STANDARDIZED RECLAMATION COST ESTIMATOR

Version 2.0
Build - Beta 01

COST DATA FILE INFORMATION

File Name:	Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Cost Data File:	Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Data Date:	December 1, 2018
Cost Data Basis:	User Data
Data Cost Units:	Imperial
Author/Source:	SRK Consulting and NMCC

PROJECT INFORMATION

Property/Mine Name:	Copper Flat
Property Code:	
Project Name:	Copper Flat Reclamation Bond Cost Estimate 2018
Date of Submittal:	December 2018
Average Elevation	5450 ft.
Units of Measure:	○ Metric (m, km, ha, etc.) ◉ Imperial (ft, mi, acres, etc.)
Currency Symbol:	Dollar (US)
Project Type:	Mine Operations Plan
Land Type:	Private Land
Cost Basis Category:	Copper Flat FA
Cost Basis Description:	0

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	Acct Code	Total Cost	FA Cost	Scheduled FA Cost
			$		$
1	WRD		12,415,506	12,415,506	12,415,506
2	Tailings Storage Facility		18,324,109	18,324,109	18,324,109
3	TSF Draindown Management		4,382,281	4,382,281	4,382,281
4	Buildings		2,155,521	2,155,521	2,155,521
5	Pits		3,742,535	3,742,535	3,742,535
6	Pit Rapid Fill		446,337	446,337	446,337
7	Roads		68,883	68,883	68,883
8	Impoundments		449,818	449,818	449,818
9	Yards		1,351,451	1,351,451	1,351,451
10	Wells		308,940	308,940	308,940
11	Waste Disposal		122,731	122,731	122,731
12	Miscellaneous Linear Facilities		254,714	254,714	254,714
13	Monitoring		3,895,257	3,895,257	3,895,257
14	Reclamation Maintenance		911,344	911,344	911,344
15	Mob/demob		649,137	649,137	649,137
16	Construction Management		3,621,192	3,621,192	3,621,192
17	Riprap Supply		454,219	454,219	454,219
		TOTALS	**53,553,975**	**53,553,975**	**53,553,975**
	Engineering, Design and Construction Plan		**2,142,159**	**2,142,159**	**2,142,159**
	Contingency		**3,213,239**	**3,213,239**	**3,213,239**
	Contractor OH and Profit		**5,355,398**	**5,355,398**	**5,355,398**
	Contract Administration		**6,322,330**	**6,322,330**	**6,322,330**
	TOTAL COST		**70,587,101**	**70,587,101**	**70,587,101**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estir
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Re
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	1 -13 1 $	2 -12 2 $	3 -11 3 $	4 -10 4 $	5 -9 5 $	6 -8 6 $	7 -7 7 $	8 -6 8 $	9 -5 9 $	10 -4 10 $	11 -3 11 $	12 -2 12 $	13 -1 13 $
1	WRD	0	1,441,631	0	0	0	0	0	0	46,882	46,882	46,882	46,882	99,086
2	Tailings Storage Facility	0	50,156	0	0	0	0	0	0	0	0	0	0	0
3	TSF Draindown Management	0	0	0	0	0	0	0	0	0	0	0	419,746	914,702
4	Buildings	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Pits	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Pit Rapid Fill	0	0	0	0	0	0	0	0	0	0	0	235,955	210,381
7	Roads	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Impoundments	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Yards	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Wells	125,780	0	0	30,544	0	0	14,360	0	0	0	0	0	23,496
11	Waste Disposal	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Miscellaneous Linear Facilities	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Monitoring	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Reclamation Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Mob/demob	0	66,192	0	0	0	0	0	0	5,056	0	0	5,056	0
16	Construction Management	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Riprap Supply	331,299	122,919	0	0	0	0	0	0	0	0	0	0	0
		457,079	**1,680,898**	**0**	**30,544**	**0**	**0**	**14,360**	**0**	**51,938**	**46,882**	**46,882**	**707,639**	**1,247,666**
	Engineering, Design and Construction Plan	**18,283**	**67,236**	**0**	**1,222**	**0**	**0**	**574**	**0**	**2,078**	**1,875**	**1,875**	**28,306**	**49,907**
	Contingency	**27,425**	**100,854**	**0**	**1,833**	**0**	**0**	**862**	**0**	**3,116**	**2,813**	**2,813**	**42,458**	**74,860**
	Contractor OH and Profit	**45,708**	**168,090**	**0**	**3,054**	**0**	**0**	**1,436**	**0**	**5,194**	**4,688**	**4,688**	**70,764**	**124,767**
	Contract Administration	**53,961**	**198,439**	**0**	**3,606**	**0**	**0**	**1,695**	**0**	**6,131**	**5,535**	**5,535**	**83,541**	**147,294**
		602,456	**2,215,517**	**0**	**40,259**	**0**	**0**	**18,927**	**0**	**68,457**	**61,793**	**61,793**	**932,708**	**1,644,494**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estir
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Re
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	14	15	16	17	18	19	20	21	22	23	24	25
		1	2	3	4	5	6	7	8	9	10	11	12
		14	15	16	17	18	19	20	21	22	23	24	25
		$	$	$	$	$	$	$	$	$	$	$	$
1	WRD	2,859,969	3,560,058	4,255,673	11,561	0	0	0	0	0	0	0	0
2	Tailings Storage Facility	1,440,978	48,526	48,526	8,735,026	2,984,800	4,613,763	402,335	0	0	0	0	0
3	TSF Draindown Management	454,120	406,142	400,850	1,783,812	0	2,908	0	0	0	0	0	0
4	Buildings	1,919,340	170,763	0	0	0	0	0	0	0	0	0	0
5	Pits	3,706,081	0	0	0	0	0	0	0	0	0	0	0
6	Pit Rapid Fill	0	0	0	0	0	0	0	0	0	0	0	0
7	Roads	0	26,208	26,208	0	0	0	0	16,468	0	0	0	0
8	Impoundments	0	148,499	148,499	0	0	0	0	0	0	0	0	0
9	Yards	408,274	140,682	719,143	0	0	0	83,352	0	0	0	0	0
10	Wells	0	0	0	0	0	32,300	0	0	0	0	0	0
11	Waste Disposal	17,441	23,896	17,441	17,441	17,441	17,441	11,628	0	0	0	0	0
12	Miscellaneous Linear Facilities	0	186,720	0	0	0	0	67,994	0	0	0	0	0
13	Monitoring	269,490	240,817	224,409	209,748	75,744	71,987	71,987	71,987	42,360	44,860	42,360	42,360
14	Reclamation Maintenance	0	0	0	0	0	0	309,857	0	0	300,744	0	300,744
15	Mob/demob	273,931	5,670	0	0	0	0	268,262	0	0	0	0	0
16	Construction Management	543,179	543,179	543,179	543,179	543,179	543,179	362,119	0	0	0	0	0
17	Riprap Supply	0	0	0	0	0	0	0	0	0	0	0	0
		11,892,804	**5,501,159**	**6,383,928**	**11,300,767**	**3,621,164**	**5,281,579**	**1,577,533**	**88,455**	**42,360**	**345,603**	**42,360**	**343,103**
	Engineering, Design and Construction Plan	**475,712**	**220,046**	**255,357**	**452,031**	**144,847**	**211,263**	**63,101**	**3,538**	**1,694**	**13,824**	**1,694**	**13,724**
	Contingency	**713,568**	**330,070**	**383,036**	**678,046**	**217,270**	**316,895**	**94,652**	**5,307**	**2,542**	**20,736**	**2,542**	**20,586**
	Contractor OH and Profit	**1,189,280**	**550,116**	**638,393**	**1,130,077**	**362,116**	**528,158**	**157,753**	**8,846**	**4,236**	**34,560**	**4,236**	**34,310**
	Contract Administration	**1,404,008**	**649,441**	**753,656**	**1,334,115**	**427,497**	**623,518**	**186,236**	**10,443**	**5,001**	**40,800**	**5,001**	**40,505**
		15,675,372	**7,250,832**	**8,414,370**	**14,895,036**	**4,772,894**	**6,961,413**	**2,079,275**	**116,589**	**55,833**	**455,523**	**55,833**	**452,228**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estir
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Re
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	26 13 26 $	27 14 27 $	28 15 28 $	29 16 29 $	30 17 30 $	31 18 31 $	32 19 32 $	33 20 33 $	34 21 34 $	35 22 35 $	36 23 36 $	37 24 37 $	38 25 38 $	39 26 39 $
1	WRD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Tailings Storage Facility	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	TSF Draindown Management	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Buildings	0	0	0	0	0	0	0	0	0	0	0	0	0	65,417
5	Pits	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Pit Rapid Fill	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Roads	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Impoundments	0	0	0	0	0	0	0	0	0	0	0	0	76,410	76,410
9	Yards	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Wells	0	0	8,000	0	15,000	0	0	0	0	0	0	0	0	0
11	Waste Disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Miscellaneous Linear Facilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Monitoring	42,360	42,360	42,360	64,706	39,243	39,243	39,243	41,743	26,511	26,511	26,511	26,511	26,511	26,511
14	Reclamation Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Mob/demob	0	0	0	0	0	0	0	0	0	0	0	0	0	24,912
16	Construction Management	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Riprap Supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		42,360	**42,360**	**50,360**	**64,706**	**54,243**	**39,243**	**39,243**	**41,743**	**26,511**	**26,511**	**26,511**	**26,511**	**102,921**	**193,250**
	Engineering, Design and Construction Plan	**1,694**	**1,694**	**2,014**	**2,588**	**2,170**	**1,570**	**1,570**	**1,670**	**1,060**	**1,060**	**1,060**	**1,060**	**4,117**	**7,730**
	Contingency	**2,542**	**2,542**	**3,022**	**3,882**	**3,255**	**2,355**	**2,355**	**2,505**	**1,591**	**1,591**	**1,591**	**1,591**	**6,175**	**11,595**
	Contractor OH and Profit	**4,236**	**4,236**	**5,036**	**6,471**	**5,424**	**3,924**	**3,924**	**4,174**	**2,651**	**2,651**	**2,651**	**2,651**	**10,292**	**19,325**
	Contract Administration	**5,001**	**5,001**	**5,945**	**7,639**	**6,404**	**4,633**	**4,633**	**4,928**	**3,130**	**3,130**	**3,130**	**3,130**	**12,150**	**22,814**
		55,833	**55,833**	**66,377**	**85,286**	**71,496**	**51,725**	**51,725**	**55,020**	**34,943**	**34,943**	**34,943**	**34,943**	**135,655**	**254,714**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estir
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Re
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	40 27 40 $	41 28 41 $	42 29 42 $	43 30 43 $	44 31 44 $	45 32 45 $	46 33 46 $	47 34 47 $	48 35 48 $	49 36 49 $	50 37 50 $
1	WRD	0	0	0	0	0	0	0	0	0	0	0
2	Tailings Storage Facility	0	0	0	0	0	0	0	0	0	0	0
3	TSF Draindown Management	0	0	0	0	0	0	0	0	0	0	0
4	Buildings	0	0	0	0	0	0	0	0	0	0	0
5	Pits	0	0	0	0	0	0	0	0	0	0	0
6	Pit Rapid Fill	0	0	0	0	0	0	0	0	0	0	0
7	Roads	0	0	0	0	0	0	0	0	0	0	0
8	Impoundments	0	0	0	0	0	0	0	0	0	0	0
9	Yards	0	0	0	0	0	0	0	0	0	0	0
10	Wells	0	0	0	0	0	0	0	0	0	0	0
11	Waste Disposal	0	0	0	0	0	0	0	0	0	0	0
12	Miscellaneous Linear Facilities	0	0	0	0	0	0	0	0	0	0	0
13	Monitoring	26,511	26,511	26,511	29,011	26,511	26,511	26,511	26,511	26,511	26,511	26,511
14	Reclamation Maintenance	0	0	0	0	0	0	0	0	0	0	0
15	Mob/demob	0	0	0	0	0	0	0	0	0	0	0
16	Construction Management	0	0	0	0	0	0	0	0	0	0	0
17	Riprap Supply	0	0	0	0	0	0	0	0	0	0	0
		26,511	**26,511**	**26,511**	**29,011**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**
	Engineering, Design and Construction Plan	**1,060**	**1,060**	**1,060**	**1,160**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**
	Contingency	**1,591**	**1,591**	**1,591**	**1,741**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**
	Contractor OH and Profit	**2,651**	**2,651**	**2,651**	**2,901**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**
	Contract Administration	**3,130**	**3,130**	**3,130**	**3,425**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**
		34,943	**34,943**	**34,943**	**38,238**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estir
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Re
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	51 38 51 $	52 39 52 $	53 40 53 $	54 41 54 $	55 42 55 $	56 43 56 $	57 44 57 $	58 45 58 $	59 46 59 $	60 47 60 $
1	WRD	0	0	0	0	0	0	0	0	0	0
2	Tailings Storage Facility	0	0	0	0	0	0	0	0	0	0
3	TSF Draindown Management	0	0	0	0	0	0	0	0	0	0
4	Buildings	0	0	0	0	0	0	0	0	0	0
5	Pits	0	0	0	0	0	0	0	0	0	0
6	Pit Rapid Fill	0	0	0	0	0	0	0	0	0	0
7	Roads	0	0	0	0	0	0	0	0	0	0
8	Impoundments	0	0	0	0	0	0	0	0	0	0
9	Yards	0	0	0	0	0	0	0	0	0	0
10	Wells	0	0	0	0	0	0	0	0	0	0
11	Waste Disposal	0	0	0	0	0	0	0	0	0	0
12	Miscellaneous Linear Facilities	0	0	0	0	0	0	0	0	0	0
13	Monitoring	26,511	26,511	29,011	26,511	26,511	26,511	26,511	26,511	26,511	26,511
14	Reclamation Maintenance	0	0	0	0	0	0	0	0	0	0
15	Mob/demob	0	0	0	0	0	0	0	0	0	0
16	Construction Management	0	0	0	0	0	0	0	0	0	0
17	Riprap Supply	0	0	0	0	0	0	0	0	0	0
		26,511	**26,511**	**29,011**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**
	Engineering, Design and Construction Plan	**1,060**	**1,060**	**1,160**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**
	Contingency	**1,591**	**1,591**	**1,741**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**
	Contractor OH and Profit	**2,651**	**2,651**	**2,901**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**
	Contract Administration	**3,130**	**3,130**	**3,425**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**
		34,943	**34,943**	**38,238**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estir
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Re
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	61 48 61 $	62 49 62 $	63 50 63 $	64 51 64 $	65 52 65 $	66 53 66 $	67 54 67 $	68 55 68 $	69 56 69 $	70 57 70 $
1	WRD	0	0	0	0	0	0	0	0	0	0
2	Tailings Storage Facility	0	0	0	0	0	0	0	0	0	0
3	TSF Draindown Management	0	0	0	0	0	0	0	0	0	0
4	Buildings	0	0	0	0	0	0	0	0	0	0
5	Pits	0	0	18,227	0	0	0	0	0	0	0
6	Pit Rapid Fill	0	0	0	0	0	0	0	0	0	0
7	Roads	0	0	0	0	0	0	0	0	0	0
8	Impoundments	0	0	0	0	0	0	0	0	0	0
9	Yards	0	0	0	0	0	0	0	0	0	0
10	Wells	0	0	8,000	0	0	0	0	0	0	0
11	Waste Disposal	0	0	0	0	0	0	0	0	0	0
12	Miscellaneous Linear Facilities	0	0	0	0	0	0	0	0	0	0
13	Monitoring	26,511	26,511	29,011	26,511	26,511	26,511	26,511	26,511	26,511	26,511
14	Reclamation Maintenance	0	0	0	0	0	0	0	0	0	0
15	Mob/demob	0	0	30	0	0	0	0	0	0	0
16	Construction Management	0	0	0	0	0	0	0	0	0	0
17	Riprap Supply	0	0	0	0	0	0	0	0	0	0
		26,511	**26,511**	**55,268**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**
	Engineering, Design and Construction Plan	**1,060**	**1,060**	**2,211**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**
	Contingency	**1,591**	**1,591**	**3,316**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**
	Contractor OH and Profit	**2,651**	**2,651**	**5,527**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**
	Contract Administration	**3,130**	**3,130**	**6,525**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**
		34,943	**34,943**	**72,847**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estir
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Re
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	71 58 71 $	72 59 72 $	73 60 73 $	74 61 74 $	75 62 75 $	76 63 76 $	77 64 77 $	78 65 78 $	79 66 79 $	80 67 80 $
1	WRD	0	0	0	0	0	0	0	0	0	0
2	Tailings Storage Facility	0	0	0	0	0	0	0	0	0	0
3	TSF Draindown Management	0	0	0	0	0	0	0	0	0	0
4	Buildings	0	0	0	0	0	0	0	0	0	0
5	Pits	0	0	0	0	0	0	0	0	0	0
6	Pit Rapid Fill	0	0	0	0	0	0	0	0	0	0
7	Roads	0	0	0	0	0	0	0	0	0	0
8	Impoundments	0	0	0	0	0	0	0	0	0	0
9	Yards	0	0	0	0	0	0	0	0	0	0
10	Wells	0	0	0	0	0	0	0	0	0	0
11	Waste Disposal	0	0	0	0	0	0	0	0	0	0
12	Miscellaneous Linear Facilities	0	0	0	0	0	0	0	0	0	0
13	Monitoring	26,511	26,511	29,011	26,511	26,511	26,511	26,511	26,511	26,511	26,511
14	Reclamation Maintenance	0	0	0	0	0	0	0	0	0	0
15	Mob/demob	0	0	0	0	0	0	0	0	0	0
16	Construction Management	0	0	0	0	0	0	0	0	0	0
17	Riprap Supply	0	0	0	0	0	0	0	0	0	0
		26,511	**26,511**	**29,011**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**
	Engineering, Design and Construction Plan	**1,060**	**1,060**	**1,160**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**
	Contingency	**1,591**	**1,591**	**1,741**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**
	Contractor OH and Profit	**2,651**	**2,651**	**2,901**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**
	Contract Administration	**3,130**	**3,130**	**3,425**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**
		34,943	**34,943**	**38,238**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estir
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Re
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	81 68 81 $	82 69 82 $	83 70 83 $	84 71 84 $	85 72 85 $	86 73 86 $	87 74 87 $	88 75 88 $	89 76 89 $	90 77 90 $
1	WRD	0	0	0	0	0	0	0	0	0	0
2	Tailings Storage Facility	0	0	0	0	0	0	0	0	0	0
3	TSF Draindown Management	0	0	0	0	0	0	0	0	0	0
4	Buildings	0	0	0	0	0	0	0	0	0	0
5	Pits	0	0	0	0	0	0	18,227	0	0	0
6	Pit Rapid Fill	0	0	0	0	0	0	0	0	0	0
7	Roads	0	0	0	0	0	0	0	0	0	0
8	Impoundments	0	0	0	0	0	0	0	0	0	0
9	Yards	0	0	0	0	0	0	0	0	0	0
10	Wells	0	0	0	0	0	0	0	0	0	0
11	Waste Disposal	0	0	0	0	0	0	0	0	0	0
12	Miscellaneous Linear Facilities	0	0	0	0	0	0	0	0	0	0
13	Monitoring	26,511	26,511	29,011	26,511	26,511	26,511	26,511	26,511	26,511	26,511
14	Reclamation Maintenance	0	0	0	0	0	0	0	0	0	0
15	Mob/demob	0	0	0	0	0	0	30	0	0	0
16	Construction Management	0	0	0	0	0	0	0	0	0	0
17	Riprap Supply	0	0	0	0	0	0	0	0	0	0
		26,511	**26,511**	**29,011**	**26,511**	**26,511**	**26,511**	**44,768**	**26,511**	**26,511**	**26,511**
	Engineering, Design and Construction Plan	**1,060**	**1,060**	**1,160**	**1,060**	**1,060**	**1,060**	**1,791**	**1,060**	**1,060**	**1,060**
	Contingency	**1,591**	**1,591**	**1,741**	**1,591**	**1,591**	**1,591**	**2,686**	**1,591**	**1,591**	**1,591**
	Contractor OH and Profit	**2,651**	**2,651**	**2,901**	**2,651**	**2,651**	**2,651**	**4,477**	**2,651**	**2,651**	**2,651**
	Contract Administration	**3,130**	**3,130**	**3,425**	**3,130**	**3,130**	**3,130**	**5,285**	**3,130**	**3,130**	**3,130**
		34,943	**34,943**	**38,238**	**34,943**	**34,943**	**34,943**	**59,007**	**34,943**	**34,943**	**34,943**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estir
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Re
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	91 78 91 $	92 79 92 $	93 80 93 $	94 81 94 $	95 82 95 $	96 83 96 $	97 84 97 $	98 85 98 $	99 86 99 $	100 87 100 $
1	WRD	0	0	0	0	0	0	0	0	0	0
2	Tailings Storage Facility	0	0	0	0	0	0	0	0	0	0
3	TSF Draindown Management	0	0	0	0	0	0	0	0	0	0
4	Buildings	0	0	0	0	0	0	0	0	0	0
5	Pits	0	0	0	0	0	0	0	0	0	0
6	Pit Rapid Fill	0	0	0	0	0	0	0	0	0	0
7	Roads	0	0	0	0	0	0	0	0	0	0
8	Impoundments	0	0	0	0	0	0	0	0	0	0
9	Yards	0	0	0	0	0	0	0	0	0	0
10	Wells	0	0	8,000	0	0	0	0	0	0	43,460
11	Waste Disposal	0	0	0	0	0	0	0	0	0	0
12	Miscellaneous Linear Facilities	0	0	0	0	0	0	0	0	0	0
13	Monitoring	26,511	26,511	29,011	26,511	26,511	26,511	26,511	26,511	26,511	371,155
14	Reclamation Maintenance	0	0	0	0	0	0	0	0	0	0
15	Mob/demob	0	0	0	0	0	0	0	0	0	0
16	Construction Management	0	0	0	0	0	0	0	0	0	0
17	Riprap Supply	0	0	0	0	0	0	0	0	0	0
		26,511	**26,511**	**37,011**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**26,511**	**414,615**
	Engineering, Design and Construction Plan	**1,060**	**1,060**	**1,480**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**1,060**	**16,585**
	Contingency	**1,591**	**1,591**	**2,221**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**1,591**	**24,877**
	Contractor OH and Profit	**2,651**	**2,651**	**3,701**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**2,651**	**41,462**
	Contract Administration	**3,130**	**3,130**	**4,369**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**3,130**	**48,948**
		34,943	**34,943**	**48,782**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**34,943**	**546,487**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Waste Rock Dumps - User Input

