Exhibit L
Reclamation Costs

The current Exhibit L in the permit was developed in 1986 and is obviously of little value, other than historical, in 2022. Even the concepts of Major, Moderate, and Minor disturbance categories are irrelevant now because the current bonding was done using a completely different approach. In effect, the original conceptual approach was effectively eliminated many years ago when bond amounts were increased using sophisticated estimation software based on actual disturbances. Thus, a pile of new data needs to be provided that is derived from more considered methods than "educated guesses" that are more guesses than "educated."

The guiding tools used in developing these hopefully better numbers include the Future Layout Map included in this exhibit and the geometric modeling of the four different classes of highwall structure and configuration that are possible in the future operations. It is not that these geometric models show a new approach to mining - they don't. These four conditions have been present in one form or other since the operation began. But what was not present previously was a consideration of the proportions of the four conditions that could occur either in worst case or on the average. The difficulty is determining what will most likely exist because some combinations of all four conditions are next to impossible to occur. Reliance on past history of highwall configurations, as evidenced in the annual reports, is clearly the best approach because that has historical evidence to support it.

Going over past annual reports for the last 15 years the general pattern is clear. Initially a large area (10 to 20 acres) is stripped of soil/overburden all the way down to the top of the gravel deposit. This creates a platform with gravel depths of somewhere between 35 and a bit more than 40 feet or thereabouts - it is variable. The gravel is then mined in one lift if on the thinner side or two lifts if on the thicker side. Recently, 2 lifts have been used, but as will be seen, that doesn't make much difference in the volume of material needed to reduce highwalls to 3:1.

The mining is done back and forth in an arc that naturally develops because the processing plant is more or less at the middle of east-west line. The arc develops for the same reason an arc develops when a caterpillar or leaf-cutter bee eats the edge of a leaf - it forms an arc that constantly is expanded outward to the left and right of center. If the soil/overburden cut is straight east-west eventually the arc straightens out into a line that follows that higher elevation cut of soil/overburden. Thus the lineal feet of this highwall increases as the arc increases its depth into the stripped land that began as basically a rectangle about 2,400 feet wide by 200 to 300 feet deep (sq ft = 2400 x 250 on averge) covering about 13 acres on average or about 66,667 sq yards. The diagram in Figure 1 diagrammatically shows how this arc expansion consumes the stripped area.

Therefore an average condition would be more or less in the middle of this process of removing the uncovered gravel. However, the time when the maximum length of highwall occurs is at the end of removing the gravel when there is a single straight wall at the south edge of what used to be the exposed gravel plus two north south sections of wall 250 feet long on the east and west side of the area mined. That is when the wall length is the longest, but this is a rare event whereas the maximum wall length in the middle of creating the arc is the most probable longest wall length. Those values are shown on Figure 1 and can be used as directed by policy when calculating the bond amount.

The next decision is which of the 4 Conditions of the wall configuration should be used in developing the costs. As stated in the plan, the gravel bench beside the soil/overburden wall is used as a transportation corridor around the edge of the pit to reach other areas without needing steep roads up a steep hill to a particular spot. Those can get slick and erode in the summer and can get icy in the winter. It is just not a safe approach when a safer alternative is available. Thus, at the middle of the area mining process something similar to Condition 4 would be most probable, but Condition 3 would most likely be present for walls along the edge of the pit because of nearby property boundaries or easements that create "Barriers" that limit the Setback width to being less than is ideal in Condition 1. However, if at the time of bond and permit loss was at the very end of a mining period and a new bench was not yet created then Condition 1 would be likely for essentially the entire 2,400 foot long east-west wall.

Thus, the most probable highwall reduction condition would be a Condition 4 situation for a length of about 2,700 feet. There would also most likely, on the average, about 1,600 lineal feet of Condition 4 or 2 wall at the edges of the pit, most likely Condition 4.

The amount of the flat top part of the stripped gravel can simply be added to the pit floor area as its vertical projection onto the floor is the same as it would be if it was not even there. That is 8" to 12" of soil/overburden topdressing (average of 10").

Shown next are our calculations of the volumes of material that needs to be moved to reclaim the surface of mining areas and the minimum working area (172 acres) needed to operate the pit ***at this point in time***. Reclamation costs to finish the north end or for future operations are in addition to the 172 acres.

Amount of soil/overburden needed for 172 acres with 10" average depth:

43,560 sq ft x (5/6) = 36,300 cu ft / 27 = 1,344 cu yds x 172 = 231,168 cu yds

HIGHWALL REDUCTION:

Amount of highwall and likely applicable Conditions -

East-West working face:

Likely Applicable Condition: Condition 4 with no barrier to the south
(Condition 2 is also possible.)

