	-	-	-	-	-
Area 3 Fuel Tanks		25000	gal.	4	Steel Structure	13,369	0.23	31	$3,075	-	-	-	-	-	-	-	-
Area 3 Fuel Tanks		12000	gal.	2	Steel Structure	3,209	0.23	31	$738	-	-	-	-	-	-	-	-
Fuel Tank Enclosure	82	51	3	1	Concrete(8"walls)	-	-	-	-	798	10.32	19a	$8,236	-	-	-	-
Fuel Tank Enclosure - Slab	82	51		1	Concrete	-	-	-	-	4,182	6.59	10	$27,559	266	9.73	12a	$2,589
Fuel Tank Drive Pad	82	20		1	Concrete	-	-	-	-	1,640	4.94	9a	$8,106	-	-	-	-
Dixon Water Loadout Slab	60	24	2	1	Concrete	2,160	2.94	30	$6,356	-	-	-	-	-	-	-	-
Barber Loadout Slab	72	24	1	1	Concrete	1,296	2.94	30	$3,814	-	-	-	-	-	-	-	-
Dixon ANFO Loadout ANFO Silos	55	13.5	dia.	1	Steel Structure	7,873	0.23	31	$1,811	-	-	-	-	-	-	-	-
Dixon ANFO Loadout ANFO Silos	55	13.5	dia.	1	Steel Structure	7,873	0.23	31	$1,811	-	-	-	-	-	-	-	-
Dixon ANFO Loadout Emulsion Silo	29	12	dia.	1	Steel Structure	3,280	0.23	31	$754	-	-	-	-	-	-	-	-
Dixon ANFO Loadout Fuel Tank		10000	gal.	1	Steel Structure	1,337	0.23	31	$307	-	-	-	-	-	-	-	-
Dixon ANFO Loadout Footings	48	4	4	1	Concrete	768	2.94	30	$2,260	-	-	-	-	-	-	-	-
Barber Stkp ANFO Loadout ANFO Silo	48.3	11.5	dia.	1	Steel Structure	5,017	0.23	31	$1,154	-	-	-	-	-	-	-	-
Barber Stkp ANFO Loadout Emulsion Silo	29	12	dia.	1	Steel Structure	3,280	0.23	31	$754	-	-	-	-	-	-	-	-

WORKSHEET NO. 2

STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Structure	Length [ft]	Width [ft]	Height [ft]	Number	Construction	Building				Floors, Surfaces & Walls				Footings			
						Volume [yd3]	Unit Cost	Ref	Cost	Area [ft2]	Unit Cost	Ref	Cost	Length [ft]	Unit Cost	Ref	Cost
Barber Stkp ANFO Loadout Oil Tank		8000	gal.	1	Steel Structure	1,070	0.23	31	$246	-	-	-	-	-	-	-	-
Barber Stkp ANFO Loadout Footings (8)	32	4	4	8	Concrete	4,096	2.94	30	$12,053	-	-	-	-	-	-	-	-
Barber HW ANFO Loadout ANFO Silo	55	13.5	dia.	1	Steel Structure	7,873	0.23	31	$1,811	-	-	-	-	-	-	-	-
Barber HW ANFO Loadout Emulsion Silo	29	12	dia.	1	Steel Structure	3,280	0.23	31	$754	-	-	-	-	-	-	-	-
Barber HW ANFO Loadout Oil Tank		12000	gal.	1	Steel Structure	1,604	0.23	31	$369	-	-	-	-	-	-	-	-
Barber HW ANFO Loadout Footings (8)	32	4	4	8	Concrete	4,096	2.94	30	$12,053	-	-	-	-	-	-	-	-
Barber HW ANFO Drive Pad	18	33		1	Concrete	-	-	-	-	594	4.94	9a	$2,936	-	-	-	-
Barber HW ANFO Enclosure	23	33	5	1	Concrete(8" walls)	-	-	-	-	560	10.32	19a	$5,780	-	-	-	-
Barber HW ANFO Enclosure - Slab	23	33		1	Concrete	-	-	-	-	759	6.59	10	$5,002	112	9.73	12a	$1,090
Old Yazzie Silo Footings	32	4	4	1	Concrete	512	2.94	30	$1,507	-	-	-	-	-	-	-	-
Lowe Magazine Security Fence	2000		10	1	Chain Link/Razor Wire	-	-	-	-	-	-	-	-	2,000	3.68	24	$7,364
Lowe Magazine Load Dock	8	18	4	1	Concrete Structure	576	0.34	2	$196	144	4.94	9a	$712	52.0	9.73	12a	$506
Lowe Magazine Load Dock Walls	8	18	4	1	Concrete (8"walls)	-	-	-	-	144	10.32	19a	$1,486	-	-	-	-
A-3 Potable Water Tank	25	40	dia.	1	Steel w/ Conc Slab	31,416	0.23	31	$7,226	1,000	4.94	9a	$4,942	130	9.73	12a	$1,265
A-3 Potable Water Pump Building	36	28	12	1	Steel Building	12,096	0.24	1	$2,903	1,008	4.94	9a	$4,982	128	9.73	12a	$1,246
Safety Building	26	70	13	1	Steel Building	23,660	0.24	1	$5,678	1,820	4.94	9a	$8,995	192	9.73	12a	$1,868
Solvent Building	30	62	13	1	Steel Building	24,180	0.24	1	$5,803	1,860	4.94	9a	$9,193	184	9.73	12a	$1,791
Area 3 Welding Shop	60	120	40	1	Steel Building	288,000	0.24	1	$69,120	7,200	4.94	9a	$35,585	360	9.73	12a	$3,503
Area 3 Wash Bay Addition	16	30	13	1	Steel Building	6,240	0.24	1	$1,498	480	4.94	9a	$2,372	92.0	9.73	12a	$895
Area 3 Wash Bay Drains	3	10		1	Concrete	-	-	-	-	30	4.94	9a	$148	-	-	-	-
Area 3 Propane Tank	70	10	dia.	1	Steel Structure	5,498	0.23	31	$1,264	-	-	-	-	-	-	-	-
Area 3 Propane Tank Loading Dock	10	18	4	1	Concrete slab	-	-	-	-	180	4.94	9a	$890	-	-	-	-
Area 3 Maintenance Shop Addition	41	41	15	1	Steel Building	24,375	0.24	1	$5,850	1,681	4.94	9a	$8,308	164	9.73	12a	$1,596
Area 3 Oil Blending Sys Enclosure	40	27	5	1	8" Concrete Walls	-	-	-	-	670	10.32	19a	$6,915	-	-	-	-
Area 3 Oil Blending Sys Slab	40	27		1	Concrete	-	-	-	-	1,080	4.94	9a	$5,338	134	9.73	12a	$1,304
Area 3 Oil Blending Sys Drive Pad	18	40		1	Concrete	-	-	-	-	720	4.94	9a	$3,559	-	-	-	-
Area 3 Oil Blending Tank	28	11	dia.	1	Steel Structure	2,661	0.23	31	$612	-	-	-	-	-	-	-	-
Area 3 Oil Blending Tank	15	12	dia.	1	Steel Structure	1,696	0.23	31	$390	-	-	-	-	-	-	-	-
GPS Antenna Relocation Footings	4	4	4	1	Concrete	64	0.34	2	$22	-	-	-	-	-	-	-	-
Bigham Haulroad Asphalt Removal				1		-	-	-	-	253,800	0.59	28	$150,353	-	-	-	-
Area 3 Filed Office (mechanics)	32	28	13	1	Steel Building	11,648	0.24	1	$2,796	-	-	-	-	-	-	-	-
Area 3 Field Office (mechanics) Foundation	4	2.5	dia.	1	Concrete	19.6	2.94	30	$58	-	-	-	-	-	-	-	-
Dragline Outage Pad	1	82	dia.	1	Concrete	5,281	2.94	30	$15,540	-	-	-	-	-	-	-	-
Dragline Outage Building	92	92	92	1	Steel	778,688	0.12	1A	$93,443	-	-	-	-	-	-	-	-
Silo Pad				1	Concrete	-	-	-	-	39,204	2.94	30	$115,361	-	-	-	-
Area 3 Operator Simulator Pad	50	50	1	1	Concrete					2,500	2.94	30	$7,356				
Area 3 Outdoor Work Pad	40	60	2	1	Concrete	-	-	-	-	2,400	2.94	30	$7,062	-	-	-	-
North Area																	
Welding & Machine Shop	91	105.5	20	1	Steel Building	192,010	0.24	1	$46,082	9,601	4.94	9a	$47,450	393	9.73	12a	$3,825
Seed Storage Building	60	30	20	1	Steel Building	36,000	0.24	1	$8,640	1,800	4.94	9a	$8,896	180	9.73	12a	$1,752
Tire Shop	120	60	30	1	Concrete Building	216,000	0.34	2	$73,440	7,200	4.94	9a	$35,585	360	9.73	12a	$3,503

WORKSHEET NO. 2

STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Structure	Length [ft]	Width [ft]	Height [ft]	Number	Construction	Building				Floors, Surfaces & Walls				Footings			
						Volume [yd3]	Unit Cost	Ref	Cost	Area [ft2]	Unit Cost	Ref	Cost	Length [ft]	Unit Cost	Ref	Cost
Lab/Carpentry Shop	104	70	18	1	Steel/Masonry	131,040	0.26	3	$34,070	7,280	4.94	9a	$35,981	348	9.73	12a	$3,387
Area I Ready Line	400	2	6	1	Concrete	4,800	2.94	30	$14,124	-	-	-	-	-	-	-	-
Area I Parking Lot	50	100		1	Ashpalt	-	-	-	-	5,000	0.59	28	$2,962	-	-	-	-
Old Coal Lab	30	22	14	1	Masonry Building	9,240	0.26	3	$2,402	660	4.94	9a	$3,262	104	9.73	12a	$1,012
Area I Main Shop	302	116	30	1	Steel Building	1,050,960	0.24	1	$252,230	35,032	4.94	9a	$173,142	836	9.73	12a	$8,136
Control Tower	8	18	dia.	1	Steel Building	2,036	0.24	1	$489	254	4.94	9a	$1,257	52.0	9.73	12a	$506
Substation Buildings (12 total)	25	12	12	12	Masonry Building	43,200	0.26	3	$11,232	3,600	4.94	9a	$17,793	888	9.73	12a	$8,642
Plant Conveyor				1		-	-	-	-	-	-	-	-	10,330	24.35	33	$251,548
Conveyor Footings (504 total)	7.48			504		-	-	-	-	-	-	-	-	7,540	9.73	12a	$73,375
Conveyor Transfer Tower (15 total)	15	15	19	15	Steel Structure	64,125	0.24	1	$15,390	-	-	-	-	900	18.13	15a	$16,316
Crushers (2 total)	15	18	40	2	Steel Structure	21,600	0.23	31	$4,968	-	-	-	-	132	18.13	15a	$2,393
Hoppers (2 total)	60	65	68	2	Concrete Structure	530,400	0.34	2	$180,336	-	-	-	-	-	-	-	-
Coal Plant Reclaimers (2 total)	30	116	30	2	Steel Structure	208,800	0.23	31	$48,024	-	-	-	-	-	-	-	-
Coal Plant Stackers (2 total)	30	20	53	2	Steel Structure	63,600	0.23	31	$14,628	-	-	-	-	-	-	-	-
Coal Plant Rails				1	Rails and ties	-	-	-	-	-	-	-	-	9,000	3.33	26	$29,970
Area I Fuel Tanks	32	8	dia.	1	Steel Structure	1,608	0.23	31	$370	-	-	-	-	-	-	-	-
Area I Fuel Tanks (2 total)	27	8	dia.	2	Steel Structure	2,714	0.23	31	$624	-	-	-	-	-	-	-	-
Area I Fuel Tank Enclosure	42	48	5	1	8" Concrete Walls	-	-	-	-	900	10.32	19a	$9,288	-	-	-	-
Area I Fuel Tank Enclosure Slab	42	48		1	Concrete	-	-	-	-	2,016	6.59	10	$13,285	180	9.73	12a	$1,752
Area I Fuel Tank Drive Pad	20	48		1	Concrete	-	-	-	-	960	4.94	9a	$4,745	-	-	-	-
North Water Loadout	20	4	5	1	Steel Structure	400	0.24	1	$96	-	-	-	-	-	-	-	-
North Water Loadout Drive Pad	60	24	2	1	Concrete	2,160	2.94	30	$6,356	-	-	-	-	-	-	-	-
North Potable Water Tank	25	40	dia.	1	Steel Structure	31,416	0.23	31	$7,226	1,256	4.94	9a	$6,208	126	9.73	12a	$1,222
North Potable Water Pump Building	8	12	8	1	Concrete Building	768	0.34	2	$261	96	4.94	9a	$474	40.0	9.73	12a	$389
Ramp 7 Potable Water Building	20	16	10	1	Steel Building	3,200	0.24	1	$768	320	4.94	9a	$1,582	72.0	9.73	12a	$701
Radio Towers (2 total)	2	2	180	2	Steel Structure	1,440	0.23	31	$331	-	-	-	-	-	-	-	-
Radio Tower footings (6 total)	5.5	5.5	2	6	Concrete	363	2.94	30	$1,068	-	-	-	-	-	-	-	-
Radio Tower Piers (6 total)	9	2	dia.	6	Concrete	170	2.94	30	$499	-	-	-	-	-	-	-	-
North Radio Shack	12	16	8	1	Steel Building	1,536	0.24	1	$369	192	4.94	9a	$949	56.0	9.73	12a	$545
Sand Silo	21	8	dia.	1	Steel Structure	-	-	-	-	-	-	-	-	-	-	-	-
Sand Silo Slab	10	10		1		-	-	-	-	100	4.94	9a	$494	-	-	-	-
Irrigation Pipeline (16 miles)	84,480	1.3	dia.	1	Steel	117,956	0.23	31	$27,130	-	-	-	-	-	-	-	-
Concrete thrust blocks (15 total)	6	6	6	15	Concrete	3,240	2.94	30	$9,534	-	-	-	-	-	-	-	-
Irrigation Intake Pump House	15	22	12	1	Steel Building	3,960	0.24	1	$950	330	4.94	9a	$1,631	74.0	9.73	12a	$720
Irrigation Intake Pump House Walls	72	15		1	8" Concrete Walls	-	-	-	-	1,080	10.32	19a	$11,146	-	-	-	-
Sump Floor	8	22		1	Concrete	-	-	-	-	176	4.94	9a	$870	60.0	9.73	12a	$584
Sump Walls	58	15		1	8" Concrete Walls	-	-	-	-	870	10.32	19a	$8,979	-	-	-	-
Irrigation Intake Filter Pad	18	11		1	Concrete	-	-	-	-	198	0.75	27	$149	-	-	-	-
Sidewalk	52	3.5		1	Concrete	-	-	-	-	182	0.75	27	$137	-	-	-	-
Transformer Pad	11.5	22		1	Concrete	-	-	-	-	253	4.94	9a	$1,250	67.0	9.73	12a	$652
Lake Haul Road				1		-	-	-	-	669,600	0.59	28	$396,676	-	-	-	-

WORKSHEET NO. 2

STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Structure	Length [ft]	Width [ft]	Height [ft]	Number	Construction	Building				Floors, Surfaces & Walls				Footings			
						Volume [yd3]	Unit Cost	Ref	Cost	Area [ft2]	Unit Cost	Ref	Cost	Length [ft]	Unit Cost	Ref	Cost
Pinto Guardrails	700	12	1	1	Steel Structure	8,400	8.52	43	$71,568	-	-	-	-	-	-	-	-
Concrete Slab Under Towers/Conveyors				1	4" Concrete	-	-	-	-	30,000	3.57	8a	$107,048	-	-	-	-
Concrete Slab Under Towers/Conveyors				1	8" Concrete	-	-	-	-	40,000	7.42	10a	$296,662	-	-	-	-
Concrete Drain Pad @ West Inlet to Pond 5	165	20	1	1	8" Concrete	-	-	-	-	2,200	7.42	10a	$16,316	-	-	-	-
Other																	
Railroad Track and Ties				1		-	-	-	-	-	-	-	-	81,430	3.33	26	$271,162
Catenary (13 miles)				1	69 kV Power Line	-	-	-	-	-	-	-	-	13.0	24.35	33	$317
Catenary footings (total 542)	48			542		-	-	-	-	-	-	-	-	26,016	9.73	12a	$253,178
69 kV Power Line (41 miles)				1		-	-	-	-	-	-	-	-	41.6	24.35	33	$1,013
Water wells				14		-	-	-	-	-	-	-	-	14.0	382.80	35	$5,359
Road and Rail Culverts				1	Concrete & Steel	129,230	0.23	31	$29,723	-	-	-	-	-	-	-	-
8050 Dragline Outage Pad	1	63	dia.	1	Concrete	3,117	2.94	30	$9,173	-	-	-	-	-	-	-	-
8050 Dragline Outage Building	92	92	92	1	Steel	778,688	0.12	1A	$93,443	-	-	-	-	-	-	-	-
Rail Ballast Removal						27,053	15.25	45	$412,561	-	-	-	-	-	-	-	-
Concrete/Asphalt Removal						27,478	15.25	45	$419,038	-	-	-	-	-	-	-	-
TOTAL									**$2,469,758**				**$2,017,840**				**$1,014,096**
TOTAL DEMOLITION COST																	**$5,501,694**

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 2a
STRUCTURE DEMOLITION AND DISPOSAL COST SUMMARY

Structure	Length [ft]	Width [ft]	Height [ft]	Number	Construction	Building				Floors, Surfaces & Walls				Footings			
						Volume [yd^3]	Unit Cost	Ref	Cost	Area [ft^2]	Unit Cost	Ref	Cost	Length [ft]	Unit Cost	Ref	Cost
Area 4N																	
69 kV Powerline (units in MI)	6					-	-	-	-	-	-	-	-	6	7512.72	32	$45,076
Culverts					Concrete and Steel	1,561	0.23	31	$359	-	-	-	-	-	-	-	-
Cottonwood Crossing																	
Culvert: Concrete Box Top and Bottom (4 t	188.0	8.0		8	10" Concrete Walls					12,032	12.11	49a	$145,692				
Culvert: Concrete Box Walls (4 total)	188.0	8.0		8	8" Concrete Walls					12,032	10.32	19a	$124,177				
Guardrails (2 total)	435.0			1	Steel	435	8.52	43	$3,706								
Gabions	2729.3	SY	0.75 to 3.0	1	Gabion 9" to 36" Thick					2,729	85.75	40	$234,033				
Gabion Cut Off Wall	100.0	1.0	10.0	1	12" Concrete Wall					1,000	14.53	50a	$14,535				
Concrete Apron	2085.3	SF	0.5	2	6" Concrete Slab					4,171	5.56	9b	$23,198				
Apron Toe Wall - Downstream	84.0	0.7	6.0	1	8" Concrete Wall					504	10.32	19a	$5,202				
Apron Toe Wall - Upstream	84.0	0.7	3.0	1	8" Concrete Wall					252	10.32	19a	$2,601				
Wing Walls	86.7	0.8	6.5	2	10" Concrete Wall					1,127	12.11	49a	$13,642				
Wing Wall Footings	86.7	4.7	1.0	2	12" Concrete Spread Footing					809	11.12	11	$8,996				
TOTAL									**$4,065**				**$572,075**				**$45,076**
													TOTAL A4N DEMOLITION COST				**$621,216**

WORKSHEET NO. 3
MATERIAL HANDLING SUMMARY SHEET

Description	Quantity	Swell Factor	Adjusted Quantity	Push/Haul Distance [ft]	Push/Haul Grade [%]	Equipment
Area 1						
Grading - Dozer	1,163,300 LCY			300	-6.67%	D11R
Topsoil - Trucks	552,932 BCY	1.142	631,448 LCY	14,730	0.30%	992G/777D
Topsoil - Scrapers	9,919 BCY	1.142	11,327 LCY	2,300	0.00%	637G
Mitigation - Trucks	124,886 BCY	1.142	142,620 LCY	10,149	1.16%	992G/777D
Revegetation	481 ac.					
Area 2						
Drill & Blast	1,756,329 BCY					DMM2
Grading - Dozer	13,549,480 LCY			285	-2.19%	D11R
Grading - Trucks	13,209,375 LCY			5,634	0.29%	992G/777D
Grading - Scrapers	22,059,786 LCY			1,853	0.92%	637G
Topsoil - Trucks	1,958,593 BCY	1.142	2,236,713 LCY	10,642	0.04%	992G/777D
Topsoil - Scrapers	0 BCY	1.142	0 LCY	0	0.00%	637G
Mitigation - Trucks	579,781 BCY	1.142	662,110 LCY	8,524	-1.22%	992G/777D
Mitigation - Scrapers	156,442 BCY	1.142	178,656 LCY	1,599	-2.48%	637G
Revegetation	2,601 ac.					
Area 3						
Drill & Blast	4,804,688 BCY					DMM2
Grading - Dozer	18,226,456 LCY			292	-4.57%	D11R
Grading - Trucks	16,420,956 LCY			5,655	0.02%	992G/777D
Grading - Scrapers	19,779,150 LCY			1,779	-0.93%	637G
Topsoil - Trucks	2,921,502 BCY	1.142	3,336,356 LCY	7,292	0.14%	992G/777D
Topsoil - Scrapers	531,650 BCY	1.142	607,144 LCY	1,892	2.75%	637G
Mitigation - Trucks	1,533,935 BCY	1.142	1,751,754 LCY	11,102	-0.60%	992G/777D
Mitigation - Scrapers	98,925 BCY	1.142	112,972 LCY	442	-2.99%	637G
Revegetation	2,936 ac.					
Other						
Backfilling Ponds	482,858 BCY	1.142	551,424 LCY	168	0.00%	D11R
Backfill Old Area 3 Diversion	26,000 BCY	1.142	29,692 LCY	55	0.00%	D11R
Backfill New Area 3 Diversion	225,000 BCY	1.142	256,950 LCY	75	0.00%	D11R
Grade Road and Railroad Fill	685,256 BCY	1.142	782,562 LCY	55	0.00%	D11R
Road and Railroad Ripping	425 ac.					16G
Contaminated Soil Disposal						
North Complex	112,000 BCY	1.142	127,904 LCY	22,300	0.48%	992G/777D
Area 3	164,500 BCY	1.142	187,859 LCY	6,200	-0.65%	992G/777D

Swell factor = 1.142 Weighted Average Between In-Situ and Stockpile Swells

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 3a
MATERIAL HANDLING SUMMARY SHEET

Description	Quantity	Swell Factor	Adjusted Quantity	Push/Haul Distance [ft]	Push/Haul Grade [%]	Equipment
Area 4 North						
Grading - Dozer	4,756,829 LCY			289	-3.04%	D11R
Grading - Scrapers	7,121,056 LCY			1,720	-1.92%	631G
Grading - Trucks	3,522,967 LCY			3,795	-2.07%	992G/777D
Topsoil - Trucks	1,055,511 BCY	1.142	1,205,394 LCY	2,970	0.69%	992G/777D
Mitigation - Trucks	221,459 BCY	1.142	252,906 LCY	8,372	-0.97%	992G/777D
Revegetation	553 ac.					
Cottonwood Crossing						
Fill Removal	101,845 BCY	1.142	116,307 LCY	4,600	-0.86%	992G/777D
Base Course Removal	6,529 BCY	1.142	7,456 LCY	4,600	-0.86%	992G/777D
Wearing Course	3,014 BCY	1.142	3,442 LCY	4,600	-0.86%	992G/777D
Other						
Backfilling Ponds	64,695 BCY	1.142	73,881 LCY	200	0.00%	D11R
Grade Road	18,662 BCY	1.142	21,312 LCY	55	0.00%	D11R
Road Ripping	11.6 ac.					16H
Concrete & Asphalt Disp.	2 BCY	1.142	2 LCY			

Swell factor = 1.142 Wt. Ave between in-situ and stkpl swells

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 5A

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Backfilling Ponds

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

0.0% grade on average

168 ft typical dozer push distance

2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor = 0.9 (operator factor) * 1.0 (material factor) * 0.8 (work hour factor) * 1.0 (grade factor) * 0.9 (weight correction factor) * 0.9 (visibility factor) * 1.0 (elevation factor) * 1.1 (production factor) = 0.6

Net Hourly Production = 0.6 (operating adjustment factor) * 1,730 LCY/hr (Normal Hourly Production) = 1,087 LCY/hr

Hours Required[2] = 551,424 LCY (volume to be moved[1]) / 1,087 LCY/hr (net hourly production) = 507.1 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 5a-A
PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Backfilling Ponds

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

0.0% grade on average
200 ft typical dozer push distance
2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor	=	0.9	*	1.0	*	0.8	*	1.0	*	0.9	*	0.9	*	1.0	*	1.1	= 0.6
		operator factor		material factor		work hour factor		grade factor		weight correction factor		visibility factor		elevation factor		production factor	
Net Hourly Production	=	0.6	*	1,510 LCY/hr	=	949 LCY/hr											
		operating adjustment factor		Normal Hourly Production													
Hours Required[2]	=	73,881 LCY	/	949 LCY/hr	=	77.8 hrs											
		volume to be moved[1]		net hourly production													

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 5a-B
PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Dozing Roads

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

0.0% grade on average
55 ft typical dozer push distance
2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor	=	0.9	*	1.0	*	0.8	*	1.0	*	0.9	*	0.9	*	1.0	*	1.1	= 0.6
		operator factor		material factor		work hour factor		grade factor		weight correction factor		visibility factor		elevation factor		production factor	
Net Hourly Production	=	0.6	*	4,110 LCY/hr	=	2,584 LCY/hr											
		operating adjustment factor		Normal Hourly Production													
Hours Required[2]	=	21,312 LCY	/	2,584 LCY/hr	=	8.2 hrs											
		volume to be moved[1]		net hourly production													

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 5a-C
PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Area 4N Regrade

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

-3.0% grade on average
289 ft typical dozer push distance
2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor	=	0.9	*	1.0	*	0.8	*	1.0	*	0.9	*	0.9	*	1.0	*	1.1	= 0.6
		operator factor		material factor		work hour factor		grade factor		weight correction factor		visibility factor		elevation factor		production factor	
Net Hourly Production	=	0.6	*	1,110 LCY/hr	=	666 LCY/hr											
		operating adjustment factor		Normal Hourly Production													
Hours Required[2]	=	4,756,829 LCY	/	666 LCY/hr	=	7,146 hrs											
		volume to be moved[1]		net hourly production													

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 5B

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Backfilling old Area 3 Diversion

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

0.0% grade on average

55 ft typical dozer push distance

2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor = 0.9 (operator factor) * 1.0 (material factor) * 0.8 (work hour factor) * 1.0 (grade factor) * 0.9 (weight correction factor) * 0.9 (visibility factor) * 1.0 (elevation factor) * 1.1 (production factor) = 0.6

Net Hourly Production = 0.6 (operating adjustment factor) * 4,110 LCY/hr (Normal Hourly Production) = 2,584 LCY/hr

Hours Required[2] = 29,692 LCY (volume to be moved[1]) / 2,584 LCY/hr (net hourly production) = 11.5 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 5C

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Backfilling new Area 3 Diversion

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

0.0% grade on average

75 ft typical dozer push distance

2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor	=	0.9	*	1.0	*	0.8	*	1.0	*	0.9	*	0.9	*	1.0	*	1.1	=	0.6
		operator factor		material factor		work hour factor		grade factor		weight correction factor		visibility factor		elevation factor		production factor		

Net Hourly Production	=	0.6	*	3,230 LCY/hr	=	2,030	LCY/hr
		operating adjustment factor		Normal Hourly Production			

Hours Required[2]	=	256,950 LCY	/	2,030 LCY/hr	=	126.6	hrs
		volume to be moved[1]		net hourly production			

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 5D

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Dozing Road and Railroad Fills

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

0.0% grade on average

55 ft typical dozer push distance

2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor = 0.9 (operator factor) * 1.0 (material factor) * 0.8 (work hour factor) * 1.0 (grade factor) * 0.9 (weight correction factor) * 0.9 (visibility factor) * 1.0 (elevation factor) * 1.1 (production factor) = 0.6

Net Hourly Production = 0.6 (operating adjustment factor) * 4,110 LCY/hr (Normal Hourly Production) = 2,584 LCY/hr

Hours Required[2] = 782,562 LCY (volume to be moved[1]) / 2,584 LCY/hr (net hourly production) = 302.9 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 5E

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Area I Regrade

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

-6.7% grade on average

300 ft typical dozer push distance

2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor	=	0.9	*	1.0	*	0.8	*	1.1	*	0.9	*	0.9	*	1.0	*	1.1	=	0.7
		operator factor		material factor		work hour factor		grade factor		weight correction factor		visibility factor		elevation factor		production factor		

Net Hourly Production	=	0.7	*	1,070 LCY/hr	=	762	LCY/hr
		operating adjustment factor		Normal Hourly Production			

Hours Required[2]	=	1,163,300 LCY	/	762 LCY/hr	=	1,526	hrs
		volume to be moved[1]		net hourly production			

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 5F

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Area 2 Regrade

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

-2.2% grade on average

285 ft typical dozer push distance

2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor	=	0.9	*	1.0	*	0.8	*	1.0	*	0.9	*	0.9	*	1.0	*	1.1	=	0.7
		operator factor		material factor		work hour factor		grade factor		weight correction factor		visibility factor		elevation factor		production factor		

Net Hourly Production	=	0.7	*	1,110 LCY/hr	=	728	LCY/hr
		operating adjustment factor		Normal Hourly Production			

Hours Required[2]	=	13,549,480 LCY	/	728 LCY/hr	=	18,605	hrs
		volume to be moved[1]		net hourly production			

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 5G

PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Area 3 Regrade

Characterization of Dozer Used (type, size, etc.)[3]

Caterpillar D11R, Universal blade

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.)