You must fill in ALL green cells in this section for each dump, lift or dump category

	Facility Description								Physical - MANDATORY							
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Ground Slope at Toe % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % Grade	Lift (dump) Height ft	Mid-Bench Length ft	Average Long Dimension (ripping distance) ft	Final (Regraded) Footprint acres
1	Plant Disturbance			Yards	Active Closure			FA	0.0	1.4	3.0	1.0	40	2,368	2,300	79.94
2	WRSP1-MB1	WRSP1		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	75	494	400	3.11
3	WRSP1-MB2	WRSP1		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	50	211	200	0.86
4	WRSP1-MB3	WRSP1		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	50	143	100	0.58
5	WRSP1-MB4	WRSP1		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	75	2,091	2,000	12.01
6	WRSP1-MB5	WRSP1		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	25	219	200	1.30
7	WRSP1-MB6	WRSP1		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	50	1,806	1,800	13.63
8	WRSP1-MB7	WRSP1		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	50	748	700	5.64
9	WRSP2-MB1	WRSP2		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	75	1,369	1,300	11.68
10	WRSP2-MB2	WRSP2		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	75	2,212	2,200	18.88
11	WRSP2-MB3	WRSP2		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	75	2,009	2,000	17.14
12	WRSP3-MB1	WRSP3		WRD	Concurrent WRSP-3			FA	0.0	1.4	3.0	1.0	75	1,680	1,600	12.62
13	WRSP3-MB2	WRSP3		WRD	Concurrent WRSP-3			FA	0.0	1.4	3.0	1.0	75	3,346	3,300	25.14
14	WRSP3-MB3	WRSP3		WRD	Concurrent WRSP-3			FA	0.0	1.4	3.0	1.0	75	3,144	3,100	23.63
15	WRSP3-MB4	WRSP3		WRD	Concurrent WRSP-3			FA	0.0	1.4	3.0	1.0	75	1,704	1,700	12.81
16	WRSP3-MB5	WRSP3		WRD	Concurrent WRSP-3			FA	0.0	1.4	3.0	1.0	75	1,430	1,400	10.75
17	WRSP3-MB6	WRSP3		WRD	Concurrent WRSP-3			FA	0.0	1.4	3.0	1.0	75	2,426	2,400	18.23
18	WRSP3-MB7	WRSP3		WRD	Concurrent WRSP-3			FA	0.0	1.4	3.0	1.0	35	469	400	3.52
19	WRSP3-MB8	WRSP3		WRD	Concurrent WRSP-3			FA	0.0	1.4	3.0	1.0	35	1,570	1,500	11.80
20	EWRSP1-MB1	EWRSP1		WRD	Concurrent EWRSPs			FA	0.0	1.4	3.0	1.0	30	1,161	1,100	11.68
21	EWRSP1-MB2	EWRSP1		WRD	Concurrent EWRSPs			FA	0.0	1.4	3.0	1.0	30	650	600	6.54
22	EWRSP1-MB3 (material will be pulled back)	EWRSP1		WRD	Concurrent EWRSPs			FA	0.0	3.0	3.0	1.0	25	333	300	3.35
23	EWRSP1-MB4	EWRSP1		WRD	Concurrent EWRSPs			FA	0.0	1.4	3.0	1.0	20	351	300	3.53
24	EWRSP2A-MB1	EWRSP2A		WRD	Concurrent EWRSPs			FA	0.0	1.4	3.0	1.0	50	1,166	1,100	6.22
25	EWRSP2B-MB1	EWRSP2B		WRD	Concurrent EWRSPs			FA	0.0	1.4	3.0	1.0	30	529	500	4.06
26	EWRSP2B-MB2	EWRSP2B		WRD	Concurrent EWRSPs			FA	0.0	1.4	3.0	1.0	70	477	400	5.37
27	EWRSP2B-3 (see "Yards" sheet)	EWRSP2B		Yards	Active Closure			FA								
28	EWRSP3 and haul roads, misc. plant disturbance	EWRS3		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	130	1,605	1,600	33.25
29	EWRSP4-MB1	EWRSP4		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	10	148	100	3.31
30	EWRSP4-MB2	EWRSP4		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	50	319	300	2.89
31	EWRSP4-MB3	EWRSP4		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	30	223	200	1.83
32	EWRSP4-MB4	EWRSP4		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	20	331	300	1.50
33	EWRSP4-MB5	EWRSP4		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	30	591	500	5.07
34	EWRSP4-MB6	EWRSP4		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	10	499	400	2.39
35	EWRSP4-MB7	EWRSP4		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	10	1,000	1,000	4.27
36	EWRSP4 Drainage Area	EWRSP4		WRD	Active Closure			FA	0.0	1.4	3.0	1.0	35	334	1,000	5.58

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. Input distance from crusher to placement location if material to be crushed and/or screened.
3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

EWRSP3 will be reclaimed with the plant area.
See User 06 for facility dimensions and User 09 for haulage distances.

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_I
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Waste Rock Dumps - User Input

			Cover 1				Cover 2				Growth Media			
	Description (required)	Regrade Volume (1) (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Haul Distance to Placement Location (2) ft	Slope to Placement Location % grade	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Haul Distance to Placement Location (2) ft	Slope to Placement Location % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Haul Distance to Placement Location ft	Slope to Placement Location % grade
1	Plant Disturbance										6.0	6.0	5,000	-5.0
2	WRSP1-MB1										36.0	36.0	13,179	-3.0
3	WRSP1-MB2										36.0	36.0	13,179	-3.0
4	WRSP1-MB3										36.0	36.0	13,179	-3.0
5	WRSP1-MB4										36.0	36.0	13,179	-3.0
6	WRSP1-MB5										36.0	36.0	13,179	-3.0
7	WRSP1-MB6										36.0	36.0	13,179	-3.0
8	WRSP1-MB7										36.0	36.0	13,179	-3.0
9	WRSP2-MB1										36.0	36.0	9,309	-4.8
10	WRSP2-MB2										36.0	36.0	9,309	-4.8
11	WRSP2-MB3										36.0	36.0	9,309	-4.8
12	WRSP3-MB1										36.0	36.0	8,047	-3.4
13	WRSP3-MB2										36.0	36.0	8,047	-3.4
14	WRSP3-MB3										36.0	36.0	8,047	-3.4
15	WRSP3-MB4										36.0	36.0	8,047	-3.4
16	WRSP3-MB5										36.0	36.0	8,047	-3.4
17	WRSP3-MB6										36.0	36.0	8,047	-3.4
18	WRSP3-MB7										36.0	36.0	8,047	-3.4
19	WRSP3-MB8										36.0	36.0	8,047	-3.4
20	EWRSP1-MB1										36.0	36.0	13,044	-2.1
21	EWRSP1-MB2										36.0	36.0	13,044	-2.1
22	EWRSP1-MB3 (material will be pulled back)										36.0	36.0	13,044	-2.1
23	EWRSP1-MB4										36.0	36.0	13,044	-2.1
24	EWRSP2A-MB1										36.0	36.0	13,179	-2.5
25	EWRSP2B-MB1										36.0	36.0	13,179	-2.5
26	EWRSP2B-MB2										36.0	36.0	13,179	-2.5
27	EWRSP2B-3 (see "Yards" sheet)													
28	EWRSP3 and haul roads, misc. plant disturbance										36.0	36.0	13,179	-2.5
29	EWRSP4-MB1										36.0	36.0	12,000	-1.8
30	EWRSP4-MB2										36.0	36.0	12,000	-1.8
31	EWRSP4-MB3										36.0	36.0	12,000	-1.8
32	EWRSP4-MB4										36.0	36.0	12,000	-1.8
33	EWRSP4-MB5										36.0	36.0	12,000	-1.8
34	EWRSP4-MB6										36.0	36.0	12,000	-1.8
35	EWRSP4-MB7										36.0	36.0	12,000	-1.8
36	EWRSP4 Drainage Area										36.0	36.0	12,000	-1.8

Notes:
1. All Physical parameters must be input even if manual overr

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Waste Rock Dumps - User Input (Cont.)

You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category

		Grading				Cover 1				Cover 2			
	Description (required)	Dozing Material Condition (select)	Material Type (select)	Grading Equipment Fleet (select)	Slot/Side-by-Side (select)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)
1	Plant Disturbance	1	Granite - broken	Large	No								
2	WRSP1-MB1	1	Granite - broken	Large	No								
3	WRSP1-MB2	1	Granite - broken	Large	No								
4	WRSP1-MB3	1	Granite - broken	Large	No								
5	WRSP1-MB4	1	Granite - broken	Large	No								
6	WRSP1-MB5	1	Granite - broken	Large	No								
7	WRSP1-MB6	1	Granite - broken	Large	No								
8	WRSP1-MB7	1	Granite - broken	Large	No								
9	WRSP2-MB1	1	Granite - broken	Large	No								
10	WRSP2-MB2	1	Granite - broken	Large	No								
11	WRSP2-MB3	1	Granite - broken	Large	No								
12	WRSP3-MB1	1	Granite - broken	Large	No								
13	WRSP3-MB2	1	Granite - broken	Large	No								
14	WRSP3-MB3	1	Granite - broken	Large	No								
15	WRSP3-MB4	1	Granite - broken	Large	No								
16	WRSP3-MB5	1	Granite - broken	Large	No								
17	WRSP3-MB6	1	Granite - broken	Large	No								
18	WRSP3-MB7	1	Granite - broken	Large	No								
19	WRSP3-MB8	1	Granite - broken	Large	No								
20	EWRSP1-MB1	1	Granite - broken	Large	No								
21	EWRSP1-MB2	1	Granite - broken	Large	No								
22	EWRSP1-MB3 (material will be pulled back)	1	Granite - broken	Large	No								
23	EWRSP1-MB4	1	Granite - broken	Large	No								
24	EWRSP2A-MB1	1	Granite - broken	Large	No								
25	EWRSP2B-MB1	1	Granite - broken	Large	No								
26	EWRSP2B-MB2	1	Granite - broken	Large	No								
27	EWRSP2B-3 (see "Yards" sheet)			Large									
28	EWRSP3 and haul roads, misc. plant disturbance	1	Granite - broken	Large	No								
29	EWRSP4-MB1	1	Granite - broken	Large	No								
30	EWRSP4-MB2	1	Granite - broken	Large	No								
31	EWRSP4-MB3	1	Granite - broken	Large	No								
32	EWRSP4-MB4	1	Granite - broken	Large	No								
33	EWRSP4-MB5	1	Granite - broken	Large	No								
34	EWRSP4-MB6	1	Granite - broken	Large	No								
35	EWRSP4-MB7	1	Granite - broken	Large	No								
36	EWRSP4 Drainage Area	1	Granite - broken	Large	No								

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_I
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Waste Rock Dumps - User Input (Cont.)