Length on average: 2,600 lineal feet (2400 min and 2800 max)

Overburden material moved: 1.48 cuyd/ft x 2600 = 3,848 cu yds

Working face material moved: 22.22 cuyd/ft x 2600 = 57,777 cu yds

Total = 61,625 cu yards of material moved to create 3:1 slopes

Additional fill required = 0 (so long as S=Fs : creates balanced amts)

Topdressing for gravel slope: included in amount for pit floor

Sidewall on West Side: See Figure 2 for profile

Likely Applicable Condition: Condition 3 with fence boundary.

Wall Length characteristics: 1,500' maximum, 1,000' average

Overburden material moved: 1 cuyds/ft x 1000' = 1,000 cu yds

Fill material required: 80.3 cuyds/ft x 1000' = 80,000 cu yds
(Only 1000 cu yds from overburden cut)

Additional Fill Needed: 79,300 cu yds from stockpiles

Topdressing for gravel slope: included in amount for pit floor

Sidewall on East Side: See Figures 3 and 4

Likely Applicable Condition: Condition 2 with Easement boundary.

Wall length characteristics: 1,500' maximum, 1,000' average
80% with S=60'; 20% with S=72' & no barrier

Overburden Material moved:
For 80% = 16.3 cu yds/ft x 800' = 13,040 cu yds
For 20% = 26.1 cu yds/ft x 200' = 20,800 cu yds
Total = 33,920 cu yds

Fill Material required:
For 80% = 43.5 cu yds/ft x 800' = 34,800 cu yds
For 20% = 32.0 cu yds/ft x 200' = 6,400 cu yds
Total = 41,200 cu yds

Additional Fill required: 7,200 cu yds from stockpiles

Topdressing for gravel slope: included in amount for pit floor

SUMMARY OF HIGHWALL REDUCTION TO 3:1 SLOPES:

	All Values in Cubic Yards		
	Cut & Fill Volume moved	excess created	additional needed
East/West working face	61,625	0	0
Sidewall on West Side	1,000	0	79,300
Sidewall on East Side	33,900	0	7,200
Totals	96,525	0	86,500

Best equipment: dozer for cut and fill; loader and trucks for additional material, grader for finishing 3:1 slopes

PROCESSING PLANTS:

Conveyors:	All conveyors are portable although not all on wheels
Screening Plant:	Portable and easily removed
Wash Plant:	Disassemble and remove approx. approx 800 sq ft of concrete slab

GRADING SEDIMENT BASINS FOR WASH PLANT:

Very difficult to determine right now as construction is not complete, but is in an area of about 6 acres placed on the east side slope. Thus it is similar to a highwall reduction. No additional material should be needed and material moved can be incorporated into floor and side slope creation. Volume to be moved is unknown at present.

REVEGETATION:

Seeding: 6.25 lbs PLS/acre x 172acres = 1,075 lbs PLS
(Cost depends on where seed is purchased and current prices)

Planting: drill seeding using tractor and seed drill
Estimated cost @ $250 per acre x 172 acres = $43,000
(Actual cost depends on contractor's rate - may vary considerably)

TO CALCULATE FUTURE RECLAMATION COSTS FOR NEW MINING

It is recommended totaling all earth moving volumes and/or costs (topdressing floor and highwall reduction) plus revegetation costs and dividing by 172 to produce an average cost per acre. Then multiply that by the number of additional acres present in a bonding update. This is the amount for regrading, backfilling, and topdressing for the new mining. Removal of processing equipment and facilities is a constant but subject to inflation (or deflation) factors and that should be adjusted accordingly. Finally add it all back together while including the new mining reclamation costs in the new total.

2022-2023 RECLAMATION - NORTHEAST SIDE SLOPES

This can be added to the total of all reclamation costs above, but once completed this amount should be subtracted from the current bond as these costs will not be carried forward into new mining reclamation costs unless this work on these sideslopes has not been done. Thus, this is a one-time addition to the reclamation costs for the primary mining operation reclamation. Therefore, it should not be included in the average cost/acre used to calculate a new bond for new mining areas.

Although the area shown on the map is 52.2 acres, the actual area of disturbance will be about 38 acres. This includes about 6 acres of windrow soil stockpile on the far north end of the operation and about 32 acres of slope grading.

The slopes here are already, on average, less than a 3:1 with a highly variable topography that makes calculating the volume of material to be moved nearly impossible. It is possible that the slope will end up being about a 5:1 with some areas toward the south end between 3:1 and 4:1. This will likely be shaped with a dozer, but other equipment like a grader may also be used. Because of the length of the slope (top to bottom) some portions will likely have some small scale ridges that act as terraces to slow down water flow down the slope to limit long rills and gullies from forming.