-4.6% grade on average

292 ft typical dozer push distance

2,700 Loose clay and sand density [lb/yd^3]

Productivity Calculations[3]:

Operating Adjustment Factor = 0.9 (operator factor) * 1.0 (material factor) * 0.8 (work hour factor) * 1.1 (grade factor) * 0.9 (weight correction factor) * 0.9 (visibility factor) * 1.0 (elevation factor) * 1.1 (production factor) = 0.7

Net Hourly Production = 0.7 (operating adjustment factor) * 1,070 LCY/hr (Normal Hourly Production) = 734 LCY/hr

Hours Required[2] = 18,226,456 LCY (volume to be moved[1]) / 734 LCY/hr (net hourly production) = 24,829 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8A
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 2 Regrade

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
0.88 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time = _____ (loaded haul time) + _____ (empty haul time) + 0.65 min (Basic Cycle Time) = 0.65 min

Net Bucket Capacity = 15 LCY (heaped bucket capacity) * 0.88 (bucket fill factor) = 13.2 LCY

Net Hourly Production = 13.2 LCY (net bucket capacity) / 0.65 min (cycle time) * 50 min/hr (work hour factor) = 1,015 LCY/hr

Hours Required[2] = 13,209,375 LCY (volume to be moved[1]) / 1,015 LCY/hr (net hourly production) = 13,009 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8a-A
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 4N Regrade

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
0.88 Bucket Fill Factor
15 Rated Bucket Capacit [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.7 min	=	0.7	min		
		loaded haul time		empty haul time		basic cycle time					
Net Bucket Capacity	=	15 LCY	*	0.88	=	13.2 LCY					
		heaped bucket capacity		bucket fill factor							
Net Hourly Production	=	13.2 LCY	/	0.7 min	*	50 min/hr	=	1,015	LCY/hr		
		net bucket capacity		cycle time		work hour factor					
Hours Required[2]		3,522,967 LCY	/	1,015 LCY/hr	=	3,470 hrs					
		volume to be moved[1]		net hourly production							

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8B
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 3 Regrade

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
0.88 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.65 min	=	0.65	min	
		loaded haul time		empty haul time		Basic Cycle Time				
Net Bucket Capacity	=	15 LCY	*	0.88	=	13.2 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	13.2 LCY	/	0.65 min	*	50 min/hr	=	1,015	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required[2]	=	16,420,956 LCY	/	1,015 LCY/hr	=	16,172 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8a-B
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 4N Topsoil

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
1.05 Bucket Fill Factor
15 Rated Bucket Capacit [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.7 min	=	0.7	min	
		loaded haul time		empty haul time		basic cycle time				
Net Bucket Capacity	=	15 LCY	*	1.05	=	15.8 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	15.8 LCY	/	0.7 min	*	50 min/hr	=	1,212	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required[2]		1,205,394 LCY	/	1,212 LCY/h	=	995 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8C
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 1 Topsoiling

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
1.05 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.65 min	=	0.65	min	
		loaded haul time		empty haul time		Basic Cycle Time				
Net Bucket Capacity	=	15 LCY	*	1.05	=	15.8 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	15.8 LCY	/	0.65 min	*	50 min/hr	=	1,212	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required[2]	=	552,932 LCY	/	1,212 LCY/hr	=	456 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8a-C
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 4N Mitigation

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
1.05 Bucket Fill Factor
15 Rated Bucket Capacit [LCY]

Productivity Calculations[3]

Cycle Time = (loaded haul time) + (empty haul time) + (0.7 min basic cycle time) = 0.7 min

Net Bucket Capacity = (15 LCY heaped bucket capacity) * (1.05 bucket fill factor) = 15.8 LCY

Net Hourly Production = (15.8 LCY net bucket capacity) / (0.7 min cycle time) * (50 min/hr work hour factor) = 1,212 LCY/hr

Hours Required[2] = (252,906 LCY volume to be moved[1]) / (1,212 LCY/hr net hourly production) = 209 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8D
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 2 Topsoiling

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
1.05 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.65 min	=	0.65	min	
		loaded haul time		empty haul time		Basic Cycle Time				
Net Bucket Capacity	=	15 LCY	*	1.05	=	15.8 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	15.8 LCY	/	0.65 min	*	50 min/hr	=	1,212	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required[2]	=	1,958,593 LCY	/	1,212 LCY/hr	=	1,617 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8a-D
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Cottonwood Crossing Material Removal

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
0.88 Bucket Fill Factor
15 Rated Bucket Capacit [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.7 min	=	0.7	min	
		loaded haul time		empty haul time		basic cycle time				
Net Bucket Capacity	=	15 LCY	*	0.88	=	13.2 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	13.2 LCY	/	0.7 min	*	50 min/hr	=	1,015	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required2		127,205 LCY	/	1,015 LCY/hr	=	125 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8E
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 3 Topsoiling

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
1.05 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.65 min	=	0.65	min	
		loaded haul time		empty haul time		Basic Cycle Time				
Net Bucket Capacity	=	15 LCY	*	1.05	=	15.8 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	15.8 LCY	/	0.65 min	*	50 min/hr	=	1,212	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required[2]	=	2,921,502 LCY	/	1,212 LCY/hr	=	2,411 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8F
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 1 Mitigation

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
1.05 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.65 min	=	0.65	min	
		loaded haul time		empty haul time		Basic Cycle Time				
Net Bucket Capacity	=	15 LCY	*	1.05	=	15.8 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	15.8 LCY	/	0.65 min	*	50 min/hr	=	1,212	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required[2]	=	124,886 LCY	/	1,212 LCY/hr	=	103 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8G
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 2 Mitigation

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
1.05 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.65 min	=	0.65	min	
		loaded haul time		empty haul time		Basic Cycle Time				
Net Bucket Capacity	=	15 LCY	*	1.05	=	15.8 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	15.8 LCY	/	0.65 min	*	50 min/hr	=	1,212	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required[2]	=	579,781 LCY	/	1,212 LCY/hr	=	479 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8H
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 3 Mitigation

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
1.05 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.65 min	=	0.65	min	
		loaded haul time		empty haul time		Basic Cycle Time				
Net Bucket Capacity	=	15 LCY	*	1.05	=	15.8 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	15.8 LCY	/	0.65 min	*	50 min/hr	=	1,212	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required[2]	=	1,533,935 LCY	/	1,212 LCY/hr	=	1,266 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8I
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

North Area Coal Contaminated Soil Disposal

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
0.88 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.65 min	=	0.65	min
		loaded haul time		empty haul time		Basic Cycle Time			
Net Bucket Capacity	=	15 LCY	*	0.88	=	13.2 LCY			
		heaped bucket capacity		bucket fill factor					
Net Hourly Production	=	13.2 LCY	/	0.65 min	*	50 min/hr	=	1,015	LCY/hr
		net bucket capacity		cycle time		work hour factor			
Hours Required[2]	=	127,904 LCY	/	1,015 LCY/hr	=	126 hrs			
		volume to be moved[1]		net hourly production					

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 8J
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity:

Area 3 Coal Contaminated Soil Disposal

Characterization of Loader Used (type, size, etc.)[3]

Caterpillar 992G with 15 CYD Bucket

Description of Loader Use (origin, destination, grade,haul distance, etc.)

Load Caterpillar 777D Trucks
0.88 Bucket Fill Factor
15 Rated Bucket Capacity [LCY]

Productivity Calculations[3]

Cycle Time	=		+		+	0.65 min	=	0.65	min	
		loaded haul time		empty haul time		Basic Cycle Time				
Net Bucket Capacity	=	15 LCY	*	0.88	=	13.2 LCY				
		heaped bucket capacity		bucket fill factor						
Net Hourly Production	=	13.2 LCY	/	0.65 min	*	50 min/hr	=	1,015	LCY/hr	
		net bucket capacity		cycle time		work hour factor				
Hours Required[2]	=	187,859 LCY	/	1,015 LCY/hr	=	185 hrs				
		volume to be moved[1]		net hourly production						

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9A

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 2 Regrade

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

5,634 ft. average haul distance

0.3% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 13 LCY (loader bucket net capacity) = 5 passes

Net Truck Capacity = 13 LCY (loader bucket net capacity) * 5 (loader passes per truck) = 66 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 5 (loader passes per truck) = 3.3 min

Truck Cycle Time = 3.2 min (haul time) + 1.7 min (return time) + 3.3 min (loading time per truck) + 1.0 min (Dump and Maneuver Time) = 9.1 min

Number of Trucks Required = 9.1 min (truck cycle time) / 3.3 min (truck loading time) = 2 trucks (round down)

Production Rate = 66 LCY (net truck capacity) / 9.1 min (cycle time) = 7.2 LCY/min

Hourly Production = 7 LCY/min (production rate) * 50 min/hr (work hour factor) = 362 LCY/hr

Hours Required[2] = 13,209,375 LCY (volume to be moved[1]) / 362 LCY/hr (hourly production) = 36,530 hrs

Data Sources:

1) Volume to be moved from Worksheet 3

2) Hours required go to Worksheet 13

3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 9a-A
PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 4N Regrade

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]
79 Heaped Capacity [LCY]
67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

3,795 ft. average haul distance
-2.1% Grade (Loaded)
3% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 66.9 LCY (truck capacity) \ 13 LCY (loader bucket net capacity) = 5 passes

Loading Time Per Truck = 0.65 min (loader cycle time) * 5 (loader passes per truck) = 3.3 min

Number of Trucks Required = 5.3 min (truck cycle time) \ 3.3 min (truck loading time) = 1 trucks (round down)

Hourly Production = 12.4 LCY/min (production rate) * 50 min/hr (work hour factor) = 620 LCY/hr

Net Truck Capacity = 13.2 LCY (loader bucket net capacity) * 5 (loader passes per truck) = 66 LCY

Truck Cycle Time = 0.7 min (haul time) + 0.4 min (return time) + 3.25 min (loading time per truck) + 1 min (dump and maneuver time) = 5.32 min

Production Rate = 66 LCY (net truck capacity) \ 5.3 min (cycle time) = 12.4 LCY/min

Hours Required[2] = 3,522,967 LCY (volume to be moved[1]) \ 620 LCY/hr (hourly production) = 5,681 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9B

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 3 Regrade

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

5,655 ft. average haul distance

0.0% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 13 LCY (loader bucket net capacity) = 5 passes

Net Truck Capacity = 13 LCY (loader bucket net capacity) * 5 (loader passes per truck) = 66 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 5 (loader passes per truck) = 3.3 min

Truck Cycle Time = 3.2 min (haul time) + 1.7 min (return time) + 3.3 min (loading time per truck) + 1.0 min (dump and maneuver time) = 9.1 min

Number of Trucks Required = 9.1 min (truck cycle time) / 3.3 min (truck loading time) = 2 trucks (round down)

Production Rate = 66 LCY (net truck capacity) / 9.1 min (cycle time) = 7.2 LCY/min

Hourly Production = 7 LCY/min (production rate) * 50 min/hr (work hour factor) = 361 LCY/hr

Hours Required[2] = 16,420,956 LCY (volume to be moved[1]) / 361 LCY/hr (hourly production) = 45,503 hrs

Data Sources:

1) Volume to be moved from Worksheet 3

2) Hours required go to Worksheet 13

3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9a-B
PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 4N Topsoiling

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]
79 Heaped Capacity [LCY]
67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

2,970 ft. average haul distance
0.7% Grade (Loaded)
3% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 66.9 LCY (truck capacity) \ 16 LCY (loader bucket net capacity) = 4 passes

Net Truck Capacity = 13.2 LCY (loader bucket net capacity) * 5 (loader passes per truck) = 66 LCY

Loading Time Per Truck = 0.65 min (loader cycle time) * 5 (loader passes per truck) = 3.3 min

Truck Cycle Time = 4.8 min (haul time) + 2.6 min (return time) + 3.25 min (loading time per truck) + 1 min (dump and maneuver time) = 11.62 min

Number of Trucks Required = 5.3 min (truck cycle time) \ 3.3 min (truck loading time) = 1 trucks (round down)

Production Rate = 66 LCY (net truck capacity) \ 5.3 min (cycle time) = 12.4 LCY/min

Hourly Production = 12.4 LCY/min (production rate) * 50 min/hr (work hour factor) = 620 LCY/hr

Hours Required[2] = 1,205,394 LCY (volume to be moved[1]) \ 620 LCY/hr (hourly production) = 1943.8 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9C

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 1 Topsoiling

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

14,730 ft. average haul distance

0.3% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 16 LCY (loader bucket net capacity) = 4 passes

Net Truck Capacity = 16 LCY (loader bucket net capacity) * 4 (loader passes per truck) = 63 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 4 (loader passes per truck) = 2.6 min

Truck Cycle Time = 8.3 min (haul time) + 4.5 min (return time) + 2.6 min (loading time per truck) + 1.0 min (dump and maneuver time) = 16.3 min

Number of Trucks Required = 16.3 min (truck cycle time) / 2.6 min (truck loading time) = 6 trucks (round down)

Production Rate = 63 LCY (net truck capacity) / 16.3 min (cycle time) = 3.9 LCY/min

Hourly Production = 4 LCY/min (production rate) * 50 min/hr (work hour factor) = 193 LCY/hr

Hours Required[2] = 631,448 LCY (volume to be moved[1]) / 193 LCY/hr (hourly production) = 3,277 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9a-C
PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 4N Mitigation

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]
79 Heaped Capacity [LCY]
67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

8,372 ft. average haul distance
-1.0% Grade (Loaded)
3% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 66.9 LCY (truck capacity) \ 16 LCY (loader bucket net capacity) = 4 passes

Loading Time Per Truck = 0.65 min (loader cycle time) * 5 (loader passes per truck) = 3.3 min

Number of Trucks Required = 5.3 min (truck cycle time) \ 3.3 min (truck loading time) = 1 trucks (round down)

Hourly Production = 12.4 LCY/min (production rate) * 50 min/hr (work hour factor) = 620 LCY/hr

Net Truck Capacity = 13.2 LCY (loader bucket net capacity) * 5 (loader passes per truck) = 66 LCY

Truck Cycle Time = 6.2 min (haul time) + 3.3 min (return time) + 3.25 min (loading time per truck) + 1 min (dump and maneuver time) = 13.81 min

Production Rate = 66 LCY (net truck capacity) \ 5.3 min (cycle time) = 12.4 LCY/min

Hours Required[2] = 252,906 LCY (volume to be moved[1]) \ 620 LCY/hr (hourly production) = 407.8 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9D

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 2 Topsoiling

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

10,642 ft. average haul distance

0.0% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 16 LCY (loader bucket net capacity) = 4 passes

Net Truck Capacity = 16 LCY (loader bucket net capacity) * 4 (loader passes per truck) = 63 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 4 (loader passes per truck) = 2.6 min

Truck Cycle Time = 6.0 min (haul time) + 3.2 min (return time) + 2.6 min (loading time per truck) + 1.0 min (dump and maneuver time) = 12.8 min

Number of Trucks Required = 12.8 min (truck cycle time) / 2.6 min (truck loading time) = 4 trucks (round down)

Production Rate = 63 LCY (net truck capacity) / 12.8 min (cycle time) = 4.9 LCY/min

Hourly Production = 5 LCY/min (production rate) * 50 min/hr (work hour factor) = 246 LCY/hr

Hours Required[2] = 2,236,713 LCY (volume to be moved[1]) / 246 LCY/hr (hourly production) = 9,096 hrs

Data Sources:

1) Volume to be moved from Worksheet 3

2) Hours required go to Worksheet 13

3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 9a-D
PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Cottonwood Crossing Material Removal

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]
79 Heaped Capacity [LCY]
67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

4,600 ft. average haul distance
-0.9% Grade (Loaded)
3% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 66.9 LCY (truck capacity) \ 13 LCY (loader bucket net capacity) = 5 passes

Net Truck Capacity = 13.2 LCY (loader bucket net capacity) * 5 (loader passes per truck) = 66 LCY

Loading Time Per Truck = 0.65 min (loader cycle time) * 5 (loader passes per truck) = 3.3 min

Truck Cycle Time = 2.6 min (haul time) + 1.4 min (return time) + 3.25 min (loading time per truck) + 1 min (dump and maneuver time) = 8.23 min

Number of Trucks Required = 5.3 min (truck cycle time) \ 3.3 min (truck loading time) = 1 trucks (round down)

Production Rate = 66 LCY (net truck capacity) \ 5.3 min (cycle time) = 12.4 LCY/min

Hourly Production = 12.4 LCY/min (production rate) * 50 min/hr (work hour factor) = 620 LCY/hr

Hours Required[2] = 127,205 LCY (volume to be moved[1]) \ 620 LCY/hr (hourly production) = 205.1 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9E

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 3 Topsoiling

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

5,655 ft. average haul distance

0.0% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 16 LCY (loader bucket net capacity) = 4 passes

Net Truck Capacity = 16 LCY (loader bucket net capacity) * 4 (loader passes per truck) = 63 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 4 (loader passes per truck) = 2.6 min

Truck Cycle Time = 3.2 min (haul time) + 1.7 min (return time) + 2.6 min (loading time per truck) + 1.0 min (dump and maneuver time) = 8.5 min

Number of Trucks Required = 8.5 min (truck cycle time) / 2.6 min (truck loading time) = 3 trucks (round down)

Production Rate = 63 LCY (net truck capacity) / 8.5 min (cycle time) = 7.4 LCY/min

Hourly Production = 7 LCY/min (production rate) * 50 min/hr (work hour factor) = 371 LCY/hr

Hours Required[2] = 3,336,356 LCY (volume to be moved[1]) / 371 LCY/hr (hourly production) = 8,997 hrs

Data Sources:

1) Volume to be moved from Worksheet 3

2) Hours required go to Worksheet 13

3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9F

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 1 Mitigation

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

10,149 ft. average haul distance

1.2% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 16 LCY (loader bucket net capacity) = 4 passes

Net Truck Capacity = 16 LCY (loader bucket net capacity) * 4 (loader passes per truck) = 63 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 4 (loader passes per truck) = 2.6 min

Truck Cycle Time = 5.7 min (haul time) + 3.1 min (return time) + 2.6 min (loading time per truck) + 1.0 min (dump and maneuver time) = 12.4 min

Number of Trucks Required = 12.4 min (truck cycle time) / 2.6 min (truck loading time) = 4 trucks (round down)

Production Rate = 63 LCY (net truck capacity) / 12.4 min (cycle time) = 5.1 LCY/min

Hourly Production = 5 LCY/min (production rate) * 50 min/hr (work hour factor) = 254 LCY/hr

Hours Required[2] = 142,620 LCY (volume to be moved[1]) / 254 LCY/hr (hourly production) = 561 hrs

Data Sources:

1) Volume to be moved from Worksheet 3

2) Hours required go to Worksheet 13

3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9G

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 2 Mitigation

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

8,524 ft. average haul distance

-1.2% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 16 LCY (loader bucket net capacity) = 4 passes

Net Truck Capacity = 16 LCY (loader bucket net capacity) * 4 (loader passes per truck) = 63 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 4 (loader passes per truck) = 2.6 min

Truck Cycle Time = 4.8 min (haul time) + 2.6 min (return time) + 2.6 min (loading time per truck) + 1.0 min (dump and maneuver time) = 11.0 min

Number of Trucks Required = 11.0 min (truck cycle time) / 2.6 min (truck loading time) = 4 trucks (round down)

Production Rate = 63 LCY (net truck capacity) / 11.0 min (cycle time) = 5.7 LCY/min

Hourly Production = 6 LCY/min (production rate) * 50 min/hr (work hour factor) = 287 LCY/hr

Hours Required[2] = 662,110 LCY (volume to be moved[1]) / 287 LCY/hr (hourly production) = 2,307 hrs

Data Sources:

1) Volume to be moved from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9H

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 3 Mitigation

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

11,102 ft. average haul distance

-0.6% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 16 LCY (loader bucket net capacity) = 4 passes

Net Truck Capacity = 16 LCY (loader bucket net capacity) * 4 (loader passes per truck) = 63 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 4 (loader passes per truck) = 2.6 min

Truck Cycle Time = 6.2 min (haul time) + 3.4 min (return time) + 2.6 min (loading time per truck) + 1.0 min (dump and maneuver time) = 13.2 min

Number of Trucks Required = 13.2 min (truck cycle time) / 2.6 min (truck loading time) = 5 trucks (round down)

Production Rate = 63 LCY (net truck capacity) / 13.2 min (cycle time) = 4.8 LCY/min

Hourly Production = 5 LCY/min (production rate) * 50 min/hr (work hour factor) = 238 LCY/hr

Hours Required[2] = 1,751,754 LCY (volume to be moved[1]) / 238 LCY/hr (hourly production) = 7,345 hrs

Data Sources:

1) Volume to be moved from Worksheet 3

2) Hours required go to Worksheet 13

3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9I

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

North Area Coal Contaminated Soil Disposal

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

22,300 ft. average haul distance

0.5% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 13 LCY (loader bucket net capacity) = 5 passes

Net Truck Capacity = 13 LCY (loader bucket net capacity) * 5 (loader passes per truck) = 66 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 5 (loader passes per truck) = 3.3 min

Truck Cycle Time = 12.5 min (haul time) + 6.8 min (return time) + 3.3 min (loading time per truck) + 1.0 min (dump and maneuver time) = 23.5 min

Number of Trucks Required = 23.5 min (truck cycle time) / 3.3 min (truck loading time) = 7 trucks (round down)

Production Rate = 66 LCY (net truck capacity) / 23.5 min (cycle time) = 2.8 LCY/min

Hourly Production = 3 LCY/min (production rate) * 50 min/hr (work hour factor) = 140 LCY/hr

Hours Required[2] = 127,904 LCY (volume to be moved[1]) / 140 LCY/hr (work hour factor) = 913 hrs

Data Sources:

1) Volume to be moved from Worksheet 3

2) Hours required go to Worksheet 13

3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 9J

PRODUCTIVITY AND HOURS REQUIRED FOR TRUCK USE

Earthmoving Activity:

Area 3 Coal Contaminated Soil Disposal

Characterization of Truck Used (type, size, etc.)[3]

Caterpillar 777D

55 Struck Capacity [LCY]

79 Heaped Capacity [LCY]

67 Adjusted Capacity (Average of Struck and Heaped) [LCY]

Description of Truck Use (origin, destination, grade,haul distance, truck capacity, etc.):

6,200 ft. average haul distance

-0.7% Grade (Loaded)

3.0% Rolling Resisance

Productivity Calculation[3]

Loader Passes Per Truck = 67 LCY (truck capacity) / 13 LCY (loader bucket net capacity) = 5 passes

Net Truck Capacity = 13 LCY (loader bucket net capacity) * 5 (loader passes per truck) = 66 LCY

Loading Time Per Truck = 0.7 min (loader cycle time) * 5 (loader passes per truck) = 3.3 min

Truck Cycle Time = 3.5 min (haul time) + 1.9 min (return time) + 3.3 min (loading time per truck) + 1.0 min (dump and maneuver time) = 9.6 min

Number of Trucks Required = 9.6 min (truck cycle time) / 3.3 min (truck loading time) = 2 trucks (round down)

Production Rate = 66 LCY (net truck capacity) / 9.6 min (cycle time) = 6.9 LCY/min

Hourly Production = 7 LCY/min (production rate) * 50 min/hr (work hour factor) = 343 LCY/hr

Hours Required[2] = 187,859 LCY (volume to be moved[1]) / 343 LCY/hr (work hour factor) = 547 hrs

Data Sources:

1) Volume to be moved from Worksheet 3

2) Hours required go to Worksheet 13

3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 11A
PRODUCTIVITY AND HOURS REQUIRED FOR SCRAPER USE

Earthmoving Activity:

Area 2 Grading

Characterization of Scraper Used (type, size, etc.)3

Caterpillar 637G Scrapers Push-Pull Pair

24 Struck Capacity [yd^3]

34 Heaped Capacity [yd^3]

29 Adjusted Capacity (Average of Struck and Heaped) [yd^3]

Description of Scraper Use (origin, destination, grade, haul distance, material, etc.)

1,853 ft. average haul distance

0.9% Grade (Loaded)

3% Rolling Resisance

Productivity Calculations[3]:

Cycle Time[3] = 1.0 min (Load Time per Pair) + 1.1 min (loaded trip time) + 0.6 min (Maneuver and Spread Time) + 0.8 min (return trip time) = 3.5 min

Net Hourly Production = 29 LCY (adjusted capacity) * 50 min/hr (work hour factor) / 3.5 min (cycle time) * 2 (number of scrapers) = 829 LCY/hr

Hours Required[2] = 22,059,786 LCY (volume to be handled[1]) / 829 LCY/hr (net hourly production) = 26,624 hrs

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 11a-A
PRODUCTIVITY AND HOURS REQUIRED FOR SCRAPER USE

Earthmoving Activity:

Area 4n Grading

Characterization of Scraper Used (type, size, etc.)3

Caterpillar 637G Scrapers Push-Pull Pair

24 Struck Capacity [yd^3]

34 Heaped Capacity [yd^3]

29 Adjusted Capacity (Average of Struck and Heaped) [yd^3]

Description of Scraper Use (origin, destination, grade, haul distance, material, etc.)

1,720 ft. average haul distance

-1.9% Grade (Loaded)

3% Rolling Resisance

Productivity Calculations[3]:

Cycle Time[3] = 1.0 min (Load Time per Pair) + 1.0 min (loaded trip time) + 0.6 min (Maneuver and Spread Time) + 0.8 min (return trip time) = 3.4 min

Net Hourly Production = 29 LCY (adjusted capacity) * 50 min/hr (work hour factor) / 3.4 min (cycle time) * 2 (number of scrapers) = 859 LCY/hr

Hours Required[2] = 7,121,056 LCY (volume to be handled[1]) / 859 LCY/hr (net hourly production) = 8,287 hrs

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 11B
PRODUCTIVITY AND HOURS REQUIRED FOR SCRAPER USE

Earthmoving Activity:

Area 3 Grading

Characterization of Scraper Used (type, size, etc.)3

Caterpillar 637G Scrapers Push-Pull Pair

24 Struck Capacity [yd^3]

34 Heaped Capacity [yd^3]

29 Adjusted Capacity (Average of Struck and Heaped) [yd^3]

Description of Scraper Use (origin, destination, grade, haul distance, material, etc.)