		Growth Media				Revegetation								
	Description (required)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)
1	Plant Disturbance	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
2	WRSP1-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
3	WRSP1-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
4	WRSP1-MB3	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
5	WRSP1-MB4	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
6	WRSP1-MB5	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
7	WRSP1-MB6	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
8	WRSP1-MB7	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
9	WRSP2-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
10	WRSP2-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
11	WRSP2-MB3	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
12	WRSP3-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
13	WRSP3-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
14	WRSP3-MB3	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
15	WRSP3-MB4	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
16	WRSP3-MB5	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
17	WRSP3-MB6	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
18	WRSP3-MB7	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
19	WRSP3-MB8	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
20	EWRSP1-MB1	Alluvium	Med Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
21	EWRSP1-MB2	Alluvium	Med Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
22	EWRSP1-MB3 (material will be pulled back)	Alluvium	Med Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
23	EWRSP1-MB4	Alluvium	Med Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
24	EWRSP2A-MB1	Alluvium	Med Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
25	EWRSP2B-MB1	Alluvium	Med Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
26	EWRSP2B-MB2	Alluvium	Med Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
27	EWRSP2B-3 (see "Yards" sheet)													
28	EWRSP3 and haul roads, misc. plant disturbance	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
29	EWRSP4-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
30	EWRSP4-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
31	EWRSP4-MB3	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
32	EWRSP4-MB4	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
33	EWRSP4-MB5	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
34	EWRSP4-MB6	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
35	EWRSP4-MB7	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader
36	EWRSP4 Drainage Area	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Waste Rock Dumps - Regrading Costs

Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)

	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hrs	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	**Plant Disturbance**	28,328	65	D9T	1518	1.6	1.0	0.82	1.0	1240	23	597	4,842	5,439
2	**WRSP1-MB1**	20,748	121	D9T	905	1.6	1.0	0.82	1.0	739	28	727	5,895	6,622
3	**WRSP1-MB2**	3,939	81	D9T	1264	1.6	1.0	0.82	1.0	1032	4	104	842	946
4	**WRSP1-MB3**	2,669	81	D9T	1264	1.6	1.0	0.82	1.0	1032	3	78	632	710
5	**WRSP1-MB4**	87,822	121	D9T	905	1.6	1.0	0.82	1.0	739	119	3,089	25,052	28,141
6	**WRSP1-MB5**	1,022	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	211	237
7	**WRSP1-MB6**	33,712	81	D9T	1264	1.6	1.0	0.82	1.0	1032	33	857	6,947	7,804
8	**WRSP1-MB7**	13,963	81	D9T	1264	1.6	1.0	0.82	1.0	1032	14	363	2,947	3,310
9	**WRSP2-MB1**	57,498	121	D9T	905	1.6	1.0	0.82	1.0	739	78	2,025	16,421	18,446
10	**WRSP2-MB2**	92,904	121	D9T	905	1.6	1.0	0.82	1.0	739	126	3,271	26,526	29,797
11	**WRSP2-MB3**	84,378	121	D9T	905	1.6	1.0	0.82	1.0	739	114	2,959	23,999	26,958
12	**WRSP3-MB1**	70,560	121	D9T	905	1.6	1.0	0.82	1.0	739	95	2,466	19,999	22,465
13	**WRSP3-MB2**	140,532	121	D9T	905	1.6	1.0	0.82	1.0	739	190	4,932	39,999	44,931
14	**WRSP3-MB3**	132,048	121	D9T	905	1.6	1.0	0.82	1.0	739	179	4,647	37,683	42,330
15	**WRSP3-MB4**	71,568	121	D9T	905	1.6	1.0	0.82	1.0	739	97	2,518	20,420	22,938
16	**WRSP3-MB5**	60,060	121	D9T	905	1.6	1.0	0.82	1.0	739	81	2,103	17,052	19,155
17	**WRSP3-MB6**	101,892	121	D9T	905	1.6	1.0	0.82	1.0	739	138	3,582	29,052	32,634
18	**WRSP3-MB7**	4,290	57	D9T	1694	1.6	1.0	0.82	1.0	1384	3	78	632	710
19	**WRSP3-MB8**	14,363	57	D9T	1694	1.6	1.0	0.82	1.0	1384	10	260	2,105	2,365
20	**EWRSP1-MB1**	7,783	50	D9T	1889	1.6	1.0	0.82	1.0	1543	5	130	1,053	1,183
21	**EWRSP1-MB2**	4,357	50	D9T	1889	1.6	1.0	0.82	1.0	1543	3	78	632	710
22	**EWRSP1-MB3 (material will be pulled back)**										0	0	0	0
23	**EWRSP1-MB4**	1,053	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	211	237
24	**EWRSP2A-MB1**	21,765	81	D9T	1264	1.6	1.0	0.82	1.0	1032	21	545	4,421	4,966
25	**EWRSP2B-MB1**	3,546	50	D9T	1889	1.6	1.0	0.82	1.0	1543	2	52	421	473
26	**EWRSP2B-MB2**	17,455	113	D9T	958	1.6	1.0	0.82	1.0	782	22	571	4,631	5,202
27	**EWRSP2B-3 (see "Yards" sheet)**										0	0	0	0
28	**EWRSP3 and haul roads, misc. plant disturbance**	202,587	211	D9T	569	1.6	1.0	0.82	1.0	465	436	11,319	91,787	103,106
29	**EWRSP4-MB1**	110	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	211	237
30	**EWRSP4-MB2**	5,955	81	D9T	1264	1.6	1.0	0.82	1.0	1032	6	156	1,263	1,419
31	**EWRSP4-MB3**	1,495	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	211	237
32	**EWRSP4-MB4**	993	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	211	237
33	**EWRSP4-MB5**	3,962	50	D9T	1889	1.6	1.0	0.82	1.0	1543	3	78	632	710
34	**EWRSP4-MB6**	370	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	211	237
35	**EWRSP4-MB7**	741	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	211	237
36	**EWRSP4 Drainage Area**	3,055	57	D9T	1694	1.6	1.0	0.82	1.0	1384	2	52	421	473
		1,297,523									1,842	**47,819**	**387,783**	**435,602**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Waste Rock Dumps - Growth Media Costs

		Growth Media Placement								
	Description (required)	Final Material Volume cy	Placement Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity BCY/hr	Fleet Hours hrs	Labor Cost $	Equipment Cost $	Total Cost $
1	**Plant Disturbance**	64,501	777G/992K/D9T	12.71	4	1,042	62	9,450	171,842	181,292
2	**WRSP1-MB1**	17,956	777G/992K/D9T	22.13	7	1,052	17	3,779	73,925	77,704
3	**WRSP1-MB2**	3,727	777G/992K/D9T	22.13	7	1,052	4	889	17,394	18,283
4	**WRSP1-MB3**	2,517	777G/992K/D9T	22.13	7	1,052	2	445	8,697	9,142
5	**WRSP1-MB4**	60,355	777G/992K/D9T	22.13	7	1,052	58	12,893	252,215	265,108
6	**WRSP1-MB5**	6,776	777G/992K/D9T	22.13	7	1,052	7	1,556	30,440	31,996
7	**WRSP1-MB6**	65,776	777G/992K/D9T	22.13	7	1,052	62	13,782	269,609	283,391
8	**WRSP1-MB7**	27,733	777G/992K/D9T	22.13	7	1,052	27	6,002	117,411	123,413
9	**WRSP2-MB1**	60,548	777G/992K/D9T	19.62	6	1,016	60	11,940	229,375	241,315
10	**WRSP2-MB2**	92,638	777G/992K/D9T	19.62	6	1,016	91	18,109	347,885	365,994
11	**WRSP2-MB3**	87,217	777G/992K/D9T	19.62	6	1,016	85	16,915	324,947	341,862
12	**WRSP3-MB1**	63,985	777G/992K/D9T	15.33	5	1,083	59	10,367	194,540	204,907
13	**WRSP3-MB2**	127,582	777G/992K/D9T	15.33	5	1,083	118	20,734	389,079	409,813
14	**WRSP3-MB3**	117,370	777G/992K/D9T	15.33	5	1,083	108	18,977	356,106	375,083
15	**WRSP3-MB4**	64,614	777G/992K/D9T	15.33	5	1,083	60	10,543	197,837	208,380
16	**WRSP3-MB5**	52,514	777G/992K/D9T	15.33	5	1,083	48	8,434	158,269	166,703
17	**WRSP3-MB6**	93,460	777G/992K/D9T	15.33	5	1,083	86	15,111	283,566	298,677
18	**WRSP3-MB7**	15,536	777G/992K/D9T	15.33	5	1,083	14	2,460	46,162	48,622
19	**WRSP3-MB8**	58,274	777G/992K/D9T	15.33	5	1,083	54	9,488	178,053	187,541
20	**EWRSP1-MB1**	55,950	740C/988K/D8T	12.7	5	527	107	18,801	138,829	157,630
21	**EWRSP1-MB2**	31,121	740C/988K/D8T	12.7	5	527	59	10,367	76,551	86,918
22	**EWRSP1-MB3 (material will be pulled back)**	17,424	740C/988K/D8T	12.7	5	527	34	5,974	44,114	50,088
23	**EWRSP1-MB4**	17,037	740C/988K/D8T	12.7	5	527	33	5,798	42,817	48,615
24	**EWRSP2A-MB1**	30,298	740C/988K/D8T	17.09	7	546	56	12,448	92,656	105,104
25	**EWRSP2B-MB1**	20,183	740C/988K/D8T	17.09	7	546	37	8,225	61,219	69,444
26	**EWRSP2B-MB2**	26,330	740C/988K/D8T	17.09	7	546	49	10,892	81,074	91,966
27	**EWRSP2B-3 (see "Yards" sheet)**						0	0	0	0
28	**EWRSP3 and haul roads, misc. plant disturbance**	165,770	777G/992K/D9T	22.13	7	1,052	157	34,900	682,721	717,621
29	**EWRSP4-MB1**	15,052	777G/992K/D9T	17.24	5	963	16	2,811	52,756	55,567
30	**EWRSP4-MB2**	15,294	777G/992K/D9T	17.24	5	963	16	2,811	52,756	55,567
31	**EWRSP4-MB3**	7,212	777G/992K/D9T	17.24	5	963	7	1,230	23,081	24,311
32	**EWRSP4-MB4**	7,212	777G/992K/D9T	17.24	5	963	7	1,230	23,081	24,311
33	**EWRSP4-MB5**	25,652	777G/992K/D9T	17.24	5	963	27	4,744	89,027	93,771
34	**EWRSP4-MB6**	11,471	777G/992K/D9T	17.24	5	963	12	2,109	39,567	41,676
35	**EWRSP4-MB7**	22,893	777G/992K/D9T	17.24	5	963	24	4,217	79,135	83,352
36	**EWRSP4 Drainage Area**	28,362	777G/992K/D9T	17.24	5	963	29	5,096	95,621	100,717
		1,580,340					1,692	**323,527**	**5,322,357**	**5,645,884**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Waste Rock Dumps - Scarify/Revegetation Costs

										Scarifying Costs			Regegetation Costs			
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Average Long Dimension (ripping distance) ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revegetation Material Cost $	Total Revegetation Cost $
1	**Plant Disturbance**	6.96	73.00	79.96	128	2,300	14M	6	58	1,661	11,237	12,898	8,274	33,834	34,859	76,967
2	**WRSP1-MB1**	2.71	1.00	3.71	239	400	14M	2	1	78	527	605	1,148	1,570	1,617	4,335
3	**WRSP1-MB2**	0.77	0.00	0.77	159	200	14M	1	0	26	176	202	423	423	336	1,182
4	**WRSP1-MB3**	0.52	0.00	0.52	159	100	14M	1	0	26	176	202	423	423	227	1,073
5	**WRSP1-MB4**	11.47	1.00	12.47	239	2,000	14M	9	1	260	1,756	2,016	4,854	5,276	5,436	15,566
6	**WRSP1-MB5**	0.40	1.00	1.40	80	200	14M	0	1	26	176	202	423	592	610	1,625
7	**WRSP1-MB6**	6.59	7.00	13.59	159	1,800	14M	5	6	286	1,931	2,217	2,837	5,750	5,925	14,512
8	**WRSP1-MB7**	2.73	3.00	5.73	159	700	14M	2	3	130	878	1,008	1,164	2,424	2,498	6,086
9	**WRSP2-MB1**	7.51	5.00	12.51	239	1,300	14M	6	4	260	1,756	2,016	3,203	5,294	5,454	13,951
10	**WRSP2-MB2**	12.14	7.00	19.14	239	2,200	14M	10	5	389	2,634	3,023	5,186	8,099	8,345	21,630
11	**WRSP2-MB3**	11.02	7.00	18.02	239	2,000	14M	9	6	389	2,634	3,023	4,712	7,625	7,856	20,193
12	**WRSP3-MB1**	9.22	4.00	13.22	239	1,600	14M	7	3	260	1,756	2,016	3,917	5,594	5,764	15,275
13	**WRSP3-MB2**	18.36	8.00	26.36	239	3,300	14M	14	6	519	3,512	4,031	7,833	11,154	11,492	30,479
14	**WRSP3-MB3**	17.25	7.00	24.25	239	3,100	14M	14	6	519	3,512	4,031	7,348	10,261	10,572	28,181
15	**WRSP3-MB4**	9.35	4.00	13.35	239	1,700	14M	7	3	260	1,756	2,016	3,972	5,649	5,820	15,441
16	**WRSP3-MB5**	7.85	3.00	10.85	239	1,400	14M	6	2	208	1,405	1,613	3,331	4,591	4,730	12,652
17	**WRSP3-MB6**	13.31	6.00	19.31	239	2,400	14M	11	5	415	2,809	3,224	5,668	8,171	8,419	22,258
18	**WRSP3-MB7**	1.21	2.00	3.21	112	400	14M	1	2	78	527	605	516	1,358	1,400	3,274
19	**WRSP3-MB8**	4.04	8.00	12.04	112	1,500	14M	3	6	234	1,580	1,814	1,773	5,094	5,249	12,116
20	**EWRSP1-MB1**	2.56	9.00	11.56	96	1,100	14M	2	7	234	1,580	1,814	1,164	4,891	5,040	11,095
21	**EWRSP1-MB2**	1.43	5.00	6.43	96	600	14M	1	4	130	878	1,008	630	2,721	2,803	6,154
22	**EWRSP1-MB3 (material will be pulled back)**	0.60	3.00	3.60	79	300	14M	1	3	104	702	806	423	1,523	1,570	3,516
23	**EWRSP1-MB4**	0.52	3.00	3.52	64	300	14M	0	3	78	527	605	423	1,489	1,535	3,447
24	**EWRSP2A-MB1**	4.26	2.00	6.26	159	1,100	14M	4	2	156	1,053	1,209	1,807	2,649	2,729	7,185
25	**EWRSP2B-MB1**	1.17	3.00	4.17	96	500	14M	1	3	104	702	806	504	1,764	1,818	4,086
26	**EWRSP2B-MB2**	2.44	3.00	5.44	223	400	14M	2	3	130	878	1,008	1,041	2,301	2,372	5,714
27	**EWRSP2B-3 (see "Yards" sheet)**	0.10	0.00	0.10				0	0	0	0	0	0	0	0	0
28	**EWRSP3 and haul roads, misc. plant disturbance**	15.25	19.00	34.25	414	1,600	14M	12	15	701	4,741	5,442	6,814	14,493	14,931	36,238
29	**EWRSP4-MB1**	0.11	3.00	3.11	32	100	14M	0	4	104	702	806	423	1,316	1,356	3,095
30	**EWRSP4-MB2**	1.16	2.00	3.16	159	300	14M	1	2	78	527	605	495	1,337	1,378	3,210
31	**EWRSP4-MB3**	0.49	1.00	1.49	96	200	14M	0	1	26	176	202	423	630	650	1,703
32	**EWRSP4-MB4**	0.49	1.00	1.49	64	300	14M	0	1	26	176	202	423	630	650	1,703
33	**EWRSP4-MB5**	1.30	4.00	5.30	96	500	14M	1	3	104	702	806	566	2,243	2,311	5,120
34	**EWRSP4-MB6**	0.37	2.00	2.37	32	400	14M	0	2	52	351	403	423	1,003	1,033	2,459
35	**EWRSP4-MB7**	0.73	4.00	4.73	32	1,000	14M	1	3	104	702	806	423	2,002	2,062	4,487
36	**EWRSP4 Drainage Area**	0.86	5.00	5.86	112	1,000	14M	1	4	130	878	1,008	423	2,480	2,555	5,458
		177.25	216.00	393.25				141	178	**8,285**	**56,013**	**64,298**	**83,412**	**166,654**	**171,402**	**421,468**

Notes:
1. Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)
2. Assumes 50 min/hr equipment availability

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Tailings - User Input

You must fill in ALL green cells and relevant blue cells in this section for each tailings impoundment

Facility Description									Physical - MANDATORY									
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Ground Slope at Toe % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Embankment Height ft	Final (Regraded) Embankment Footprint acres	Mid-Embankment Length ft	Average Long Dimension (ripping distance) ft	Slope Regrade Volume (1) (if calculated elsewhere) cy	Final Tailings Surface Area acres	Surface Regrade Volume (calculated elsewhere) cy
1	TSF			Tailings Storage Facility	Active Closure			FA	0.0	4.0	4.0	154	244.99	17,289	2,000		305.39	246,348

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. Input distance from crusher to placement location if material to be crushed, screened or compacted
3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

Surface regrade volume assumed __ ft3 per ft2: 0.5
Surface of interbench slopes does not include surface area of ditch and berm.
Embankment height is average across the perimeter of the embankment.
See User 06 for facility dimensions and User 09 for haulage distances.