Trucks will likely be used to disperse the soil topdressing. As this slope faces west by southwest it will be a rather hot and dry environment, therefore using the higher quality soils currently in windrows at the top of the slope as well as hauled in from the far north end of the operation will be important to achieve the kind of growth needed to successfully revegetate this long slope sufficiently to protect it. The same seed mixture that is in the modernized plan included in this Technical Revision 3 will be applicable here as well as anyplace else on the site. However development of the vegetation may be a bit slower here than elsewhere due to the nature of the growth environment here and the general size of the slope from top to bottom over significant parts of its horizontal length along the side of the pit.

FOR EXHIBIT L

Figure 1 - Mining Arc on New Stripped Area

The new mining area starts with a quite strait E-W working face. Over time the working face becomes more bowed to the south. By the middle of mining the new area the working face is rarely smooth in an E-W direction and more strongly bowed. By the end the working face begins to straighten out. With two lifts this process is done twice. The pit edge road is almost always as shown here and is at the base of a vertical soil/overburden wall. All walls are near vertical up to 20' to 25' high.

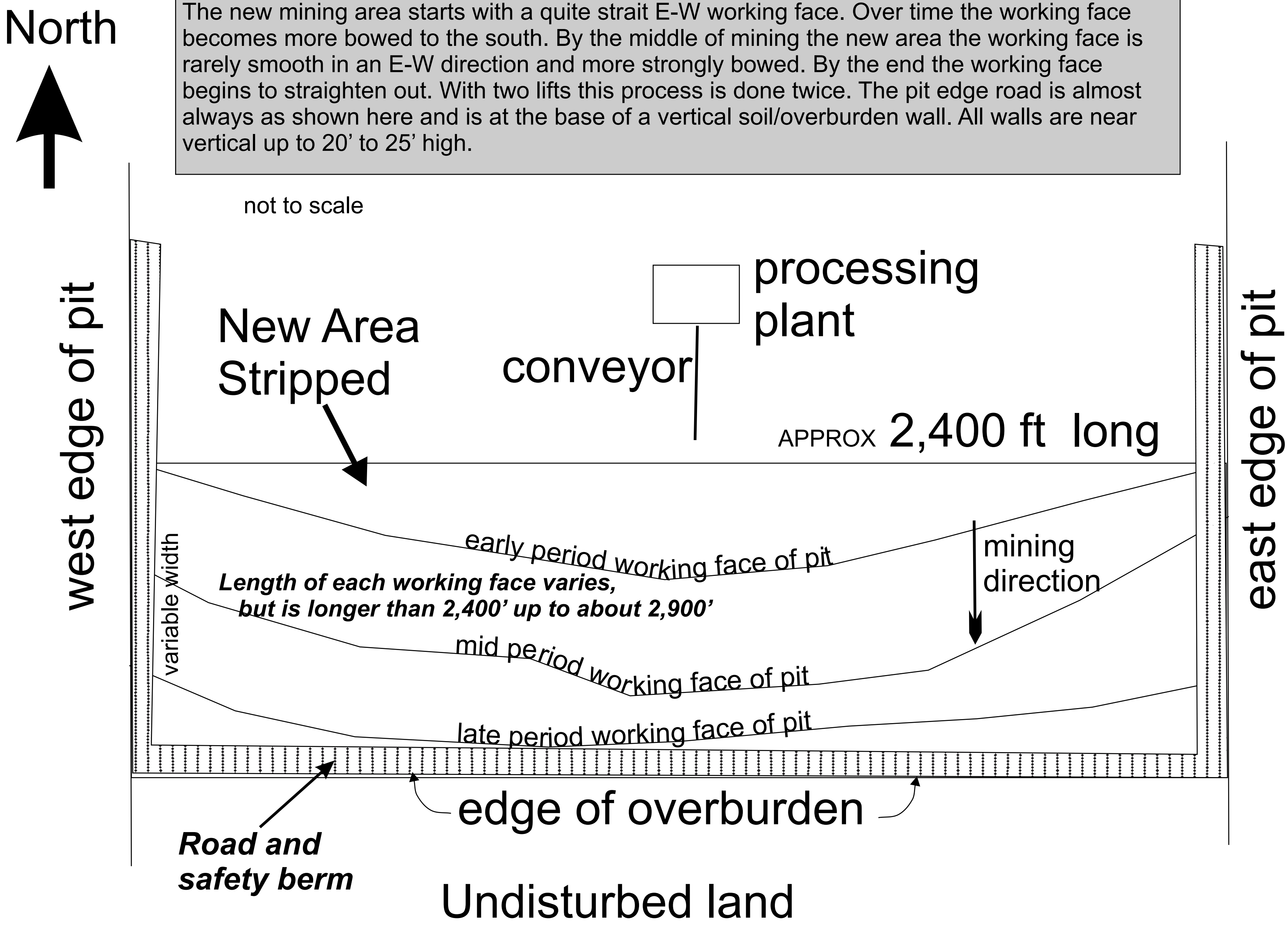
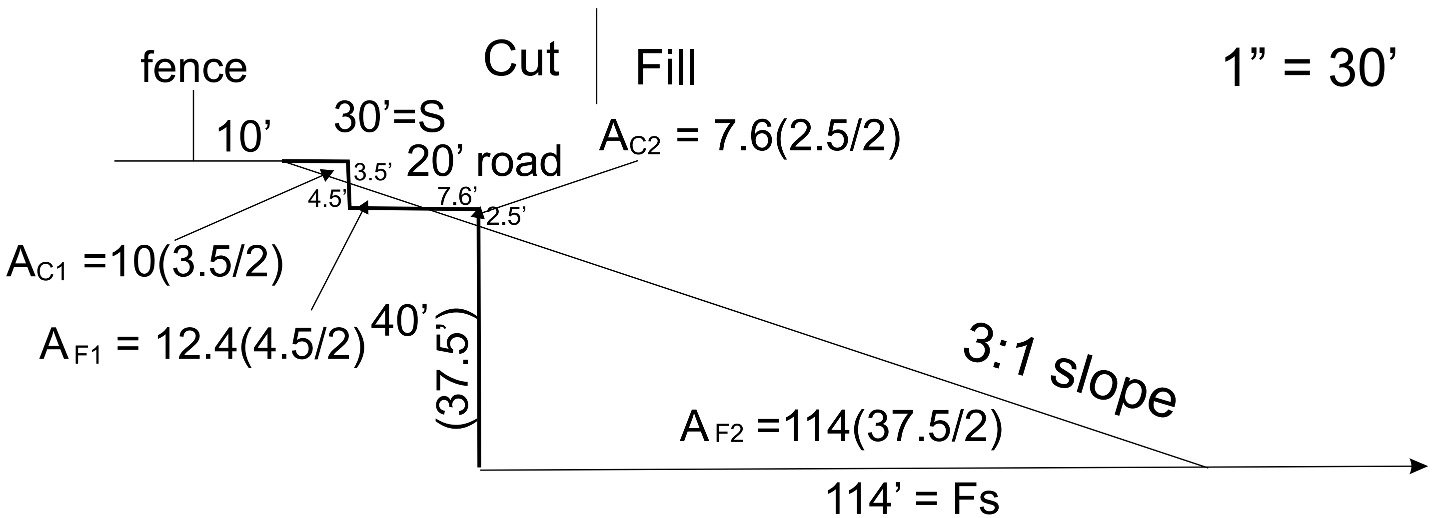


