

# Mining Area 4

MA 4 Topsoil: 377.1 acres

MA4 Disturbed for Regrade: 83.7 acres

MA4 Disturb

M04 TSTKPL950  
237,000 LCY  
147 ACRES

M04 TSTKPL912  
237,000 LCY  
147 ACRES

Topsoil Haul Routes

Pond Boundary & Pond Disturbance Boundary

Topsoil Removed/Replaced for Reclamation Plan

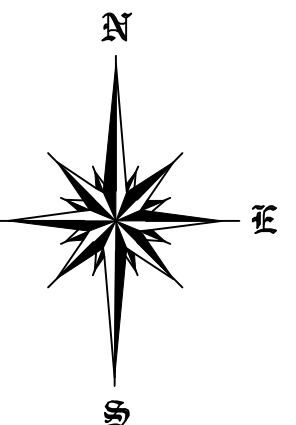
Facilities

Topsoil Stockpiles

Topsoiled by EOY 2023

Topsoil Laydown Area

Figure 20



<b>EL SEGUNDO MINE</b> McKinley County, New Mexico	
Mining Area 4: Final Reclamation with Topsoil Areas El Segundo 2022 Bond Proposal Figure 20 Permit No. 2020-01	
DATE: 8/18/2022 SCALE: 1" = 1000'	DRAWN BY: CJS CHECKED BY: CJS
<b>PEABODY NATURAL RESOURCES COMPANY</b> P.O. BOX 787 GRANTS, NM 87020	

PEABODY NATURAL RESOURCES CO. / EL SEGUNDO  
MINE 2024 Bond Proposal - Current Misc Rates  
Permit Number 2020-01

MA-4

MA-4 Topsoil Haulage Locations							992 Loader Production CY/Hr	992 Loader Production Hours	Total 992 Loader Production Hours	777 Truck Cycle Time Min	# Trucks Required	777 Truck Operating Hours	777 Truck Total Operating Hours
PIT DISTURBANCE Topsoil From	Amount LCY	Area (Acres)	Average Haul Distance FT		Topsoil Hauled To								
Disturbed for Regrade	135,036	83.7	500		MA4 Disturbed for Regrade	1,269	106.41	106.41	4.93	1.9	201.91	201.91	
Disturbed for Regrade	23,555	14.6	500		MA4 Disturbed for Regrade	1,269	18.56	124.97	4.93	1.9	35.22	237.13	
	0					1,269	-	124.97	-	-	-	237.13	
M04 TSTKPL912	237,160	147.0	663		MA 4 Topsoil (Final Pit)	1,269	186.89	311.86	5.10	2.0	366.90	604.04	
M04 TSTKPL950	237,160	147.0	2,779		MA 4 Topsoil (Final Pit)	1,269	186.89	498.75	6.38	2.5	458.76	1,062.80	
M04 TSTKPL608	137,133	85.0	6,686		MA 4 Topsoil (Final Pit)	1,269	108.06	606.81	8.62	3.3	358.12	1,420.92	
	0					1,269	-	606.81	-	-	-	1,420.92	
	0					1,269	-	606.81	-	-	-	1,420.92	
	0					1,269	-	606.81	-	-	-	1,420.92	
	0					1,269	-	606.81	-	-	-	1,420.92	
	0					1,269	-	606.81	-	-	-	1,420.92	
	0					1,269	-	606.81	-	-	-	1,420.92	
	0					1,269	-	606.81	-	-	-	1,420.92	
	0					1,269	-	606.81	-	-	-	1,420.92	
	0					1,269	-	606.81	-	-	-	1,420.92	
<b>Sub-Totals</b>	<b>770,044</b>	<b>477.3</b>	<b>2,354</b>					<b>606.81</b>			<b>1,420.92</b>		
Haulroads Topsoil From	Amount LCY	Area (Acres)	Average Haul Distance FT		Topsoil Hauled To								
MA-4 TSTKPL600	31299	19.4	6222		West Haulroad/Access								
MA-4 TSTKPL610	30331	18.8	1,969		West Pit Access	1,269	23.90	23.90	5.95	2.3	54.70	54.70	
MA-4 TSTKPL600	69212	42.9	2,815		Central Haulroad/Access	1,269	54.54	78.44	6.40	2.5	134.29	188.99	
MA-4 TSTKPL600	9196	5.7	6,615		Subsite Access	1,269	7.25	85.69	8.58	3.3	23.91	212.90	
MA-4 TSTKPL600	53724	33.3	5,840		East Haulroad	1,269	42.34	128.02	8.12	3.1	132.14	345.03	
MA-4 TSTKPL600	36623	22.7	3,898		East Access	1,269	28.86	156.88	7.03	2.7	77.99	423.02	
<b>Sub-Totals</b>	<b>230,385</b>	<b>142.8</b>	<b>4,196</b>					<b>156.88</b>			<b>423.02</b>		
<b>Totals</b>	<b>1,000,429</b>	<b>620.1</b>						<b>763.7</b>			<b>1,843.9</b>		

Note: Topsoil Stockpiles will be regraded and revegetated as necessary.