Bond Calculation
Tailings

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Tailings - User Input

		Cover 1				Cover 2				Growth Media			
	Description (required)	Embankment Cover Thickness in	Cover Thickness Flat Areas in	Haul Distance to Placement Location (2) ft	Slope to Placement Location % grade	Embankment Cover Thickness in	Cover Thickness Flat Areas in	Haul Distance to Placement Location (2) ft	Slope to Placement Location % grade	Embankment Growth Media Thickness in	Tailings Surface Growth Media Thickness in	Haul Distance to Placement Location ft	Slope to Placement Location % grade
1	TSF									36.0	36.0	10,536	-1.7

Notes:
1. All Physical parameters must be input even if manual overri
2. Input distance from crusher to placement location if material
3. If Slope from facility to borrow source is >20, downhill travel

Surface regrade volume assumed __ ft3 per ft2:
Surface of interbench slopes does not include surface area

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Tailings - User Input (cont.)

You must fill in ALL green cells and relevant blue cells in this section for each tailings impoundment

		Grading				Cover 1				Cover 2				Growth Media			
	Description (required)	Dozing Material Condition (select)	Embankment Material Type (select)	Grading Equipment Fleet (select)	Slot/Side-by-Side (select)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)
1	TSF	1	Tailings - Coarse (dr	Large	No									Alluvium	Large Truck		

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Tailings - User Input (cont.)

		Revegetation								
	Description (required)	Seed Mix Embankment Slope (select)	Seed Mix Tailings Surface (select)	Mulch Embankment Slopes (select)	Mulch Tailings Surface (select)	Fertilizer Embankment Slopes (select)	Fertilizer Tailing Surface (select)	Embankment Slope Scarify/ Rip? (select)	Tailings Surface Scarify/ Rip? (select)	Scarifying/ Ripping Fleet (select)
1	TSF	User Mix 1	User Mix 1					Yes	Yes	Grader

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Tailings - Surface Regrading Costs

Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)

	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Density Correction	Dozing Material	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hrs	Total Labor Cost	Total Equipment Cost	Total Regrading Cost
1	TSF	246,348	400	D9T	334	1.00	0.96	1.20	1.00	240	1,026	26,635	215,994	242,629
		246,348									1,026	**26,635**	**215,994**	**242,629**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Tailings - Growth Media Costs

		Growth Media Placement								
	Description (required)	Final Material Volume cy	Placement Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity BCY/hr	Fleet Hours hrs	Labor Cost $	Equipment Cost $	Total Cost $
1	TSF	2,700,333	777G/992K/D9T	15.72	5	1,054	2,562	450,169	8,447,631	8,897,800
		2,700,333					2,562	**450,169**	**8,447,631**	**8,897,800**

Tailings - Scarify/Revegetation Costs

										Scarifying Costs			Regegetation Costs			
	Description (required)	Embankment Slope Area acres	Embankment Flat Area acres	Total Embankment Surface Area acres	Total Tailings Surface Area	Final Slope Length ft	Average Long Dimension (ripping distance) ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hrs hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revegetation Material Cost $	Total Revegetation Cost $
1	TSF	252.03	0.50	252.53	305.39	635	2,000	14M	198	245	11,500	77,782	89,282	236,078	236,078	243,231	715,387
		252.03	0.50	252.53	305.39				198	245	**11,500**	**77,782**	**89,282**	**236,078**	**236,078**	**243,231**	**715,387**

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)
2) Assumes 50 min/hr equipment availability

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost CostType Type: FA Cost Basis: Copper Flat FA

Solution/Water Management - User Input - Pumping

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Water Type (select)	Management Type (select)
1	Pit rapid fill - Month 1			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
2	Pit rapid fill - Month 2			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
3	Pit rapid fill - Month 3			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
4	Pit rapid fill - Month 4			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
5	Pit rapid fill - Month 5			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
6	Pit rapid fill - Month 6			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
7	Pumping water from wellfields for pit refill - Month 1			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
8	Pumping water from wellfields for pit refill - Month 2			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
9	Pumping water from wellfields for pit refill - Month 3			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
10	Pumping water from wellfields for pit refill - Month 4			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
11	Pumping water from wellfields for pit refill - Month 5			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
12	Pumping water from wellfields for pit refill - Month 6			Pit Rapid Fill	Active Closure			FA	Pit Water	Active
13	Year 1 - New Evaporation Pond to Spray Pond Area			TSF Draindown Management	Active Closure			FA	Seepage	Active
14	Year 2 - New Evaporation Pond to Spray Pond Area			TSF Draindown Management	Active Closure			FA	Seepage	Active
15	Year 3 - New Evaporation Pond to Spray Pond Area			TSF Draindown Management	Active Closure			FA	Seepage	Active
16	Year 4 - New Evaporation Pond to Spray Pond Area			TSF Draindown Management	Active Closure			FA	Seepage	Active
17	Year 5 - New Evaporation Pond to Spray Pond Area			TSF Draindown Management	Active Closure			FA	Seepage	Active

Notes: 1. Inside Diameter (ID) depends on nominal diameter and the pipewall thickness.
2. k (total of all losses related to valves, restrictions, etc.). Typically 8 -20. Not significant for longer pipes.
3. Default crew assumes crew of two laborers required during pumping hours

Rapid refill rates per "Copper Flat Alt2-4900CB RF2200_4July2017.xlsm."
For pumping from New Evaporation Pond to Spray Pond Area, static head is from crest of pond to crest of TSF.
During the active evaporation, there will be on average 18 hours per day over the course of the year between the summer and winter seasons.
During the 20-year passive evaporation phase, there will be no pumping or evaporator operation costs.

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost CostType Type: FA Cost Basis: Copper Flat F

Solution/Water Management - User Input - Pum

										Operating Period			User Overrides	
	Description (required)	Capital Cost $	Flow (Q) gpm	Pipeline Length ft	Static Head ft	Pipe Diameter (ID)[1] in	Pipe Material (select)	Pump Efficiency %	Total Concentated Losses [2]	Hrs/Day	Days/ Month	Number of Months	Crew Size [3]	Power Cost ($/kWh)
1	Pit rapid fill - Month 1		3000.00	4,000	303.0	12	HDPE	85	20	24.0	30.0	1	1	
2	Pit rapid fill - Month 2		3000.00	4,000	303.0	12	HDPE	85	20	24.0	30.0	1	1	
3	Pit rapid fill - Month 3		3000.00	4,000	303.0	12	HDPE	85	20	24.0	30.0	1	1	
4	Pit rapid fill - Month 4		3000.00	4,000	303.0	12	HDPE	85	20	24.0	30.0	1	1	
5	Pit rapid fill - Month 5		3000.00	4,000	303.0	12	HDPE	85	20	24.0	30.0	1	1	
6	Pit rapid fill - Month 6		1500.26	4,000	303.0	12	HDPE	85	20	24.0	30.0	1	1	
7	Pumping water from wellfields for pit refill - Month 1		3000.00	42,000	757.0	18	HDPE	85	20	24.0	30.0	1	0	
8	Pumping water from wellfields for pit refill - Month 2		3000.00	42,000	757.0	18	HDPE	85	20	24.0	30.0	1	0	
9	Pumping water from wellfields for pit refill - Month 3		3000.00	42,000	757.0	18	HDPE	85	20	24.0	30.0	1	0	
10	Pumping water from wellfields for pit refill - Month 4		3000.00	42,000	757.0	18	HDPE	85	20	24.0	30.0	1	0	
11	Pumping water from wellfields for pit refill - Month 5		3000.00	42,000	757.0	18	HDPE	85	20	24.0	30.0	1	0	
12	Pumping water from wellfields for pit refill - Month 6		1500.26	42,000	757.0	18	HDPE	85	20	24.0	30.0	1	0	
13	Year 1 - New Evaporation Pond to Spray Pond Area		445.00	1,000	303.0	6	HDPE	85	20	18.0	30.0	12	2	
14	Year 2 - New Evaporation Pond to Spray Pond Area		310.00	1,000	303.0	6	HDPE	85	20	18.0	30.0	12	2	
15	Year 3 - New Evaporation Pond to Spray Pond Area		210.00	1,000	303.0	4	HDPE	85	20	18.0	30.0	12	2	
16	Year 4 - New Evaporation Pond to Spray Pond Area		140.00	1,000	303.0	4	HDPE	85	20	18.0	30.0	12	2	
17	Year 5 - New Evaporation Pond to Spray Pond Area		90.00	1,000	303.0	4	HDPE	85	20	18.0	30.0	12	2	

Notes: 1. Inside Diameter (ID) depends on nominal diame
2. k (total of all losses related to valves, restrictions
3. Default crew assumes crew of two laborers requ

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost CostType Type: FA Cost Basis: Copper Flat FA

Solution/Water Management - User Input - Enhanced Evaporation

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Water Type (select)	Management Type (select)
1	Year 1 - Forced Evaporation			TSF Draindown Management	Active Closure			FA	Seepage	Active
2	Year 2 - Forced Evaporation			TSF Draindown Management	Active Closure			FA	Seepage	Active
3	Year 3 - Forced Evaporation			TSF Draindown Management	Active Closure			FA	Seepage	Active
4	Year 4 - Forced Evaporation			TSF Draindown Management	Active Closure			FA	Seepage	Active
5	Year 5 - Forced Evaporation			TSF Draindown Management	Active Closure			FA	Seepage	Active

Notes: 1. Default crew assumes crew of two laborers required during pumping hours
3. Assumes 1-1.5 ton truck for every 2 laborers

Crew assumed shared with pumping crew.
See Attachment E "THEMAC Resources Proposal.pdf" for evaporator supply and delivery to site.

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost CostType Type: FA Cost Basis: Copper Flat F

Solution/Water Management - User Input - Enha

												Operating Period			User Overrides	
	Description (required)	Forced Evaporation Method (select)	Capital Cost $	Flow (Q) gpm	Pipeline Length ft	Static Head ft	Pipe Diameter (ID) in	Pipe Material (select)	Pump Efficiency %	Total Concentated Losses (1)	Required Pressure at Outlet psi	Hrs/Day	Days/Month	Number of Months	Crew Size	Power Cost ($/kWh)
1	Year 1 - Forced Evaporation	Snowmaker	489,120	445.00	500	3.0	6	HDPE	85	20	150	24.0	30.0	12	0	
2	Year 2 - Forced Evaporation	Snowmaker		310.00	500	3.0	6	HDPE	85	20	150	24.0	30.0	12	0	
3	Year 3 - Forced Evaporation	Snowmaker		210.00	500	3.0	6	HDPE	85	20	150	24.0	30.0	12	0	
4	Year 4 - Forced Evaporation	Snowmaker		140.00	500	3.0	6	HDPE	85	20	150	24.0	30.0	12	0	
5	Year 5 - Forced Evaporation	Snowmaker		90.00	500	3.0	6	HDPE	85	20	150	24.0	30.0	12	0	

Notes: 1. Default crew assumes crew of two laborers require

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost CostType Type: FA Cost Basis: Copper Flat FA

Solution/Water Management - User Input - Decontamination

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type
1	Mill decon			Buildings	Active Closure			FA

Notes:
1. Assumes triple rinse of all piping, tanks and vessels requiring decontamination
2. Standard crew includes 2 laborers and 1 foreman
3. Assumes 1-1.5 ton truck for every 2 laborers
4. Assumes crew works 8 hr/day

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost CostType Type: FA Cost Basis: Copper Flat F

Solution/Water Management - User Input - Decc

													Operating Period		User Overrides	
	Description (required)	Management Type (select)	Type	Disposal Location	Capital Cost $	Pumping Flow (Q) gpm	Pipeline Length ft	Static Head ft	Pipe Diameter (ID) in	Pipe Material (select)	Pump Efficiency %	Total Concentated Losses [1]	Number of Work Days days	Pumping Hrs/Day	Crew Size	Power Cost ($/kWh)
1	Mill decon			TSF	100,000	500.00	5,000	200.0	6	HDPE	80		30.0	12.0	6	

Notes:
1. Assumes triple rinse of all piping, tanks and vessels rec
2. Standard crew includes 2 laborers and 1 foreman
3. Assumes 1-1.5 ton truck for every 2 laborers

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost CostType Type: FA Cost Basis: Copper Flat FA

Solution/Water Management - Pumping

	Description (required)	Flow gpm	Manning n (see above)	Losses k	Velocity(2) ft/sec	Friction Head ft	Total Dynamic Head ft	Pump Efficiency %	Power Required kW	Horsepower Required HP	Monthly Operating Hours hrs
1	Pit rapid fill - Month 1	3000.00	0.009	20	8.499	90	393	85	261.37	350.60	720
2	Pit rapid fill - Month 2	3000.00	0.009	20	8.499	90	393	85	261.37	350.60	720
3	Pit rapid fill - Month 3	3000.00	0.009	20	8.499	90	393	85	261.37	350.60	720
4	Pit rapid fill - Month 4	3000.00	0.009	20	8.499	90	393	85	261.37	350.60	720
5	Pit rapid fill - Month 5	3000.00	0.009	20	8.499	90	393	85	261.37	350.60	720
6	Pit rapid fill - Month 6	1500.26	0.009	20	4.250	22	326	85	108.33	145.30	720
7	Pumping water from wellfields for pit refill - Month 1	3000.00	0.009	20	3.786	86	843	85	560.94	752.30	720
8	Pumping water from wellfields for pit refill - Month 2	3000.00	0.009	20	3.786	86	843	85	560.94	752.30	720
9	Pumping water from wellfields for pit refill - Month 3	3000.00	0.009	20	3.786	86	843	85	560.94	752.30	720
10	Pumping water from wellfields for pit refill - Month 4	3000.00	0.009	20	3.786	86	843	85	560.94	752.30	720
11	Pumping water from wellfields for pit refill - Month 5	3000.00	0.009	20	3.786	86	843	85	560.94	752.30	720
12	Pumping water from wellfields for pit refill - Month 6	1500.26	0.009	20	1.893	22	778	85	259.02	347.40	720
13	Year 1 - New Evaporation Pond to Spray Pond Area	445.00	0.010	20	5.077	27	330	85	32.57	43.70	540
14	Year 2 - New Evaporation Pond to Spray Pond Area	310.00	0.010	20	3.537	13	316	85	21.74	29.20	540
15	Year 3 - New Evaporation Pond to Spray Pond Area	210.00	0.010	20	5.320	44	347	85	16.16	21.70	540
16	Year 4 - New Evaporation Pond to Spray Pond Area	140.00	0.010	20	3.545	19	323	85	10.01	13.50	540
17	Year 5 - New Evaporation Pond to Spray Pond Area	90.00	0.010	20	2.281	8	311	85	6.21	8.40	540
											11,340

Notes:
1. Assumes 2 man labor crew unless user overrides default.
2. Maintaining pipe flow velocity between 1.0 m/s (3.28 ft/sec) and 3.0 m/s (9.84 ft/sec) is generally accepted piping practice. This range is dictated by economic considerations, allows for maintaining stable flow regime and precludes excessive friction losses, r
Please revise pipe internal diameter if the calculated velocity is outside of the recommended range.