1,779 ft. average haul distance

-0.9% Grade (Loaded)

3% Rolling Resisance

Productivity Calculations[3]:

Cycle Time[3] = 1.0 min (Load Time per Pair) + 1.0 min (loaded trip time) + 0.6 min (Maneuver and Spread Time) + 0.8 min (return trip time) = 3.4 min

Net Hourly Production = 29 LCY (adjusted capacity) * 50 min/hr (work hour factor) / 3.4 min (cycle time) * 2 (number of scrapers) = 853 LCY/hr

Hours Required[2] = 19,779,150 LCY (volume to be handled[1]) / 853 LCY/hr (net hourly production) = 23,189 hrs

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 11C
PRODUCTIVITY AND HOURS REQUIRED FOR SCRAPER USE

Earthmoving Activity:

Area 1 Topsoiling

Characterization of Scraper Used (type, size, etc.)3

Caterpillar 637G Scrapers Push-Pull Pair

24 Struck Capacity [yd^3]

34 Heaped Capacity [yd^3]

29 Adjusted Capacity (Average of Struck and Heaped) [yd^3]

Description of Scraper Use (origin, destination, grade, haul distance, material, etc.)

2,300 ft. average haul distance

0.0% Grade (Loaded)

3% Rolling Resisance

Productivity Calculations[3]:

Cycle Time[3] = 1.0 min (Load Time per Pair) + 1.3 min (loaded trip time) + 0.6 min (Maneuver and Spread Time) + 1.0 min (return trip time) = 3.9 min

Net Hourly Production = 29 LCY (adjusted capacity) * 50 min/hr (work hour factor) / 3.9 min (cycle time) * 2 (number of scrapers) = 753 LCY/hr

Hours Required[2] = 11,327 LCY (volume to be handled[1]) / 753 LCY/hr (net hourly production) = 15 hrs

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 11D
PRODUCTIVITY AND HOURS REQUIRED FOR SCRAPER USE

Earthmoving Activity:

Area 2 Topsoiling

Characterization of Scraper Used (type, size, etc.)3

Caterpillar 637G Scrapers Push-Pull Pair

24 Struck Capacity [yd^3]

34 Heaped Capacity [yd^3]

29 Adjusted Capacity (Average of Struck and Heaped) [yd^3]

Description of Scraper Use (origin, destination, grade, haul distance, material, etc.)

0 ft. average haul distance

0.0% Grade (Loaded)

3% Rolling Resisance

Productivity Calculations[3]:

Cycle Time[3] = 1.0 min (Load Time per Pair) + 0.0 min (loaded trip time) + 0.6 min (Maneuver and Spread Time) + 0.0 min (return trip time) = 1.6 min

Net Hourly Production = 29 LCY (adjusted capacity) * 50 min/hr (work hour factor) / 1.6 min (cycle time) * 2 (number of scrapers) = 1,813 LCY/hr

Hours Required[2] = 0 LCY (volume to be handled[1]) / 1813 LCY/hr (net hourly production) = - hrs

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 11E
PRODUCTIVITY AND HOURS REQUIRED FOR SCRAPER USE

Earthmoving Activity:

Area 3 Topsoiling

Characterization of Scraper Used (type, size, etc.)3

Caterpillar 637G Scrapers Push-Pull Pair

24 Struck Capacity [yd^3]

34 Heaped Capacity [yd^3]

29 Adjusted Capacity (Average of Struck and Heaped) [yd^3]

Description of Scraper Use (origin, destination, grade, haul distance, material, etc.)

1,892 ft. average haul distance

2.8% Grade (Loaded)

3% Rolling Resisance

Productivity Calculations[3]:

Cycle Time[3] = 1.0 min (Load Time per Pair) + 1.1 min (loaded trip time) + 0.6 min (Maneuver and Spread Time) + 0.8 min (return trip time) = 3.5 min

Net Hourly Production = 29 LCY (adjusted capacity) * 50 min/hr (work hour factor) / 3.5 min (cycle time) * 2 (number of scrapers) = 823 LCY/hr

Hours Required[2] = 607,144 LCY (volume to be handled[1]) / 823 LCY/hr (net hourly production) = 738 hrs

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 11F
PRODUCTIVITY AND HOURS REQUIRED FOR SCRAPER USE

Earthmoving Activity:

Area 2 Mitigation

Characterization of Scraper Used (type, size, etc.)3

Caterpillar 637G Scrapers Push-Pull Pair

24 Struck Capacity [yd^3]

34 Heaped Capacity [yd^3]

29 Adjusted Capacity (Average of Struck and Heaped) [yd^3]

Description of Scraper Use (origin, destination, grade, haul distance, material, etc.)

1,599 ft. average haul distance

-2.5% Grade (Loaded)

3% Rolling Resisance

Productivity Calculations[3]:

Cycle Time[3] = 1.0 min (Load Time per Pair) + 1.0 min (loaded trip time) + 0.6 min (Maneuver and Spread Time) + 0.7 min (return trip time) = 3.3 min

Net Hourly Production = 29 LCY (adjusted capacity) * 50 min/hr (work hour factor) / 3.3 min (cycle time) * 2 (number of scrapers) = 885 LCY/hr

Hours Required[2] = 178,656 LCY (volume to be handled[1]) / 885 LCY/hr (net hourly production) = 202 hrs

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

WORKSHEET NO. 12A

PRODUCTIVITY AND HOURS FOR MOTOR GRADER USE -- GRADING

Earthmoving Activity:

Ripping Road Grades

Characterization of Grader Used (type, size capacity, etc.)[3]

Caterpillar 16H

Description of Grader Route (push distance,% blade effective length, operating speed, etc.):

9.75 Ripper width [ft]

Productivity Calculations[3]:

Contour Grading:

Hourly Productivity = 3.4 mi/hr (speed) x 9.75 ft. (effective blade width) x 5,280 ft/mi (conversion factor) / 43,560 ft^2 /ac (conversion factor) x 0.83 (work hour factor) x 0.90 (availability) = 3.0 ac / hr

Hours Required = 425 ac (acreage to be graded[1]) / 2.99 ac/hr (hourly productivity) = 142 hr

Scarification:

Hourly Productivity = 1.25 mi/hr (work speed) x 9.75 ft. (scarifier width) x 5,280 ft/mi (conversion factor) / 43,560 ft^2 /ac (conversion factor) x 0.83 (work hour factor) x 0.90 (availability) = 1.1 ac / hr

Hours Required = 425 ac (acreage to be ripped[1]) / 1.10 ac/hr (hourly productivity) = 386 hr

Total Hours Required[2] = 142 hr (grading hours required) + 386 hr (scarification hours required) = 528 hr

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 12a-A

PRODUCTIVITY AND HOURS FOR MOTOR GRADER USE -- GRADING

Earthmoving Activity:

Ripping Road Grades

Characterization of Grader Used (type, size capacity, etc.)[3]

Caterpillar 16H

Description of Grader Route (push distance,% blade effective length, operating speed, etc.):

9.75 Ripper width [ft]

Productivity Calculations[3]:

Contour Grading:

Hourly Productivity = 3.4 mi/hr (speed) x 9.75 ft. (effective blade width) x 5,280 ft/mi (conversion factor) / 43,560 ft^2 /ac (conversion factor) x 0.83 (work hour factor) x 0.90 (availability) = 3.0 ac / hr

Hours Required = 12 ac (acreage to be graded[1]) \ 2.99 ac/hr (hourly productivity) = 4 hr

Scarification:

Hourly Productivity = 1.25 mi/hr (work speed) x 9.75 ft. (scarifier width) x 5,280 ft/mi (conversion factor) / 43,560 ft^2 /ac (conversion factor) x 0.83 (work hour factor) x 0.90 (availability) = 1.1 ac / hr

Hours Required = 12 ac (acreage to be ripped[1]) \ 1.10 ac/hr (hourly productivity) = 11 hr

Total Hours Required[2] = 3.9 hr (grading hours required) + 10.5 hr (scarification hours required) = 14 hr

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 12B

PRODUCTIVITY AND HOURS FOR MOTOR GRADER USE -- GRADING

Earthmoving Activity:

Grading Areas to be Topsoiled

Characterization of Grader Used (type, size capacity, etc.)[3]

Caterpillar 16H

Description of Grader Route (push distance,% blade effective length, operating speed, etc.):

11.9 Ripper width [ft]

Productivity Calculations[3]:

Contour Grading:

Hourly Productivity = 3.4 mi/hr (speed) x 11.90 ft. (effective blade width) x 5,280 ft/mi (conversion factor) / 43,560 ft^2 /ac (conversion factor) x 0.83 (work hour factor) x 0.90 (availability) = 3.7 ac / hr

Hours Required = 6,019 ac (acreage to be graded[1]) / 3.65 ac/hr (hourly productivity) = 1,648 hr

Scarification:

Hourly Productivity = 1.25 mi/hr (work speed) x 9.75 ft. (scarifier width) x 5,280 ft/mi (conversion factor) / 43,560 ft^2 /ac (conversion factor) x 0.83 (work hour factor) x 0.90 (availability) = 1.1 ac / hr

Hours Required = - ac (acreage to be ripped*) / 1.10 ac/hr (hourly productivity) = - hr

Total Hours Required[2] = 1,648 hr (grading hours required) + 0 hr (scarification hours required) = 1,648 hr

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

*No Ripping on Topsoiled Areas

WORKSHEET NO. 12a-B

PRODUCTIVITY AND HOURS FOR MOTOR GRADER USE -- GRADING

Earthmoving Activity:

Finish Grading Areas to be Topsoiled

Characterization of Grader Used (type, size capacity, etc.)[3]

Caterpillar 16H

Description of Grader Route (push distance,% blade effective length, operating speed, etc.):

9.75 Ripper width [ft]

Productivity Calculations[3]:

Contour Grading:

Hourly Productivity = 3.4 mi/hr (speed) x 9.75 ft. (effective blade width) x 5,280 ft/mi (conversion factor) / 43,560 ft^2 /ac (conversion factor) x 0.83 (work hour factor) x 0.90 (availability) = 3.0 ac / hr

Hours Required = 553 ac (acreage to be graded[1]) \ 2.99 ac/hr (hourly productivity) = 185 hr

Scarification:

Hourly Productivity = 1.25 mi/hr (work speed) x 9.75 ft. (scarifier width) x 5,280 ft/mi (conversion factor) / 43,560 ft^2 /ac (conversion factor) x 0.83 (work hour factor) x 0.90 (availability) = 1.1 ac / hr

Hours Required = 0 ac (acreage to be ripped[1]) \ 1.10 ac/hr (hourly productivity) = 0 hr

Total Hours Required[2] = 185 hr (grading hours required) + 0.0 hr (scarification hours required) = 185 hr

Data Sources:

1) Acres from Worksheet 3
2) Hours required go to Worksheet 13
3) Caterpillar Performance Handbook, Edition 37

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13A
SUMMARY CALCULATION OF EARTHMOVING COSTS - Dozers

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Backfilling Ponds	D11R Dozer	100%	($304	+	$ 35)	*	507	= $	172,056
Old Area 3 Diversion	D11R Dozer	100%	($304	+	$ 35)	*	11	= $	3,900
New Area 3 Diversion	D11R Dozer	100%	($304	+	$ 35)	*	127	= $	42,941
Road and Rail Fills	D11R Dozer	100%	($304	+	$ 35)	*	303	= $	102,779
Area 1 Regrade	D11R Dozer	100%	($304	+	$ 35)	*	1,526	= $	517,820
Area 2 Regrade	D11R Dozer	100%	($304	+	$ 35)	*	18,605	= $	6,312,865
Area 3 Regrade	D11R Dozer	100%	($304	+	$ 35)	*	24,829	= $	8,424,852
							Total Cost	**= $**	**15,577,214**

Equipment and Accesory Identification

1) Caterpillar D11R with Universal Blade

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 5

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13a-A
SUMMARY CALCULATION OF EARTHMOVING COSTS - DOZERS

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Backfilling Ponds	D11R Dozer	100%	($ 304	+	$ 35)	*	78	=	$ 26,411
Dozing Roads	D11R Dozer	100%	($ 304	+	$ 35)	*	8	=	$ 2,799
Area 4N Regrade	D11R Dozer	100%	($ 304	+	$ 35)	*	7,146	=	$ 2,424,692
							Total Cost	**=**	**$ 2,453,903**

Equipment and Accesory Identification

1) Caterpillar D11R with Universal Blade

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 5

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13B
SUMMARY CALCULATION OF EARTHMOVING COSTS - Loaders

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Area 2 Regrade	992G Loader	100%	($ 249	+	$ 35)	*	13,009	=	$ 3,706,163
	16H Grader	50%	($ 92	+	$ 35)	*	6,505	=	$ 827,351
	D9R Dozer	100%	($ 143	+	$ 35)	*	13,009	=	$ 2,322,278
	Water Truck	50%	($ 133	+	$ 35)	*	6,505	=	$ 1,095,272
Area 3 Regrade	992G Loader	100%	($ 249	+	$ 35)	*	16,172	=	$ 4,607,238
	16H Grader	50%	($ 92	+	$ 35)	*	8,086	=	$ 1,028,504
	D9R Dozer	100%	($ 143	+	$ 35)	*	16,172	=	$ 2,886,891
	Water Truck	50%	($ 133	+	$ 35)	*	8,086	=	$ 1,361,565
Area 1 Topsoiling	992G Loader	100%	($ 249	+	$ 35)	*	456	=	$ 130,019
	16H Grader	50%	($ 92	+	$ 35)	*	228	=	$ 29,025
	D9R Dozer	100%	($ 143	+	$ 35)	*	456	=	$ 81,470
	Water Truck	50%	($ 133	+	$ 35)	*	228	=	$ 38,424
Area 2 Topsoiling	992G Loader	100%	($ 249	+	$ 35)	*	1,617	=	$ 460,553
	16H Grader	50%	($ 92	+	$ 35)	*	808	=	$ 102,812
	D9R Dozer	100%	($ 143	+	$ 35)	*	1,617	=	$ 288,582
	Water Truck	50%	($ 133	+	$ 35)	*	808	=	$ 136,106
Area 3 Topsoiling	992G Loader	100%	($ 249	+	$ 35)	*	2,411	=	$ 686,976
	16H Grader	50%	($ 92	+	$ 35)	*	1,206	=	$ 153,358
	D9R Dozer	100%	($ 143	+	$ 35)	*	2,411	=	$ 430,459
	Water Truck	50%	($ 133	+	$ 35)	*	1,206	=	$ 203,020
							Total Cost	**=**	**$ 20,576,068**

Equipment and Accesory Identification

1) Caterpillar 992G Loader with standard 15 cubic yard bucket
   Caterpillar 16H Grader, standard blade, road maintenance time = 1/2 loader time
   Caterpillar D9R Dozer with Semi-Universal Blade time = loader time
   10,000 gal. Water truck, road maintenance time = 1/2 loader time

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 8 and Note 1 above

WORKSHEET NO. 13a-B

SUMMARY CALCULATION OF EARTHMOVING COSTS - Loaders

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Area 4N Regrade	992G Loader	100%	($ 249	+	$ 35)	*	3,470	= $	988,441
	16H Grader	50%	($ 92	+	$ 35)	*	1,735	= $	220,656
	D9R Dozer	100%	($ 143	+	$ 35)	*	3,470	= $	619,356
	Water Truck	50%	($ 133	+	$ 35)	*	1,735	= $	292,111
Area 4N Topsoil	992G Loader	100%	($ 249	+	$ 35)	*	995	= $	283,442
	16H Grader	50%	($ 92	+	$ 35)	*	497	= $	63,275
	D9R Dozer	100%	($ 143	+	$ 35)	*	995	= $	177,605
	Water Truck	50%	($ 133	+	$ 35)	*	497	= $	83,765
Area 4N Mitigation	992G Loader	100%	($ 249	+	$ 35)	*	209	= $	59,470
	16H Grader	50%	($ 92	+	$ 35)	*	104	= $	13,276
	D9R Dozer	100%	($ 143	+	$ 35)	*	209	= $	37,264
	Water Truck	50%	($ 133	+	$ 35)	*	104	= $	17,575
Cottonwood Crossing Material	992G Loader	100%	($ 249	+	$ 35)	*	125	= $	35,690
	16H Grader	50%	($ 92	+	$ 35)	*	63	= $	7,967
	D9R Dozer	100%	($ 143	+	$ 35)	*	125	= $	22,363
	Water Truck	50%	($ 133	+	$ 35)	*	63	= $	10,547
							Total Cost =	**$**	**2,932,803**

Equipment and Accesory Identification

1) Caterpillar 992G Loader with standard 15 cubic yard bucket
   Caterpillar 16H Grader, standard blade, road maintenance time = 1/2 loader time
   Caterpillar D9R Dozer with Semi-Universal Blade time = loader time
   10,000 gal. Water truck, road maintenance time = 1/2 loader time

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 8 and Note 1 above

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13C
SUMMARY CALCULATION OF EARTHMOVING COSTS - Loaders

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]			Total Cost [$]
Area 1 Mitigation	992G Loader	100%	($ 249	+	$ 35)	*	103	=	$	29,366
	16H Grader	50%	($ 92	+	$ 35)	*	52	=	$	6,556
	D9R Dozer	100%	($ 143	+	$ 35)	*	103	=	$	18,401
	Water Truck	50%	($ 133	+	$ 35)	*	52	=	$	8,679
Area 2 Mitigation	992G Loader	100%	($ 249	+	$ 35)	*	479	=	$	136,333
	16H Grader	50%	($ 92	+	$ 35)	*	239	=	$	30,434
	D9R Dozer	100%	($ 143	+	$ 35)	*	479	=	$	85,426
	Water Truck	50%	($ 133	+	$ 35)	*	239	=	$	40,290
Area 3 Mitigation	992G Loader	100%	($ 249	+	$ 35)	*	1,266	=	$	360,697
	16H Grader	50%	($ 92	+	$ 35)	*	633	=	$	80,521
	D9R Dozer	100%	($ 143	+	$ 35)	*	1,266	=	$	226,012
	Water Truck	50%	($ 133	+	$ 35)	*	633	=	$	106,596
North Area Coal Contaminated Soil	992G Loader	100%	($ 249	+	$ 35)	*	126	=	$	35,886
	16H Grader	50%	($ 92	+	$ 35)	*	63	=	$	8,011
	D9R Dozer	100%	($ 143	+	$ 35)	*	126	=	$	22,486
	Water Truck	50%	($ 133	+	$ 35)	*	63	=	$	10,605
Area 2 Coal Contaminated Soil	992G Loader	100%	($ 249	+	$ 35)	*	185	=	$	52,708
	16H Grader	50%	($ 92	+	$ 35)	*	93	=	$	11,766
	D9R Dozer	100%	($ 143	+	$ 35)	*	185	=	$	33,027
	Water Truck	50%	($ 133	+	$ 35)	*	93	=	$	15,577
							Total Cost	**=**	**$**	**1,319,376**

Equipment and Accesory Identification

1) Caterpillar 992G Loader with standard 15 cubic yard bucket
   Caterpillar 16H Grader, standard blade, road maintenance time = 1/2 loader time
   Caterpillar D9R Dozer with Semi-Universal Blade time = loader time
   10,000 gal. Water truck, road maintenance time = 1/2 loader time

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 8 and Note 1 above

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13a-C
SUMMARY CALCULATION OF EARTHMOVING COSTS - Trucks

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Area 4N Regrade	777D Truck	100%	($ 177	+	$ 35)	*	5,681	= $	1,208,585
Area 4N Topsoil	777D Truck	100%	($ 177	+	$ 35)	*	1,944	= $	413,521
Area 4N Mitigation	777D Truck	100%	($ 177	+	$ 35)	*	408	= $	86,762
Cottonwood Crossing Material	777D Truck	100%	($ 177	+	$ 35)	*	205	= $	43,639
							Total Cost =	**$**	**1,752,507**

Equipment and Accesory Identification

1) Caterpillar 777D Dump Truck, mechanical drive, standard bed

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 9

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13D
SUMMARY CALCULATION OF EARTHMOVING COSTS - Trucks

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Area 2 Regrade	777D Truck	100%	($ 177	+	$ 35)	*	36,530	= $	7,771,367
Area 3 Regrade	777D Truck	100%	($ 177	+	$ 35)	*	45,503	= $	9,680,423
Area 1 Topsoiling	777D Truck	100%	($ 177	+	$ 35)	*	3,277	= $	697,177
Area 2 Topsoiling	777D Truck	100%	($ 177	+	$ 35)	*	9,096	= $	1,935,037
Area 3 Topsoiling	777D Truck	100%	($ 177	+	$ 35)	*	8,997	= $	1,914,033
Area 1 Mitigation	777D Truck	100%	($ 177	+	$ 35)	*	561	= $	119,276
Area 2 Mitigation	777D Truck	100%	($ 177	+	$ 35)	*	2,307	= $	490,871
Area 3 Mitigation	777D Truck	100%	($ 177	+	$ 35)	*	7,345	= $	1,562,649
North Area Coal Contaminated Soil	777D Truck	100%	($ 177	+	$ 35)	*	913	= $	194,172
Area 3 Coal Contaminated Soil	777D Truck	100%	($ 177	+	$ 35)	*	547	= $	116,453
							Total Cost =	**$**	**24,481,458**

Equipment and Accesory Identification

1) Caterpillar 777D Dump Truck, mechanical drive, standard bed

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 9

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13a-D

SUMMARY CALCULATION OF EARTHMOVING COSTS - Scrapers

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Area 4N Grading	637G Scraper	100%	($ 235	+	$ 35)	*	8,287	=	$ 2,239,461
	637G Scraper	100%	($ 235	+	$ 35)	*	8,287	=	$ 2,239,461
	16H Grader	13%	($ 92	+	$ 35)	*	1,036	=	$ 131,764
	Water Truck	13%	($ 133	+	$ 35)	*	1,036	=	$ 174,434
							Total Cost	**=**	**$ 4,785,121**

Equipment and Accesory Identification

1) Caterpillar 637G Scraper Push-Pull Pair
   Caterpillar 16H Grader, standard blade, road maintenance time = 1/8 scraper time
   10,000 gal. Water truck, road maintenance time = 1/8 scraper time

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 8 and Note 1 above

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13E
SUMMARY CALCULATION OF EARTHMOVING COSTS - Scrapers

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Area 2 Grading	637G Scraper	100%	($ 235	+	$ 35)	*	26,624	=	$ 7,194,402
	637G Scraper	100%	($ 235	+	$ 35)	*	26,624	=	$ 7,194,402
	16H Grader	13%	($ 92	+	$ 35)	*	3,328	=	$ 423,301
	Water Truck	13%	($ 133	+	$ 35)	*	3,328	=	$ 560,379
Area 3 Grading	637G Scraper	100%	($ 235	+	$ 35)	*	23,189	=	$ 6,266,311
	637G Scraper	100%	($ 235	+	$ 35)	*	23,189	=	$ 6,266,311
	16H Grader	13%	($ 92	+	$ 35)	*	2,899	=	$ 368,694
	Water Truck	13%	($ 133	+	$ 35)	*	2,899	=	$ 488,089
Area 1 Topsoiling	637G Scraper	100%	($ 235	+	$ 35)	*	15	=	$ 4,064
	637G Scraper	100%	($ 235	+	$ 35)	*	15	=	$ 4,064
	16H Grader	13%	($ 92	+	$ 35)	*	2	=	$ 239
	Water Truck	13%	($ 133	+	$ 35)	*	2	=	$ 317
Area 2 Topsoiling	637G Scraper	100%	($ 235	+	$ 35)	*	-	=	$ -
	637G Scraper	100%	($ 235	+	$ 35)	*	-	=	$ -
	16H Grader	13%	($ 92	+	$ 35)	*	-	=	$ -
	Water Truck	13%	($ 133	+	$ 35)	*	-	=	$ -
Area 3 Topsoiling	637G Scraper	100%	($ 235	+	$ 35)	*	738	=	$ 199,423
	637G Scraper	100%	($ 235	+	$ 35)	*	738	=	$ 199,423
	16H Grader	13%	($ 92	+	$ 35)	*	92	=	$ 11,734
	Water Truck	13%	($ 133	+	$ 35)	*	92	=	$ 15,533
							Total Cost	**=**	**$ 29,196,686**

Equipment and Accesory Identification

1) Caterpillar 637G Scraper Push-Pull Pair
   Caterpillar 16H Grader, standard blade, road maintenance time = 1/8 scraper time
   10,000 gal. Water truck, road maintenance time = 1/8 scraper time

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2007 edition. (see Table 12-B-23)
3) Labor Cost based on 2005 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 8 and Note 1 above

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13a-E
SUMMARY CALCULATION OF EARTHMOVING COSTS - Motor Graders

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Ripping Roads	16H Grader, ri	100%	($ 97	+	$ 35)	*	14	=	$ 1,906
Finish Grading Areas to be Topsoiled	16H Grader	100%	($ 92	+	$ 35)	*	185	=	$ 23,507
							Total Cost =		**$ 25,413**

Equipment and Accesory Identification

1) Caterpillar 16H Motor Grader with Ripper Blade

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 12

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13F
SUMMARY CALCULATION OF EARTHMOVING COSTS - Scrapers

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Area 2 Mitigation	637G Scraper	100%	($ 235	+	$ 35)	*	202	=	$ 54,520
	637G Scraper	100%	($ 235	+	$ 35)	*	202	=	$ 54,520
	16H Grader	13%	($ 92	+	$ 35)	*	25	=	$ 3,208
	Water Truck	13%	($ 133	+	$ 35)	*	25	=	$ 4,247
							Total Cost =		**$ 116,494**

Equipment and Accesory Identification

1) Caterpillar 992G Loader with standard 15 cubic yard bucket
   Caterpillar 16H Grader, standard blade, road maintenance time = 1/8 scraper time
   10,000 gal. Water truck, road maintenance time = 1/8 scraper time

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 8 and Note 1 above

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13a-F
SUMMARY CALCULATION OF EARTHMOVING COSTS - Drilling

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Area 4N Highwall	DMM2 Drill	100%	($ 313	+	$ 213)	*	172	=	$ 90,258
							Total Cost =		**$ 90,258**

Equipment and Accesory Identification

1) Ingersoll-Rand DMM2 Crawler-type Drill

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)

3) Total Yardage Drilled and Blasted from Worksheet 15

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13G
SUMMARY CALCULATION OF EARTHMOVING COSTS - Motor Graders

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Ripping Roads	16H Grader, ripping	100%	($ 97	+	$ 35)	*	528	=	$ 69,981
Finish Grading Areas to be Topsoiled	16H Grader	100%	($ 92	+	$ 35)	*	1,648	=	$ 209,671
							Total Cost	**=**	**$ 279,651**

Equipment and Accesory Identification

1) Caterpillar 16H Motor Grader with Ripper Blade

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)
3) Labor Cost based on 2008 contract with ACME Inc. (see Table 12-B-24)
4) Total Hours Required from Worksheet 12

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 13H
SUMMARY CALCULATION OF EARTHMOVING COSTS - Drilling

Project	Equipment Type[1]	Ratio	Equipment Unit Costs [$/hr][2]		Labor Costs [$/hr][3]		Total Hours Required[4]		Total Cost [$]
Area 2 Highwall	DMM2 Drill	100%	($ 313	+	$ 213)	*	451	=	$ 236,643
Area 3 Highwall	DMM2 Drill	100%	($ 313	+	$ 213)	*	1,233	=	$ 647,370
							Total Cost	**=**	**$ 884,013**

Equipment and Accesory Identification

1) Ingersoll-Rand DMM2 Crawler-type Drill

Data Sources:

2) PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 2011 edition. (see Table 12-B-23)