Reveg. Only Acres:   \*\* PREVIOUS TOPSOILED NON-REVEGETATED AREAS.

**SECTION IX**  
**Equipment costs and data**

**Dozer Production - CAT D-11 CD Universal Blade - Spoilside Dozing**  
**Caterpillar Performance Handbook - Edition 49**

Push Distance FT	Cat Curve Production LCY/Hour	Operator Good	Material Loose	Slot Dozing	Side By Side	Job Efficiency	Grade	Production LCY/Hour
50	6,545	0.85	1.20	1.20	1.00	0.83	1.20	7,979
100	3,661	0.85	1.20	1.20	1.00	0.83	1.20	4,464
150	2,607	0.85	1.20	1.20	1.00	0.83	1.20	3,178
200	2,048	0.85	1.20	1.20	1.00	0.83	1.20	2,497
250	1,699	0.85	1.20	1.20	1.00	0.83	1.20	2,071
300	1,458	0.85	1.20	1.20	1.00	0.83	1.20	1,778
350	1,281	0.85	1.20	1.20	1.00	0.83	1.20	1,562
400	1,146	0.85	1.20	1.20	1.00	0.83	1.20	1,397
450	1,038	0.85	1.20	1.20	1.00	0.83	1.20	1,266
500	950	0.85	1.20	1.20	1.00	0.83	1.20	1,159
550	877	0.85	1.20	1.20	1.00	0.83	1.20	1,070
600	816	0.85	1.20	1.20	1.00	0.83	1.20	994

**Dozer Production - CAT D-11 CD Universal Blade - Hiwall Dozing**  
**Caterpillar Performance Handbook - Edition 49**

Push Distance FT	Cat Curve Production LCY/Hour	Operator Good	Material Ripped	Slot Dozing	Side By Side	Job Efficiency	Grade	Production LCY/Hour
50	6,545	0.85	0.80	1.20	1.00	0.83	1.20	5,319
100	3,661	0.85	0.80	1.20	1.00	0.83	1.20	2,976
150	2,607	0.85	0.80	1.20	1.00	0.83	1.20	2,119
200	2,048	0.85	0.80	1.20	1.00	0.83	1.20	1,665
250	1,699	0.85	0.80	1.20	1.00	0.83	1.20	1,381
300	1,458	0.85	0.80	1.20	1.00	0.83	1.20	1,185
350	1,281	0.85	0.80	1.20	1.00	0.83	1.20	1,042
400	1,146	0.85	0.80	1.20	1.00	0.83	1.20	931
450	1,038	0.85	0.80	1.20	1.00	0.83	1.20	844
500	950	0.85	0.80	1.20	1.00	0.83	1.20	772
550	877	0.85	0.80	1.20	1.00	0.83	1.20	713
600	816	0.85	0.80	1.20	1.00	0.83	1.20	663

**Dozer Production - CAT D-10T S-Universal Blade w/ single shank ripper - Hiwall Ripping**  
**Caterpillar Performance Handbook - Edition 49**

Speed	88 fpm
	300 feet per pass
Pass	3.41 min
Turn Time	0.25 min
Cycle	3.66 min / pass
Efficiency	50 min/hr
Passes per hour	13.66
	LENGTH    DEPTH    SPACING
Volume Ripped	300            3.69            3 FEET
	122.9 BCY per pass

Productivity =  $\frac{122.9 \text{ BCY per pass} \times 13.66 \text{ passes/hr} \times 80\%}{1}$  = 1344 bcy / hour

*Reference: Caterpillar Performance Handbook*

**Cat 992K Front-End-Loader**

10.00% \* SWELL

**\*\* CAT 992K OPERATING FACTORS (CAT ED 41 & 777F SpecsBook)**

HEAPED BUCKET CAPACITY (YDS)	15.00	(Standard Spade) p 12-134
BUCKET FILL FACTOR	1.10	(Average Rock-Dirt Mixture) p 12-114
AVG TRUCK LOAD CYCLE (MIN)	0.65	(Average Truck Loading Time) p 12-113
WORK HOUR FACTOR (MIN)	50.00	(Assume 83% Efficiency)
GRADE	0.00%	(Assume Flat Work Surface)
PRODUCTION METHOD	0.00	
PASSES	4.00	Calculated
ELEVATION	0.00	
TRANSMISSION	0.00	