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost CostType Type: FA Cost Basis: Copper Flat F

Solution/Water Management - Pumping

	Description (required)	Pump Capital Cost $	Total Operating Cost $	Total Labor Cost $	Total Crew Equipment Cost $	Total Cost $	Cost/gal $
1	Pit rapid fill - Month 1	0	14,692	10,937	21,492	47,121	0.10
2	Pit rapid fill - Month 2	0	14,692	10,937	21,492	47,121	0.10
3	Pit rapid fill - Month 3	0	14,692	10,937	21,492	47,121	0.10
4	Pit rapid fill - Month 4	0	14,692	10,937	21,492	47,121	0.10
5	Pit rapid fill - Month 5	0	14,692	10,937	21,492	47,121	0.10
6	Pit rapid fill - Month 6	0	6,089	10,937	21,492	38,518	0.16
7	Pumping water from wellfields for pit refill - Month 1	0	31,531	0	0	31,531	0.06
8	Pumping water from wellfields for pit refill - Month 2	0	31,531	0	0	31,531	0.06
9	Pumping water from wellfields for pit refill - Month 3	0	31,531	0	0	31,531	0.06
10	Pumping water from wellfields for pit refill - Month 4	0	31,531	0	0	31,531	0.06
11	Pumping water from wellfields for pit refill - Month 5	0	31,531	0	0	31,531	0.06
12	Pumping water from wellfields for pit refill - Month 6	0	14,560	0	0	14,560	0.06
13	Year 1 - New Evaporation Pond to Spray Pond Area	0	16,476	196,862	193,428	406,766	0.62
14	Year 2 - New Evaporation Pond to Spray Pond Area	0	11,004	196,862	193,428	401,294	0.88
15	Year 3 - New Evaporation Pond to Spray Pond Area	0	8,172	196,862	193,428	398,462	1.29
16	Year 4 - New Evaporation Pond to Spray Pond Area	0	5,064	196,862	193,428	395,354	1.92
17	Year 5 - New Evaporation Pond to Spray Pond Area	0	3,144	196,862	193,428	393,434	2.97
		0	**295,624**	**1,049,933**	**1,096,092**	**2,441,649**	

Notes:

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost CostType Type: FA Cost Basis: Copper Flat FA

Solution/Water Management - Enhanced Evaporation

	Description (required)	Flow gpm	Manning n (see above)	Losses k	Velocity(2) ft/sec	Friction Head ft	Total Dynamic Head ft	Pump Efficiency %	Power Required kW	Horsepower Required HP	Annual Operating Hours hrs
1	**Year 1 - Forced Evaporation**	445.00	0.010	20	5.077	17	366	85	36.00	48.30	720
2	**Year 2 - Forced Evaporation**	310.00	0.010	20	3.537	8	357	85	25.00	33.60	720
3	**Year 3 - Forced Evaporation**	210.00	0.010	20	2.396	4	353	85	16.00	21.50	720
4	**Year 4 - Forced Evaporation**	140.00	0.010	20	1.596	2	351	85	11.00	14.80	720
5	**Year 5 - Forced Evaporation**	90.00	0.010	20	1.027	1	350	85	7.00	9.40	720
											3,600

Notes:
1. Assumes 2 man labor crew unless user overrides default.
2. Maintaining pipe flow velocity between 1.0 m/s (3.28 ft/sec) and 3.0 m/s (9.84 ft/sec) is generally accepted piping practice. This range is dictated by economic considerations, allows for maintaining stable flow regime and precludes excessive friction losses, r
Please revise pipe internal diameter if the calculated velocity is outside of the recommended range.

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost CostType Type: FA Cost Basis: Copper Flat F

Solution/Water Management - Enhanced Evapo

	Description (required)	Evaporator/ Pump Capital Cost $	Total Labor Cost $	Total Equipment Cost $	Total Power Cost $	Total Cost $	Cost/gal $
1	**Year 1 - Forced Evaporation**	489,120	0	0	24,288	513,408	0.03
2	**Year 2 - Forced Evaporation**	0	0	0	16,860	16,860	0.03
3	**Year 3 - Forced Evaporation**	0	0	0	10,788	10,788	0.03
4	**Year 4 - Forced Evaporation**	0	0	0	7,416	7,416	0.03
5	**Year 5 - Forced Evaporation**	0	0	0	4,716	4,716	0.03
		489,120	**0**	**0**	**64,068**	**553,188**	

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost CostType Type: FA Cost Basis: Copper Flat FA

Solution/Water Management - Decontamination

	Description (required)	Flow gpm	Manning n (see above)	Losses k	Velocity(1) ft/sec	Friction Head ft	Total Dynamic Head ft	Pump Efficiency %	Power Required kW	Horsepower Required HP	Total Operating Hours hrs
1	**Mill decon**	500.00	0.010	0	5.704	118	318	80	37.52	50.40	360
											360

Notes:
2. Maintaining pipe flow velocity between 1.0 m/s (3.28 ft/sec) and 3.0 m/s (9.84 ft/sec) is generally accepted piping practice. This range is dictated by economic considerations, allows for maintaining stable flow regime and precludes excessive friction losses, r
Please revise pipe internal diameter if the calculated velocity is outside of the recommended range.

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost CostType Type: FA Cost Basis: Copper Flat F

Solution/Water Management - Decontamination

	Description (required)	Pump Capital Cost $	Total Operating Cost $	Total Labor Cost $	Total Equipment Cost $	Total Cost $
1	**Mill decon**	100,000	1,055	40,771	14,328	156,154
		100,000	**1,055**	**40,771**	**14,328**	**156,154**

Closure Cost Estimate
Quarries & Borrow Pits

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Quarries & Borrow Pits - User Input

You must fill in ALL green cells in this section for each dump, lift or dump category

	Facility Description								Physical - MANDATORY								
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Ground Slope at Toe % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % Grade	Bench or Highwall Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Footprint acres	Regrade Volume (1) (if calculated elsewhere) cy
1	Copper Flat Pit areas reclaimed			Pits	Active Closure			FA	0.0	1.3	1.3	0.0	25	98,000	500	35.00	

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. Input distance from crusher to placement location if material to be crushed, screened or compacted
3. If Slope from facility to borrow source is >20°, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

Inputs for total pit cover are from "Cu Flat Pit Reclaim 20171002 a.pdf."
The areas around the pit crest which will be reclaimed will have been sloped during excavation of the pit. Sloping is therefore an operational cost and not included here. The revegetation is covered under "Yards."

Closure Cost Estimate
Quarries & Borrow Pits

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Quarries & Borrow Pits - User Input

		Cover 1				Cover 2				Growth Media			
	Description (required)	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Haul Distance to Placement Location (2) ft	Slope to Placement Location % grade	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Haul Distance to Placement Location (2) ft	Slope to Placement Location % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Haul Distance to Placement Location ft	Slope to Placement Location % grade
1	**Copper Flat Pit areas reclaimed**									**18.0**	**18.0**	**6,000**	**0.0**

Notes:
1. All Physical parameters must be input even if manual overri

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Quarries & Borrow Pits - User Input (cont.)

You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category

		Grading				Cover 1				Cover 2			
	Description (required)	Dozing Material Condition (select)	Highwall Material Type (select)	Grading Equipment Fleet (select)	Slot/Side-by-Side (select)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)
1	Copper Flat Pit areas reclaimed	1	Granite - broken	Large									

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Quarries & Borrow Pits - User Input (cont.)

		Growth Media				Revegetation								
	Description (required)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)
1	Copper Flat Pit areas reclaimed	Alluvium	Large Truck			User Mix 1	User Mix 1					Yes	Yes	Grader

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Quarries & Borrow Pits - User Input (cont.)

Facility Description		Highwall Berms					Berm Construction			Hauling (if selected method)				Revegetation		
	Description (required)	Berm (or Highwall) Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Volume (if calculated elsewhere) cy	Berm Construction Method (select)	Berm Material Type (select)	Berm Construction Fleet (select)	Distance to Borrow Source ft	Slope to Borrow Source % grade	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)
1	Copper Flat Pit areas reclaimed	9,252	6.0	20.0	1.5		Dozer	Alluvium	Large Dozer					User Mix 1		

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)
3. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Berm length from <FIG_PIT_BERM_20180402.pdf>

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Quarries & Borrow Pits - Assumptions & Calculations

Regrading Push Distance Calculation

dozing distance:
based on 2/3 final cut slope + 2/3 final fill slope (minimum = 50 ft)

Safety Berm Volume Calculation

Dozer productivity assumes push distance of:
100 ft

Dozer:
Length x (Berm Base Width + Dozer Push Distance) - accounts for disturbance created in borrow area

Excavator:
Length x (Berm Base Width + (2 x Excavator Track Width) - accounts for disturbance created in borrow area

Haul & Place:
Length x Berm Base Width - if necessary use Yards sheet to account for disturbance created in borrow area

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per dump

Slopes:
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Mid-bench length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr

Flat Areas:
Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation:
Minimum 1 acre revegetation crew time per area

Closure Cost Estimate
Quarries & Borrow Pits

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Quarries & Borrow Pits - Growth Media Costs

		Growth Media Placement								
	Description (required)	Growth Media Volume cy	Growth Media Replacement Fleet	Cycle Time min	Fleet Productivity BCY/hr	Haul Fleet Size	Total Fleet Hours hrs	Total Labor Cost $	Total Equipment Cost $	Total Topsoiling Cost $
1	**Copper Flat Pit areas reclaimed**	223,221	777G/992K/D9T	10.96	909	3	246	31,766	552,521	584,287
		223,221					246	**31,766**	**552,521**	**584,287**

Quarries & Borrow Pits - Scarifying/Revegetation Costs

										Scarifying Costs			Regegetation Costs			
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Average Long Dimension (ripping distance) ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revegetation Material Cost $	Total Revegetation Cost $
1	**Copper Flat Pit areas reclaimed**	92.24		92.24	41	500	14M	75	0	1,947	13,169	15,116	39,030	39,030	40,213	118,273
		92.24	0.00	92.24				75	0	**1,947**	**13,169**	**15,116**	**39,030**	**39,030**	**40,213**	**118,273**

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)
2) Assumes 50min/hr equipment availability

Quarries & Borrow Pits - Safety Berm Construction Costs

		Safety Berm								
	Description (required)	Safety Berm Volume cy	Selected Fleet	Cycle Time min	Haul Fleet Size	Corrected Fleet Productivity cy/hr	Total Hours hrs	Safety Berm Labor Cost $	Safety Berm Equipment Cost $	Total Safety Berm Cost $
1	**Copper Flat Pit areas reclaimed**	22,616	D9T			34	34	883	7,158	8,041
		22,616					34	**883**	**7,158**	**8,041**

Quarries & Borrow Pits - Safety Berms - Revegetation Costs

	Description (required)	Flat Area acres	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**Copper Flat Pit areas reclaimed**	25.49	10,786	10,786	11,113	32,685
		25.49	**10,786**	**10,786**	**11,113**	**32,685**

Closure Cost Estimate
Roads

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Roads - User Input

You must fill in ALL green cells and relevant blue cells in this section for each road

	Facility Description								Physical (1) - MANDATORY						User Overrides		Growth Media		
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Ground Slope at Toe % grade	Ungraded Slope _H:1V	Cut Slope degrees	Road Width ft	Road Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness in	Haul Distance to Placement Location ft	Slope to Placement Location % grade
1	Roads			Roads	Active Closure			FA	5.0	2.0	25.0	25.0	26,000	0%			6.0	2,000	-5.0

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)
3. Because the work required for building roads with a dozer is similar to that required to regrade a road with a dozer, this sheet could be used to provide a rough estimate of road construction costs if a dozer is selected as the grading fleet.

Roads that will be removed have not been determined at this time. This estimate assumes that at closure approximately 5 miles of roads will be reclaimed or narrowed.
Recontouring costs are included in the growth media line. Road regrading costs are estimated in "User Sheet 17" (and linked to "Other User").
Average road reclamation costs ($/acre): 3989 <--sum of "Roads" sheet and "Other User" (by way of "User Sheet 17")

Roads - User Input (cont.)

		Haul Road Safety Berms				
	Description (required)	Berm Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Number of Berms (2) (1 or 2 sides)
1	Roads					

(2) Enter 1 if berm on only one side of road, 2 if both sides of road are bermed.

Roads - User Input (cont.)

You must fill in ALL green cells and relevant blue cells in this section for each road

		Grading				Growth Media				Revegetation				
	Description (required)	Dozing Material Condition (select)	Cut Material Type (select)	Recontouring Equipment Fleet(2) (select)	No. of Excavators if grade >30% (select)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/ Ripping? (select)	Ripping Fleet (select)
1	Roads	1	Gravel	Small Dozer	1	Alluvium	Med Truck			User Mix 1			Yes	Grader

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
2. If original slope >30% only excavators are allowed.

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Roads - Assumptions & Calculations

Regrading Volume and Footprint Volume

Will not allow dozer for slopes greater than 30%
For dozer regrading push distance = road width
Assumes dozer push is uphill
Assumes minimum push distance of 100 ft

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Road length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
For dozer regrading assumes push distance = 3 x road width

Revegetation Calculations

Minimum of 1 acre crew time per area

Safety Berm Volume Calculation

Cross Sectional Area = (a+b)/2 x h
Berm Volume = Berm Length x Crossectional Area x No. Sides

Total berm volume doubled if both sides of road are bermed.
If length of berm on each side of road is different, input total length of both berms
and input 1 for number of sides

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Roads - Regrading Costs

	Description (required)	Regrading Volume cy	Recontouring Fleet	Number of Excavators	Fleet Productivity cy/hr	Total Fleet Hours hrs	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	Roads	0				0	0	0	0
		0				0	**0**	**0**	**0**

Roads - Growth Media Costs

	Description (required)	Volume cy	Replacement Fleet	Cycle Time min	Fleet Productivity LCY/hr	Haul Fleet Size	Total Fleet Hours hrs	Total Labor Cost $	Total Equipment Cost $	Total Topsoiling Cost $
1	Roads	13,443	740C/988K/D8T	6.53	408	2	33	3,493	25,140	28,633
		13,443					33	**3,493**	**25,140**	**28,633**

Roads - Scarifying/Revegetation Costs

						Scarifying Costs			Regegetation Costs			
	Description (required)	Total Surface Area acres	Final Slope Length ft	Ripping/ Scarifying Fleet	Ripping Hours hrs	Ripping Labor Costs $	Ripping Equipment Cost $	Total Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	Roads	16.66	28	14M	12	312	2,107	2,419	7,050	7,050	7,263	21,363
		16.66			12	**312**	**2,107**	**2,419**	**7,050**	**7,050**	**7,263**	**21,363**

Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - User Input

You must fill in ALL green cells and relevant blue cells in this section for each p

	Facility Description								Pond Dimensions (1)				
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Pond Length ft	Pond Width ft	Pond Depth ft	Pond Sideslope Angle _H:1V	Disturbed Area (if calculated elsewhere) acres
1	Impacted Storm Water Impoundment A (measured from "DS-PLANT-EOML.dwg")			Impoundments	Active Closure			FA	359	258	12.5	3.0	2.90
2	Impacted Storm Water Impoundment B			Impoundments	Active Closure			FA	474	392	4.9	3.0	2.69
3	Impacted Storm Water Impoundment C			Impoundments	Active Closure			FA	1200	265	5.3	3.0	4.44
4	Process Water Reservoir (measured from "DS-PLANT-EOML.dwg")			Impoundments	Active Closure			FA	278	265	20.0	3.0	2.12
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-SURG-BRKL.dwg")(disturbance under cyc			Impoundments	Active Closure			FA	332.5	143	7.7	3.0	
6	TSF underdrain collection pond expansion (convert to TSF evaporation pond)			TSF Draindown Management	Active Closure			FA	3800	140	4.5	2.5	0.00
7	E-cell conversion TSF evaporation pond (minimum 10% of 25% Backfill 2 is growth media)			Impoundments	Final Closure			FA	3800	140	4.5	2.5	22.30
8	Pipeline ditches liner removal (removal of liner and filling with local material)			Yards	Active Closure			FA	6000	10	2.0	2.0	

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. Input distance from crusher to placement location if material to be crushed, screened or compacted
3. If pond will be filled by pushing berm into pond with bulldozer, enter 0 for Distance to Placement. Volume will be adjusted to 50% of the percent backfill to account for cut-to-fill pond construction. Dozer push distance assumed to be 2/3 the width of the pond.
4. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

Underdrain collection pond will be excavated out with new evaporation pond
See User 6 for Backfill 1 and Backfill 2 percentage calculations. New evaporation pond excavation disturbed area set to zero to avoid double-dipping with conversion to E-cell.
Impacted Storm Water Impoundment depths estimated by excavation quantities in User 06 divided by pond length and width.
Pond liner cut time assumed (sq. ft./hr) based on experience with similar projects: 6000

Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Process Ponds - User Input

		Backfill 1				Backfill 2				Growth Media			
	Description (required)	Percent Backfill (0% if blank)	Distance to Placement (2)(3) ft	Slope to Placement Location % grade	Volume (if calculated elsewhere) cy	Percent Backfill (0% if blank)	Distance to Placement (2) ft	Slope to Placement Location % grade	Volume (if calculated elsewhere) cy	Growth Media Thickness in	Distance to Placement ft	Slope to Placement Location % grade	Volume (if calculated elsewhere) cy
1	Impacted Storm Water Impoundment A (measured from "D	74%	500	0.0		26%	500	0.0					
2	Impacted Storm Water Impoundment B	74%	500	0.0		26%	500	0.0					
3	Impacted Storm Water Impoundment C	75%	500	0.0		25%	500	0.0					
4	Process Water Reservoir (measured from "DS-PLANT-EOM	75%	500	0.0		25%	500	0.0					
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	75%	500	0.0		25%	500	0.0					
6	TSF underdrain collection pond expansion (convert to TSF	100%	500	0.0		0%	500	0.0					
7	E-cell conversion TSF evaporation pond (minimum 10% of	75%	500	0.0		25%	500	0.0					
8	Pipeline ditches liner removal (removal of liner and filling v	100%	100	0.0									

Notes:
1. All Physical parameters must be input even if manual overri
2. Input distance from crusher to placement location if materia
3. If pond will be filled by pushing berm into pond with bulldoze

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - User Input (Cont.)