3) Total Yardage Drilled and Blasted from Worksheet 15

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 14A
REVEGETATION COSTS

Name and Description of Areas to be Revegetated:

Area 1

Description of Revegetation Activities

20% Contingency for vegetation failure:

Costs For Seeding	=	577 ac (Acreage to be reseeded)	* (	383 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation)	)	=	$ 961,046

Reseeding 20% of permenent program lands that were revegged during or before 1999:

Costs For Reseeding	=	19 ac (Acreage to be reseeded)	* (	383 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation)	)	=	$ 31,622

Other Revegetation Activity for this Area (e.g. Soil Sampling):

TOTAL REVEGETATION COST = $ 992,667

Data Sources:

Navajo Mine records for contractor planting costs

Seedbed Preparation includes discing and ripping, drill seeding, topsoil and spoil sampling

Irrigation costs are included with seeding, fertilizing and mulching costs

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 14a
REVEGETATION COSTS

Name and Description of Areas to be Revegetated:

Area 4 North

Description of Revegetation Activities

20% Contingency for vegetation failure:

Costs For Seeding	=	663 ac (Acreage to be reseeded)	*	(382.8 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation))	=	$	1,104,192

Reseeding 20% of permenent program lands that were revegged during or before 1999:

Costs For Reseeding	=	0 ac (Acreage to be reseeded)	*	(382.8 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation))	=	$	-

Other Revegetation Activity for this Area (e.g. Soil Sampling):

None Required

TOTAL REVEGETATION COST = $ 1,104,192

Data Sources:

Navajo Mine records for contractor planting costs

Seedbed Preparation includes discing and ripping, drill seeding, topsoil and spoil sampling

Irrigation costs are included with seeding, fertilizing and mulching costs

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 14B
REVEGETATION COSTS

Name and Description of Areas to be Revegetated:

Area 2

Description of Revegetation Activities

20% Contingency for vegetation failure:

Costs For Seeding	=	3,122 ac (Acreage to be reseeded)	* (	383 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation)	)	=	$ 5,195,486

Reseeding 20% of permenent program lands that were revegged during or before 1999:

Costs For Reseeding	=	6 ac (Acreage to be reseeded)	* (	383 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation)	)	=	$ 10,685

Other Revegetation Activity for this Area (e.g. Soil Sampling):

TOTAL REVEGETATION COST = $ 5,206,171

Data Sources:

Navajo Mine records for contractor planting costs

Seedbed Preparation includes discing and ripping, drill seeding, topsoil and spoil sampling

Irrigation costs are included with seeding, fertilizing and mulching costs

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 14C
REVEGETATION COSTS

Name and Description of Areas to be Revegetated:

Area 3

Description of Revegetation Activities

20% Contingency for vegetation failure:

Costs For Seeding	=	3,523 ac (Acreage to be reseeded)	* (	383 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation)	)	=	$ 5,864,031

Reseeding 20% of permenent program lands that were revegged during or before 1999:

Costs For Reseeding	=	155 ac (Acreage to be reseeded)	* (	383 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation)	)	=	$ 257,500

Other Revegetation Activity for this Area (e.g. Soil Sampling):

TOTAL REVEGETATION COST = $ 6,121,532

Data Sources:

Navajo Mine records for contractor planting costs

Seedbed Preparation includes discing and ripping, drill seeding, topsoil and spoil sampling

Irrigation costs are included with seeding, fertilizing and mulching costs

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 14D
REVEGETATION COSTS

Name and Description of Areas to be Revegetated:

Roads

Description of Revegetation Activities

20% Contingency for vegetation failure:

Costs For Seeding	=	510 ac (Acreage to be reseeded)	* (	383 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation)	) =	$ 848,285

Reseeding 20% of permenent program lands that were revegged during or before 1999:

Costs For Reseeding	=	0 ac (Acreage to be reseeded*)	* (	383 $/ac. (cost for seedbed preparation)	+	1281.5 $/ac. (cost for seeding, fertilizing, mulching, and irrigation)	) =	$ -

Other Revegetation Activity for this Area (e.g. Soil Sampling):

TOTAL REVEGETATION COST = $ 848,285

Data Sources:

Navajo Mine records for contractor planting costs

Seedbed Preparation includes discing and ripping, drill seeding, topsoil and spoil sampling

Irrigation costs are included with seeding, fertilizing and mulching costs

WORKSHEET NO. 15A
PRODUCTIVITY AND HOURS FOR DRILL USE

Earthmoving Activity:

Blasting Material Prior to Dozing - Area 2

Characterization of Drill Used

Drill Model	IR DMM2 Drill				
Drill Bit Diameter	11 [in]	Burden	26 [ft]	1,233	Volume Shot per hole [bcy]
Drill Rod Length	35 [ft]	Bench Height	40 [ft]		
Penetration Rate	228 [ft/hr]	Spacing	32 [ft]		

Description of Activity:

Drilling holes to provide space for explosives

Calculation:

Cycles per Hour = 60 min (time available) / (10.5 min (Drill Time) + 1.6 min (Rod Feed Time) + 0.4 min (Rod Pull Time) + 2.0 min (misc.)) = 4.1 cycles/hr

Operating Delays = 30.0 min (Lunch) + 15.0 min (Shift Change) + 10.0 min (Blasting) + 6.0 min (Service Time) + 5.0 min (Moving) + 5 min (misc.) = 71 min
= 14.8% of a shift
= 85.2% operational utilization

Effective Pit Utilization (EPU) = 85.2% (operational utilization) * 90.0% (availability) = 76.7%

Maximum Penetration Rate = 40 ft (bench height) * 4.1 cycles/hr (cycles per hour) * 76.7% EPU (pit utilization) = 126.5 ft/hr

Maximum Production:

per Scheduled Shift: = 26 ft (burden) * 32 ft (spacing) * 126.5 ft/hr (max. penetration rate) * 8.0 hr/shift (Hours In A Shift) / 27 ft^3/yd^3 (conversion factor) = 31,184 bcy/shift

per Scheduled Hour = 31,184 bcy/shift (max. production per sched. shift) / 8 hr/shift (conversion factor) = 3,898 bcy/hr

Drill Hours Required = 1,756,329 bcy (volume to be blasted) / 3,898 bcy/hr (production rate) = 451 hr

WORKSHEET NO. 15a-A
PRODUCTIVITY AND HOURS FOR DRILL USE

Earthmoving Activity:

Blasting Material Prior to Dozing - Area 4n

Characterization of Drill Used

Drill Model	IR DMM2 Drill				
Drill Bit Diameter	11 [in]	Burden	26 [ft]	1,233	Volume Shot per hole [bcy]
Drill Rod Length	35 [ft]	Bench Height	40 [ft]		
Penetration Rate	228 [ft/hr]	Spacing	32 [ft]		

Description of Activity:

Drilling holes to provide space for explosives

Calculation:

Cycles per Hour = 60 min (time available) / (10.5 min (Drill Time) + 1.6 min (Rod Feed Time) + 0.4 min (Rod Pull Time) + 2.0 min (misc.)) = 4.1 cycles/hr

Operating Delays = 30.0 min (Lunch) + 15.0 min (Shift Change) + 10.0 min (Blasting) + 6.0 min (Service Time) + 5.0 min (Moving) + 5 min (misc.) = 71 min
= 14.8% of a shift
= 85.2% operational utilization

Effective Pit Utilization (EPU) = 85.2% (operational utilization) * 90.0% (availability) = 76.7%

Maximum Penetration Rate = 40 ft (bench height) * 4.1 cycles/hr (cycles per hour) * 76.7% EPU (pit utilization) = 126.5 ft/hr

Maximum Production:

per Scheduled Shift: = 26 ft (burden) * 32 ft (spacing) * 126.5 ft/hr (max. penetration rate) * 8.0 hr/shift (Hours In A Shift) / 27 ft^3/yd^3 (conversion factor) = 31,184 bcy/shift

per Scheduled Hour = 31,184 bcy/shift (max. production per sched. shift) / 8 hr/shift (conversion factor) = 3,898 bcy/hr

Drill Hours Required = 669,878 bcy (volume to be blasted) / 3,898 bcy/hr (production rate) = 172 hr

WORKSHEET NO. 15B
PRODUCTIVITY AND HOURS FOR DRILL USE

Earthmoving Activity:

Blasting Material Prior to Dozing - Area 3

Characterization of Drill Used

Drill Model	IR DMM2 Drill				
Drill Bit Diameter	11 [in]	Burden	26 [ft]	1,233	Volume Shot per hole [bcy]
Drill Rod Length	35 [ft]	Bench Height	40 [ft]		
Penetration Rate	228 [ft/hr]	Spacing	32 [ft]		

Description of Activity:

Drilling holes to provide space for explosives

Calculation:

Cycles per Hour = 60 min (time available) / (10.5 min (Drill Time) + 1.6 min (Rod Feed Time) + 0.4 min (Rod Pull Time) + 2.0 min (misc.)) = 4.1 cycles/hr

Operating Delays = 30.0 min (Lunch) + 15.0 min (Shift Change) + 10.0 min (Blasting) + 6.0 min (Service Time) + 5.0 min (Moving) + 5 min (misc.) = 71 min
= 14.8% of a shift
= 85.2% operational utilization

Effective Pit Utilization (EPU) = 85.2% (operational utilization) * 90.0% (availability) = 76.7%

Maximum Penetration Rate = 40 ft (bench height) * 4.1 cycles/hr (cycles per hour) * 76.7% EPU (pit utilization) = 126.5 ft/hr

Maximum Production:

per Scheduled Shift: = 26 ft (burden) * 32 ft (spacing) * 126.5 ft/hr (max. penetration rate) * 8.0 hr/shift (Hours In A Shift) / 27 ft^3/yd^3 (conversion factor) = 31,184 bcy/shift

per Scheduled Hour = 31,184 bcy/shift (max. production per sched. shift) / 8 hr/shift (conversion factor) = 3,898 bcy/hr

Drill Hours Required = 4,804,688 bcy (volume to be blasted) / 3,898 bcy/hr (production rate) = 1,233 hr

WORKSHEET NO. 15C
PRODUCTIVITY AND COSTS FOR BLASTING ACTIVITIES

Earthmoving Activity:

Blasting Material Prior to Dozing - Area 2

Characterization of Blasting Parameters

Ingersoll Rand DMM2 Drill

Burden	26 [ft]	Powder Factor [lb/bcy]	0.9 [lb/bcy]
Bench Height	40 [ft]	Volume Shot per hole [bcy]	1,233 [bcy]
Spacing	32 [ft]		

Description of Activity:

ANFO used with boosters and primacord for explosive load

Calculation:

Total ANFO Required = 1,756,329 bcy (volume to be blasted) * 0.9 lb/bcy (powder factor) = 1,580,696 lb

Miscellaneous Powder Supplies = 1,580,696 lb (ANFO required) * 5% (contingency factor) = 79,035 lb

Cord Cost per Hole =(26 ft (burden) + 32 ft (spacing) + 40 ft (bench height))* 10% (waste factor) * 0.10 $/ft (cord unit cost) = 11 $/hole

ANFO Cost per Hole = 1,233 bcy (volume shot per hole) * 0.9 lb/bcy (powder factor) * 0.15 $/lb (ANFO unit cost) = 167 $/hole

Primer Cost per Hole = 1 (primers per hole) * 4.63 $/ea (primer unit cost) = 4.63 $/hole

Volumetric Blasting Cost =(11 $/hole (cord cost per hole) + 167 $/hole (ANFO cost per hole) + 4.63 $/hole (primer cost per hole))/ 1,233 bcy (volume shot per hole) = 0.15 $/bcy

Total Blasting Cost = 0.15 $/bcy (volumetric blasting cost) * 1,756,329 bcy (volume to be blasted) = $ 259,491

WORKSHEET NO. 15a-C
PRODUCTIVITY AND COSTS FOR BLASTING ACTIVITIES

Earthmoving Activity:

Blasting Material Prior to Dozing - Area 4n

Characterization of Blasting Parameters

Ingersoll Rand DMM2 Drill

Burden	26 [ft]	Powder Factor [lb/bcy]	0.9 [lb/bcy]
Bench Height	40 [ft]	Volume Shot per hole [bcy]	1,233 [bcy]
Spacing	32 [ft]		

Description of Activity:

ANFO used with boosters and primacord for explosive load

Calculation:

Total ANFO Required = 669,878 bcy (volume to be blasted) * 0.9 lb/bcy (powder factor) = 602,891 lb

Miscellaneous Powder Supplies = 602,891 lb (ANFO required) * 5% (contingency factor) = 30,145 lb

Cord Cost per Hole =(26 ft (burden) + 32 ft (spacing) + 40 ft (bench height))* 10% (waste factor) * 0.10 $/ft (cord unit cost) = 11 $/hole

ANFO Cost per Hole = 1,233 bcy (volume shot per hole) * 0.9 lb/bcy (powder factor) * 0.15 $/lb (ANFO unit cost) = 167 $/hole

Primer Cost per Hole = 1 (primers per hole) * 4.63 $/ea (primer unit cost) = 4.63 $/hole

Volumetric Blasting Cost =(11 $/hole (cord cost per hole) + 167 $/hole (ANFO cost per hole) + 4.63 $/hole (primer cost per hole))/ 1,233 bcy (volume shot per hole) = 0.15 $/bcy

Total Blasting Cost = 0.15 $/bcy (volumetric blasting cost) * 669,878 bcy (volume to be blasted) = $ 98,972

WORKSHEET NO. 15D
PRODUCTIVITY AND COSTS FOR BLASTING ACTIVITIES

Earthmoving Activity:

Blasting Material Prior to Dozing - Area 3

Characterization of Blasting Parameters

Ingersoll Rand DMM2 Drill

26	Burden [ft]	0.9	Powder Factor [lb/bcy]
32	Spacing [ft]	1,233	Volume Shot per hole [bcy]
40	Bench Height [ft]		

Description of Activity:

ANFO used with boosters and primacord for explosive load

Calculation:

Total ANFO Required = 1,756,329 bcy (volume to be blasted) * 0.9 lb/bcy (powder factor) = 1,580,696 lb

Miscellaneous Powder Supplies = 1,580,696 lb (ANFO required) * 5% (contingency factor) = 79,035 lb

Cord Cost per Hole =(26 ft (burden) + 32 ft (spacing) + 40 ft (bench height))* 10% (waste factor) * 0.10 $/ft (cord unit cost) = 11 $/hole

ANFO Cost per Hole = 1,233 bcy (volume shot per hole) * 0.9 lb/bcy (powder factor) * 0.15 $/lb (ANFO unit cost) = 167 $/hole

Primer Cost per Hole = 1 (primers per hole) * 4.63 $/ea (primer unit cost) = 4.63 $/hole

Volumetric Blasting Cost =(11 $/hole (cord cost per hole) + 167 $/hole (ANFO cost per hole) + 4.63 $/hole (primer cost per hole))/ 1,233 bcy (volume shot per hole) = 0.15 $/bcy

Total Blasting Cost = 0.15 $/bcy (volumetric blasting cost) * 4,804,688 bcy (volume to be blasted) = $ 709,876

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 15E

Other Reclamation Activity Costs

Earthmoving Activity:

Rip-Rap for Channels and Drop Structures

Calculation:

See detailed calculations in Appendix 12-C

Cost for Area 2:	$ 1,179,326	
Cost for Area 3:	$ 23,005	
Total:	$ 1,202,331	Inflated Cost for Areas 2 & 3: $ 1,202,331

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 15a
OTHER RECLAMATION ACTIVITY COSTS

Earthmoving Activity:

Rip-Rap for Channels and Drop Structures

Calculation:

See detailed calculations in Appendix 12-C

Cost for Area 4N: $ 62,533

Inflated Cost for Area 4N: $ 62,533

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 16
AREAS 1-3 RECLAMATION BOND SUMMARY SHEET

			2011 Estimate		
1	Total Facility and Structure Removal Costs	$	5,501,694		
2	Total Earthmoving Costs	$	92,430,960		
3	Total Revegetation Costs		$13,168,654		
4	Total Other Reclamation Activities Costs	$	2,171,698		
5	Subtotal: Total Direct Costs			$	113,273,007
6	Mobilization and Demobilization (at 1.0% of Item 5)		1.0%	$	1,132,730
7	Contingencies (at 2.0% of Item 5)		2.0%	$	2,265,460
8	Engineering Redesign Fee (at 1.8% of Item 5)		1.8%	$	2,038,914
9	Contractor Profit and Overhead (at 15.0% of Item 5)		15.0%	$	16,990,951
10	Reclamation Management Fee (at 3.9% of Item 5)		3.9%	$	4,417,647
	GRAND TOTAL BOND AMOUNT			**$**	**140,118,709**
	(Sum of Items 5 through 10)				

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 16a

AREA 4 NORTH RECLAMATION BOND SUMMARY SHEET

			2011 Estimate		
1	Total Facility and Structure Removal Costs	$	621,216		
2	Total Earthmoving Costs	$	12,040,004		
3	Total Revegetation Costs	$	1,104,192		
4	Total Other Reclamation Activities Costs	$	161,505		
5	Subtotal: Total Direct Costs			$	13,926,917
6	Mobilization and Demobilization (at 1.0% of Item 5)		1.0%	$	139,269
7	Contingencies (at 2.0% of Item 5)		2.0%	$	278,538
8	Engineering Redesign Fee (at 1.8% of Item 5)		1.8%	$	250,685
9	Contractor Profit and Overhead (at 15.0% of Item 5)		15.0%	$	2,089,038
10	Reclamation Management Fee (at 3.9% of Item 5)		3.9%	$	543,150
	GRAND TOTAL BOND AMOUNT			**$**	**17,227,597**
	(Sum of Items 5 through 10)				

Project: Navajo Mine
Date: Sep-2011

WORKSHEET NO. 16
NAVAJO MINE RECLAMATION BOND SUMMARY SHEET

			2011 Estimate		
1	Total Facility and Structure Removal Costs	$	6,122,910		
2	Total Earthmoving Costs	$	104,470,964		
3	Total Revegetation Costs		$14,272,846		
4	Total Other Reclamation Activities Costs	$	2,333,203		
5	Subtotal: Total Direct Costs			$	127,199,924
6	Mobilization and Demobilization (at 1.0% of Item 5)		1.0%	$	1,271,999
7	Contingencies (at 2.0% of Item 5)		2.0%	$	2,543,998
8	Engineering Redesign Fee (at 1.8% of Item 5)		1.8%	$	2,289,599
9	Contractor Profit and Overhead (at 15.0% of Item 5)		15.0%	$	19,079,989
10	Reclamation Management Fee (at 3.9% of Item 5)		3.9%	$	4,960,797
	GRAND TOTAL BOND AMOUNT			**$**	**157,346,306**
	(Sum of Items 5 through 10)				

TABLE 12-B-1
DEMOLITION UNIT COSTS

Means Reference Number (1)			ID	Item	Unit	2011 Bare Costs (1)	2011 Unit Costs
02 41	16.13	0020	1	Large urban buildings, steel	CF	**$0.24**	$0.24
02 41	16.13	5000	1a	Large urban buildings, steel, no interior walls reduce by 50%	CF	**$0.12**	$0.12
02 41	16.13	0050	2	Large urban buildings, concrete	CF	**$0.34**	$0.34
02 41	16.13	5000	2a	Large urban buildings, concrete, no interior walls reduce by 50%	CF	**$0.17**	$0.17
02 41	16.13	0080	3	Large Urban buildings, masonry	CF	**$0.26**	$0.26
02 41	16.13	5000	3a	Large Urban buildings, masonry, no interior walls reduce by 50%	CF	**$0.13**	$0.13
02 41	16.13	0100	4	Large urban buildings, mixture of types	CF	**$0.26**	$0.26
02 41	16.13	0500	5	Small urban buildings, steel	CF	**$0.26**	$0.26
02 41	16.13	5000	5a	Small urban buildings, steel, no interior walls reduce by 50%	CF	**$0.13**	$0.13
02 41	16.13	0600	6	Small urban buildings, concrete	CF	**$0.34**	$0.34
02 41	16.13	5000	6a	Small urban buildings, concrete, no interior walls reduce by 50%	CF	**$0.17**	$0.17
02 41	16.13	0650	7	Small Urban buildings, masonry	CF	**$0.26**	$0.26
02 41	16.13	5000	7a	Small Urban buildings, masonry, no interior walls reduce by 50%	CF	**$0.13**	$0.13
02 41	16.17	0240	8	Floor, 4" concrete slab, plain	SF	**$3.17**	$3.36
02 41	16.17	0280	8a	Floor, 4" concrete slab, mesh reinforced	SF	**$3.38**	$3.57
02 41	16.17	0300	8b	Floor, 4" concrete slab, mesh reinforced, rods	SF	**$3.97**	$4.16
02 41	16.17	0400	9	Floor, 6" concrete slab, plain	SF	**$4.23**	$4.51
02 41	16.17	0420	9a	Floor, 6" concrete slab, mesh reinforced	SF	**$4.66**	$4.94
02 41	16.17	0440	9b	Floor, 6" concrete slab, mesh reinforced, rods	SF	**$5.28**	$5.56
02 41	16.17	0420	10	Floor, 8"concrete slab, mesh reinforced	SF	**$6.21**	$6.59
02 41	16.17	0440	10a	Floor, 8"concrete slab, mesh reinforced, rods	SF	**$7.04**	$7.42
02 41	16.16	0440	11	Floor, 12"concrete slab, mesh reinforces rods	SF	**$10.56**	$11.12
02 41	16.17	1000	12	Footings, concrete, 1' x 2'	LF	**$7.82**	$8.95
02 41	16.17	2600	12a	Footings, concrete, 1' x 2', average reinforcing + 10%	LF	**$8.60**	$9.73
02 41	16.17	1080	13	Footings, concrete, 1.5' x 2'	LF	**$9.38**	$11.07
02 41	16.17	2600	13a	Footings, concrete, 1.5' x 2', average reinforcing + 10%	LF	**$10.32**	$12.01
02 41	16.17	1120	14	Footings, concrete 1.5' x 3'	LF	**$11.70**	$14.24
02 41	16.17	2600	14a	Footings, concrete, 1.5' x 3', average reinforcing + 10%	LF	**$12.87**	$15.41
02 41	16.17	1140	15	Footings, concrete, 2' x 3'	LF	**$13.40**	$16.79
02 41	16.17	2600	15a	Footings, concrete, 2' x 3', average reinforcing + 10%	LF	**$14.74**	$18.13
02 41	16.17	1140	16	Footings, concrete, 2' x 6'	LF	**$26.80**	$33.58
02 41	16.17	2600	16a	Footings, concrete, 2' x 6', average reinforcing + 10%	LF	**$29.48**	$36.26
02 41	16.17	1140	51	Footings, concrete, 2' x16', average reinforcing + 10%	LF	**$78.61**	$96.69
02 41	16.17	2400	17	Walls, concrete, 3.5" thick	SF	**$4.62**	$4.78
02 41	16.17	2400	18	Walls, concrete, 6" thick	SF	**$7.92**	$8.20
02 41	16.17	2600	18a	Walls, concrete, 6" thick, Average reinforcing + 10%	SF	**$8.71**	$8.99
02 41	16.17	2420	19	Walls, concrete, 8" thick	SF	**$9.04**	$9.42
02 41	16.17	2600	19a	Walls, concrete, 8" thick, Average reinforcing + 10%	SF	**$9.94**	$10.32
02 41	16.17	2440	49	Walls, concrete, 10" thick	SF	**$10.58**	$11.05
02 41	16.17	2600	49a	Walls, concrete, 10" thick, Average reinforcing + 10%	SF	**$11.64**	$12.11
02 41	16.17	2500	50	Walls, concrete, 12" thick	SF	**$12.70**	$13.26

TABLE 12-B-1

DEMOLITION UNIT COSTS

Means Reference Number (1)			ID	Item	Unit	2011 Bare Costs (1)	2011 Unit Costs
02 41	16.17	2600	50a	Walls, concrete, 12" thick, Average reinforcing + 10%	SF	**$13.97**	$14.53
02 41	16.17	2500	20	Walls, concrete, 18" thick, Average reinforcing + 10%	SF	**$22.37**	$23.22
02 41	16.17	2500	21	Walls, concrete, 2' thick, Average reinforcing + 10%	SF	**$29.83**	$30.96
02 41	16.17	4250	22	Disposal, Concrete/Masonry, Up to 5 mile haul	CY	**$12.15**	$12.15
02 41	13.60	1650	23	Fencing, 5-strand barbed wire	LF	**$1.51**	$1.51
02 41	13.60	1700	24	Fencing, chain link, posts and fabric, 8' to 10' high	LF	**$2.27**	$3.68
02 41	13.33	3500	25	Rail removal, ties and track	LF	**$8.93**	$8.93
02 41	13.33	3600	26	Remove Ballast	CY	**$3.33**	$3.33
02 41	13.33	4200	27	Sidewalk, concrete, mesh reinforced (converted to SF)	SF	**$0.75**	$0.75
02 41	13.17	5050	28	Pavement, bituminous, 4"- 6" (converted to SF)	SF	**$0.31**	$0.59
02 41	13.17	5200	29	Driveway, concrete, 6", mesh reinforced (converted to SF)	SF	**$0.51**	$0.79
02 41	13.17	5500	30	Concrete, 7" to 2' thick, reinforced (converted to CF)	CF	**$1.81**	$2.94
02 41	16.13	0500	31	Steel Tanks, Piping & Culvert (Use small building, steel)	CF	**$0.23**	$0.23
			32	69 kV Power Lines	MI	**$6,749.97**	$7,512.72
Unit Costs from 2004 (See "2" below)			33	Conveyor	LF	**$21.88**	$24.35
			34	Water Wells	EA	**$1,762.89**	$1,962.10
			35	Seedbed Prep per Acre	Acre	**$382.80**	$382.80
			36	Seeding, Mulching, Irrigation per Acre	Acre	**$1,281.50**	$1,281.50
			37	Drill Operator	Labor Hour	**$30.80**	$30.80
			38	Blast Laborer	Labor Hour	**$30.80**	$30.80
			39	Blast Foremen	Labor Hour	**$30.80**	$30.80
02 41	13.70	0600	40	Gabions, 18-36 inches deep	SY	**$70.50**	$85.75
02 41	13.43	0200	41	Box Culvert 8'x12'x8'	LF	**$15.45**	$26.18
02 41	13.86	0100	42	Road Rug (Geotextile Lining Material use Synthetic Grass Cost)	SF	**$0.21**	$0.30
02 41	13.33	0800	43	Guard Rail, corrugated steel	LF	**$8.52**	$8.52
02 41	13.62	0400	44	Chain Link Gates,	EA	**$101.00**	$101.00
02 41	19.23	3080		Machine Loading Rubbish Truck	CY	**$12.90**	$12.90
02 41	19.23	5100		Rubbish Haul 20 CY Truck	MI	**$0.47**	$0.47
Calculated			45	Rubbish Disposal (50 MI Haul)	CY	$15.25	$15.25
			46	Primacord	LF	$0.09	$0.10
Unit Costs from 2004 (See "2" below)			47	ANFO	lb	$0.14	$0.15
			48	Primers	EA	$4.16	$4.63

1). R.S. Means, "Heavy Construction Cost Data," 2011 Edition,

2). Based on http://inflationdata.com/Inflation/Inflation_Rate/InflationCalculator.asp (Inflation from September 2005 to February 2011) **11.3%**