Figure 2: West Sidewall - Condition 2 with S=30' and 20' road corridor; barrier=fence



A_{C1} = 0.65 cuyds/foot

A_{C2} = 0.35 cuyds/foot

A_{F1} = 1.1 cuyds/foot

A_{F2} = 79.2 cuyds/foot

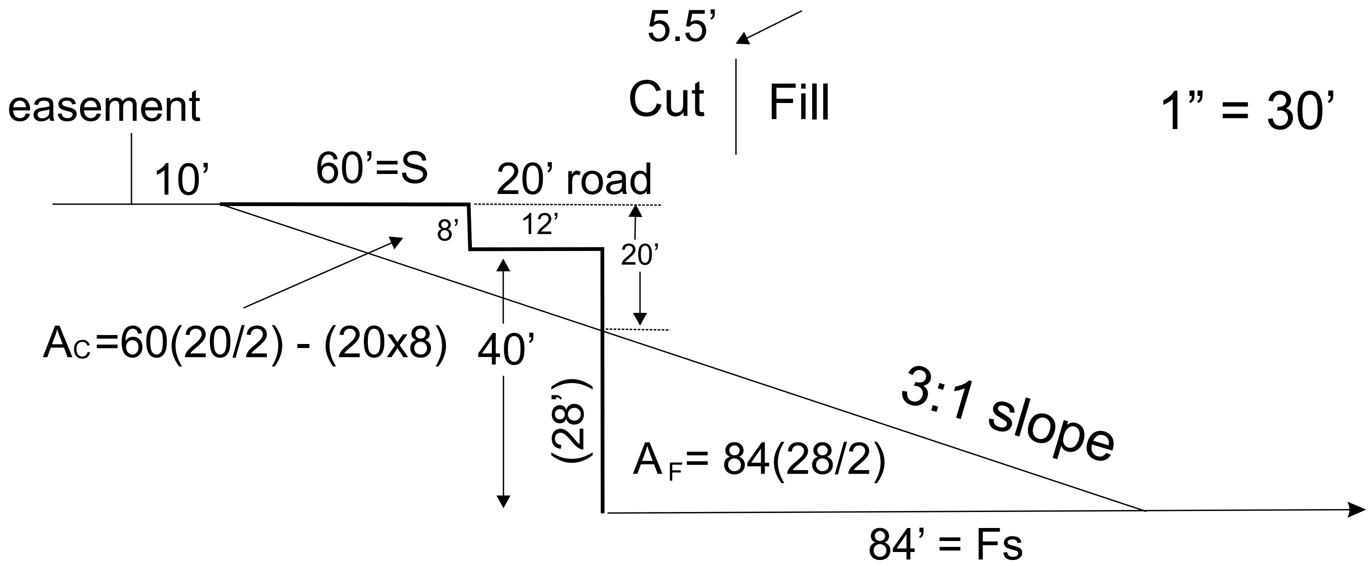
CUT = 1.0 cuyds/foot

FILL = 80.3 cuyds/foot

NET = 80.3-1.0 = 79.3 cuyds/foot

Conclusion: 79.3 cu yds of Fill must come from elsewhere (stockpiles) for each foot of Wall reduced to 3:1

Figure 3: East Sidewall - part 1(80%) - Condition 2 with S=60’; barrier = easement



A_C= 16.3 cuyds/foot

A_F= 43.5 cuyds/foot

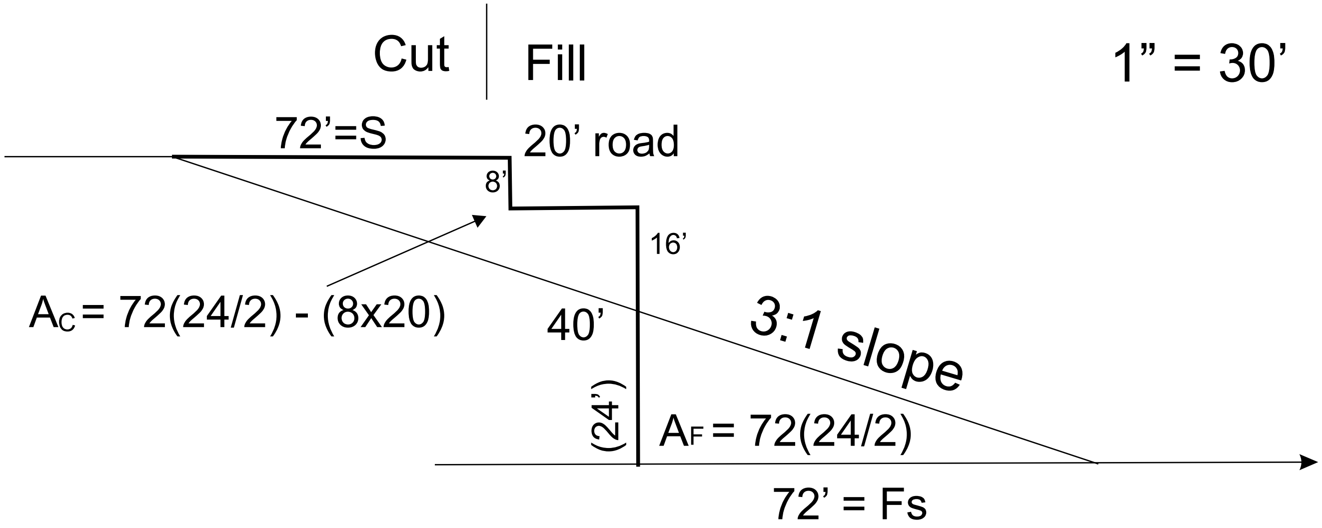
CUT = 16.3 cuyds/foot

FILL = 43.5 cuyds/foot

NET = 43.5-16.3 = 27.2 cuyds/foot

Conclusion: 27.2 cu yds of Fill must come from elsewhere (stockpiles) for each foot of Wall reduced to 3:1

Figure 4: East Sidewall - part 2(20%) - Condition 2 with no barrier and a 20' road