		Backfill 1 - Crushing & Screening								
	Description (required)	Crush Material (select)	Screen Material (select)	Loss to Crushing/ Screening %	Haul Distance to Crusher (1) ft	Slope to Crusher % grade	Haul to Crusher Fleet (select)	Compact After Placement? (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)
1	Impacted Storm Water Impoundment A (measured from "D	No	No							
2	Impacted Storm Water Impoundment B	No	No							
3	Impacted Storm Water Impoundment C	No	No							
4	Process Water Reservoir (measured from "DS-PLANT-EOM	No	No							
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	No	No							
6	TSF underdrain collection pond expansion (convert to TSF	No	No							
7	E-cell conversion TSF evaporation pond (minimum 10% of	No	No							
8	Pipeline ditches liner removal (removal of liner and filling v	No	No							

Notes:
1. Input distance from crusher to placement location if material to be crushed, screened or compacted
2. if distance from borrow <820 ft (250 m) must select loader fleet

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Process Ponds - User Input (Cont.)

		Backfill 2 - Crushing & Screening								
	Description (required)	Crush Material (select)	Screen Material (select)	Loss to Crushing/ Screening %	Haul Distance to Crusher (1) ft	Slope to Crusher % grade	Haul to Crusher Fleet (select)	Compact After Placement? (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)
1	Impacted Storm Water Impoundment A (measured from "D	No	No							
2	Impacted Storm Water Impoundment B	No	No							
3	Impacted Storm Water Impoundment C	No	No							
4	Process Water Reservoir (measured from "DS-PLANT-EOM	No	No							
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	No	No							
6	TSF underdrain collection pond expansion (convert to TSF	No	No							
7	E-cell conversion TSF evaporation pond (minimum 10% of	No	No							
8	Pipeline ditches liner removal (removal of liner and filling v	No	No							

Notes:
1. Input distance from crusher to placement location if materia

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - User Input (Cont.)

		Remove Liner	Backfill 1				Backfill 2			
	Description (required)	Crew Cut & Fold Time [2] hrs	Backfill Material Type (select)	Backfill Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Backfill Material Type (select)	Backfill Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)
1	Impacted Storm Water Impoundment A (measured from "D	31.0	Stone - crushed	Large Truck			Stone - crushed	Large Truck		
2	Impacted Storm Water Impoundment B	61.0	Stone - crushed	Large Truck			Stone - crushed	Large Truck		
3	Impacted Storm Water Impoundment C	105.0	Stone - crushed	Large Truck			Stone - crushed	Large Truck		
4	Process Water Reservoir (measured from "DS-PLANT-EOM	24.0	Stone - crushed	Large Truck			Stone - crushed	Large Truck		
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	16.0	Stone - crushed	Large Truck			Stone - crushed	Large Truck		
6	TSF underdrain collection pond expansion (convert to TSF evaporation pond)		Stone - crushed	Large Truck			Stone - crushed	Large Truck		
7	E-cell conversion TSF evaporation pond (minimum 10% of 25% Backfill 2 is grow		Stone - crushed	Med Truck			Stone - crushed	Med Truck		
8	Pipeline ditches liner removal (removal of liner and filling with local material)		Stone - crushed	Large Truck			Stone - crushed	Large Truck		

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
(2) Pond liner removal crew (2Clab + excavator) = 2 General Laborers + 325C Excavator

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Process Ponds - User Input (Cont.)

		Growth Media				Revegetation		
	Description (required)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)
1	Impacted Storm Water Impoundment A (measured from "D	Alluvium	Large Truck			User Mix 1		
2	Impacted Storm Water Impoundment B	Alluvium	Large Truck			User Mix 1		
3	Impacted Storm Water Impoundment C	Alluvium	Large Truck			User Mix 1		
4	Process Water Reservoir (measured from "DS-PLANT-EOM	Alluvium	Large Truck			User Mix 1		
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	Alluvium	Large Truck			User Mix 1		
6	TSF underdrain collection pond expansion (convert to TSF	Alluvium	Large Truck			User Mix 1		
7	E-cell conversion TSF evaporation pond (minimum 10% of	Alluvium	Large Truck			User Mix 1		
8	Pipeline ditches liner removal (removal of liner and filling v	Alluvium	Large Truck			User Mix 1		

Notes:

Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - User Input (Cont.)

		E/ET-Cell Construction												
	Description (required)	Add/Replace Liner (1) (select)	Liner Thickness (select)	Install Leak Detection/ Recovery System (select)	Add/Replace Geonet (select)	Number of Geotextile Layer(s)	Drain pipe spacing in cell (3) ft	Pipe Size (select)	Total Length of Cell Pipe ft	Additional Pipe Between Facility and Cell ft	Pipe Size (select)	Length of Drainfield Pipe ft	Pipe Size (select)	Mark up (4) %
1	Impacted Storm Water Impoundment A (measured from "DS-PLANT-EOML.dwg")													
2	Impacted Storm Water Impoundment B													
3	Impacted Storm Water Impoundment C													
4	Process Water Reservoir (measured from "DS-PLANT-EOML.dwg")													
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-SURG-BRKL.dwg")(disturbance under cyclone area pad)													
6	TSF underdrain collection pond expansion (convert to TSF	Add/replace double	60 mil HDPE	Yes	Yes		100	Drain 4in (100mm)	10,700	1,000	Water 4in (100mm	1,000	Drain 4in (100mm) perforated PVC	
7	E-cell conversion TSF evaporation pond (minimum 10% of 25% Backfill 2 is growth media)													
8	Pipeline ditches liner removal (removal of liner and filling with local material)													

Notes:
1. If single liner is installed, no drainage layer is included. If liner is repaired, assumes 10% of liner surface area is replaced.
2. Geomembrane layers are in addition to any required liner installation.
3. Spacing between drainpipes used to distribute water in E/ET-cell
4. Premium for misc. costs (e.g. ,inflow sampling port, low distribution box, drain rock and geotextile for draindown distribution system, dosing tank (where required), backfill monitoring port, transducer and telemetry (where required), LCRS sump construction)

Process Ponds - Assumptions & Calculations

Revegetation Calculations

Minimum 1 acre revegetation crew time per area

Evaporation/Evapotranspiration

Distribution header pipe assumed to be length of pond
Area of additional geosynthetic layers assumed to be
Minimum 1 acre revegetation crew time per area
Minimum 1 acre revegetation crew time per area

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - Liner Removal Costs

	Description (required)	Crew Hours hrs	Total Labor Cost $	Total Equipment Cost $	Total Cover Cost $
1	Impacted Storm Water Impoundment A (measured from "D	31	1,974	2,270	4,244
2	Impacted Storm Water Impoundment B	61	3,884	4,467	8,351
3	Impacted Storm Water Impoundment C	105	6,686	7,689	14,375
4	Process Water Reservoir (measured from "DS-PLANT-EOM	24	1,528	1,758	3,286
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	16	1,019	1,172	2,191
6	TSF underdrain collection pond expansion (convert to TSF	0	0	0	0
7	E-cell conversion TSF evaporation pond (minimum 10% of	0	0	0	0
8	Pipeline ditches liner removal (removal of liner and filling v	0	0	0	0
		237	**15,091**	**17,356**	**32,447**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - Backfill 1 Costs

		Material Volumes		Haul to Crusher					Backfill Placement				
	Description (required)	Material Volume to Crusher cy	Final Material Volume (1,2) cy	Crusher Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity LCM/hr	Fleet Hours hrs	Placement Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity LCM/hr	Fleet Hours hrs
1	Impacted Storm Water Impoundment A (measured from "D	0	24,624					0	777G/992K/D9T	5.2	2	1,275	19
2	Impacted Storm Water Impoundment B	0	23,313					0	777G/992K/D9T	5.2	2	1,275	18
3	Impacted Storm Water Impoundment C	0	43,557					0	777G/992K/D9T	5.2	2	1,275	34
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	25,493					0	777G/992K/D9T	5.2	2	1,275	20
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	0	7,921					0	777G/992K/D9T	5.2	2	1,275	6
6	TSF underdrain collection pond expansion (convert to TSF	0	81,211					0	777G/992K/D9T	5.2	2	1,275	64
7	E-cell conversion TSF evaporation pond (minimum 10% of	0	60,784					0	740C/988K/D8T	4.43	2	603	101
8	Pipeline ditches liner removal (removal of liner and filling v	0	2,439					0	777G/992K/D9T	4.78	2	1,388	2
		0	269,342					0					264

Notes:
1. If crushed or screened, Cover Volume = volume delivered to crusher - amount loss to crushing/screening)
2. If pond backfilled by dozing berm into pond, backfill volume will be 50% of the backfill volume to account for cut-to-fit construction

Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Process Ponds - Backfill 1 Costs

		Haul to Crusher			Crush	Compact			Haul to Placement			Total
	Description (required)	Labor Cost $	Equipment Cost $	Total Cost $	Total Crush/ Screen Cost $	Labor Cost $	Equipment Cost $	Total Cost $	Labor Cost $	Equipment Cost $	Total Cost $	Total Cover Cost $
1	Impacted Storm Water Impoundment A (measured from "D	0	0	0	0	0	0	0	2,011	32,687	34,698	34,698
2	Impacted Storm Water Impoundment B	0	0	0	0	0	0	0	1,905	30,967	32,872	32,872
3	Impacted Storm Water Impoundment C	0	0	0	0	0	0	0	3,599	58,493	62,092	62,092
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	0	0	0	0	0	0	2,117	34,408	36,525	36,525
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	0	0	0	0	0	0	0	635	10,322	10,957	10,957
6	TSF underdrain collection pond expansion (convert to TSF	0	0	0	0	0	0	0	6,774	110,105	116,879	116,879
7	E-cell conversion TSF evaporation pond (minimum 10% of	0	0	0	0	0	0	0	10,690	76,944	87,634	87,634
8	Pipeline ditches liner removal (removal of liner and filling v	0	0	0	0	0	0	0	212	3,441	3,653	3,653
		0	**0**	**0**	**0**	**0**	**0**	**0**	**27,943**	**357,367**	**385,310**	**385,310**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - Backfill 2 Costs

		Material Volumes		Haul to Crusher					Backfill Placement				
	Description (required)	Material Volume to Crusher cy	Final Material Volume (1,2) cy	Crusher Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity LCM/hr	Fleet Hours hrs	Placement Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity LCM/hr	Fleet Hours hrs
1	Impacted Storm Water Impoundment A (measured from "D	0	8,464					0	777G/992K/D9T	5.2	2	1,275	7
2	Impacted Storm Water Impoundment B	0	8,393					0	777G/992K/D9T	5.2	2	1,275	7
3	Impacted Storm Water Impoundment C	0	14,828					0	777G/992K/D9T	5.2	2	1,275	12
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	8,498					0	777G/992K/D9T	5.2	2	1,275	7
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	0	2,640					0	777G/992K/D9T	5.2	2	1,275	2
6	TSF underdrain collection pond expansion (convert to TSF	0	0					0					0
7	E-cell conversion TSF evaporation pond (minimum 10% of	0	20,427					0	740C/988K/D8T	4.43	2	603	34
8	Pipeline ditches liner removal (removal of liner and filling v	0	0					0					0
		0	63,250					0					69

Notes:
1. If crushed or screened, Cover Volume = volume delivered to crusher - amount loss to crushing/screening)
2. If pond backfilled by dozing berm into pond, backfill volume will be 50% of the backfill volume to account for cut-to-fit construction

Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Process Ponds - Backfill 2 Costs

		Haul to Crusher			Crush	Compact			Haul to Placement			Total
	Description (required)	Labor Cost $	Equipment Cost $	Total Cost $	Total Crush/ Screen Cost $	Labor Cost $	Equipment Cost $	Total Cost $	Labor Cost $	Equipment Cost $	Total Cost $	Total Cover Cost $
1	Impacted Storm Water Impoundment A (measured from "D	0	0	0	0	0	0	0	2,011	12,043	14,054	14,054
2	Impacted Storm Water Impoundment B	0	0	0	0	0	0	0	1,905	12,043	13,948	13,948
3	Impacted Storm Water Impoundment C	0	0	0	0	0	0	0	3,599	20,645	24,244	24,244
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	0	0	0	0	0	0	2,117	12,043	14,160	14,160
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	0	0	0	0	0	0	0	635	3,441	4,076	4,076
6	TSF underdrain collection pond expansion (convert to TSF	0	0	0	0	0	0	0	6,774	0	6,774	6,774
7	E-cell conversion TSF evaporation pond (minimum 10% of	0	0	0	0	0	0	0	10,690	25,902	36,592	36,592
8	Pipeline ditches liner removal (removal of liner and filling v	0	0	0	0	0	0	0	212	0	212	212
		0	**0**	**0**	**0**	**0**	**0**	**0**	**27,943**	**86,117**	**114,060**	**114,060**

Notes:

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - Revegetation Costs

	Description (required)	Surface Area acres	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	Impacted Storm Water Impoundment A (measured from "D	2.90	1,227	1,227	1,264	3,718
2	Impacted Storm Water Impoundment B	2.70	1,142	1,142	1,177	3,461
3	Impacted Storm Water Impoundment C	4.40	1,862	1,862	1,918	5,642
4	Process Water Reservoir (measured from "DS-PLANT-EOM	2.10	889	889	916	2,694
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	1.10	465	465	480	1,410
6	TSF underdrain collection pond expansion (convert to TSF	12.20	5,162	5,162	5,319	15,643
7	E-cell conversion TSF evaporation pond (minimum 10% of	22.30	9,436	9,436	9,722	28,594
8	Pipeline ditches liner removal (removal of liner and filling v	1.40	592	592	610	1,794
		49.10	**20,775**	**20,775**	**21,406**	**62,956**

Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - Evaporation/Evapotranspiration Cell Liners

		Liner Repair					Other Geosynthetics					Totals		
	Description (required)	Surface Area ft2	Material Costs $	Labor Cost $	Equipment Cost $	Liner Cost $	Surface Area ft2	Material Costs $	Labor Cost $	Equipment Cost $	Geosynthetic Cost $	Subtotal $	Markup $	Total Cost $
1	Impacted Storm Water Impoundment A (measured from "D	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Impacted Storm Water Impoundment B	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Impacted Storm Water Impoundment C	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	0	0	0	0	0	0	0	0	0	0	0	0	0
6	TSF underdrain collection pond expansion (convert to TSF	1,075,753	623,936	451,816	473,331	1,549,084	0	0	0	0	0	1,549,084	0	1,549,084
7	E-cell conversion TSF evaporation pond (minimum 10% of	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Pipeline ditches liner removal (removal of liner and filling v	0	0	0	0	0	0	0	0	0	0	0	0	0
		1,075,753	**623,936**	**451,816**	**473,331**	**1,549,084**	0	**0**	**0**	**0**	**0**	**1,549,084**	**0**	**1,549,084**

Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Process Ponds - Evaporation/Evapotranspiration Cell Piping

		Cell Piping					Connector Piping				
	Description (required)	Total Cell Pipe Length (1) ft	Material Costs $	Labor Cost $	Equipment Cost $	Total Cost $	Total Connector Pipe Length (1) ft	Material Costs $	Labor Cost $	Equipment Cost $	Total Cost $
1	Impacted Storm Water Impoundment A (measured from "D	0	0	0	0	0	0	0	0	0	0
2	Impacted Storm Water Impoundment B	0	0	0	0	0	0	0	0	0	0
3	Impacted Storm Water Impoundment C	0	0	0	0	0	0	0	0	0	0
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	0	0	0	0	0	0	0	0	0
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	0	0	0	0	0	0	0	0	0	0
6	TSF underdrain collection pond expansion (convert to TSF	10,700	17,548	42,586	19,902	80,036	1,000	2,500	1,910	5,060	0
7	E-cell conversion TSF evaporation pond (minimum 10% of	0	0	0	0	0	0	0	0	0	0
8	Pipeline ditches liner removal (removal of liner and filling v	0	0	0	0	0	0	0	0	0	0
		10,700	**17,548**	**42,586**	**19,902**	**80,036**	1,000	**2,500**	**1,910**	**5,060**	**0**

Notes:
1. Length of cell pipe = (Length of Pond / Pipe Spacing) * Width of Pond

Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Process Ponds - Evaporation/Evapotranspiratio

		Drainfield Piping					Totals		
	Description (required)	Total Drainfield Pipe Length ft	Material Costs $	Labor Cost $	Equipment Cost $	Total Cost $	Subtotal $	Markup $	Total Cost $
1	Impacted Storm Water Impoundment A (measured from "D	0	0	0	0	0	0	0	0
2	Impacted Storm Water Impoundment B	0	0	0	0	0	0	0	0
3	Impacted Storm Water Impoundment C	0	0	0	0	0	0	0	0
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	0	0	0	0	0	0	0
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	0	0	0	0	0	0	0	0
6	TSF underdrain collection pond expansion (convert to TSF	1,000	1,640	3,980	5,060	10,680	90,716	0	90,716
7	E-cell conversion TSF evaporation pond (minimum 10% of	0	0	0	0	0	0	0	0
8	Pipeline ditches liner removal (removal of liner and filling v	0	0	0	0	0	0	0	0
		1,000	**1,640**	**3,980**	**5,060**	**10,680**	**90,716**	**0**	**90,716**

Closure Cost Estimate
Yards, Etc.