TABLE 12-B-2
CULVERT VOLUMES FOR DEMOLITION AND REMOVAL

CULVERT ID	Diameter [in]	Length [ft]	Volume [ft^3]
CP-1	48	76	955
CP-2	48	76	955
CP-3	48	100	1,257
CP-4	48	68	855
CP-5	84	311	11,969
CP-6	60	218	4,280
CP-7	42	158	1,520
CP-8	30	81	398
CP-9	30	48	236
CP-10	24	120	377
CP-103	30	124	609
CP-11	24	107	336
CP-12	24	101	317
CP-13	30	73	358
CP-14	30	129	633
CP-15	24	108	339
CP-16	60	153	3,004
CP-17	108	187	11,896
CP-18	90	305	13,474
CP-19	30	203	996
CP-20	24	262	823
CP-22	48	282	3,544
CP-23	58	146	2,679
CP-24	58	146	2,679
CP-31	48	150	1,885
CP-32	48	150	1,885
CP-33	48	150	1,885
CP-34	48	150	1,885
CP-35A	24	147	462
CP-35B	24	147	462
CP-36	48	70	880
CP-37	24	160	503
CP-49	12	140	110
CP-50	30	140	687
CP-50	30	140	687
CP-51	36	134	947
CP-52	42	137	1,318
CP-53	42	141	1,357
CP-54	18	178	315
CP-55	42	204	1,963
CP-56	48	170	2,136
CP-57	18	174	307

TABLE 12-B-2
CULVERT VOLUMES FOR DEMOLITION AND REMOVAL

CULVERT ID	Diameter [in]	Length [ft]	Volume [ft^3]
CP-58	18	140	247
CP-59	18	142	251
CP-60	18	230	406
CP-61	30	140	687
CP-62	18	128	226
CP-63A	16	40	56
CP-63B	15	133	163
CP-69	72	83	2,347
CP-74	76	110	3,465
CP-75A	7	106	30
CP-75B	7	106	30
CP-76	24	89	280
CP-77	36	231	1,633
CP-83	24	155	487
CP-84	16	48	64
CP-85	16	65	86
CP-86	15	14	17
CP-87	16	19	25
CP-88	15	22	27
CP-91	18	70	124
CP-92	30	50	245
CP-92	30	50	245
CP-93	48	230	2,890
CP-94	12	31	24
CP-95	24	26	82
CP-96	18	144	254
CP-97	24	140	440
CP-98	16	80	112
CP-99	16	80	112
CP-100	24	60	188
CP-101	12	40	31
CP-102	24	50	157
CP-103	30	124	609
CP-104	36	161	1,138
CP-106	10	75	41
CP-107	10	75	41
CP-108	30	28	137
CP-111	96	175	8,796
CP-119	18	95	168
CP-120	18	79	140
CP-122	24	54	170
CP-123	24	50	157

TABLE 12-B-2
CULVERT VOLUMES FOR DEMOLITION AND REMOVAL

CULVERT ID	Diameter [in]	Length [ft]	Volume [ft^3]
CP-124	24	50	157
CP-129	24	148	465
CP-130	24	142	446
CP-131	24	142	446
CP-132	24	132	415
CP-137	24	226	710
CP-138	24	168	528
CP-139	24	154	484
CP-140	24	100	314
CP-141	24	122	383
CP-142	24	192	603
CP-143	24	226	710
CP-144	42	168	1,616
CP-150	24	120	377
CP-152	60	93	1,826
CP-153	30	93	457
CP-154	24	72	226
CP-155	24	72	226
CP-156	24	72	226
CP-155	24	72	226
CP-156	24	72	226
CP-169	18	40	71
CP-170	18	48	85
CP-174	18	35	62
CP-175	16	40	56
CP-176	16	35	49
CP-177	30	40	196
CP-178	16	36	50
CP-179	16	40	56
CP-180	16	40	56
CP-181A	16	33	46
CP-181B	16	33	46
CP-185	24	130	408
CP-186	24	206	647
CP-187	24	206	647
CP-189	16	40	56
CP-190	16	40	56
CP-202	18	30	53
CP-203	18	30	53
CP-204	18	61	108
DD-01	30	36	177
DD-02	30	53	260

TABLE 12-B-2
CULVERT VOLUMES FOR DEMOLITION AND REMOVAL

CULVERT ID	Diameter [in]	Length [ft]	Volume [ft^3]
DD-03	30	53	260
DD-04	16	65	91
DD-05	42	29	279
DD-07	15	325	399
DD-08	15	90	110
DD-09	15	87	107
DD-10	15	105	129
DD-11	15	408	501
DD-12	15	68	83
DD-13	15	206	253
DD-14	15	153	188
DD-15	15	154	189
DD-16	15	160	196
DD-17	15	126	155
DD-18	15	170	209
DD-19	15	55	67
DD-20	15	55	67
DD-21	15	68	83
DD-22	15	250	307
DD-23	16	52	73
DD-24	10	45	25
DD-25	9	68	30
DD-29	16	73	102
DD-30	4	334	29
		Total	129,230

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-2a
CULVERT VOLUMES FOR DEMOLITION AND REMOVAL

CULVERT ID	Diameter [in]	Length [ft]	Volume [ft^3]
CP-189	30	318	1,561
		Total	**1,561**

TABLE 12-B-3
BACKFILLING OF PONDS AND IMPOUNDMENTS

Pond	Pond Volume [ac-ft]	Pond Volume [bcy][1]	Dam[2] Bottom [ft]	Dam[2] Top [ft]	Dam[2] Height [ft]	Dam[2] Length [ft]	Dam[2] Volume [bcy][1]	Dozer Push Distance [ft]	Backfill Volume[3] [bcy][1]
Barber Loadout	19.0	30,653	-	-	-	-	Incised	200	30,653
Lowe Loadout Pond	18.0	29,040	-	-	-	-	Incised	200	29,040
North Sewage Pond	6.9	11,132	-	-	-	-	Incised	200	11,132
A-3 Sewage Pond	4.3	6,937	70	45	5	750	7,986	125	6,937
Barber Stockpile Pond #2	8.0	12,939	160	40	13	100	4,815	200	4,815
Barber Stockpile Pond #3	3.7	6,034	-	-	-	-	Incised	150	6,034
South Barber Pond	9.8	15,811	-	-	-	-	Incised	300	15,811
Emma's Pond	9.7	15,585	80	2	6	1000	9,111	100	9,111
Hosteen Stockpile Pond #1	10.7	17,279	140	30	10	450	14,167	125	14,167
Hosteen Stockpile Pond #2	13.0	20,941	200	20	14	300	17,111	300	17,111
Hosteen Stockpile Pond #3	7.4	11,874	-	-	-	-	Incised	200	11,874
Lowe Stockpile Pond	5.6	9,035	120	25	15	400	16,111	100	9,035
North Pinto Pond	5.4	8,647	100	30	6	350	5,056	160	5,056
Northwest Dixon Pond	5.9	9,486	-	-	-	-	Incised	200	9,486
Southwest Dixon Pond	3.0	4,840	-	-	-	-	Incised	125	4,840
Vinnel Pond	9.8	15,746	-	-	-	-	Incised	250	15,746
Block-C Pond 1	5.1	8,147	-	-	-	-	Incised	150	8,147
Block-C Pond 2	6.0	9,712	-	-	-	-	Incised	100	9,712
Block-C Pond 3	13.3	21,457	-	-	-	-	Incised	150	21,457
Block-C Pond 4	15.9	25,652	-	-	-	-	Incised	200	25,652
Lowehole-3 Pond No. 2	9.8	15,811	-	-	-	-	Incised	150	15,811
N. Pond 1 (Cells A,B,C)	29.3	47,271	-	-	-	-	Incised	200	47,271
CR Pond 4	12.9	20,860	-	-	-	-	Incised	150	20,860
Pond #5	2.3	3,711	-	-	-	-	Incised	100	3,711
South Dixon Pond 1	12.1	19,570	-	-	-	-	Incised	150	19,570
South Dixon Pond 2	4.6	7,421	-	-	-	-	Incised	150	7,421
South Dixon Pond 3	4.6	7,421	-	-	-	-	Incised	100	7,421
Mason Pond	4.7	7,502	-	-	-	-	Incised	125	7,502
Lowehole-3 Pond No. 3	4.8	7,663	-	-	-	-	Incised	125	7,663
Employee's Coal Dump Pond	2.6	4,162	-	-	-	-	Incised	100	4,162
Lowe Permanent Impoundment No. 1	7.2	11,600	-	-	-	-	Incised	100	11,600
Lowe Railroad Impoundment #1	19.2	30,976	-	-	-	-	Incised	200	30,976
Lowe Railroad Impounment #2	11.1	17,908	-	-	-	-	Incised	200	17,908
South Dixon Pond 7	9.4	15,165	-	-	-	-	Incised	200	15,165
	TOTAL	**507,990**					**Weighted Average Push Distance [ft]**	**180**	**482,858**

(1) BCY = Bank cubic yards

(2) Dam volume is the trapezoidal cross-sectional area times the length.

(3) Backfill volume is the smaller of the dam volume or pond volume.
This assumes that either the pond is filled or the dam is removed and pushed into the pond.

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-3a
BACKFILLING OF PONDS AND IMPOUNDMENTS

Pond	Pond Volume		Dam[2]					Dozer Push Distance [ft]	Backfill Volume[3] [bcy][1]
	[ac-ft]	[bcy][1]	Bottom [ft]	Top [ft]	Height [ft]	Length [ft]	Volume [bcy][1]		
Pond 3	1.2	1,936	-	-	-	-	Incised	200	1,936
Pond 4	6.8	10,971	-	-	-	-	Incised	200	10,971
Pond 401	3.9	6,292	-	-	-	-	Incised	200	6,292
Pond 402	7.9	12,745	-	-	-	-	Incised	200	12,745
Pond 406	10.4	16,779	-	-	-	-	Incised	200	16,779
Pond 408	1.5	2,420	-	-	-	-	Incised	200	2,420
Pond 410	0.9	1,452	-	-	-	-	Incised	200	1,452
Pond 411	1.7	2,743	-	-	-	-	Incised	200	2,743
Pond 412	3.2	5,163	-	-	-	-	Incised	200	5,163
Pond 413	2.6	4,195	-	-	-	-	Incised	200	4,195
	TOTAL	**64,695**	**Weighted Average Push Distance (ft)**					**200.0**	**64,695**

(1) BCY = Bank cubic yards
(2) Dam volume is the trapezoidal cross-sectional area times the length.
(3) Backfill volume is the smaller of the dam volume or pond volume.
This assumes that either the pond is filled or the dam is removed and pushed into the pond.

TABLE 12-B-4
ROAD RIPPING

Description	Length [ft]	Width [ft]	Area [acres]	Equipment
Area 3 By-pass Road	3,970	70	6.38	Cat 16G Motor Grader
Area 3 Main Access Road	5,160	60	7.11	Cat 16G Motor Grader
Barber By-pass Road	6,300	70	10.12	Cat 16G Motor Grader
Barber Haulroad	11,000	60	15.15	Cat 16G Motor Grader
Barber Hosteen Bypass	5,600	60	7.71	Cat 16G Motor Grader
Big Fill Road	19,450	60	26.79	Cat 16G Motor Grader
Bighan Ramp 10 Road	5,225	70	8.40	Cat 16G Motor Grader
Block B Access Road	13,220	82	24.89	Cat 16G Motor Grader
Burns By-Pass Road	520	40	0.48	Cat 16G Motor Grader
Burn's Pass Road	3,500	65	5.22	Cat 16G Motor Grader
Coal Plant Road	3,780	40	3.47	Cat 16G Motor Grader
Dixon Haul Road	8,150	70	13.10	Cat 16G Motor Grader
Doby Road	6,175	60	8.51	Cat 16G Motor Grader
Employee Coal Dump Access Road	270	35	0.22	Cat 16G Motor Grader
Gorman Road	4,900	60	6.75	Cat 16G Motor Grader
Hosteen Haul Road Modification (wider)			3.20	Cat 16G Motor Grader
Hosteen Haulroad	7,000	60	14.94	Cat 16G Motor Grader
Hosteen Ready Line	400	200	1.84	Cat 16G Motor Grader
Hosteen Yazzie Haulroad	11,700	60	16.12	Cat 16G Motor Grader
Irrigation Access Roads	79,200	10	18.18	Cat 16G Motor Grader
Lowe Boxcut Road	5,720	70	9.19	Cat 16G Motor Grader
Lowe Bypass Road	5,910	30	4.07	Cat 16G Motor Grader
Lowe Power Line Access Road			0.25	Cat 16G Motor Grader
Lowe Stockpile Road Modification	600	22	0.30	Cat 16G Motor Grader
Lynch Skyline Road	2,050	65	3.06	Cat 16G Motor Grader
Mason Road	5,225	70	8.40	Cat 16G Motor Grader
Neck Road	8,500	120	23.42	Cat 16G Motor Grader
Pinto Reroute	4,500	70	7.23	Cat 16G Motor Grader
Pinto Road	6,500	60	8.95	Cat 16G Motor Grader
Pinto Road	1,000	60	1.38	Cat 16G Motor Grader
Power Line Access Roads	183,500	10	42.47	Cat 16G Motor Grader
Railroad Access Roads	81,300	30	55.99	Cat 16G Motor Grader
Railroad Grade	81,300	20	37.53	Cat 16G Motor Grader
Re-aligned Ramp 7 Road	5,225	30	3.60	Cat 16G Motor Grader
Topsoil haulroad (Dixon)	3,585	60	4.94	Cat 16G Motor Grader
Yazzie Silo Access Road	350	30	0.24	Cat 16G Motor Grader
Yazzie Skyline Road	6,450	65	9.62	Cat 16G Motor Grader
Yazzie Spoil Side Road	3,450	70	5.54	Cat 16G Motor Grader
Total			**424.75**	

TABLE 12-B-4
ROAD RIPPING

Description	Length [ft]	Width [ft]	Area [acres]	Equipment
Area 3 By-pass Road	3,970	70	6.38	Cat 16G Motor Grader
Area 3 Main Access Road	5,160	60	7.11	Cat 16G Motor Grader
Barber By-pass Road	6,300	70	10.12	Cat 16G Motor Grader
Barber Haulroad	11,000	60	15.15	Cat 16G Motor Grader
Barber Hosteen Bypass	5,600	60	7.71	Cat 16G Motor Grader
Big Fill Road	19,450	60	26.79	Cat 16G Motor Grader
Bighan Ramp 10 Road	5,225	70	8.40	Cat 16G Motor Grader
Block B Access Road	13,220	82	24.89	Cat 16G Motor Grader
Burns By-Pass Road	520	40	0.48	Cat 16G Motor Grader
Burn's Pass Road	3,500	65	5.22	Cat 16G Motor Grader
Coal Plant Road	3,780	40	3.47	Cat 16G Motor Grader
Dixon Haul Road	8,150	70	13.10	Cat 16G Motor Grader
Doby Road	6,175	60	8.51	Cat 16G Motor Grader
Employee Coal Dump Access Road	270	35	0.22	Cat 16G Motor Grader
Gorman Road	4,900	60	6.75	Cat 16G Motor Grader
Hosteen Haul Road Modification (wider)			3.20	Cat 16G Motor Grader
Hosteen Haulroad	7,000	60	14.94	Cat 16G Motor Grader
Hosteen Ready Line	400	200	1.84	Cat 16G Motor Grader
Hosteen Yazzie Haulroad	11,700	60	16.12	Cat 16G Motor Grader
Irrigation Access Roads	79,200	10	18.18	Cat 16G Motor Grader
Lowe Boxcut Road	5,720	70	9.19	Cat 16G Motor Grader
Lowe Bypass Road	5,910	30	4.07	Cat 16G Motor Grader
Lowe Power Line Access Road			0.25	Cat 16G Motor Grader
Lowe Stockpile Road Modification	600	22	0.30	Cat 16G Motor Grader
Lynch Skyline Road	2,050	65	3.06	Cat 16G Motor Grader
Mason Road	5,225	70	8.40	Cat 16G Motor Grader
Neck Road	8,500	120	23.42	Cat 16G Motor Grader
Pinto Reroute	4,500	70	7.23	Cat 16G Motor Grader
Pinto Road	6,500	60	8.95	Cat 16G Motor Grader
Pinto Road	1,000	60	1.38	Cat 16G Motor Grader
Power Line Access Roads	183,500	10	42.47	Cat 16G Motor Grader
Railroad Access Roads	81,300	30	55.99	Cat 16G Motor Grader
Railroad Grade	81,300	20	37.53	Cat 16G Motor Grader
Re-aligned Ramp 7 Road	5,225	30	3.60	Cat 16G Motor Grader
Topsoil haulroad (Dixon)	3,585	60	4.94	Cat 16G Motor Grader
Yazzie Silo Access Road	350	30	0.24	Cat 16G Motor Grader
Yazzie Skyline Road	6,450	65	9.62	Cat 16G Motor Grader
Yazzie Spoil Side Road	3,450	70	5.54	Cat 16G Motor Grader
Total			**424.75**	

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-4a
ROAD RIPPING

Description	Length [ft]	Width [ft]	Area [acres]	Equipment
Haul Roads	5,961	80	10.95	Cat 16H Motor Grader
Ancilary Roads	450	60	0.62	Cat 16H Motor Grader
Total			**11.57**	

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-5
AREA 1 BOND REGRADE EARTHMOVING - Dozers

Cut Block	Fill Block	Total Volume [yd^3]	Permanent Program %	Permanent Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
Pinto Pit	Pinto Pit	1,163,300	100%	1,163,300	5,430	5,410	300	300	-6.7%	
	TOTAL	**1,163,300**		**1,163,300**			**Weighted Average**	**300**	**-6.7%**	

Total yards go to Worksheet 3

TABLE 12-B-6
AREA 2 BOND REGRADE EARTHMOVING - Dozers

Cut Block	Fill Block	Total Volume [yd3]	Permanent Program %	Permanent Volume [yd3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
D 01	D 01	50	100%	50	5,420	5,405	-	200	-7.7%	Internal
D 02	D 02	-	100%	-	5,430	5,420	-	200	-5.0%	Internal
D 03	D 03	297	100%	297	5,400	5,390	-	200	-5.0%	Internal
D 04	D 04	5,658	100%	5,658	5,390	5,392	-	200	0.9%	Internal
D 05	D 05	6,345	100%	6,345	5,412	5,410	-	200	-0.8%	Internal
D 06	D 06	75,905	100%	75,905	5,372	5,413	-	200	20.0%	Internal
D 07	D 07	24,215	100%	24,215	5,430	5,360	-	200	-20.0%	Internal
D 08	D 08	40,735	100%	40,735	5,387	5,330	-	200	-20.0%	Internal
D 09	D 09	2,928	100%	2,928	5,436	5,405	-	200	-15.5%	Internal
D 10	D 10	1,427	100%	1,427	5,442	5,393	-	200	-20.0%	Internal
D 11	D 11	48,352	100%	48,352	5,380	5,340	-	200	-19.8%	Internal
D 12	D 12	8,166	100%	8,166	5,340	5,300	-	200	-19.9%	Internal
D 13	D 13	7,504	100%	7,504	5,330	5,300	-	200	-15.0%	Internal
D 14	D 14	17,020	100%	17,020	5,381	5,337	-	200	-20.0%	Internal
D 15	D 15	2,008	100%	2,008	5,364	5,329	-	200	-17.3%	Internal
HOSBUFF 01	HOSBUFF 01	451,873	100%	451,873	5,230	5,314	-	200	20.0%	Internal
HOSBUFF 02	HOSBUFF 02	50,859	100%	50,859	5,270	5,254	-	200	-8.1%	Internal
HW 01	HW 01	4,232	100%	4,232	5,460	5,460	-	200	0.0%	Internal
HW 03	HW 03	90,927	100%	90,927	5,440	5,438	-	200	-1.0%	Internal
HW 04	HW 04	10,680	100%	10,680	5,430	5,428	-	200	-0.9%	Internal
HW 05	HW 05	3,790	100%	3,790	5,410	5,409	-	200	-0.6%	Internal
HW 06	HW 06	7,433	100%	7,433	5,380	5,362	-	200	-8.8%	Internal
P 01	P 01	122,492	100%	122,492	5,412	5,420	-	200	4.1%	Internal
P 02	P 02	380,091	100%	380,091	5,347	5,409	-	200	20.0%	Internal
P 03	P 03	18,089	100%	18,089	5,310	5,421	-	200	20.0%	Internal
P 04	P 04	0	100%	0	5,240	5,400	-	200	20.0%	Internal
P 05	P 05	1	100%	1	5,222	5,373	-	200	20.0%	Internal
P 06	P 06	2,184	100%	2,184	5,180	5,326	-	200	20.0%	Internal
R 02	R 02	130,888	100%	130,888	5,355	5,365	-	200	5.1%	Internal
R 03	R 03	34,550	100%	34,550	5,204	5,324	-	200	20.0%	Internal
R 04	R 04	27,739	100%	27,739	5,321	5,286	-	200	-17.8%	Internal
R 05	R 05	40,266	100%	40,266	5,290	5,295	-	200	2.5%	Internal
R 06	R 06	1,140	100%	1,140	5,307	5,330	-	200	11.6%	Internal
RC 01	RC 01	52,994	100%	52,994	5,438	5,423	-	200	-7.8%	Internal
RC 02	RC 02	34,905	100%	34,905	5,430	5,405	-	200	-12.4%	Internal
T 01	T 01	-	100%	-	5,438	5,426	-	200	-6.2%	Internal
T 02	T 02	832	100%	832	5,454	5,445	-	200	-4.8%	Internal
T 03	T 03	728	100%	728	5,375	5,376	-	200	0.1%	Internal
T 04	T 04	22,000	100%	22,000	5,405	5,400	-	200	-2.3%	Internal
T 05	T 05	78,124	100%	78,124	5,447	5,413	-	200	-17.2%	Internal
T 06	T 06	27,433	100%	27,433	5,396	5,401	-	200	2.3%	Internal
T 07	T 07	37,050	100%	37,050	5,420	5,420	-	200	0.0%	Internal
T 08	T 08	27,266	100%	27,266	5,403	5,409	-	200	2.9%	Internal
T 09	T 09	3,112	100%	3,112	5,394	5,374	-	200	-10.2%	Internal
T 10	T 10	3,413	100%	3,413	5,327	5,327	-	200	-0.1%	Internal
T 11	T 11	37,035	100%	37,035	5,323	5,326	-	200	1.5%	Internal
PS	PS	-	100%	-	5,386	5,309	-	200	-20.0%	Internal
D 01	P 01	416,077	100%	416,077	5,420	5,420	2,174	300	0.0%	External
D 02	P 01	254,777	100%	254,777	5,430	5,420	479	300	-2.1%	External
D 03	P 02	14,058	100%	14,058	5,400	5,409	2,541	300	0.3%	External
D 04	R 01	285,950	100%	285,950	5,390	5,388	522	300	-0.4%	External
D 05	R 01	38,423	100%	38,423	5,412	5,388	1,187	300	-2.0%	External
D 06	P 03	203,986	100%	203,986	5,372	5,421	495	300	9.9%	External
D 07	P 04	1,575,359	100%	1,575,359	5,430	5,400	572	300	-5.2%	External
D 08	P 05	1,482,812	100%	1,482,812	5,387	5,373	524	300	-2.8%	External
D 09	R 02	291,315	100%	291,315	5,436	5,365	1,876	300	-3.8%	External
D 10	R 02	1,269,935	100%	1,269,935	5,442	5,365	2,005	300	-3.8%	External
D 11	R 03	1,706,873	100%	1,706,873	5,380	5,324	787	300	-7.1%	External
D 12	R 03	1,068,508	100%	1,068,508	5,340	5,324	1,714	300	-0.9%	External
D 13	P 06	746,682	100%	746,682	5,330	5,326	467	300	-1.0%	External
D 14	R 06	465,096	100%	465,096	5,381	5,330	518	300	-9.9%	External
D 15	P 06	164,973	100%	164,973	5,364	5,326	2,246	300	-1.7%	External
D 15	R 06	561,674	100%	561,674	5,364	5,330	1,154	300	-2.9%	External
HW 03	P 03	264,195	100%	264,195	5,440	5,421	570	300	-3.3%	External
HW 01	P 01	435,594	100%	435,594	5,460	5,420	700	300	-5.7%	External
HW 05	P 05	100,679	100%	100,679	5,410	5,373	383	300	-9.7%	External
HW 06	P 06	234,739	100%	234,739	5,380	5,326	441	300	-12.3%	External
	TOTAL	**13,549,480**		**13,549,480**			**Weighted Average**	**285**	**-2.2%**	

Total yards go to Worksheet 3

TABLE 12-B-7
AREA 3 BOND REGRADE EARTHMOVING - Dozers

Cut Block	Fill Block	Total Volume [yd3]	Permanent Program %	Permanent Volume [yd3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
D 01	D 01	1,343	100%	1,343	5,350	5,350	-	200	0.0%	Internal
D 02	D 02	1,312	100%	1,312	5,380	5,366	-	200	-6.9%	Internal
D 03	D 03	91	100%	91	5,390	5,374	-	200	-7.9%	Internal
D 04	D 04	3,786	100%	3,786	5,390	5,352	-	200	-19.2%	Internal
D 05	D 05	8,591	100%	8,591	5,398	5,366	-	200	-16.0%	Internal
D 06	D 06	1,633	100%	1,633	5,448	5,371	-	200	-20.0%	Internal
D 07	D 07	574	100%	574	5,390	5,393	-	200	1.6%	Internal
D 08	D 08	10,586	100%	10,586	5,392	5,365	-	200	-13.9%	Internal
D 09	D 09	24,842	100%	24,842	5,322	5,310	-	200	-5.9%	Internal
D 10	D 10	7,486	100%	7,486	5,310	5,290	-	200	-10.2%	Internal
D 11	D 11	459	100%	459	5,417	5,363	-	200	-20.0%	Internal
D 12	D 12	5,443	100%	5,443	5,379	5,290	-	200	-20.0%	Internal
DV 01	DV 01	110,960	100%	110,960	5,340	5,345	-	200	2.5%	Internal
F 01	F 01	20,343	100%	20,343	5,408	5,371	-	200	-18.7%	Internal
F 02	F 02	56,854	100%	56,854	5,334	5,380	-	200	20.0%	Internal
P 01	P 01	18,034	100%	18,034	5,150	5,361	-	200	20.0%	Internal
P 02	P 02	20,647	100%	20,647	5,154	5,382	-	200	20.0%	Internal
P 03	P 03	184,540	100%	184,540	5,158	5,381	-	200	20.0%	Internal
P 04	P 04	7,753	100%	7,753	5,140	5,379	-	200	20.0%	Internal
P 05	P 05	2,989	100%	2,989	5,122	5,402	-	200	20.0%	Internal
P 06	P 06	6,697	100%	6,697	5,130	5,316	-	200	20.0%	Internal
P 07	P 07	5,642	100%	5,642	5,118	5,290	-	200	20.0%	Internal
PS 01	PS 01	28,747	100%	28,747	5,318	5,322	-	200	1.8%	Internal
PS 02	PS 02	55	100%	55	5,345	5,310	-	200	-17.6%	Internal
PS 03	PS 03	3,501	100%	3,501	5,410	5,401	-	200	-4.6%	Internal
R 01	R 01	17,553	100%	17,553	5,339	5,356	-	200	8.5%	Internal
R 02	R 02	20,907	100%	20,907	5,313	5,346	-	200	16.4%	Internal
R 03	R 03	17,990	100%	17,990	5,283	5,367	-	200	20.0%	Internal
R 04	R 04	3,823	100%	3,823	5,366	5,370	-	200	2.2%	Internal
R 05	R 05	24,030	100%	24,030	5,265	5,295	-	200	14.9%	Internal
S 01	S 01	1,083	100%	1,083	5,400	5,370	-	200	-15.1%	Internal
S 02	S 02	5,792	100%	5,792	5,400	5,381	-	200	-9.3%	Internal
S 03	S 03	11,228	100%	11,228	5,436	5,381	-	200	-20.0%	Internal
S 04	S 04	7,855	100%	7,855	5,330	5,325	-	200	-2.6%	Internal
S 05	S 05	417	100%	417	5,348	5,309	-	200	-19.4%	Internal
S 06	S 06	8,696	100%	8,696	5,302	5,296	-	200	-2.9%	Internal
S 07	S 07	20,369	100%	20,369	5,342	5,290	-	200	-20.0%	Internal
S 08	S 08	21,797	100%	21,797	5,290	5,288	-	200	-1.0%	Internal
TP 03	TP 03	85,180	100%	85,180	5,460	5,460	-	200	0.0%	Internal
TP 04	TP 04	892	100%	892	5,360	5,354	-	200	-3.0%	Internal
TP 05	TP 05	22,842	100%	22,842	5,419	5,414	-	200	-2.1%	Internal
TP 09	TP 09	3,259	100%	3,259	5,352	5,352	-	200	0.2%	Internal
TP 10	TP 10	543,327	100%	543,327	5,340	5,352	-	200	6.0%	Internal
TP 11	TP 11	22,112	100%	22,112	5,393	5,389	-	200	-2.0%	Internal
TP 14	TP 14	798	100%	798	5,390	5,360	-	200	-15.0%	Internal
TP 17	TP 17	9,655	100%	9,655	5,339	5,339	-	200	0.1%	Internal
TP 18	TP 18	3,871	100%	3,871	5,340	5,339	-	200	-0.7%	Internal
TP 19	TP 19	5,095	100%	5,095	5,270	5,269	-	200	-0.7%	Internal
TP 21	TP 21	14,070	100%	14,070	5,275	5,277	-	200	1.0%	Internal
D 01	R 01	262,245	100%	262,245	5,350	5,356	879	300	0.7%	External
D 02	P 02	1,097,810	100%	1,097,810	5,380	5,382	789	300	0.3%	External
D 03	P 03	427,206	100%	427,206	5,390	5,381	1,849	300	-0.5%	External
D 04	R 02	1,843,772	100%	1,843,772	5,390	5,346	582	300	-7.6%	External
D 05	R 02	1,750,321	100%	1,750,321	5,398	5,346	655	300	-8.0%	External
D 06	R 03	1,496,355	100%	1,496,355	5,448	5,367	1,171	300	-6.9%	External
D 07	R 03	878,099	100%	878,099	5,390	5,367	735	300	-3.1%	External
D 08	R 04	915,636	100%	915,636	5,392	5,370	462	300	-4.8%	External
D 09	P 06	982,286	100%	982,286	5,322	5,316	565	300	-1.0%	External
D 10	P 07	1,780,047	100%	1,780,047	5,310	5,290	460	300	-4.4%	External
D 11	R 04	578,417	100%	578,417	5,417	5,370	1,583	300	-3.0%	External
D 12	R 05	1,332,607	100%	1,332,607	5,379	5,295	635	300	-13.3%	External
PS 01	P 06	628,624	100%	628,624	5,318	5,316	682	300	-0.4%	External
PS 02	P 07	2,256,300	100%	2,256,300	5,345	5,290	717	300	-7.7%	External
PS 03	P 03	419,469	100%	419,469	5,410	5,381	1,271	300	-2.3%	External
PS 03	P 04	58,110	100%	58,110	5,410	5,379	4,229	300	-0.7%	External
PS 03	R 03	113,610	100%	113,610	5,410	5,367	3,934	300	-1.1%	External
	TOTAL	**18,226,456**		**18,226,456**			**Weighted Average**	**292**	**-4.6%**	