HOURLY PRODUCTION/992K (YDS) 1,269 Calculated

**Cat 777 Haul Truck**

**CAT 777F OPERATING FACTORS (CAT ED 41)**

TRUCK CAPACITY (payload lbs)	211827	(777F SpecsBook p 21)
MATERIAL DENSITY	3300 lbs/lcy	p 27-4 Decomposed Rock - 75% Rock, 25% Earth
TRUCK CAPACITY (YDS)	64.2	Calculated
GRADE (Based on Area)	0	
WORK HOUR FACTOR (MIN)	50	(Assume 83% Efficiency)
HAUL TIME (Based on Area)		
RETURN TIME (Based on Area)		
LOAD TIME	2.6	Calculated
DUMP & MANEUVER	1.8	(Average of Maneuver in Load and Dump Areas) p 9-13

From CAT ED 41 p 9-42

		Haul Dist (one way)	
Meters	Feet	Loaded Travel Time	Empty Travel Time
0	0	0	0
200	656	0.4	0.3
600	1969	0.85	0.7
1000	3281	1.2	1.05
1400	4593	1.6	1.45
1800	5906	1.95	1.8
2000	6562	2.15	2
2200	7218	2.35	2.15

**Cat 16 M Blade**

**\*\* CAT 16M OPERATING FACTORS (CAT ED 41)**

BLADE LENGTH (FT)	16.00	p 2-15
SCARIFIER WIDTH (FT)	9.75	p 2-19
WORK HOUR FACTOR (50 MIN)	0.83	(Assume 83% Efficiency)
WORK SPEED GRADING (MPH)	3.90	(Assume 2nd gear - Rated RPM) p. 2-16
WORK SPEED SCARIFIER (MPH)	2.80	(Assume 1st gear - Rated RPM) p. 2-16
1 ACRE (SQ FT)	43,560	

**Scarifying - Production**

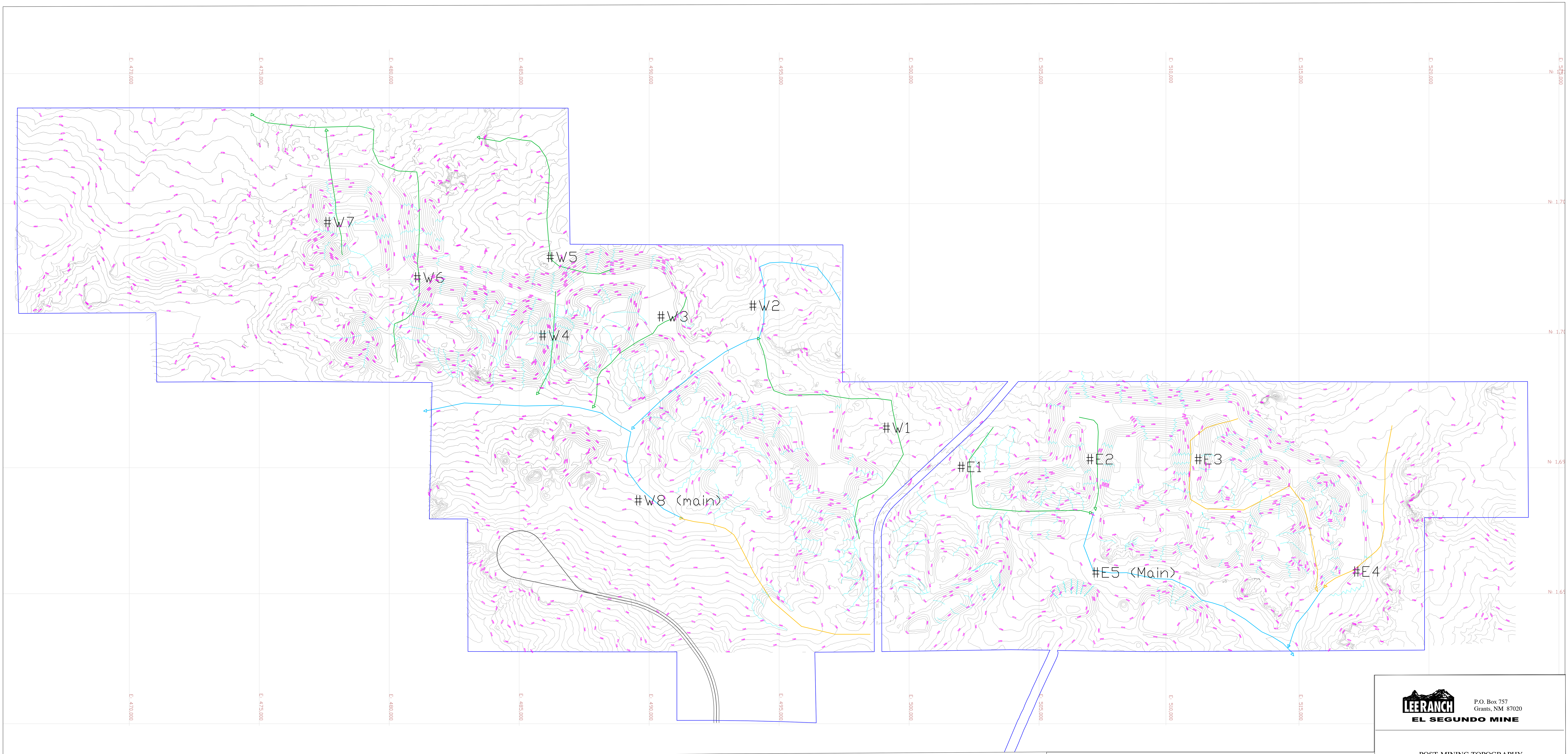
Area - FT2 per mile travelled	51,480	(Assume 0 overlap for scarifying)
Area - Acres per mile travelled	1.18	Calculated
Productivity Acres/Hour	2.76	Calculated