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Yards, Etc. - User Input

Facility Description

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type
1	Plant area - concentrator area			Yards	Active Closure			FA
2	Plant area - see "Waste Rock Dumps"			WRD	Active Closure			FA
3	Cyclone station pad			Yards	Active Closure			FA
4	Landbridge 1			WRD	Active Closure			FA
5	Landbridge 2			WRD	Active Closure			FA
6	EWRSP-2B-3			WRD	Active Closure			FA
7	Disturbance around pit perimeter (approximated based on 100 ft around pit perimeter)			WRD	Active Closure			FA
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM per Rec Plan Table E-1)			WRD	Active Closure			FA
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM per Rec Plan Table E-1)			WRD	Active Closure			FA
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM per Rec Plan Table E-1)			WRD	Active Closure			FA
11	Prepare ground for EWRSP-1 slope armor 1			WRD	Active Closure			FA
12	Prepare ground for EWRSP-2B slope armor 1			WRD	Active Closure			FA
13	Prepare ground for EWRSP-2B slope armor 2			WRD	Active Closure			FA
14	Prepare ground for EWRSP-4 slope armor 1			WRD	Active Closure			FA
15	Prepare ground for WRSP-1 slope armor 1			WRD	Active Closure			FA
16	Prepare ground for WRSP-1 slope armor 2			WRD	Active Closure			FA
17	Prepare ground for WRSP-1 slope armor 3			WRD	Active Closure			FA
18	Prepare ground for TSF slope armor 1			Tailings Storage Facility	Active Closure			FA
19	Toe berm area around TSF (see User 22)			Tailings Storage Facility	Active Closure			FA

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. Input distance from crusher to placement location if material to be crushed, screened or compacted
3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

See User 05 for growth media stockpile inputs.
Regrade volume assumption of ___ ft depth of regrade: 0.5
Ripping distance estimated by taking square root of area.

Closure Cost Estimate
Yards, Etc.

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Yards, Etc. - User Input — You must fill in ALL green cells and relevant blue cells in this section for each building or facility

		Physical			Cover 1			Cover 2			Growth Media		
	Description (required)	Area acres	Average Flat Area Long Dimension (ripping distance) ft	Regrade Volume (calculated elsewhere) cy	Cover Thickness in	Haul Distance to Placement Location (2) ft	Slope to Placement Location % grade	Cover Thickness in	Haul Distance to Placement Location (2) ft	Slope to Placement Location % grade	Growth Media Thickness in	Haul Distance to Placement ft	Slope to Placement Location % grade
1	Plant area - concentrator area	6.95	600	6,000							36	5,000	-5.0
2	Plant area - see "Waste Rock Dumps"												
3	Cyclone station pad	5.76	500	5,000							36	5,000	-5.0
4	Landbridge 1	2.42	300	2,000									
5	Landbridge 2	1.31	200	2,000									
6	EWRSP-2B-3	4.38	400	4,000							6	13,179	-2.5
7	Disturbance around pit perimeter (approximated based on	21.24	1,000	18,000							6	5,000	0.0
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM pe	29.33	1,100	24,000							0	5,000	-5.0
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM pe	31.55	1,200	26,000							0	5,000	-5.0
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM pe	14.10	800	12,000							6	5,000	-5.0
11	Prepare ground for EWRSP-1 slope armor 1	0.21	100	1,000									
12	Prepare ground for EWRSP-2B slope armor 1	0.08	100	1,000									
13	Prepare ground for EWRSP-2B slope armor 2	0.14	100	1,000									
14	Prepare ground for EWRSP-4 slope armor 1	0.10	100	1,000									
15	Prepare ground for WRSP-1 slope armor 1	0.29	100	1,000									
16	Prepare ground for WRSP-1 slope armor 2	0.28	100	1,000									
17	Prepare ground for WRSP-1 slope armor 3	0.34	100	1,000									
18	Prepare ground for TSF slope armor 1	2.06	300	2,000									
19	Toe berm area around TSF (see User 22)	10.90	700	9,000							36	10,000	0.0

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Yards, Etc. - User Input (Cont.)

You must fill in ALL green cells and relevant blue cells in this section for each building or facility

		Grading			Cover 1			
	Description (required)	Dozing Material Condition (select)	Dozing Material Type (select)	Grading Equipment Fleet (select)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)
1	Plant area - concentrator area	1	Granite - broken	Large				
2	Plant area - see "Waste Rock Dumps"							
3	Cyclone station pad	1	Granite - broken	Large				
4	Landbridge 1	1	Granite - broken	Large				
5	Landbridge 2	1	Granite - broken	Large				
6	EWRSP-2B-3	1	Granite - broken	Large				
7	Disturbance around pit perimeter (approximated based on	1	Granite - broken	Large				
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM pe	1	Topsoil	Large				
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM pe	1	Topsoil	Large				
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM pe	1	Topsoil	Large				
11	Prepare ground for EWRSP-1 slope armor 1	1	Granite - broken	Large				
12	Prepare ground for EWRSP-2B slope armor 1	1	Granite - broken	Large				
13	Prepare ground for EWRSP-2B slope armor 2	1	Granite - broken	Large				
14	Prepare ground for EWRSP-4 slope armor 1	1	Granite - broken	Large				
15	Prepare ground for WRSP-1 slope armor 1	1	Granite - broken	Large				
16	Prepare ground for WRSP-1 slope armor 2	1	Granite - broken	Large				
17	Prepare ground for WRSP-1 slope armor 3	1	Granite - broken	Large				
18	Prepare ground for TSF slope armor 1	1	Granite - broken	Large				
19	Toe berm area around TSF (see User 22)	1	Granite - broken	Large				

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA **Cost Basis:** Copper Flat F

Yards, Etc. - User Input (Cont.)

		Cover 2				Growth Media				Revegetation				
	Description (required)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Material Type (select)	Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1	Plant area - concentrator area					Alluvium	Large Truck			User Mix 1			Yes	Grader
2	Plant area - see "Waste Rock Dumps"													
3	Cyclone station pad					Alluvium	Large Truck			User Mix 1			No	
4	Landbridge 1					Alluvium	Large Truck			User Mix 1			Yes	Grader
5	Landbridge 2					Alluvium	Large Truck			User Mix 1			Yes	Grader
6	EWRSP-2B-3					Alluvium	Large Truck			User Mix 1			No	
7	Disturbance around pit perimeter (approximated based on					Alluvium	Large Truck			User Mix 1			Yes	Grader
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM pe					Alluvium	Large Truck			User Mix 1			Yes	Grader
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM pe					Alluvium	Large Truck			User Mix 1			Yes	Grader
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM pe					Alluvium	Large Truck			User Mix 1			Yes	Grader
11	Prepare ground for EWRSP-1 slope armor 1												No	
12	Prepare ground for EWRSP-2B slope armor 1												No	
13	Prepare ground for EWRSP-2B slope armor 2												No	
14	Prepare ground for EWRSP-4 slope armor 1												No	
15	Prepare ground for WRSP-1 slope armor 1												No	
16	Prepare ground for WRSP-1 slope armor 2												No	
17	Prepare ground for WRSP-1 slope armor 3												No	
18	Prepare ground for TSF slope armor 1												No	
19	Toe berm area around TSF (see User 22)					Alluvium	Large Truck			User Mix 1			Yes	Grader

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Yards, Etc. - Assumptions & Calculations

Grading Calculations

Average push distance assumed to be 2/3 of the 600 feet maximum from Catepillar Handbook or 400 feet
Material assumed to be loose stockile (1.2 productivity factor)
Slope assumed to be 0 to 5% (1.0 productivity factor)

Cover Volume Calculation

Yard area x cover thickness

Ripping/Scarifying Calculations

Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr ripping/scarifying per area

Revegetation

Minimum 1 acre revegetation crew time per area

Closure Cost Estimate
Yards, Etc.

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Yards, Etc. - Regrading Costs

Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side)

	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Total Hourly Productivity cy/hr	Total Dozer Hours hrs	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	Plant area - concentrator area	6,000	400	D9T	334	1.0	1.0	0.82	170	35	909	7,368	8,277
2	Plant area - see "Waste Rock Dumps"			Select Fleet						0	0	0	0
3	Cyclone station pad	5,000	400	D9T	334	1.0	1.0	0.82	170	29	753	6,105	6,858
4	Landbridge 1	2,000	400	D9T	334	1.0	1.0	0.82	170	12	312	2,526	2,838
5	Landbridge 2	2,000	400	D9T	334	1.0	1.0	0.82	170	12	312	2,526	2,838
6	EWRSP-2B-3	4,000	400	D9T	334	1.0	1.0	0.82	170	24	623	5,052	5,675
7	Disturbance around pit perimeter (approximated based on	18,000	400	D9T	334	1.0	1.0	0.82	170	106	2,752	22,315	25,067
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM pe	24,000	400	D9T	334	1.0	1.0	1.44	299	80	2,077	16,842	18,919
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM pe	26,000	400	D9T	334	1.0	1.0	1.44	299	87	2,259	18,315	20,574
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM pe	12,000	400	D9T	334	1.0	1.0	1.44	299	40	1,038	8,421	9,459
11	Prepare ground for EWRSP-1 slope armor 1	1,000	400	D9T	334	1.0	1.0	0.82	170	6	156	1,263	1,419
12	Prepare ground for EWRSP-2B slope armor 1	1,000	400	D9T	334	1.0	1.0	0.82	170	6	156	1,263	1,419
13	Prepare ground for EWRSP-2B slope armor 2	1,000	400	D9T	334	1.0	1.0	0.82	170	6	156	1,263	1,419
14	Prepare ground for EWRSP-4 slope armor 1	1,000	400	D9T	334	1.0	1.0	0.82	170	6	156	1,263	1,419
15	Prepare ground for WRSP-1 slope armor 1	1,000	400	D9T	334	1.0	1.0	0.82	170	6	156	1,263	1,419
16	Prepare ground for WRSP-1 slope armor 2	1,000	400	D9T	334	1.0	1.0	0.82	170	6	156	1,263	1,419
17	Prepare ground for WRSP-1 slope armor 3	1,000	400	D9T	334	1.0	1.0	0.82	170	6	156	1,263	1,419
18	Prepare ground for TSF slope armor 1	2,000	400	D9T	334	1.0	1.0	0.82	170	12	312	2,526	2,838
19	Toe berm area around TSF (see User 22)	9,000	400	D9T	334	1.0	1.0	0.82	170	53	1,376	11,158	12,534
		117,000								532	**13,815**	**111,995**	**125,810**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Yards, Etc. - Growth Media Costs

		Growth Media Placement								
	Description (required)	Final Material Volume cy	Placement Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity BCY/hr	Fleet Hours hrs	Labor Cost $	Equipment Cost $	Total Cost $
1	Plant area - concentrator area	33,638	777G/992K/D9T	12.71	4	1,042	32	4,877	88,693	93,570
2	Plant area - see "Waste Rock Dumps"						0	0	0	0
3	Cyclone station pad	27,878	777G/992K/D9T	12.71	4	1,042	27	4,115	74,835	78,950
4	Landbridge 1						0	0	0	0
5	Landbridge 2						0	0	0	0
6	EWRSP-2B-3	3,533	777G/992K/D9T	22.13	7	1,052	3	667	13,046	13,713
7	Disturbance around pit perimeter (approximated based on	17,133	777G/992K/D9T	9.92	3	1,003	17	2,195	38,182	40,377
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM pe	0			4		0	152	2,772	0
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM pe	0			4		0	152	2,772	0
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM pe	11,374	777G/992K/D9T	12.71	4	1,042	11	1,677	30,488	32,165
11	Prepare ground for EWRSP-1 slope armor 1						0	0	0	0
12	Prepare ground for EWRSP-2B slope armor 1						0	0	0	0
13	Prepare ground for EWRSP-2B slope armor 2						0	0	0	0
14	Prepare ground for EWRSP-4 slope armor 1						0	0	0	0
15	Prepare ground for WRSP-1 slope armor 1						0	0	0	0
16	Prepare ground for WRSP-1 slope armor 2						0	0	0	0
17	Prepare ground for WRSP-1 slope armor 3						0	0	0	0
18	Prepare ground for TSF slope armor 1						0	0	0	0
19	Toe berm area around TSF (see User 22)	52,778	777G/992K/D9T	15.16	5	1,096	48	8,434	158,269	166,703
		146,334					138	**22,269**	**409,057**	**425,478**

Closure Cost Estimate
Yards, Etc.

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Yards, Etc. - Scarify/Revegetation Costs

						Scarifying Costs			Regegetation Costs			
	Description (required)	Total Surface Area acres	Average Long Dimension (ripping distance) ft	Ripping/Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revegetation Material Cost $	Total Revegetation Cost $
1	**Plant area - concentrator area**	6.95	600	14M	6	156	1,053	1,209	2,941	2,941	3,030	8,912
2	**Plant area - see "Waste Rock Dumps"**				0	0	0	0	0	0	0	0
3	**Cyclone station pad**	5.76			0	0	0	0	2,437	2,437	2,511	7,385
4	**Landbridge 1**	2.42	300	14M	3	78	527	605	1,024	1,024	1,055	3,103
5	**Landbridge 2**	1.31	200	14M	2	52	351	403	554	554	571	1,679
6	**EWRSP-2B-3**	4.38			0	0	0	0	1,853	1,853	1,910	5,616
7	**Disturbance around pit perimeter (approximated based on**	21.24	1,000	14M	18	467	3,160	3,627	8,987	8,987	9,260	27,234
8	**GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM pe**	29.33	1,100	14M	25	649	4,390	5,039	12,411	12,411	12,787	37,609
9	**GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM pe**	31.55	1,200	14M	26	675	4,565	5,240	13,350	13,350	13,755	40,455
10	**GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM pe**	14.10	800	14M	12	312	2,107	2,419	5,966	5,966	6,147	18,079
11	**Prepare ground for EWRSP-1 slope armor 1**	0.21			0	0	0	0	0	0	0	0
12	**Prepare ground for EWRSP-2B slope armor 1**	0.08			0	0	0	0	0	0	0	0
13	**Prepare ground for EWRSP-2B slope armor 2**	0.14			0	0	0	0	0	0	0	0
14	**Prepare ground for EWRSP-4 slope armor 1**	0.10			0	0	0	0	0	0	0	0
15	**Prepare ground for WRSP-1 slope armor 1**	0.29			0	0	0	0	0	0	0	0
16	**Prepare ground for WRSP-1 slope armor 2**	0.28			0	0	0	0	0	0	0	0
17	**Prepare ground for WRSP-1 slope armor 3**	0.34			0	0	0	0	0	0	0	0
18	**Prepare ground for TSF slope armor 1**	2.06			0	0	0	0	0	0	0	0
19	**Toe berm area around TSF (see User 22)**	10.90	700	14M	10	260	1,756	2,016	4,614	4,614	4,754	13,982
		131.43			102	**2,649**	**17,909**	**20,558**	**54,137**	**54,137**	**55,780**	**164,054**

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)
2) Assumes 50 min/hr equipment availability

Closure Cost Estimate
Haul Material

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Generic Material Hauling - User Input

	Facility Description								Physical			Haul to Crusher	
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Final Surface Area acres	Average Ripping Distance ft	Material Volume Required cy	Haul Distance to Crusher (1) ft	Slope to Crusher % grade
1	Removal of EWRSP-2A to EWRSP-2B			WRD	Active Closure			FA			50,000		
2	Hauling material suitable for riprap from pit to cyclone plant area (see User 21 for supply)			Riprap Supply	Active Closure			FA			65,557		
3	Haul trench backfill material			Yards	Active Closure			FA			25,040		

Notes:
1. Input distance to crusher if material to be crushed
2. Assumed to be 0% if material will be crushed and source is within 250 m of crusher
3. If Slope is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

General plant area disturbance reclamation included under "Yards."
Volume of material suitable for riprap hauled from pit is estimated by multiplication of surface area of channel with thickness of riprap which is 2*D50 provided in channel schedule in User 10 (per Note 1 of Drawing C-021).