A_C= 26.1 cuyds/foot

A_F= 32.0 cuyds/foot

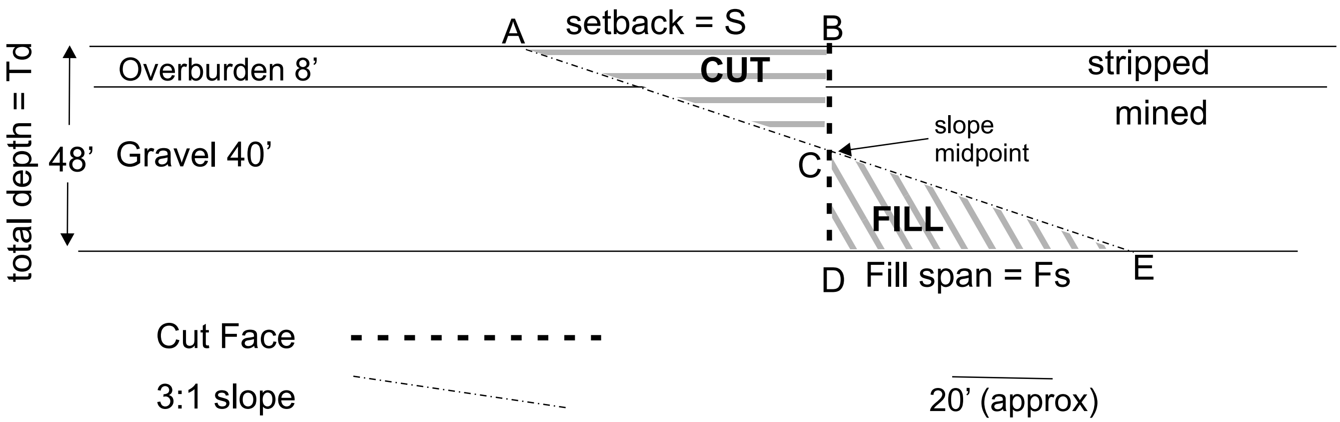
CUT = 26.1 cuyds/foot

FILL = 32.0 cuyds/foot

NET = 32-26.1 = 5.9 cuyds/foot

Conclusion: 5.9 cu yds of Fill must come from elsewhere (stockpiles) for each foot of Wall reduced to 3:1

Condition 1: Fountain Pit TR 3 Simplest Highwall Reduction Geometric Model

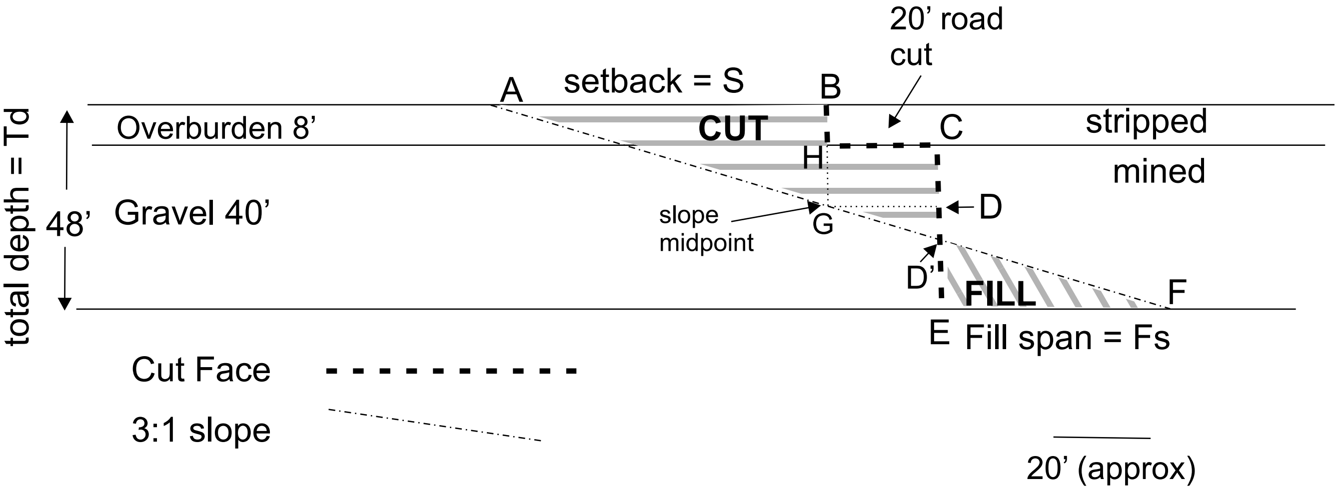


This is a most likely situation if wall reduction is occurring while the mining operation is proceeding. Because there is so much overburden going into the Fill, top dressing with soil and/or overburden may not be necessary.

In this model all of the Fill is derived from the Cut as the area of triangle ABC, by geometric theorem, is the same as the area of triangle CDE. The center of the slope is at the Cut Face location, which is also point C. The Cut Face is also vertical. The total depth, Td, is 48 feet. Therefore the horizontal length of the 3:1 slope is equal to 3 x Td or 144 feet in this example. Therefore the setback, S, is ½ the horizontal length of the slope and in this example is 72 horizontal feet. That is also the value of Fs, the Fill span. The point C is at Td/2 which is 24 vertical feet.

In this example, then, the area of triangle ABC is the (length of AB x the length of BC)/2. In this case it is (72x24)/2 = 864 square feet. That is also the area of triangle CDE. Thus the total cross-section of the Cut-Fill on this 3-dimensional wall is equal to the area of Triangle ABC x the length of the 3-d wall. Looked at another way, for every lineal foot of wall being converted to a 3:1 slope 864 cubic feet must be pushed over the Cut Face. And 864 cubic feet / 27 = 32 cubic yards. If the total 3-d wall is 6,000 feet long then the total volume is 192,000 cubic yards of material that needs to be moved a short distance to reduce the wall to a 3:1 slope. No additional fill need be hauled in.