**PEABODY NATURAL RESOURCES CO. / EL SEGUNDO  
MINE 2024 Bond Proposal - Current Misc Rates  
Permit Number 2020-01**

<b>Equipment Costs</b>	
<b>Equipment</b>	<b>Eq Rate</b>
Cat D-11R CD	\$275.10
Cat D-10R	\$171.71
Cat 992K	\$328.05
Cat 777D Trucks	\$181.38
Cat 16M Blade	\$170.19
Water Truck (6,000 GAL)	\$89.35
Service Truck	\$14.09

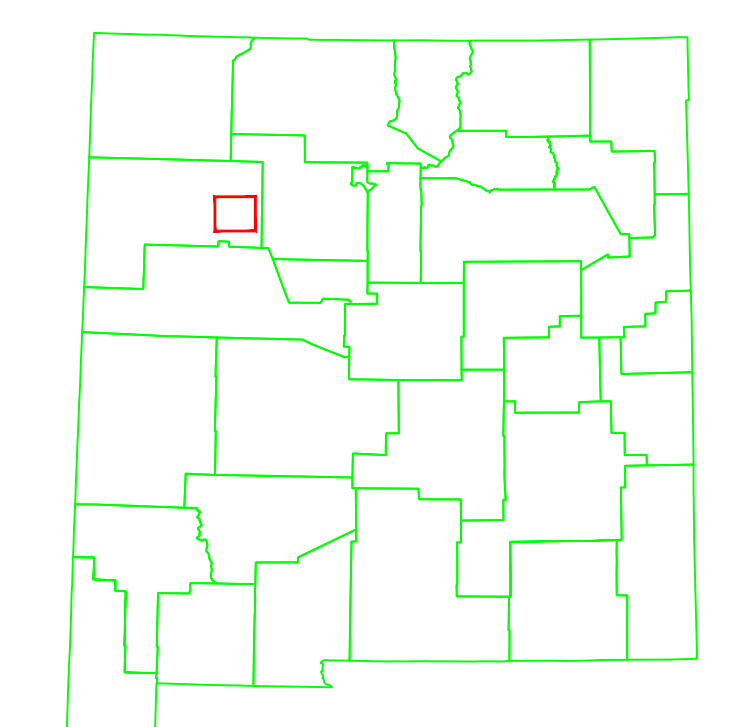
<b>2018</b>	<b>2012</b>	<b>% Variance</b>
\$302.85	\$394.11	-9.16%
\$167.08	\$271.57	2.77%
\$295.44	\$365.69	11.04%
\$132.93	\$304.76	36.45%
\$118.07	\$124.61	44.15%
\$58.19	\$167.09	53.54%
\$13.23	\$31.48	6.44%

## Attachment 4




**MAP LEGEND**

PERMIT BOUNDARY	500 acre Watershed Typical	3000 acre Watershed Typical
SECTION LINE	1500 acre Watershed Typical	
TOWNSHIP/RANGE		
DRAINAGE		



area of interest



P.O. Box 757  
Grants, NM 87020

**POST-MINING TOPOGRAPHY**  
2024 MAJOR REVISION  
PLATE 903-2

Seam: Varies	County(s): McKinley
Date: 8/31/22	State: New Mexico
Drawn By: CJS	USGS Quad: Laguna Castillo & Orphan Annie Rock
Latitude: 35° 37' 30"	Topo/ Aerial Source:
Longitude: 107° 51' 20"	
Contour Interval: Ten (10) Feet	

SCALE: 1" = 1000'