TABLE 12-B-7a
AREA 4N BOND REGRADE EARTHMOVING - Dozers

Cut Block	Fill Block	Total Volume [yd3]	Permanent Program %	Permanent Volume [yd3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
D01	D01	44,800	100%	44,799.75	5,419	5,406	-	200	-6.0%	Internal
D02	D02	24,086	100%	24,086	5,420	5,339	-	200	-6.0%	Internal
D03	D03	45,923	100%	45,923	5,308	5,330	-	200	6.0%	Internal
D04	D04	19	100%	19	5,400	5,327	-	200	-6.0%	Internal
D05	D05	4,413	100%	4,413	5,390	5,330	-	200	-6.0%	Internal
D06	D06	32,613	100%	32,613	5,346	5,327	-	200	-6.0%	Internal
D07	D07	17,400	100%	17,400	5,305	5,320	-	200	6.0%	Internal
D08	D08	31,764	100%	31,764	5,354	5,330	-	200	-6.0%	Internal
D09	D09	109,442	100%	109,442	5,378	5,347	-	200	-6.0%	Internal
D10	D10	21,267	100%	21,267	5,391	5,376	-	200	-6.0%	Internal
P01	P01	1,533	100%	1,533	5,316	5,407	-	200	6.0%	Internal
P02	P02	-	100%	-	5,214	5,342	-	200	6.0%	Internal
P03	P03	-	100%	-	5,204	5,313	-	200	6.0%	Internal
P04	P04	6,735	100%	6,735	5,267	5,344	-	200	6.0%	Internal
R01	R01	6,724	100%	6,724	5,290	5,337	-	200	6.0%	Internal
R02	R02	9,294	100%	9,294	5,270	5,320	-	200	6.0%	Internal
R03	R03	128	100%	128	5,290	5,305	-	200	6.0%	Internal
T01	T01	8,954	100%	8,954	5,412	5,348	-	200	-6.0%	Internal
T02	T02	38,665	100%	38,665	5,346	5,331	-	200	-6.0%	Internal
T03	T03	14,350	100%	14,350	5,420	5,342	-	200	-6.0%	Internal
T04	T04	83,854	100%	83,854	5,343	5,335	-	200	-3.9%	Internal
D01	P01	1,520,592	100%	1,520,592	5,419	5,407	411	300	-2.9%	External
D02	P02	119,675	100%	119,675	5,420	5,342	891	300	-6.0%	External
D03	R01	178,754	100%	178,754	5,308	5,337	905	300	3.2%	External
D04	R02	368,175	100%	368,175	5,400	5,320	487	300	-6.0%	External
D05	R02	366,393	100%	366,393	5,390	5,320	509	300	-6.0%	External
D06	R03	55,531	100%	55,531	5,346	5,305	828	300	-4.9%	External
D06	P03	218,579	100%	218,579	5,346	5,313	387	300	-6.0%	External
D06	R02	20,000	100%	20,000	5,346	5,320	1,142	300	-2.2%	External
D07	R03	190,372	100%	190,372	5,305	5,305	527	300	-0.1%	External
D08	P02	134,674	100%	134,674	5,354	5,342	1,045	300	-1.2%	External
D08	R02	30,000	100%	30,000	5,354	5,320	1,393	300	-2.5%	External
D09	P04	399,582	100%	399,582	5,378	5,344	3,450	300	-1.0%	External
D10	R01	652,543	100%	652,543	5,391	5,337	2,425	300	-2.3%	External
	TOTAL	**4,756,829**		**4,756,829**			**Weighted Average**	**289**	**-3.0%**	

Total yards go to Worksheet 3

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-9
AREA 2 BOND REGRADE EARTHMOVING - Trucks and Loaders

Cut Block	Fill Block	Total Volume [yd3]	Permanent Program %	Permanent Volume [yd3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
HOSBUFF 02	R 02	1,349,752	100%	1,349,752	5,270	5,365	4,764	5,800	2.0%	
R 04	P 04	1,051,074	100%	1,051,074	5,321	5,400	5,663	6,800	1.4%	
R 04	P 05	1,023,061	100%	1,023,061	5,321	5,373	3,716	4,500	1.4%	
RC 01	P 02	3,676,247	100%	3,676,247	5,438	5,409	5,919	7,200	-0.5%	
RC 02	P 02	1,147,262	100%	1,147,262	5,430	5,409	2,659	3,200	-0.8%	
T 05	R 01	169,777	100%	169,777	5,447	5,388	2,588	3,200	-2.3%	
T 06	P 03	1,602,246	100%	1,602,246	5,396	5,421	3,527	4,300	0.7%	
T 09	P 04	2,673,074	100%	2,673,074	5,394	5,400	4,237	5,100	0.1%	
T 09	HW 04	18,649	100%	18,649	5,394	5,428	4,412	5,300	0.8%	
D 09	P 03	498,233	100%	498,233	5,436	5,421	5,856	7,100	-0.2%	
PS	P 03	2,882,225	0%	-	5,386	5,421	8,272	10,000	0.4%	See Note 1 below.
	TOTAL	**13,209,375**		**13,209,375**			**Weighted Average**	**5,634**	**0.3%**	

Note1: Not included in material movement costs. In the bond scenario, all the material is located in final resting place.

Total yards go to Worksheet 3

Assumptions: Distance is adjusted to accomodate haulage routes

TABLE 12-B-10
AREA 3 BOND REGRADE EARTHMOVING - Trucks and Loaders

Cut Block	Fill Block	Total Volume [yd3]	Permanent Program %	Permanent Volume [yd3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
S 01	P 03	1,156,243	100%	1,156,243	5,400	5,381	3,750	4,500	-0.5%	
S 01	TP 03	273,289	100%	273,289	5,400	5,460	8,037	9,700	0.7%	
S 02	P 03	5,452,350	100%	5,452,350	5,400	5,381	3,342	4,100	-0.6%	
S 03	P 05	1,091,850	100%	1,091,850	5,436	5,402	2,687	3,300	-1.3%	
S 04	P 05	822,073	100%	822,073	5,330	5,402	3,400	4,100	2.1%	
S 04	TP 18	62,019	100%	62,019	5,330	5,339	5,410	6,500	0.2%	
S 07	P 05	537,285	100%	537,285	5,342	5,402	4,993	6,000	1.2%	
S 07	P 06	1,139,650	100%	1,139,650	5,342	5,316	3,192	3,900	-0.8%	
S 07	R 03	2,345,731	100%	2,345,731	5,342	5,367	7,451	9,000	0.3%	
S 07	TP 17	102,295	100%	102,295	5,342	5,339	3,668	4,500	-0.1%	
S 07	TP 19	41,743	100%	41,743	5,342	5,269	4,544	5,500	-1.6%	
S 08	R 03	982,324	100%	982,324	5,290	5,367	6,980	8,400	1.1%	
S 08	R 04	569,590	100%	569,590	5,290	5,370	3,769	4,600	2.1%	
TP 10	R 03	1,844,514	100%	1,844,514	5,340	5,367	6,741	8,100	0.4%	
PRESTRIP	F 02	3,533,837	0%	-	5,400	5,380	1,175	1,500	-1.7%	Not included in material movement costs. In the bond scenario, all the material is located in final resting place.
PRESTRIP	P 01	1,966,732	0%	-	5,400	5,361	8,597	10,400	-0.4%	
PRESTRIP	P 02	3,360,575	0%	-	5,400	5,382	7,525	9,100	-0.2%	
PRESTRIP	P 03	1,947,860	0%	-	5,400	5,381	4,564	5,500	-0.4%	
PRESTRIP	P 04	3,296,518	0%	-	5,400	5,379	1,683	2,100	-1.2%	
PRESTRIP	P 05	2,663,248	0%	-	5,400	5,402	324	400	0.7%	
PRESTRIP	R 03	1,922,581	0%	-	5,400	5,367	3,671	4,500	-0.9%	
PRESTRIP	R 04	1,243,139	0%	-	5,400	5,370	1,598	2,000	-1.9%	
PRESTRIP	TP 09	111,315	0%	-	5,400	5,352	6,007	7,300	-0.8%	
PRESTRIP	TP 21	18,538	0%	-	5,400	5,277	6,360	7,700	-1.9%	
TOTAL		**36,485,299**		**16,420,956**			**Weighted Average**	**5,655.42**	**0.0%**	

Assumptions: Distance is adjusted to accomodated haulage routes

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-10a
AREA 4N BOND REGRADE EARTHMOVING - Trucks and Loaders

Cut Block	Fill Block	Total Volume [yd^3]	Permanent Program %	Permanent Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
Inter-Block Yards										
D04	P02	40,444	100%	40,444	5,400	5,342	2,407	2,888	-2.4%	
D05	P03	-	100%	-	5,390	5,313	1,660	1,991	-4.7%	
T01	R01	515,785	100%	515,785	5,412	5,337	2,090	2,508	-3.6%	
T01	P01	-	100%	-	5,412	5,407	1,682	2,018	-0.3%	
T01	P02	1,279,245	100%	1,279,245	5,412	5,342	2,991	3,589	-2.3%	
T01	P04	897,136	100%	897,136	5,412	5,344	4,574	5,489	-1.5%	
T02	P02	-	100%	-	5,346	5,342	1,739	2,087	-0.2%	
T02	P03	790,357	100%	790,357	5,346	5,313	2,576	3,091	-1.3%	
T03	P03	-	100%	-	5,420	5,313	1,244	1,492	-6.0%	
T04	P02	-	100%	-	5,343	5,342	1,175	1,410	-0.1%	
	TOTAL	**3,522,967**		**3,522,967**			**Weighted Average**	**3,795**	**-2.1%**	

Total yards go to Worksheet 3

Assumptions:

Distance is adjusted to accomodated haulage routes

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-11
AREA 1 BOND RECLAMATION TOPSOIL MATERIAL MOVEMENT- Trucks

Cut Block	Fill Block	Area [acres]	Topsoil Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
DBR12_TS_E	TP1	147.6	172,663	5,360	5,343	15,091	20,200	-0.1%	Adj. Distance Reflects Haul Route
DBR12_TS_E	TP2	16.0	18,767	5,360	5,394	13,817	20,000	0.2%	Adj. Distance Reflects Haul Route
DBR12_TS_E	TP3	9.5	11,088	5,360	5,377	13,615	20,700	0.1%	Adj. Distance Reflects Haul Route
DBR12_TS_E	TP4	20.5	23,978	5,360	5,380	11,961	17,300	0.1%	Adj. Distance Reflects Haul Route
DBR12_TS_E	TP5	15.1	17,608	5,360	5,436	10,900	14,500	0.5%	Adj. Distance Reflects Haul Route
DBR12_TS_E	TP6	44.8	52,399	5,360	5,411	10,575	17,700	0.3%	Adj. Distance Reflects Haul Route
DBR12_TS_E	TP7	169.7	198,550	5,360	5,395	6,721	9,900	0.4%	Adj. Distance Reflects Haul Route
DBR12_TS_E	TP8	4	4,430	5,360	5,330	7,951	9,100	-0.3%	Adj. Distance Reflects Haul Route
DBR12_TS_E	TP9	44	51,675	5,360	5,482	6,600	8,100	1.5%	Adj. Distance Reflects Haul Route
DBR12_TS_E	TP10	2	1,774	5,360	5,350	14,470	17,000	-0.1%	Adj. Distance Reflects Haul Route
	TOTAL	**472.7**	**552,932**			**Weighted Average**	**14,730**	**0.3%**	

Total yards and acres go to Worksheet 3

Assumptions:

8.7 inches of topsoil to be replaced in Area 1

Centroid distance is measured from the stockpile centroid to the reclaim centroid

Distance is adjusted to accomodated haulage routes

TABLE 12-B-12
AREA 2 BOND RECLAMATION TOPSOIL MATERIAL MOVEMENT- Trucks and Loaders

Cut Block	Fill Block	Area [acres]	Topsoil Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
DBR13_TS_W	SBUFF 02	72.1	54,259	5,347	5,254	7,356	8,900	-1.3%	
DBR13_TS_W	TP 01	52.7	39,680	5,347	5,270	4,178	5,100	-1.9%	
DBR13_TS_W	TP 02	38.7	29,109	5,347	5,330	7,433	9,000	-0.2%	
DBR13_TS_W	TP 03	26.3	19,801	5,347	5,290	6,741	8,100	-0.9%	
DBR13_TS_W	R 05	58.7	44,186	5,347	5,295	7,594	9,200	-0.7%	
DBR13_TS_W	T 11	40.2	30,266	5,347	5,326	8,314	10,000	-0.3%	
DBR13_TS_W	R 06	34.6	26,027	5,347	5,330	8,688	10,500	-0.2%	
DBR13_TS_W	SBUFF 01	69.7	52,488	5,347	5,314	8,638	10,400	-0.4%	
DBR13_TS_W	R 04	79.4	54,229	5,347	5,286	9,057	10,900	-0.7%	
DBR12_TS_E	R 04	79.4	5,554	5,356	5,286	11,367	13,700	-0.6%	
DBR12_TS_E	T 10	34.0	25,619	5,356	5,327	10,888	13,100	-0.3%	
DBR12_TS_E	D 14	13.8	10,393	5,356	5,337	10,027	12,100	-0.2%	
DBR12_TS_E	D 15	16.0	12,066	5,356	5,329	10,333	12,400	-0.3%	
DBR12_TS_E	R 03	69.3	52,178	5,356	5,324	12,440	15,000	-0.3%	
DBR12_TS_E	D 12	17.5	13,182	5,356	5,300	12,412	14,900	-0.4%	
DBR12_TS_E	D 13	14.1	10,592	5,356	5,300	11,889	14,300	-0.5%	
DBR12_TS_E	P 06	37.3	28,077	5,356	5,326	12,252	14,800	-0.2%	
DBR12_TS_E	HW 06	18.9	14,245	5,356	5,362	12,616	15,200	0.1%	
DBR12_TS_E	TP 04	25.8	19,425	5,356	5,375	13,707	16,500	0.1%	
DBR12_TS_E	D 10	25.6	19,247	5,356	5,393	14,091	17,000	0.3%	
DBR12_TS_E	D 11	36.0	27,085	5,356	5,340	13,037	15,700	-0.1%	
DBR12_TS_E	D 08	24.5	18,447	5,356	5,330	14,705	17,700	-0.2%	
DBR12_TS_E	P 05	16.2	12,198	5,356	5,373	14,872	17,900	0.1%	
DBR12_TS_E	HW 05	7.8	5,903	5,356	5,409	14,683	17,700	0.4%	
DBR12_TS_E	T 07	60.7	45,687	5,356	5,420	15,717	18,900	0.4%	
DBR12_TS_E	D 09	18.8	14,163	5,356	5,405	14,882	17,900	0.3%	
DBR12_TS_E	TP 05	55.4	17,406	5,356	5,296	18,916	22,700	-0.3%	
Yazzie Y	TP 05	55.4	24,304	5,270	5,296	10,483	12,600	0.2%	
Yazzie Y	TP 07	20.3	15,284	5,270	5,360	10,243	12,300	0.9%	
Yazzie Y	TP 08	7.2	5,455	5,270	5,370	8,185	9,900	1.2%	
Yazzie Y	TP 06	5.4	4,046	5,270	5,370	11,775	14,200	0.8%	
Yazzie Y	T 06	51.1	38,474	5,270	5,401	7,482	9,000	1.7%	
Yazzie Y	D 07	22.8	17,180	5,270	5,360	7,393	8,900	1.2%	
Yazzie Y	P 04	36.4	27,385	5,270	5,400	7,285	8,800	1.8%	
Yazzie Y	HW 04	12.3	9,244	5,270	5,428	7,297	8,800	2.2%	
Yazzie Y	T 05	60.4	45,458	5,270	5,413	10,937	13,200	1.3%	
Yazzie Y	D 06	31.2	23,490	5,270	5,413	10,616	12,800	1.4%	
Yazzie Y	P 03	50.1	37,716	5,270	5,421	11,006	13,300	1.4%	
Yazzie Y	HW 03	58.0	43,667	5,270	5,438	11,457	13,800	1.5%	
Yazzie Y	D 05	10.7	8,037	5,270	5,410	12,772	15,400	1.1%	
Yazzie Y	R 01	35.0	26,342	5,270	5,388	13,176	15,900	0.9%	
Yazzie Y	D 04	17.6	13,278	5,270	5,392	13,504	16,300	0.9%	
Yazzie Y	D 03	2.9	2,150	5,270	5,390	13,794	16,600	0.9%	
Yazzie Y	R 02	82.5	37,002	5,270	5,365	6,178	7,500	1.5%	
HSR1_TS_S	T 04	44.6	33,571	5,418	5,400	10,338	12,500	-0.2%	
HSR1_TS_S	TP 12	3.2	2,433	5,418	5,400	11,014	13,300	-0.2%	
HSR1_TS_S	T 03	7.7	5,834	5,418	5,376	11,302	13,600	-0.4%	
HSR1_TS_S	TP 13	19.0	14,305	5,418	5,380	11,693	14,100	-0.3%	
HSR1_TS_S	TP 15	15.6	11,741	5,418	5,440	12,793	15,400	0.2%	
HSR1_TS_S	T 08	32.8	24,658	5,418	5,409	263	400	-3.5%	
HSR1_TS_S	R 02	82.5	25,090	5,418	5,365	1,781	2,200	-3.0%	
HSR1_TS_S	T 09	46.6	12,746	5,418	5,374	1,835	2,300	-2.4%	
BBR3_TS_S	RC 02	87.0	65,466	5,353	5,405	1,572	1,900	3.3%	
BBR3_TS_S	T 09	46.6	2,995	5,353	5,374	11,394	13,700	0.2%	
BBR5_TS_S	T 09	46.6	19,358	5,425	5,374	17,337	20,900	-0.3%	
BBR5_TS_S	TP 09	69.5	52,295	5,425	5,300	7,783	9,400	-1.6%	
BBR5_TS_S	RC 01	282.5	212,703	5,425	5,423	563	700	-0.3%	
BBR5_TS_S	P 02	119.3	55,422	5,425	5,409	5,856	7,100	-0.3%	
LWR1_RG_N	P 02	119.3	34,417	5,414	5,409	14,248	17,100	0.0%	
LWR1_RG_N	TP 10	28.9	21,758	5,414	5,320	17,411	20,900	-0.5%	
LWR1_RG_N	TP 11	21.2	15,961	5,414	5,390	14,403	17,300	-0.2%	
LWR1_RG_N	TP 17	11.1	8,357	5,414	5,340	13,144	15,800	-0.6%	
LWR1_RG_N	TP 18	43.6	32,826	5,414	5,410	9,438	11,400	0.0%	
LWR1_RG_N	TP 19	1.0	753	5,414	5,424	17,965	21,600	0.1%	**After exhausting Topsoil Stockpiles in Areas 1 and 2, used material from Area 3 to topsoil remaining blocks. Volume taken from Area 3 stockpiles considered for Area 3 calculation.
LWR1_RG_N	TP 16	17.4	13,100	5,414	5,440	21,080	25,300	0.1%	
LWR1_RG_N	TP 14	39.9	30,040	5,414	5,400	14,366	17,300	-0.1%	
LWR1_RG_N	T 02	19.8	14,879	5,414	5,445	13,588	16,400	0.2%	
LWR1_RG_N	D 01	14.3	10,755	5,414	5,405	8,577	10,300	-0.1%	
LWR1_RG_N	D 02	14.6	11,027	5,414	5,420	9,124	11,000	0.1%	
LWR1_RG_N	T 01	18.5	13,910	5,414	5,426	9,475	11,400	0.1%	
LWR1_RG_N	P 01	91.4	68,813	5,414	5,420	9,393	11,300	0.1%	
LWR1_RG_N	HW 01	23.3	17,544	5,414	5,460	9,472	11,400	0.5%	
LWR1_RG_N	TP 22	33.7	25,372	5,414	5,460	9,961	12,000	0.5%	
LWR1_RG_N	TP 20	16.9	12,743	5,414	5,445	7,983	9,600	0.4%	
LWR1_RG_N	TP 23	10.2	7,692	5,414	5,495	8,917	10,800	0.9%	
	TOTAL	**3,031**	**1,958,593**			**Weighted Average**	**10,642**	**0.0%**	

Total yards and acres go to Worksheet 3

Assumptions:

5.6 inches of topsoil to be replaced in Area 2

Centroid distance is measured from the stockpile centroid to the reclaim centroid

Distance is adjusted to accomodate haulage routes

TABLE 12-B-13
AREA 3 BOND RECLAMATION TOPSOIL MATERIAL MOVEMENT- Trucks and Loaders

Cut Block	Fill Block	Area [acres]	Topsoil Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
LWR4_TS_N	D 01	17.2	22,367	5,257	5,350	4,070	4,883	1.9%	
LWR4_TS_N	D 02	19.8	25,809	5,257	5,366	3,263	3,916	2.8%	
LWR4_TS_N	D 03	7.8	10,235	5,257	5,374	3,489	4,187	2.8%	
LWR4_TS_S	D 06	18.1	23,596	5,370	5,371	3,600	4,321	0.0%	
DXR1_TS_N	D 07	19.1	24,859	5,350	5,393	2,995	3,594	1.2%	
DXR1_TS_S	D 08	27.8	36,210	5,444	5,365	5,822	6,987	-1.1%	
DXR1_TS_S	D 09	24.2	31,540	5,444	5,310	7,793	9,351	-1.4%	
DXR4_TS	D 10	25.5	33,256	5,329	5,290	6,311	7,573	-0.5%	
DXR1_TS_S	D 11	11.4	14,895	5,444	5,363	4,189	5,027	-1.6%	
DXR4_TS	D 12	17.8	23,262	5,329	5,290	5,185	6,222	-0.6%	
DXEX_TS_E	DV 01	262.9	53,141	5,355	5,345	2,802	3,362	-0.3%	
DXR1_TS_S	DV 01	262.9	289,678	5,444	5,345	10,544	12,653	-0.8%	
LWR4_TS_N	F 01	51.3	66,886	5,257	5,371	2,564	3,077	3.7%	
DXR1_TS_N	F 02	79.5	103,624	5,350	5,380	5,260	6,313	0.5%	
LWR4_TS_N	P 02	35.0	45,693	5,257	5,382	4,041	4,849	2.6%	
LWR4_TS_N	P 03	78.6	102,464	5,257	5,381	3,728	4,474	2.8%	
DXR1_TS_N	P 04	29.1	37,982	5,350	5,379	5,304	6,365	0.5%	
DXR1_TS_N	P 05	28.5	37,197	5,350	5,402	6,575	7,890	0.7%	
DXR1_TS_S	P 06	38.2	49,776	5,444	5,316	8,102	9,723	-1.3%	
DXR4_TS	P 07	28.8	37,547	5,329	5,290	6,765	8,118	-0.5%	
DXR1_TS_S	PS 01	58.5	76,326	5,444	5,322	8,741	10,489	-1.2%	
DXR4_TS	PS 02	59.0	76,916	5,329	5,310	7,461	8,953	-0.2%	
DXR1_TS_N	R 03	72.3	94,317	5,350	5,367	3,396	4,076	0.4%	
DXR1_TS_S	R 04	43.3	56,438	5,444	5,370	5,764	6,917	-1.1%	
DXR4_TS	R 05	81.2	105,907	5,329	5,295	5,126	6,151	-0.6%	
LWR4_TS_N	S 01	68.9	89,853	5,257	5,370	2,845	3,414	3.3%	
DXR1_TS_N	S 03	62.4	81,419	5,350	5,381	3,902	4,683	0.7%	
DXR1_TS_S	S 04	57.7	75,237	5,444	5,325	6,073	7,287	-1.6%	
DXR1_TS_S	S 05	46.8	61,006	5,444	5,309	7,192	8,631	-1.6%	
DXR1_TS_S	S 06	23.8	31,056	5,444	5,296	7,360	8,832	-1.7%	
DXR4_TS	S 07	85.2	111,057	5,329	5,290	5,054	6,065	-0.6%	
DXR4_TS	S 08	68.7	89,599	5,329	5,288	3,047	3,657	-1.1%	
LWR1_TS_W	TP 01	5.8	7,511	5,332	5,430	10,074	12,089	0.8%	
LWR1_TS_W	TP 02	38.7	50,426	5,332	5,413	8,899	10,679	0.8%	
LWR1_TS_W	TP 03	68.4	89,137	5,332	5,460	5,959	7,151	1.8%	
LWR4_TS_S	TP 05	86.3	112,556	5,370	5,414	7,263	8,716	0.5%	
LWR1_TS_W	TP 06	37.4	48,820	5,332	5,350	3,654	4,384	0.4%	
DXR2_TS_W	TP 10	297.4	372,164	5,390	5,352	7,251	8,701	-0.4%	
DXR4_TS	TP 10	297.4	15,626	5,329	5,352	10,374	12,448	0.2%	
DXR4_TS	TP 11	51.0	66,511	5,329	5,389	7,389	8,866	0.7%	
DXR4_TS	TP 15	12.1	15,788	5,329	5,361	3,729	4,475	0.7%	
DXR4_TS	TP 16	36.2	47,156	5,329	5,405	4,393	5,272	1.4%	
DXR1_TS_N	TP 17	70.0	37,438	5,350	5,339	5,177	6,212	-0.2%	
DXR4_TS	TP 18	26.8	35,010	5,329	5,339	2,720	3,264	0.3%	
DXR4_TS	TP 20	3.2	4,210	5,329	5,286	5,639	6,767	-0.6%	
ACTIVE DIXON	TP 09	42.7	55,749	5,400	5,352	8,751	10,501	-0.5%	
ACTIVE LOWE	TP 12	12.0	15,700	5,400	5,380	4,493	5,392	-0.4%	Yards will be moved
ACTIVE LOWE	TP 13	125.3	117,732	5,400	5,393	6,003	7,204	-0.1%	to final locations
ACTIVE DIXON	TP 13	125.3	45,654	5,400	5,393	6,515	7,818	-0.1%	during regular
ACTIVE DIXON	TP 14	21.1	27,471	5,400	5,360	8,888	10,665	-0.4%	operations
ACTIVE DIXON	TP 17	70.0	53,877	5,400	5,339	5,118	6,142	-1.0%	
	TOTAL	**2,842**	**2,921,502**			**Weighted Average**	**7,292**	**0.1%**	