Condition 2: Fountain Pit TR 3 Highwall Reduction Geometric Model for when a Road is Present at the Foot of the Overburden

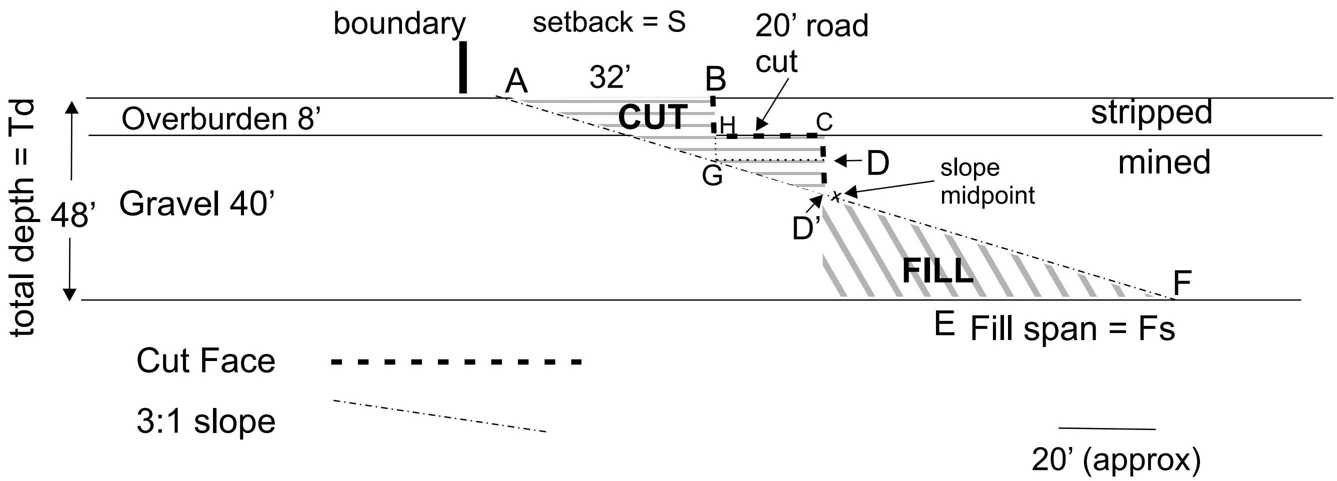


This is a most likely situation if wall reduction is occurring as a result of default and the mining operation is closed and being reclaimed. But Condition 1 may also be needed in some places.. Because there is excess Cut material relative to Fill material, top dressing may not be needed on the slope. But it might be needed on the Fill slope as that might be gravelly.

In this model all of the Fill is derived from the Cut as the area of triangle ABG plus the polygon HCDG is much greater than the triangle DEF. The center of the slope is still at point G which is the mid point of the slope. The Cut Faces BH and CD are also vertical. The total depth, Td, is 48 feet. Therefore the horizontal length of the 3:1 slope is still equal to 3 x Td or 144 feet in this example. So the setback, S, is ½ the horizontal length of the slope and in this example is 72 horizontal feet. But here that is not the value of Fs, the Fill span. The point G is at Td/2 which is 24 feet.

In this example, then, the area of triangle ABG is the same as in the Condition 1, 864 square feet. But there is an addition of fill derived from polygon HCDG. Thus the total cross-section of the Cut-Fill on this wall configuration is equal to the area of Triangle ABG + polygon HCDG) x the length of the 3-d wall. The area of the polygon is equal to ((GH-HB) x HC) + ((HC x ((HC/3)/2). In this example that is (24-8) x 20 = about 320 sq ft + ((20x(20/3)/2) which is 66.7 sq ft which equals 386.7 sq ft. Plus 864 sq feet = 1250.7 square feet. If the total 3-d wall is 6,000 feet long then the total volume is 7,504,200 cubic feet which is 277,933.3 cubic yards of fill material. But the Fill area is only 590.2 sq ft which is 3,541,200 cu ft or 131,155.6 cu yds. That leaves 146,777.7 cu yds more material for top dressing the floor of the pit or filling elsewhere. In other words, creating a 3:1 slope using cut and fill in this situation not only accomplishes the task but supplies considerable additional material for reclamation elsewhere.