Total yards and acres go to Worksheet 3

Assumptions:

9.7 inches of topsoil to be replaced in Area III
Centroid distance is measured from the stockpile centroid to the reclaim centroid
Distance is adjusted to accomodated haulage routes
ACTIVE DIXON and ACTIVE LOWE Volumes are not included in Bond Cost Estimate as yards will be moved during regular operations to Final Locations

TABLE 12-B-13a
AREA 4N BOND RECLAMATION TOPSOIL MATERIAL MOVEMENT- Trucks and Loaders

Cut Block	Fill Block	Area [acres]	Topsoil Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
TS_STKPL_403	D01	29.2	55,764	5,430	5,406	2,041	2,347	-1.2%	
TS_STKPL_403	D02	5.7	10,865	5,430	5,339	5,669	6,520	-1.6%	
TS_STKPL_401	D03	9.6	18,345	5,258	5,330	1,604	1,845	4.5%	
TS_STKPL_401	D04	3.6	6,809	5,258	5,327	1,498	1,723	4.6%	
TS_STKPL_401	D05	5.7	10,894	5,258	5,330	1,910	2,196	3.8%	
TS_STKPL_402	D06	16.4	31,271	5,300	5,327	1,074	1,235	2.5%	
TS_STKPL_402	D07	7.7	14,639	5,300	5,320	1,002	1,152	2.0%	
TS_STKPL_401	D08	12.4	23,702	5,258	5,330	2,052	2,360	3.5%	
TS_STKPL_403	D09	64.9	123,996	5,430	5,347	4,910	5,647	-1.7%	
TS_STKPL_403	D10	12.5	23,888	5,430	5,376	7,349	8,451	-0.7%	
TS_STKPL_403	P01	29.9	56,997	5,430	5,407	2,165	2,490	-1.1%	
TS_STKPL_403	P02	23.7	45,319	5,430	5,342	6,318	7,266	-1.4%	
TS_STKPL_402	P03	19.0	36,269	5,300	5,313	1,211	1,393	1.0%	
TS_STKPL_402	P04	15.4	29,463	5,300	5,344	2,721	3,129	1.6%	
TS_STKPL_401	R01	20.5	39,125	5,258	5,337	2,347	2,699	3.3%	
TS_STKPL_402	R02	14.0	26,701	5,300	5,320	1,986	2,284	1.0%	
TS_STKPL_402	R03	11.6	22,212	5,300	5,305	476	547	1.0%	
TS_STKPL_403	T01	44.2	84,391	5,430	5,348	3,844	4,421	-2.1%	
TS_STKPL_401	T02	33.9	64,715	5,258	5,331	936	1,077	6.0%	
TS_STKPL_402	T03	21.2	40,530	5,300	5,342	1,359	1,563	3.1%	
TS_STKPL_401	T04	25.8	49,185	5,258	5,335	1,653	1,901	4.6%	
TS_STKPL_401	TSN	42.5	81,155	5,258	5,277	696	801	2.8%	
TS_STKPL_402	TSE	12.4	23,630	5,300	5,290	1,114	1,281	-0.9%	
TS_STKPL_403	TSNW	14.8	28,198	5,430	5,311	3,567	4,102	-3.3%	
TS_STKPL_403	TSS	40.5	77,362	5,430	5,400	2,305	2,651	-1.3%	
TS_STKPL_403	TSSW	15.8	30,085	5,430	5,423	1,216	1,399	-0.6%	
	TOTAL	**553**	**1,055,511**			**Weighted Average**	**2,970**	**0.7%**	

Total yards and acres go to Worksheet 3

Assumptions:

14.2 inches of topsoil to be replaced in Area 4N

Centroid distance is measured from the stockpile centroid to the reclaim centroid

Distance is adjusted to accomodated haulage routes

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-14

AREA 1 BOND RECLAMATION MITIGATION MATERIAL MOVEMENT - Trucks

Cut Block	Fill Block	Area [acres]	Mitigation Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
DBR13_TS_W	M1	147.6	38,998	5,350	5,343	13,541	15,000	0.0%	Adj. Dist. reflects haul route
DBR13_TS_W	M2	16.0	4,239	5,350	5,394	13,357	15,000	0.3%	Adj. Dist. reflects haul route
DBR13_TS_W	M3	9.5	2,504	5,350	5,377	13,602	19,000	0.1%	Adj. Dist. reflects haul route
DBR13_TS_W	M4	20.5	5,416	5,350	5,380	10,926	19,000	0.2%	Adj. Dist. reflects haul route
DBR13_TS_W	M5	15.1	3,977	5,350	5,436	8,805	9,100	0.9%	Adj. Dist. reflects haul route
DBR13_TS_W	M6	44.8	11,835	5,350	5,411	7,000	15,000	0.4%	Adj. Dist. reflects haul route
DBR13_TS_W	M7	169.7	44,845	5,350	5,395	4,747	5,000	0.9%	Adj. Dist. reflects haul route
DBR13_TS_W	M8	3.8	1,000	5,350	5,330	4,073	4,200	-0.5%	Adj. Dist. reflects haul route
DBR13_TS_W	M9	44.2	11,671	5,350	5,482	1,473	1,600	8.3%	Adj. Dist. reflects haul route
DBR13_TS_W	M10	1.5	401	5,350	5,370	13,408	19,000	0.1%	Adj. Dist. reflects haul route
	TOTAL	**473**	**124,886**			**Weighted Average**	**10,149**	**1.2%**	

Total yards go to Worksheet No. 3

Assumptions:

5% of all reclaim acres require mitigation

4 feet total of mitigation material and topsoil

8.7 inches of topsoil to be replaced in Area 1

TABLE 12-B-15
AREA 2 BOND RECLAMATION MITIGATION MATERIAL MOVEMENT - Trucks

Cut Block	Fill Block	Area [acres]	Mitigation Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
Barber	D 01	14.3	4,072	5,414	5,405	13,036	15,700	-0.1%	
Barber	T 01	18.5	5,266	5,414	5,426	11,375	13,700	0.1%	
Barber	D 02	14.6	4,175	5,414	5,420	11,500	13,900	0.1%	
Barber	P 01	91.4	26,051	5,414	5,420	11,046	13,300	0.1%	
Barber	T 02	19.8	5,633	5,414	5,445	6,586	8,000	0.5%	
Barber	T 03	7.7	2,209	5,414	5,376	4,750	5,800	-0.8%	
Barber	T 04	44.6	12,709	5,414	5,400	3,596	4,400	-0.4%	
Barber	D 03	2.9	814	5,414	5,390	2,878	3,500	-0.8%	
Barber	P 02	119.3	34,010	5,414	5,409	5,402	6,500	-0.1%	
Barber	D 04	17.6	5,027	5,414	5,392	2,745	3,300	-0.8%	
Barber	R 01	35.0	9,972	5,414	5,388	2,593	3,200	-1.0%	
Hosteen	T 08	32.8	9,335	5,444	5,409	3,105	3,800	-1.1%	
Hosteen	T 09	46.6	13,287	5,444	5,374	2,692	3,300	-2.6%	
Hosteen	D 11	36.0	10,254	5,444	5,340	3,073	3,700	-3.4%	
Hosteen	R 03	69.3	19,753	5,444	5,324	3,765	4,600	-3.2%	
Hosteen	D 12	17.5	4,990	5,444	5,300	3,821	4,600	-3.8%	
Hosteen	D 14	13.8	3,935	5,444	5,337	6,687	8,100	-1.6%	
Hosteen	R 04	79.4	22,632	5,444	5,286	4,741	5,700	-3.3%	
Hosteen	D 15	16.0	4,568	5,444	5,329	7,036	8,500	-1.6%	
Hosteen	R 05	58.7	16,728	5,444	5,295	5,974	7,200	-2.5%	
Hosteen	HW 04	12.3	3,500	5,444	5,428	2,503	3,100	-0.6%	
Hosteen	D 13	14.1	4,010	5,444	5,300	4,963	6,000	-2.9%	
Hosteen	T 11	40.2	11,458	5,444	5,326	6,241	7,500	-1.9%	
Hosteen	T 10	34.0	9,699	5,444	5,327	5,688	6,900	-2.1%	
Hosteen	P 06	37.3	10,629	5,444	5,326	4,865	5,900	-2.4%	
Hosteen	HW 06	18.9	5,393	5,444	5,362	4,716	5,700	-1.7%	
Hosteen	HW 05	7.8	2,235	5,444	5,409	2,642	3,200	-1.3%	
Hosteen	R 06	34.6	9,853	5,444	5,330	7,166	8,600	-1.6%	
Hosteen	SBUFF 01	69.7	19,871	5,444	5,314	4,570	5,500	-2.9%	
Hosteen	SBUFF 02	72.1	20,541	5,444	5,254	5,813	7,000	-3.3%	
Hosteen	TP 01	52.7	15,022	5,444	5,270	10,317	12,400	-1.7%	
Hosteen	TP 02	38.7	11,020	5,444	5,330	10,703	12,900	-1.1%	
Hosteen	TP 03	26.3	7,496	5,444	5,290	7,189	8,700	-2.1%	
Hosteen	TP 04	25.8	7,354	5,444	5,375	5,187	6,300	-1.3%	
Hosteen	TP 05	55.4	15,790	5,444	5,296	6,246	7,500	-2.4%	
Barber	TP 06	5.4	1,532	5,414	5,370	5,276	6,400	-0.8%	
Barber	TP 07	20.3	5,786	5,414	5,360	3,837	4,700	-1.4%	
Hosteen	TP 08	7.2	2,065	5,444	5,370	2,636	3,200	-2.8%	
Barber	TP 09	69.5	19,797	5,414	5,300	6,121	7,400	-1.9%	
Barber	TP 10	28.9	8,237	5,414	5,320	5,318	6,400	-1.8%	
Barber	TP 11	21.2	6,042	5,414	5,390	9,086	11,000	-0.3%	
Barber	TP 12	3.2	921	5,414	5,400	4,607	5,600	-0.3%	
Barber	TP 13	19.0	5,415	5,414	5,380	5,026	6,100	-0.7%	
Barber	TP 14	39.9	11,372	5,414	5,400	6,963	8,400	-0.2%	
Barber	TP 15	15.6	4,445	5,414	5,440	6,330	7,600	0.4%	
Barber	TP 17	11.1	3,164	5,414	5,340	11,741	14,100	-0.6%	
Barber	HW 01	23.3	6,642	5,414	5,460	10,610	12,800	0.4%	
Barber	TP 18	43.6	12,427	5,414	5,410	13,092	15,800	0.0%	
Barber	TP 20	16.9	4,824	5,414	5,445	14,950	18,000	0.2%	
Barber	TP 22	33.7	9,605	5,414	5,460	9,870	11,900	0.5%	
Barber	RC 01	282.5	80,523	5,414	5,423	10,969	13,200	0.1%	
Barber	RC 02	87.0	24,783	5,414	5,405	5,908	7,100	-0.1%	
Barber	TP 23	10.2	2,912	5,414	5,495	10,549	12,700	0.8%	
	TOTAL	**2,034**	**579,781**			**Weighted Average**	**8,524**	**-1.2%**	

Total yards and acres go to Worksheet 3

Assumptions:

5% of all reclaim acres require mitigation

4 feet total of mitigation and topsoil

5.6 inches of topsoil to be replaced in Area 2

Centroid distance is measured from the stockpile centroid to the reclaim centroid

Distance is adjusted to accomodate haulage routes

TABLE 12-B-16
AREA 3 BOND RECLAMATION MITIGATION MATERIAL MOVEMENT - Trucks

Cut Block	Fill Block	Area [acres]	Mitigation Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
LWR1_RG_N	D 01	17.2	9,538	5,414	5,350	4,065	4,878	-1.3%	
LWR1_RG_N	D 02	19.8	11,006	5,414	5,366	6,281	7,538	-0.6%	
LWR1_RG_N	D 03	7.8	4,365	5,414	5,374	7,323	8,788	-0.5%	
LWR1_RG_N	D 04	45.8	25,491	5,414	5,352	4,838	5,806	-1.1%	
LWR1_RG_N	D 05	49.5	27,520	5,414	5,366	6,060	7,272	-0.7%	
LWR4_RG_N	D 06	18.1	10,062	5,424	5,371	5,240	6,288	-0.8%	
LWR4_RG_N	D 07	19.1	10,601	5,424	5,393	4,421	5,306	-0.6%	
LWR4_RG_N	D 08	27.8	15,441	5,424	5,365	7,663	9,195	-0.6%	
LWR4_RG_N	D 09	24.2	13,450	5,424	5,310	9,571	11,485	-1.0%	
LWR4_RG_N	D 10	25.5	14,182	5,424	5,290	11,329	13,595	-1.0%	
LWR4_RG_N	D 11	11.4	6,352	5,424	5,363	6,036	7,243	-0.8%	
LWR4_RG_N	D 12	17.8	9,920	5,424	5,290	11,189	13,427	-1.0%	
DXR1_RG_W	DV 01	262.9	146,189	5,412	5,345	12,264	14,716	-0.5%	
LWR1_RG_N	F 01	51.3	28,522	5,414	5,371	8,286	9,943	-0.4%	
LWR1_RG_N	F 02	79.5	44,189	5,414	5,380	12,249	14,699	-0.2%	
LWR1_RG_N	P 01	14.6	8,097	5,414	5,361	5,627	6,752	-0.8%	
LWR1_RG_N	P 02	35.0	19,485	5,414	5,382	6,559	7,871	-0.4%	
LWR4_RG_N	P 03	78.6	43,694	5,424	5,381	6,460	7,752	-0.6%	
LWR4_RG_N	P 04	29.1	16,197	5,424	5,379	6,703	8,043	-0.6%	
LWR4_RG_N	P 05	28.5	15,862	5,424	5,402	8,130	9,756	-0.2%	
DXR1_RG_W	P 06	38.2	21,226	5,412	5,316	10,056	12,067	-0.8%	
LWR4_RG_N	P 07	28.8	16,011	5,424	5,290	11,625	13,950	-1.0%	
LWR4_RG_N	PS 01	58.5	32,548	5,424	5,322	10,346	12,415	-0.8%	
LWR4_RG_N	PS 02	59.0	32,799	5,424	5,310	12,276	14,731	-0.8%	
LWR1_RG_N	PS 03	71.8	39,933	5,414	5,401	8,468	10,162	-0.1%	
LWR1_RG_N	R 01	12.6	7,021	5,414	5,356	4,885	5,863	-1.0%	
LWR1_RG_N	R 02	65.3	36,313	5,414	5,346	5,419	6,503	-1.0%	
LWR1_RG_N	R 03	72.3	40,220	5,414	5,367	9,399	11,279	-0.4%	
LWR4_RG_N	R 04	43.3	24,067	5,424	5,370	7,482	8,978	-0.6%	
LWR4_RG_N	R 05	81.2	45,162	5,424	5,295	11,510	13,811	-0.9%	
LWR1_RG_N	S 01	68.9	38,316	5,414	5,370	5,210	6,252	-0.7%	
LWR1_RG_N	S 02	108.1	60,115	5,414	5,381	7,450	8,940	-0.4%	
LWR1_RG_N	S 03	62.4	34,720	5,414	5,381	11,105	13,326	-0.2%	
LWR1_RG_N	S 04	57.7	32,083	5,414	5,325	14,409	17,290	-0.5%	
LWR4_RG_N	S 05	46.8	26,015	5,424	5,309	9,097	10,916	-1.1%	
LWR4_RG_N	S 06	23.8	13,243	5,424	5,296	9,491	11,389	-1.1%	
LWR1_RG_N	S 07	85.2	47,359	5,414	5,290	16,731	20,077	-0.6%	
LWR1_RG_N	S 08	68.7	38,208	5,414	5,288	15,859	19,031	-0.7%	
LWR1_RG_N	TP 01	5.8	3,203	5,414	5,430	7,154	8,585	0.2%	
LWR1_RG_N	TP 02	38.7	21,503	5,414	5,413	6,000	7,200	0.0%	
LWR1_RG_N	TP 03	68.4	38,011	5,414	5,460	3,120	3,744	1.2%	
LWR1_RG_N	TP 06	37.4	20,818	5,414	5,350	2,685	3,222	-2.0%	
LWR1_RG_N	TP 07	3.0	1,654	5,414	5,330	2,670	3,204	-2.6%	
LWR1_RG_N	TP 08	1.5	858	5,414	5,300	3,657	4,389	-2.6%	
LWR1_RG_N	TP 09	42.7	23,773	5,414	5,352	8,384	10,060	-0.6%	
LWR1_RG_N	TP 10	297.4	165,366	5,414	5,352	5,056	6,067	-1.0%	
LWR1_RG_N	TP 12	12.0	6,695	5,414	5,380	7,138	8,565	-0.4%	
LWR1_RG_N	TP 13	125.3	69,673	5,414	5,393	10,698	12,838	-0.2%	
LWR1_RG_N	TP 14	21.1	11,714	5,414	5,360	9,778	11,734	-0.5%	
LWR1_RG_N	TP 15	12.1	6,732	5,414	5,361	11,651	13,981	-0.4%	
LWR1_RG_N	TP 17	70.0	38,940	5,414	5,339	13,773	16,528	-0.5%	
LWR1_RG_N	TP 18	26.8	14,929	5,414	5,339	12,483	14,979	-0.5%	
LWR1_RG_N	TP 19	38.5	21,405	5,414	5,269	16,055	19,267	-0.8%	
LWR1_RG_N	TP 20	3.2	1,795	5,414	5,286	18,739	22,487	-0.6%	
LWR1_RG_N	TP 21	38.4	21,340	5,414	5,277	16,130	19,356	-0.7%	
	TOTAL	**2,758.3**	**1,533,935**			**Weighted Average**	**11,102**	**-0.6%**	

Total yards and acres go to Worksheet 3
Assumptions:

10.8% of all reclaim acres require mitigation
4 feet total of mitigation and topsoil
9.7 inches of topsoil to be replaced in Area III
Centroid distance is measured from the stockpile centroid to the reclaim centroid
Distance is adjusted to accomodated haulage routes

TABLE 12-B-16a
AREA 4N BOND RECLAMATION MITIGATION MATERIAL MOVEMENT - Trucks

Cut Block	Fill Block	Area [acres]	Mitigation Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
DXR1_RG_W	D01	3.15	14,335	5,412	5,406	8,309	9,555	-0.1%	
DXR1_RG_W	D02	0.61	2,793	5,412	5,339	6,828	7,853	-1.1%	
DXR1_RG_W	D03	1.04	4,716	5,412	5,330	6,382	7,339	-1.3%	
DXR1_RG_W	D04	0.39	1,750	5,412	5,327	6,709	7,716	-1.3%	
DXR1_RG_W	D05	0.62	2,801	5,412	5,330	6,967	8,012	-1.2%	
DXR1_RG_W	D06	1.77	8,039	5,412	5,327	8,265	9,505	-1.0%	
DXR1_RG_W	D07	0.83	3,763	5,412	5,320	7,698	8,853	-1.2%	
DXR1_RG_W	D08	1.34	6,093	5,412	5,330	7,326	8,425	-1.1%	
DXR1_RG_W	D09	7.01	31,876	5,412	5,347	6,630	7,624	-1.0%	
DXR1_RG_W	D10	1.35	6,141	5,412	5,376	8,066	9,276	-0.4%	
DXR1_RG_W	P01	3.22	14,652	5,412	5,407	8,340	9,591	-0.1%	
DXR1_RG_W	P02	2.56	11,650	5,412	5,342	7,259	8,348	-1.0%	
DXR1_RG_W	P03	2.05	9,324	5,412	5,313	8,605	9,896	-1.2%	
DXR1_RG_W	P04	1.67	7,574	5,412	5,344	7,970	9,166	-0.9%	
DXR1_RG_W	R01	2.21	10,058	5,412	5,337	6,485	7,458	-1.2%	
DXR1_RG_W	R02	1.51	6,864	5,412	5,320	7,196	8,275	-1.3%	
DXR1_RG_W	R03	1.26	5,710	5,412	5,305	8,209	9,440	-1.3%	
DXR1_RG_W	T01	4.77	21,695	5,412	5,348	6,984	8,032	-0.9%	
DXR1_RG_W	T02	3.66	16,636	5,412	5,331	6,280	7,222	-1.3%	
DXR1_RG_W	T03	2.29	10,419	5,412	5,342	7,461	8,580	-0.9%	
DXR1_RG_W	T04	2.78	12,644	5,412	5,335	6,944	7,986	-1.1%	
DXR1_RG_W	Roads	1.73	7,852	5,412	5,275	6,780	7,797	-2.0%	
DXR1_RG_W	Pond 3	0.01	49	5,412	5,276	7,839	9,015	-1.7%	
DXR1_RG_W	Pond 4	0.10	442	5,412	5,277	6,409	7,370	-2.1%	
DXR1_RG_W	Pond 402	0.15	687	5,412	5,278	6,168	7,093	-2.2%	
DXR1_RG_W	Pond 406	0.39	1,767	5,412	5,279	7,781	8,949	-1.7%	
DXR1_RG_W	Pond 408	0.05	245	5,412	5,280	5,110	5,877	-2.6%	
DXR1_RG_W	Pond 410	0.02	98	5,412	5,282	9,118	10,485	-1.4%	
DXR1_RG_W	Pond 411	0.03	147	5,412	5,283	8,253	9,491	-1.6%	
DXR1_RG_W	Pond 412	0.08	344	5,412	5,284	5,680	6,532	-2.3%	
DXR1_RG_W	Pond 413	0.06	294	5,412	5,285	5,350	6,153	-2.4%	
	TOTAL	**48.7**	**221,459**			**Weighted Average**	**8,372**	**-1.0%**	

Total yards and acres go to Worksheet 3

Assumptions:

10.8% of all reclaim acres require mitigation
4 feet total of mitigation and topsoil
14.2 inches of topsoil to be replaced in Area 4N
Centroid distance is measured from the stockpile centroid to the reclaim centroid
Distance is adjusted to accomodated haulage routes

TABLE 12-B-17

AREA 2 BOND REGRADE EARTHMOVING - Scrapers

Cut Block	Fill Block	Total Volume [yd3]	Permanent Program %	Permanent Volume [yd3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
D 01	D 01	150	100%	150	5,420	5,405	-	1,000	-1.5%	Internal
D 02	D 02	-	100%	-	5,430	5,420	-	1,000	-1.0%	Internal
D 03	D 03	891	100%	891	5,400	5,390	-	1,000	-1.0%	Internal
D 04	D 04	16,975	100%	16,975	5,390	5,392	-	1,000	0.2%	Internal
D 05	D 05	19,034	100%	19,034	5,412	5,410	-	1,000	-0.2%	Internal
D 06	D 06	227,715	100%	227,715	5,372	5,413	-	1,000	4.1%	Internal
D 07	D 07	72,646	100%	72,646	5,430	5,360	-	1,000	-6.0%	Internal
D 08	D 08	122,204	100%	122,204	5,387	5,330	-	1,000	-5.7%	Internal
D 09	D 09	8,783	100%	8,783	5,436	5,405	-	1,000	-3.1%	Internal
D 10	D 10	4,282	100%	4,282	5,442	5,393	-	1,000	-4.9%	Internal
D 11	D 11	145,056	100%	145,056	5,380	5,340	-	1,000	-4.0%	Internal
D 12	D 12	24,497	100%	24,497	5,340	5,300	-	1,000	-4.0%	Internal
D 13	D 13	22,511	100%	22,511	5,330	5,300	-	1,000	-3.0%	Internal
D 14	D 14	51,060	100%	51,060	5,381	5,337	-	1,000	-4.5%	Internal
D 15	D 15	6,023	100%	6,023	5,364	5,329	-	1,000	-3.5%	Internal
HOSBUFF 01	HOSBUFF 01	1,355,620	100%	1,355,620	5,230	5,314	-	1,000	6.0%	Internal
HOSBUFF 02	HOSBUFF 02	152,577	100%	152,577	5,270	5,254	-	1,000	-1.6%	Internal
HW 01	HW 01	12,696	100%	12,696	5,460	5,460	-	1,000	0.0%	Internal
HW 03	HW 03	272,781	100%	272,781	5,440	5,438	-	1,000	-0.2%	Internal
HW 04	HW 04	32,041	100%	32,041	5,430	5,428	-	1,000	-0.2%	Internal
HW 05	HW 05	11,369	100%	11,369	5,410	5,409	-	1,000	-0.1%	Internal
HW 06	HW 06	22,299	100%	22,299	5,380	5,362	-	1,000	-1.8%	Internal
P 01	P 01	367,476	100%	367,476	5,412	5,420	-	1,000	0.8%	Internal
P 02	P 02	1,140,272	100%	1,140,272	5,347	5,409	-	1,000	6.0%	Internal
P 03	P 03	54,267	100%	54,267	5,310	5,421	-	1,000	6.0%	Internal
P 04	P 04	1	100%	1	5,240	5,400	-	1,000	6.0%	Internal
P 05	P 05	4	100%	4	5,222	5,373	-	1,000	6.0%	Internal
P 06	P 06	6,551	100%	6,551	5,180	5,326	-	1,000	6.0%	Internal
R 01	R 01	75,127	100%	75,127	5,350	5,388	-	1,000	3.8%	Internal
R 02	R 02	392,665	100%	392,665	5,355	5,365	-	1,000	1.0%	Internal
R 03	R 03	103,650	100%	103,650	5,204	5,324	-	1,000	6.0%	Internal
R 04	R 04	83,218	100%	83,218	5,321	5,286	-	1,000	-3.6%	Internal
R 05	R 05	120,797	100%	120,797	5,290	5,295	-	1,000	0.5%	Internal
R 06	R 06	3,419	100%	3,419	5,307	5,330	-	1,000	2.3%	Internal
RC 01	RC 01	158,982	100%	158,982	5,438	5,423	-	1,000	-1.6%	Internal
RC 02	RC 02	104,716	100%	104,716	5,430	5,405	-	1,000	-2.5%	Internal
T 01	T 01	-	100%	-	5,438	5,426	-	1,000	-1.2%	Internal
T 02	T 02	2,497	100%	2,497	5,454	5,445	-	1,000	-1.0%	Internal
T 03	T 03	2,183	100%	2,183	5,375	5,376	-	1,000	0.0%	Internal
T 04	T 04	65,999	100%	65,999	5,405	5,400	-	1,000	-0.5%	Internal
T 05	T 05	234,373	100%	234,373	5,447	5,413	-	1,000	-3.4%	Internal
T 06	T 06	82,300	100%	82,300	5,396	5,401	-	1,000	0.5%	Internal
T 07	T 07	111,149	100%	111,149	5,420	5,420	-	1,000	0.0%	Internal
T 08	T 08	81,798	100%	81,798	5,403	5,409	-	1,000	0.6%	Internal
T 09	T 09	9,335	100%	9,335	5,394	5,374	-	1,000	-2.0%	Internal
T 10	T 10	10,238	100%	10,238	5,327	5,327	-	1,000	0.0%	Internal
T 11	T 11	111,106	100%	111,106	5,323	5,326	-	1,000	0.3%	Internal
PS	PS	-	100%	-	5,386	5,309	-	1,000	-6.0%	Internal
HOSBUFF 01	R 03	2,050,515	100%	2,050,515	5,230	5,324	1,298	1,600	6.0%	External
HOSBUFF 02	R 03	1,027,917	100%	1,027,917	5,270	5,324	2,204	2,700	2.5%	External
HOSBUFF 02	R 05	298,262	100%	298,262	5,270	5,295	1,846	2,300	1.4%	External
R 04	P 06	2,667,100	100%	2,667,100	5,321	5,326	2,308	2,800	0.2%	External
RC 01	P 01	3,393,630	100%	3,393,630	5,438	5,420	2,207	2,700	-0.8%	External
T 01	P 01	465,370	100%	465,370	5,438	5,420	630	800	-2.9%	External
T 02	P 02	212,784	100%	212,784	5,454	5,409	1,527	1,900	-3.0%	External
T 03	P 02	45,358	100%	45,358	5,375	5,409	1,328	1,600	2.5%	External
T 04	P 02	41,652	100%	41,652	5,405	5,409	1,969	2,400	0.2%	External
T 05	P 03	695,151	100%	695,151	5,447	5,421	941	1,200	-2.8%	External
T 06	P 04	908,290	100%	908,290	5,396	5,400	1,274	1,600	0.3%	External
T 07	P 04	1,538,148	100%	1,538,148	5,420	5,400	2,059	2,500	-1.0%	External
T 08	R 02	500,957	100%	500,957	5,403	5,365	1,666	2,000	-2.3%	External
T 10	P 06	1,709,064	100%	1,709,064	5,327	5,326	1,441	1,800	-0.1%	External
T 11	R 05	135,086	100%	135,086	5,323	5,295	1,467	1,800	-1.9%	External
T 11	R 06	121,294	100%	121,294	5,323	5,330	1,341	1,700	0.5%	External
D 10	P 05	345,882	100%	345,882	5,442	5,373	2,242	2,700	-3.1%	External
	TOTAL	**22,059,786**		**22,059,786**			**Weighted Average**	**1,853**	**0.9%**	

Total yards go to Worksheet 3

Assumptions: Distance is adjusted to accomodate haulage routes

TABLE 12-B-18
AREA 3 BOND REGRADE EARTHMOVING - Scrapers

Cut Block	Fill Block	Total Volume	Permanent	Permanent Volume	Cut Elevation	Fill Elevation	Centroid	Adjusted	Grade [%]	Comments
D 01	D 01	4,029	100%	4,029	5,350	5,350	-	1,000	0.0%	Internal
D 02	D 02	3,937	100%	3,937	5,380	5,366	-	1,000	-1.4%	Internal
D 03	D 03	274	100%	274	5,390	5,374	-	1,000	-1.6%	Internal
D 04	D 04	11,359	100%	11,359	5,390	5,352	-	1,000	-3.8%	Internal
D 05	D 05	25,772	100%	25,772	5,398	5,366	-	1,000	-3.2%	Internal
D 06	D 06	4,898	100%	4,898	5,448	5,371	-	1,000	-6.0%	Internal
D 07	D 07	1,721	100%	1,721	5,390	5,393	-	1,000	0.3%	Internal
D 08	D 08	31,758	100%	31,758	5,392	5,365	-	1,000	-2.8%	Internal
D 09	D 09	74,525	100%	74,525	5,322	5,310	-	1,000	-1.2%	Internal
D 10	D 10	22,457	100%	22,457	5,310	5,290	-	1,000	-2.0%	Internal
D 11	D 11	1,376	100%	1,376	5,417	5,363	-	1,000	-5.4%	Internal
D 12	D 12	16,328	100%	16,328	5,379	5,290	-	1,000	-6.0%	Internal
DV 01	DV 01	332,879	100%	332,879	5,340	5,345	-	1,000	0.5%	Internal
F 01	F 01	61,028	100%	61,028	5,408	5,371	-	1,000	-3.7%	Internal
F 02	F 02	170,562	100%	170,562	5,334	5,380	-	1,000	4.6%	Internal
P 01	P 01	54,102	100%	54,102	5,150	5,361	-	1,000	6.0%	Internal
P 02	P 02	61,941	100%	61,941	5,154	5,382	-	1,000	6.0%	Internal
P 03	P 03	553,619	100%	553,619	5,158	5,381	-	1,000	6.0%	Internal
P 04	P 04	23,258	100%	23,258	5,140	5,379	-	1,000	6.0%	Internal
P 05	P 05	8,967	100%	8,967	5,122	5,402	-	1,000	6.0%	Internal
P 06	P 06	20,090	100%	20,090	5,130	5,316	-	1,000	6.0%	Internal
P 07	P 07	16,926	100%	16,926	5,118	5,290	-	1,000	6.0%	Internal
PS 01	PS 01	86,242	100%	86,242	5,318	5,322	-	1,000	0.4%	Internal
PS 02	PS 02	164	100%	164	5,345	5,310	-	1,000	-3.5%	Internal
PS 03	PS 03	10,502	100%	10,502	5,410	5,401	-	1,000	-0.9%	Internal
R 01	R 01	52,658	100%	52,658	5,339	5,356	-	1,000	1.7%	Internal
R 02	R 02	62,722	100%	62,722	5,313	5,346	-	1,000	3.3%	Internal
R 03	R 03	53,971	100%	53,971	5,283	5,367	-	1,000	6.0%	Internal
R 04	R 04	11,470	100%	11,470	5,366	5,370	-	1,000	0.4%	Internal
R 05	R 05	72,091	100%	72,091	5,265	5,295	-	1,000	3.0%	Internal
S 01	S 01	3,248	100%	3,248	5,400	5,370	-	1,000	-3.0%	Internal
S 02	S 02	17,375	100%	17,375	5,400	5,381	-	1,000	-1.9%	Internal
S 03	S 03	33,684	100%	33,684	5,436	5,381	-	1,000	-5.5%	Internal
S 04	S 04	23,564	100%	23,564	5,330	5,325	-	1,000	-0.5%	Internal
S 05	S 05	1,250	100%	1,250	5,348	5,309	-	1,000	-3.9%	Internal
S 06	S 06	26,089	100%	26,089	5,302	5,296	-	1,000	-0.6%	Internal
S 07	S 07	61,106	100%	61,106	5,342	5,290	-	1,000	-5.2%	Internal
S 08	S 08	65,392	100%	65,392	5,290	5,288	-	1,000	-0.2%	Internal
TP 03	TP 03	255,539	100%	255,539	5,460	5,460	-	1,000	0.0%	Internal
TP 04	TP 04	2,675	100%	2,675	5,360	5,354	-	1,000	-0.6%	Internal
TP 05	TP 05	68,525	100%	68,525	5,419	5,414	-	1,000	-0.4%	Internal
TP 09	TP 09	9,777	100%	9,777	5,352	5,352	-	1,000	0.0%	Internal
TP 10	TP 10	1,629,981	100%	1,629,981	5,340	5,352	-	1,000	1.2%	Internal
TP 11	TP 11	66,337	100%	66,337	5,393	5,389	-	1,000	-0.4%	Internal
TP 14	TP 14	2,394	100%	2,394	5,390	5,360	-	1,000	-3.0%	Internal
TP 17	TP 17	28,964	100%	28,964	5,339	5,339	-	1,000	0.0%	Internal
TP 18	TP 18	11,613	100%	11,613	5,340	5,339	-	1,000	-0.1%	Internal
TP 19	TP 19	15,286	100%	15,286	5,270	5,269	-	1,000	-0.1%	Internal
TP 21	TP 21	42,211	100%	42,211	5,275	5,277	-	1,000	0.2%	Internal
D 01	P 02	151,453	100%	151,453	5,350	5,382	2,497	3,000	1.3%	External
F 01	P 03	1,858,275	100%	1,858,275	5,408	5,381	1,186	1,500	-2.3%	External
PS 02	DV 01	755,527	100%	755,527	5,345	5,345	2,059	2,500	0.0%	External
S 01	P 02	1,631,224	100%	1,631,224	5,400	5,382	1,818	2,200	-1.0%	External
S 01	R 02	492,068	100%	492,068	5,400	5,346	1,186	1,500	-4.6%	External
S 02	R 03	8,520	100%	8,520	5,400	5,367	2,036	2,500	-1.6%	External
S 03	P 04	1,528,240	100%	1,528,240	5,436	5,379	1,763	2,200	-3.2%	External
S 03	R 03	54,750	100%	54,750	5,436	5,367	1,785	2,200	-3.9%	External
S 04	R 04	1,684,020	100%	1,684,020	5,330	5,370	1,621	2,000	2.5%	External
S 05	P 06	3,481,342	100%	3,481,342	5,348	5,316	1,354	1,700	-2.4%	External
S 06	P 06	928,868	100%	928,868	5,302	5,316	2,416	2,900	0.6%	External
S 07	P 07	515,730	100%	515,730	5,342	5,290	1,713	2,100	-3.0%	External
S 07	R 05	2,472,506	100%	2,472,506	5,342	5,295	1,641	2,000	-2.8%	External
	TOTAL	**19,779,150**		**19,779,150**			**Weighted Average**	**1,779**	**-0.9%**	

Assumptions: Distance is adjusted to accomodated haulage routes

TABLE 12-B-18a
AREA 4N BOND REGRADE EARTHMOVING - Scrapers

Cut Block	Fill Block	Total Volume [yd^3]	Permanent Program %	Permanent Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
Inter-Block Scraper Yards										
D01	D01	134,399	100%	134,399	5,419	5,406	-	1,000	-1.3%	Internal
D02	D02	72,258	100%	72,258	5,420	5,339	-	1,000	-6.0%	Internal
D03	D03	137,768	100%	137,768	5,308	5,330	-	1,000	2.2%	Internal
D04	D04	56	100%	56	5,400	5,327	-	1,000	-6.0%	Internal
D05	D05	13,239	100%	13,239	5,390	5,330	-	1,000	-6.0%	Internal
D06	D06	97,838	100%	97,838	5,346	5,327	-	1,000	-1.9%	Internal
D07	D07	52,199	100%	52,199	5,305	5,320	-	1,000	1.5%	Internal
D08	D08	95,291	100%	95,291	5,354	5,330	-	1,000	-2.4%	Internal
D09	D09	328,325	100%	328,325	5,378	5,347	-	1,000	-3.2%	Internal
D10	D10	63,802	100%	63,802	5,391	5,376	-	1,000	-1.5%	Internal
P01	P01	4,599	100%	4,599	5,316	5,407	-	1,000	6.0%	Internal
P02	P02	-	100%	-	5,214	5,342	-	1,000	6.0%	Internal
P03	P03	-	100%	-	5,204	5,313	-	1,000	6.0%	Internal
P04	P04	20,205	100%	20,205	5,267	5,344	-	1,000	6.0%	Internal
R01	R01	20,171	100%	20,171	5,290	5,337	-	1,000	4.7%	Internal
R02	R02	27,881	100%	27,881	5,270	5,320	-	1,000	5.0%	Internal
R03	R03	383	100%	383	5,290	5,305	-	1,000	1.5%	Internal
T01	T01	26,861	100%	26,861	5,412	5,348	-	1,000	-6.0%	Internal
T02	T02	115,994	100%	115,994	5,346	5,331	-	1,000	-1.5%	Internal
T03	T03	43,049	100%	43,049	5,420	5,342	-	1,000	-6.0%	Internal
T04	T04	251,561	100%	251,561	5,343	5,335	-	1,000	-0.8%	Internal
D04	P02	-	100%	-	5,400	5,342	2,407	2,900	-2.4%	External
D05	P03	28,602	100%	28,602	5,390	5,313	1,660	2,000	-4.7%	External
T01	R01	-	100%	-	5,412	5,337	2,090	2,600	-3.6%	External
T01	P01	1,553,864	100%	1,553,864	5,412	5,407	1,682	2,100	-0.3%	External
T01	P02	-	100%	-	5,412	5,342	2,991	3,600	-2.3%	External
T01	P04	-	100%	-	5,412	5,344	4,574	5,500	-1.5%	External
T01	P02	-	100%	-	5,412	5,342	2,991	3,600	-2.3%	External
T02	P02	2,222,937	100%	2,222,937	5,346	5,342	1,739	2,100	-0.2%	External
T02	P03	-	100%	-	5,346	5,313	2,576	3,100	-1.3%	External
T03	P03	1,681,617	100%	1,681,617	5,420	5,313	1,244	1,500	-6.0%	External
T04	P02	76,135	100%	76,135	5,343	5,342	1,175	1,500	-0.1%	External
T03	P04	52,023	100%	52,023	5,420	5,344	1,905	2,300	-4.0%	External
	TOTAL	**7,121,056**		**7,121,056**			**Weighted Average**	**1,720**	**-1.9%**	

Assumptions: Distance is adjusted to accomodated haulage routes

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-19
AREA 1 BOND RECLAMATION TOPSOIL MATERIAL MOVEMENT - Scrapers

Cut Block	Fill Block	Area [acres]	Topsoil Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
Airport #1	TP 1	8.5	9,919	5,350	5,350	2,000	2,300	0.0%	Adj. Distance Reflects Haul Route
	TOTAL	**8.5**	**9,919**			**Weighted Average**	**2,300**	**0.0%**	

Total yards and acres go to Worksheet 3

Assumptions:

8.7 inches of topsoil to be replaced in Area 1

Centroid distance is measured from the stockpile centroid to the reclaim centroid

Distance is adjusted to accomodated haulage routes

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-20
AREA 2 BOND RECLAMATION TOPSOIL MATERIAL MOVEMENT- Scrapers

Cut Block	Fill Block	Area [acres]	Topsoil Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
									All topsoil handled by trucks.
	TOTAL	-	-			Weighted Average	-	0.0%	

Total yards and acres go to Worksheet 3

Assumptions:

5.6 inches of topsoil to be replaced in Area 2

Centroid distance is measured from the stockpile centroid to the reclaim centroid

Distance is adjusted to accomodate haulage routes

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-21
AREA 3 BOND RECLAMATION TOPSOIL MATERIAL MOVEMENT- Scrapers

Cut Block	Fill Block	Area [acres]	Topsoil Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
LWR4_TS_N	D 04	45.8	59,776	5,257	5,352	2,169	2,603	3.6%	
LWR4_TS_N	D 05	49.5	64,536	5,257	5,366	1,248	1,497	7.3%	
IBR_TS_N	P 01	14.6	18,989	5,409	5,361	1,297	1,556	-3.1%	
IBR_TS_N	PS 03	71.8	93,643	5,409	5,401	2,210	2,652	-0.3%	
IBR_TS_N	R 01	12.6	16,465	5,409	5,356	2,068	2,482	-2.1%	
LWR4_TS_N	R 02	65.3	85,156	5,257	5,346	1,738	2,086	4.3%	
LWR4_TS_N	S 02	108.1	72,265	5,257	5,381	728	874	14.3%	
LWR4_TS_S	S 02	108.1	68,707	5,370	5,381	1,550	1,860	0.6%	
LWR1_TS_W	TP 04	4.4	5,758	5,332	5,354	2,308	2,770	0.8%	
LWR1_TS_W	TP 07	3.0	3,878	5,332	5,330	1,471	1,765	-0.1%	
LWR1_TS_W	TP 08	1.5	2,013	5,332	5,300	1,081	1,297	-2.5%	
DXR4_TS	TP 19	38.5	50,196	5,329	5,269	1,171	1,406	-4.3%	
DXR4_TS	TP 21	38.4	50,043	5,329	5,277	2,101	2,522	-2.1%	
	TOTAL	**516**	**531,650**			**Weighted Average**	**1,892**	**2.8%**	

Total yards and acres go to Worksheet 3

Assumptions:

9.7 inches of topsoil to be replaced in Area III

Centroid distance is measured from the stockpile centroid to the reclaim centroid

Distance is adjusted to accomodated haulage routes

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-22
AREA 3 BOND RECLAMATION MITIGATION MATERIAL MOVEMENT- Scrapers

Cut Block	Fill Block	Area [acres]	Mitigation Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
LWR1_RG_N	TP 04	4.4	2,456	5,414	5,354	1,737	2,084	-2.9%	
LWR1_RG_N	TP 05	86.3	47,998	5,414	5,414	373	447	0.1%	
LWR4_RG_N	TP 11	51.0	28,363	5,424	5,389	408	490	-7.0%	
DXR1_RG_W	TP 16	36.2	20,109	5,412	5,405	134	160	-4.6%	
	TOTAL	**177.9**	**98,925**			**Weighted Average**	**442**	**-3.0%**	

Total yards and acres go to Worksheet 3
Assumptions:

10.8% of all reclaim acres require mitigation
4 feet total of mitigation and topsoil
9.7 inches of topsoil to be replaced in Area III
Centroid distance is measured from the stockpile centroid to the reclaim centroid
Distance is adjusted to accomodated haulage routes

TABLE 12-B-22a
AREA 2 BOND RECLAMATION MITIGATION MATERIAL MOVEMENT - Scrapers

Cut Block	Fill Block	Area [acres]	Mitigation Volume [yd^3]	Cut Elevation [ft]	Fill Elevation [ft]	Centroid Distance [ft]	Adjusted Distance [ft]	Grade [%]	Comments
Barber	D 05	10.7	3,043	5,414	5,410	1,871	2,300	-0.2%	
Barber	D 06	31.2	8,893	5,414	5,413	703	900	0.0%	
Barber	T 05	60.4	17,209	5,414	5,413	44	100	-2.8%	
Barber	P 03	50.1	14,278	5,414	5,421	958	1,200	0.8%	
Hosteen	D 07	22.8	6,504	5,444	5,360	1,795	2,200	-4.7%	
Hosteen	T 06	51.1	14,565	5,444	5,401	1,349	1,700	-3.2%	
Hosteen	D 08	24.5	6,984	5,444	5,330	2,017	2,500	-5.7%	
Hosteen	T 07	60.7	17,296	5,444	5,420	480	600	-5.1%	
Hosteen	P 04	36.4	10,367	5,444	5,400	2,182	2,700	-2.0%	
Hosteen	D 09	18.8	5,362	5,444	5,405	1,207	1,500	-3.3%	
Hosteen	D 10	25.6	7,286	5,444	5,393	2,013	2,500	-2.5%	
Hosteen	R 02	82.5	23,506	5,444	5,365	1,842	2,300	-4.3%	
Hosteen	P 05	16.2	4,618	5,444	5,373	2,322	2,800	-3.1%	
Barber	HW 03	58.0	16,531	5,414	5,438	1,398	1,700	1.7%	
	TOTAL	**549**	**156,442**			**Weighted Average**	**1,599**	**-2.5%**	

Total yards and acres go to Worksheet 3

Assumptions:

5% of all reclaim acres require mitigation

4 feet total of mitigation and topsoil

5.6 inches of topsoil to be replaced in Area 2

Centroid distance is measured from the stockpile centroid to the reclaim centroid

Distance is adjusted to accomodate haulage routes

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-23

EQUIPMENT OWNERSHIP AND OPERATING COSTS

Equipment Model		Ownership Costs ($/hr)			Overhaul Costs ($/hr)				Field Repair and Fuel Costs ($/hr)												2011 Total [$/hr]
		Depreciation	Depreciation Multiplier	**Adjusted Depreciation**	Labor	Labor Multiplier	**Adjusted Labor**	**O/H Parts**	Labor	Labor Multiplier	**Adjusted Labor**	**Parts**	Fuel	Fuel Multiplier	**Adjusted Fuel**	**Lube**	Tires	Tire Multiplier	**Adjusted Tires**	**GEC (2)**	
D9R Dozer	Semi-U Blade	$ 24.39	0.83	**$ 20.33**	$ 9.27	0.80	**$ 7.39**	**$ 21.54**	$ 10.85	0.80	**$ 8.65**	**$ 20.98**	$ 44.20	1.02	**$ 45.21**	**$ 8.88**	**$ -**	1.00	**$ -**	**$ 2.98**	**$ 143.09**
D10R Dozer	Semi-U Blade	$ 34.24	0.83	**$ 28.53**	$ 9.27	0.80	**$ 7.39**	**$ 29.93**	$ 10.85	0.80	**$ 8.65**	**$ 29.15**	$ 61.88	1.02	**$ 63.29**	**$ 12.38**	**$ -**	1.00	**$ -**	**$ 4.14**	**$ 183.47**
D11R Dozer	U Blade	$ 67.91	0.83	**$ 56.59**	$ 9.27	0.80	**$ 7.39**	**$ 54.65**	$ 10.85	0.80	**$ 8.65**	**$ 53.22**	$ 91.63	1.02	**$ 93.72**	**$ 21.45**	**$ -**	1.00	**$ -**	**$ 8.22**	**$ 303.90**
637G Scraper		$ 39.27	0.83	**$ 32.73**	$ 13.57	0.80	**$ 10.82**	**$ 27.48**	$ 20.35	0.80	**$ 16.23**	**$ 27.69**	$ 91.64	1.02	**$ 93.73**	**$ 18.47**	**$ 6.48**	1.00	**$ 6.48**	**$ 1.18**	**$ 234.80**
992G Loader		$ 83.57	0.83	**$ 69.64**	$ 5.65	0.80	**$ 4.51**	**$ 18.62**	$ 6.90	0.80	**$ 5.50**	**$ 20.54**	$ 77.96	1.02	**$ 79.74**	**$ 18.81**	**$ 29.46**	1.00	**$ 29.46**	**$ 2.65**	**$ 249.47**
777D Truck		$ 42.09	0.83	**$ 35.08**	$ 20.80	0.80	**$ 16.59**	**$ 16.72**	$ 12.78	0.80	**$ 10.19**	**$ 10.32**	$ 57.78	1.02	**$ 59.10**	**$ 13.60**	**$ 15.73**	1.00	**$ 15.73**	**$ -**	**$ 177.32**
16H Grader		$ 23.31	0.83	**$ 19.43**	$ 4.07	0.80	**$ 3.25**	**$ 11.71**	$ 3.39	0.80	**$ 2.70**	**$ 11.35**	$ 28.09	1.02	**$ 28.73**	**$ 6.50**	**$ 7.23**	1.00	**$ 7.23**	**$ 0.88**	**$ 91.77**
Water Truck	10,000 gal	$ 31.73	0.83	**$ 26.44**	$ 7.46	0.80	**$ 5.95**	**$ 6.37**	$ 18.09	0.80	**$ 14.43**	**$ 12.30**	$ 47.26	1.02	**$ 48.34**	**$ 8.73**	**$ 10.41**	1.00	**$ 10.41**	**$ -**	**$ 132.96**
Small Backhoe	Cat 446D	$ 7.02	0.83	**$ 5.85**	$ 2.83	0.80	**$ 2.26**	**$ 2.74**	$ 3.73	0.80	**$ 2.97**	**$ 2.42**	$ 12.10	1.02	**$ 12.38**	**$ 2.27**	**$ 1.97**	1.00	**$ 1.97**	**$ 0.32**	**$ 33.18**
Grader Ripper		$ 2.19	0.83	**$ 1.83**	$ 0.05	0.80	**$ 0.04**	**$ 0.68**	$ 0.90	0.80	**$ 0.72**	**$ 1.01**	$ -	1.02	**$ -**	**$ 0.19**	**$ -**	1.00	**$ -**	**$ 0.84**	**$ 5.30**
16H Grader, ripping		$ 25.50	0.83	**$ 21.25**	$ 4.12	0.80	**$ 3.29**	**$ 12.39**	$ 4.29	0.80	**$ 3.42**	**$ 12.36**	$ 28.09	1.02	**$ 28.73**	**$ 6.69**	**$ 7.23**	1.00	**$ 7.23**	**$ 1.72**	**$ 97.08**
Pickup Truck	1 ton 4x4	$ 3.50	0.83	**$ 2.92**	$ 0.68	0.80	**$ 0.54**	**$ 0.76**	$ 0.86	0.80	**$ 0.69**	**$ 0.73**	$ 16.24	1.02	**$ 16.61**	**$ 1.84**	**$ 0.56**	1.00	**$ 0.56**	**$ -**	**$ 24.65**
Mechanic truck	1.75 ton 4x4	$ 4.92	0.83	**$ 4.10**	$ 0.68	0.80	**$ 0.54**	**$ 1.06**	$ 0.86	0.80	**$ 0.69**	**$ 1.03**	$ 17.11	1.02	**$ 17.50**	**$ 1.63**	**$ 0.79**	1.00	**$ 0.79**	**$ -**	**$ 27.34**
DMM2 Drill		$ 42.48	0.83	**$ 35.40**	$ 47.57	0.80	**$ 37.93**	**$ 23.44**	$ 88.83	0.80	**$ 70.84**	**$ 40.84**	$ 82.60	1.02	**$ 84.48**	**$ 15.68**	**$ -**	1.00	**$ -**	**$ 4.08**	**$ 312.69**

The Total $/hr are used in Worksheet 13

1) CRG - PRIMEDIA Equipmentwatch, "Cost Reference Guide for Construction Equipment," 1st Half 2011 edition.

2) GEC - Ground Engaging Components

Multipliers are calculated as follows:

Depreciation:	Assume two shifts per day		
	Assume 90% availability on all equipment		**0.83**
Labor - Heavy Equipment Mechanic: Field Repair and Fuel Costs			
((0.08)(CRG Wages) + Local Wages) / CRG Wages			
	CFG Wages	$49.37 /hr	
	Local Wages	$35.42 /hr	
			0.80
Parts:	No adjustment		**1**
Fuel (Diesel):	CFG Cost	$3.07 /gal	
	Local Cost	$3.14 /gal	
	Fuel Multiplier		**1.02**
Lube:	No adjustment		**1**
Tires:	No adjustment		**1**
GEC:	No adjustment		**1**
Inflation:			**11.3%**

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TABLE 12-B-24
EQUIPMENT OPERATOR WAGE RATES

Equipment Operator	Operator Rates [$/hr][1]
D9R Dozer	$35.42
D10R Dozer	$35.42
D11R Dozer	$35.42
16H Grader	$35.42
637G Scraper	$35.42
992G Loader	$35.42
777D Truck	$35.42
Water Truck	$35.42
Tractor	$35.42
Track Hoe	$35.42
Small Backhoe	$35.42
Small Dumptruck	$35.42
Drill Operator	$35.42
Blast Laborer	$35.42
Blast Foremen	$35.42
Pickup Truck	$24.04

1) Labor Rates including burden, excluding Profit&Overhead, from ACME Inc. contract in force for 2008.

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-25

DRILL AND BLAST QUANTITIES

Area	Volume [yd^3]	Equipment	Comments
Area 2	1,756,329	Ingersoll-Rand DM22	Drilling and Blasting Area 2 pit highwalls - Hosteen Triangle
Area 3	4,804,688	Ingersoll-Rand DM22	Drilling and Blasting Area 3 pit highwalls - Dixon Prestrip
Total	**6,561,017**		

Project: Navajo Mine
Date: Sep-2011

TABLE 12-B-25a

DRILL AND BLAST QUANTITIES

Area	Volume [yd^3]	Equipment	Comments
Area 4N	669,878	Ingersoll-Rand DM22	Drilling and Blasting Area 4N pit highwalls
Total	**669,878**		

Project: Navajo Mine
Date: Aug 2007

TABLE 12-B-26
BOND EQUIPMENT AVAILABILITIES

EQUIPMENT	AVERAGE AVAILABILITY
Front-End Loaders	90.0%
Haul Trucks	90.0%
Dozers	90.0%
Scrapers	90.0%
Drills	90.0%
Motor Graders	90.0%