Condition 3: Fountain Pit TR 3 Highwall Reduction Geometric Model for when a Road is Present at the Foot of the Overburden and a Barrier Limits Setback, S

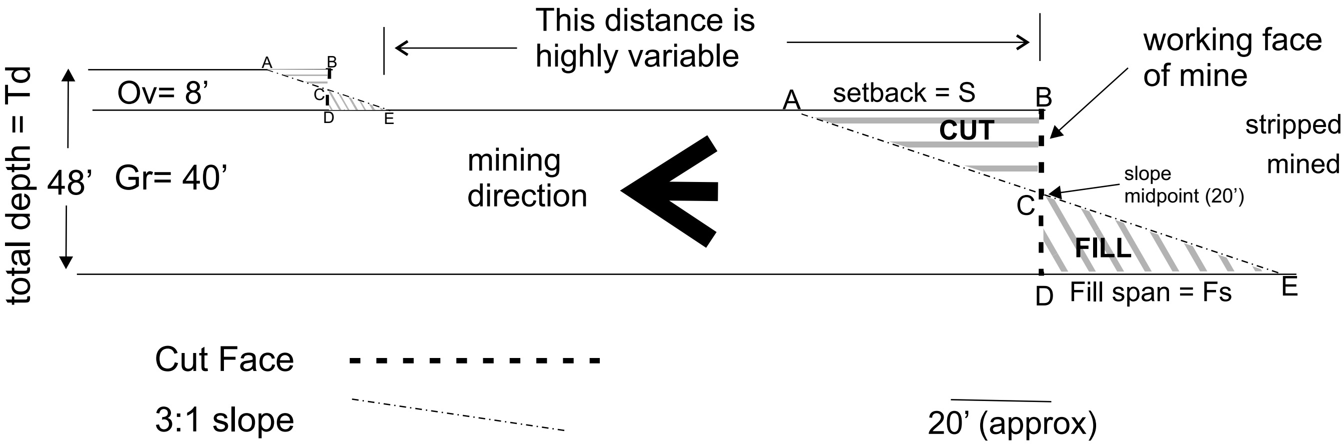


This condition is much like Condition 2 except there is a barrier that limits the Setback to 32 feet instead of 72 feet. This might be found on the west side of the pit either during continued mining or in the case of default and pit closure.

Because the total area of the Cut portion is close to being equal to the Fill portion, the area of the Cut portion is essentially 864 sq ft - the area of the cut for the road. In this case that cut is 8 x 20 feet which is 166 sq ft. So the net area of the Cut portion is 698 sq ft compared to very close to 864 sq ft for the Fill portion. Thus the Cut volume for 6000’ of wall is 4,188,000 cu ft or 155,111 cu yds. But the Fill volume needed is 5,184,000 cu ft or 192,000 cu yds.

Therefore the amount of additional fill needed is 36,889 cu yds. That amount would have to come from stockpiles of soil/overburden or excesses from where Condition 2 would be present.

Condition 4: Fountain Pit TR 3 Geometric Model of Reclamation with an Active Working Face



This condition is like Condition 1 except there are two 3:1 slopes that need to be created. This would primarily be found on the south side of the pit during mining or in the case of default and pit closure on the south working face and possibly for short sections of the east and west side working faces. In that case one just adds whatever is on those sides to the south portion and that becomes the new length.

One 3:1 slope is needed on the overburden wall, which here is 8' high. So the area of triangle ABC is 20x2 or 40 square feet (1.48 cu yds). So, with a 2400' south working face the total volume of earth that needs to be moved is 96,000 cu ft or 3,555.5 cu yds. Once again it balances out.

Using the same method of calculation for the working face 3:1 slope, the second of the two slopes, would be 600 cubic feet in the cut for a total of 1,440,000 cu ft or 53,333.3 cu yds with a 2,400' long wall.

Combing both for a 2,400 foot long wall 56,888.8 cu yds needs to be moved. If the mining is completed and a 20' road bench is present then Condition 2 would apply and excess material would be produced.

However for this Condition 4 there is the addition of soil/overburden topdressing of the entire bench and the outer 3:1 slope. That amount all depends on the width of the bench which, as noted, changes almost daily while mining is occurring. It has a maximum but the minimum is zero. The amount constantly declines over the period of mining which is market driven. So prediction becomes dependent on the conditions present at the time the wall reduction needs to be done.

Conveyor associated with the screening plant. The conveyor rests on concrete blocks at regular intervals. No attachments to the ground. Everything is portable.

The two fixed portions of the new wash plant. Note concrete foundations

Two components of the Wash Plant and their dimensions

60" Superior Aggradry

Information on locations and dimensions of concrete pads supporting the Wash Plant. All support pads are 8” thick. All other equipment is portable.

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DECIMAL: 0.0 ±.1
0.00 ±.01
0.000 ±.005
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HOLE Ø: ± 1/32

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J. SCHMIDGALL	8/23/2021	

THIRD ANGLE PROJECTION	E-1 PART NO:	WEIGHT	SHEET	SCALE (UNO)	CHECKED	FILE	SIZE	DRAWING NUMBER
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