Closure Cost Estimate
Haul Material

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Generic Material Hauling - User Input

		Crushing & Screening			Haul to Placement		Cover Thickness			Growth Media		
	Description (required)	Crush Material	Screen Material	Loss to Crushing/ Screening %	Haul Distance to Placement Location (2) ft	Slope to Placement Area % grade	Cover Thickness in	Haul Distance to Placement Location ft	Slope to Placement Location % grade	Growth Media Thickness in	Haul Distance to Placement Location ft	Slope to Placement Location % grade
1	Removal of EWRSP-2A to EWRSP-2B				700	0.0						
2	Hauling material suitable for riprap from pit to cyclone plan			20%	10,000	0.0						
3	Haul trench backfill material				10,536	-1.7						

Notes:
1. Input distance to crusher if material to be crushed
2. Assumed to be 0% if material will be crushed and source is

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Generic Material Hauling - User Input (cont.)

		Hauling Material							
	Description (required)	Haul Material Type (select)	Crusher Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Placement Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)	Compact After Placement?
1	Removal of EWRSP-2A to EWRSP-2B	Limestone - broken				Large Truck			
2	Hauling material suitable for riprap from pit to cyclone plan	Granite - broken				Large Truck			
3	Haul trench backfill material	Granite - broken				Large Truck			

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
2. If distance betweem borrow source is <250 m, haul fleet assumed be wheeled loaders

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Generic Material Hauling - Load, Haul, Place and Grade

		Material Volumes		Haul to Crusher					Haul to Placement				
	Description (required)	Material Volume to Crusher cy	Final Material Volume cy	Crusher Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity LCY/hr	Fleet Hours hrs	Placement Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity LCY/hr	Fleet Hours hrs
1	Removal of EWRSP-2A to EWRSP-2B		50,000					0	777G/992K/D9T	5.42	2	1,223	41
2	Hauling material suitable for riprap from pit to cyclone plan		65,557					0	777G/992K/D9T	15.16	5	1,096	60
3	Haul trench backfill material		25,040					0	777G/992K/D9T	15.72	5	1,054	24
		0	140,597					0					125

Notes: Final Material Volume includes allowance for additional material hauled to crushing/screening plant based on Loss to Crushing/Screening input above.

Closure Cost Estimate
Haul Material

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_F
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Re
Cost Estimate Type: FA Cost Basis: Copper Flat F

Generic Material Hauling - Load, Haul, Place an

		Haul to Crusher			Crush	Compact			Haul to Placement			Total
	Description (required)	Labor Cost $	Equipment Cost $	Total Cost $	Total Crush/ Screen Cost $	Labor Cost $	Equipment Cost $	Total Cost $	Labor Cost $	Equipment Cost $	Total Cost $	Total Cover Cost $
1	Removal of EWRSP-2A to EWRSP-2B	0	0	0	0	0	0	0	4,339	70,536	74,875	74,875
2	Hauling material suitable for riprap from pit to cyclone plan	0	0	0	0	0	0	0	10,543	197,837	208,380	208,380
3	Haul trench backfill material	0	0	0	0	0	0	0	4,217	79,135	83,352	83,352
		0	**0**	**0**	**0**	**0**	**0**	**0**	**19,099**	**347,508**	**366,607**	**366,607**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Buildings & Foundation - User Input

You must fill in ALL green cells and relevant blue cells in this section for each building or facility

	Facility Description								Physical - MANDATORY								Foundation Cover (1)		
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Length ft	Width ft	Eave Height ft	Slab Thickness in	Foundation Wall Thickness in	Foundation Wall Height ft	Average Flat Area Long Dimension (ripping distance) ft	Building Area Footprint (including surrounding facilities) acres	Foundation Cover Thickness in	Haul Distance to Placement Location ft	Slope to Placement Location % grade
1	Primary Crusher Control/Mechanical Building			Buildings	Active Closure			FA	20	15	25	8	12	3	20	0.01	36	1,500	0.0
2	Concentrator Building, Grinding Area			Buildings	Active Closure			FA	192	145	125	12	12	3	192	0.64	36	1,500	0.0
3	Concentrator Building, Flotation Area			Buildings	Active Closure			FA	216	96	80	12	12	3	216	0.48	36	1,500	0.0
4	Concentrator Building, Maintenance Area			Buildings	Active Closure			FA	70	50	30	10	12	3	70	0.09	36	1,500	0.0
5	Concentrate Handling & Storage Area, Included in concentrator building			Buildings	Active Closure			FA	144	72	80	10	12	3	144	0.24	36	1,500	0.0
6	Concentrate Thickeners (1/2)			Buildings	Active Closure			FA	16	16	16	0	12	3	16	0.01	36	1,500	0.0
7	Concentrate Thickeners (2/2)			Buildings	Active Closure			FA	16	16	16	0	12	3	16	0.01	36	1,500	0.0
8	Ball Bins			Buildings	Active Closure			FA	109	51	6	12	12	3	109	0.13	36	1,500	0.0
9	Reagent Storage and Lime Handling			Buildings	Active Closure			FA	110	76	50	6	12	3	110	0.20	36	1,500	0.0
10	Flammable Material Storage Bldg.			Buildings	Active Closure			FA	25	17	9	8	12	3	25	0.01	36	1,500	0.0
11	Tailings Cyclone Station			Buildings	Active Closure			FA	75	50	40	0	12	3	75	0.09	36	1,500	0.0
12	Mine Shop/Warehouse			Buildings	Active Closure			FA	123	92	60	12	12	3	123	0.26	36	1,500	0.0
13	Wash Pad			Buildings	Active Closure			FA	90	90		10	12	3	90	0.19	36	1,500	0.0
14	Administration Building			Buildings	Active Closure			FA	96	60	24	12	0	0	96	0.14			
15	Changehouse/Gatehouse			Buildings	Active Closure			FA	84	60	19	6	0	0	84	0.12			
16	Assay & Metallurgical Laboratory			Buildings	Active Closure			FA	122	40	22	6	0	0	122	0.12			
17	Copper Flat Electric Substation			Buildings	Active Closure			FA	115	70	0	0	0	0	115	0.19			
18	Freshwater/Fire Tank (1)			Buildings	Active Closure			FA	40	40	36	0	0	0	40	0.04			
19	Process water tank (1)			Buildings	Active Closure			FA	30	30	32	0	0	0	30	0.03			
20	Fresh Water Pump Station Tanks (1/2)			Buildings	Active Closure			FA	40	40	36	0	0	0	40	0.04			
21	Fresh Water Pump Station Tanks (2/2)			Buildings	Active Closure			FA	40	40	36	0	0	0	40	0.04			
22	Potable Water Tank			Buildings	Active Closure			FA	12	12	7	0	0	0	12	0.01			
23	Seal Water Tank			Buildings	Active Closure			FA	8	8	8	0	0	0	8	0.01			
24	Reclaim Reservoir Fresh Water Surge Tank			Buildings	Active Closure			FA	16	16	15	0	0	0	16	0.01			
25	Reclaim Reservoir Fresh Water Storage Tank			Buildings	Active Closure			FA	40	40	36	0	0	0	40	0.04			
26	Off Road Diesel Fuel Storage Tank (1)			Buildings	Active Closure			FA	28	28	24	0	0	0	28	0.02			
27	On Road Diesel Storage Tank			Buildings	Active Closure			FA	12	12	12	0	0	0	12	0.01			
28	Gasoline Storage Tank			Buildings	Active Closure			FA	12	12	12	0	0	0	12	0.01			
29	Recycle Water Tank - Truck Wash			Buildings	Active Closure			FA	12	12	12	0	0	0	12	0.01			
30	Lime Silo			Buildings	Active Closure			FA	25	25	40	10	0	0	25	0.02			
31	Lime Slurry Tank			Buildings	Active Closure			FA	12	12	25	0	0	0	12	0.01			
32	Pax Mix Tank			Buildings	Active Closure			FA	8	8	11	0	0	0	8	0.01			
33	Pax Distribution Tank			Buildings	Active Closure			FA	8	8	11	0	0	0	8	0.01			
34	MIBC Storage Tank			Buildings	Active Closure			FA	8	8	6	0	0	0	8	0.01			
35	No. 2 Diesel Storage Tank			Buildings	Active Closure			FA	8	8	6	0	0	0	8	0.01			
36	NaHS Mix Tank			Buildings	Active Closure			FA	8	8	11	0	0	0	8	0.01			
37	NaHS Distribution Tank			Buildings	Active Closure			FA	8	8	11	0	0	0	8	0.01			
38	Moly Collector Mix Tank			Buildings	Active Closure			FA	8	8	6	0	0	0	8	0.01			
39	Moly Collector Distribution Tank			Buildings	Active Closure			FA	8	8	6	0	0	0	8	0.01			
40	AERO 238 Mix Tank			Buildings	Active Closure			FA	8	8	11	0	0	0	8	0.01			
41	AERO 238 Distribution Tank			Buildings	Active Closure			FA	8	8	11	0	0	0	8	0.01			
42	NaHS Stock Tank			Buildings	Active Closure			FA	8	8	11	0	0	0	8	0.01			
43	Flocculant Tanks (1/2)			Buildings	Active Closure			FA	12	12	7	0	0	0	12	0.01			
44	Flocculant Tanks (2/2)			Buildings	Active Closure			FA	12	12	7	0	0	0	12	0.01			
45	Gravity Concentrator Concentrate Tank			Buildings	Active Closure			FA	12	12	10	0	0	0	12	0.01			
46	Copper concentrate stock tank			Buildings	Active Closure			FA	17	17	25	0	0	0	17	0.01			
47	Explosive Magazines (1/2)			Buildings	Active Closure			FA	8	8	8	0	0	0	8	0.01			
48	Explosive Magazines (2/2)			Buildings	Active Closure			FA	8	8	8	0	0	0	8	0.01			
49	Ammonium Nitrate Silo			Buildings	Active Closure			FA	15	15	60	0	0	0	15	0.01			

Notes:
1. Foundation cover only calculated to cover slab. Growth media estimated over entire footprint area
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

Growth media and revegetation under "Yards."
See User 04 for building dimension backup.
Concentrator foundation will be backfilled with demolition debris from buildings around it and some local material from the growth media stockpiles.
Crusher foundation will be backfilled from WRSP-3.

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Buildings & Foundation - User Input (cont.)

You must fill in ALL green cells and relevant blue cells in this section for each building or facility

		Construction Materials		Slab Demolition		Foundation Cover			
	Description (required)	Building Type (select)	Foundation Wall Type (select)	Slab Demo Method (select)	Slab Breaking Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Cycle Time Override (user override)	Maximum Fleet Size (user override)
1	Primary Crusher Control/Mechanical Building	Lg. steel	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
2	Concentrator Building, Grinding Area	Lg. steel	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
3	Concentrator Building, Flotation Area	Lg. steel	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
4	Concentrator Building, Maintenance Area	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
5	Concentrate Handling & Storage Area, Included in concentr	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
6	Concentrate Thickeners (1/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
7	Concentrate Thickeners (2/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
8	Ball Bins	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
9	Reagent Storage and Lime Handling	Lg. steel	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
10	Flammable Material Storage Bldg.	Lg. concrete	Conc 12 in (300 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
11	Tailings Cyclone Station	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
12	Mine Shop/Warehouse	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
13	Wash Pad	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
14	Administration Building	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
15	Changehouse/Gatehouse	Sm. steel	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
16	Assay & Metallurgical Laboratory	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
17	Copper Flat Electric Substation	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
18	Freshwater/Fire Tank (1)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Med Truck		
19	Process water tank (1)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Med Truck		
20	Fresh Water Pump Station Tanks (1/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Med Truck		
21	Fresh Water Pump Station Tanks (2/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Med Truck		
22	Potable Water Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
23	Seal Water Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
24	Reclaim Reservoir Fresh Water Surge Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
25	Reclaim Reservoir Fresh Water Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
26	Off Road Diesel Fuel Storage Tank (1)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
27	On Road Diesel Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
28	Gasoline Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
29	Recycle Water Tank - Truck Wash	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
30	Lime Silo	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
31	Lime Slurry Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
32	Pax Mix Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
33	Pax Distribution Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
34	MIBC Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
35	No. 2 Diesel Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
36	NaHS Mix Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
37	NaHS Distribution Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
38	Moly Collector Mix Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
39	Moly Collector Distribution Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
40	AERO 238 Mix Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
41	AERO 238 Distribution Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
42	NaHS Stock Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
43	Flocculant Tanks (1/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
44	Flocculant Tanks (2/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
45	Gravity Concentrator Concentrate Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
46	Copper concentrate stock tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		
47	Explosive Magazines (1/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Med Truck		
48	Explosive Magazines (2/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Med Truck		
49	Ammonium Nitrate Silo	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broken	Large Truck		

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Foundations & Buildings - Assumptions & Calculations

Building Volume Calculations

Using Means Heavy Construction Cost Data (2004) calculates cubic feet from building dimensions
Estimage slab thickness and wall thickness if not known
Assumes that all concrete slabs are reinforced
Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision
(addressed in Misc. Costs) and Davis-Bacon Wage Rates
Demolition costs do not include hauling or disposing if debris - Use Waste Disposal module

Slab Demolition Calculations

Minimum 1 hr excavator time for slab demolition

Cover Volume Calculation

Foundation area x cover thickness
If "Bury in Place" is selected as slab demolition method, cover thickness is adjusted such that
total cover (cover + growth media) equals value entered in "Minimum thickness of cover over unbroken slab" cell above

Ripping/Scarifying Calculations

Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation

Minimum 1 acre revegetation crew time per area

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Building & Foundation Demolition Costs

Uses RS Means Heavy Construction Cost Data for building and wall demolition cost calculations. Uses CAT

	Description (required)	Building Footprint (slab area) sqft	Building Volume cu ft	Building Demolition Fleet	Building Demolition Hours hrs	Wall Length ft	Wall Area sq ft	Wall Demolition Hours hrs	Slab Volume cy	Slab Demolition Fleet	Slab Demolition Hours hrs
1	Primary Crusher Control/Mechanical Building	300	7,500	930M/20 Ton Crane/Dump T	3	70	210	11	7	349F	1
2	Concentrator Building, Grinding Area	27,840	3,480,000	930M/20 Ton Crane/Dump T	1,295	674	2,022	101	1,031	349F	17
3	Concentrator Building, Flotation Area	20,736	1,658,880	930M/20 Ton Crane/Dump T	617	624	1,872	94	768	349F	13
4	Concentrator Building, Maintenance Area	3,500	105,000	930M/Dump Truck (10-12 yd	74	240	720	36	108	349F	2
5	Concentrate Handling & Storage Area, Included in concentr	10,368	829,440	930M/20 Ton Crane/Dump T	434	432	1,296	65	320	349F	5
6	Concentrate Thickeners (1/2)	256	4,096	930M/20 Ton Crane/Dump T	2	64	192	10	0		0
7	Concentrate Thickeners (2/2)	256	4,096	930M/20 Ton Crane/Dump T	2	64	192	10	0		0
8	Ball Bins	5,559	33,354	930M/20 Ton Crane/Dump T	17	320	960	48	206	349F	3
9	Reagent Storage and Lime Handling	8,360	418,000	930M/20 Ton Crane/Dump T	156	372	1,116	56	155	349F	3
10	Flammable Material Storage Bldg.	425	3,825	930M/20 Ton Crane/Dump T	2	84	252	20	10	349F	1
11	Tailings Cyclone Station	3,750	150,000	930M/Dump Truck (10-12 yd	106	250	750	38	0		0
12	Mine Shop/Warehouse	11,316	678,960	930M/Dump Truck (10-12 yd	481	430	1,290	65	419	349F	7
13	Wash Pad	8,100	0	930M/Dump Truck (10-12 yd	0	360	1,080	54	250	349F	4
14	Administration Building	5,760	138,240	930M/Dump Truck (10-12 yd	98	312	0	0	213	349F	4
15	Changehouse/Gatehouse	5,040	95,760	930M/Dump Truck (10-12 yd	52	288	0	0	93	349F	2
16	Assay & Metallurgical Laboratory	4,880	107,360	930M/20 Ton Crane/Dump T	56	324	0	0	90	349F	2
17	Copper Flat Electric Substation	8,050	0	930M/20 Ton Crane/Dump T	0	370	0	0	0		0
18	Freshwater/Fire Tank (1)	1,600	57,600	930M/20 Ton Crane/Dump T	30	160	0	0	0		0
19	Process water tank (1)	900	28,800	930M/20 Ton Crane/Dump T	15	120	0	0	0		0
20	Fresh Water Pump Station Tanks (1/2)	1,600	57,600	930M/20 Ton Crane/Dump T	30	160	0	0	0		0
21	Fresh Water Pump Station Tanks (2/2)	1,600	57,600	930M/20 Ton Crane/Dump T	30	160	0	0	0		0
22	Potable Water Tank	144	1,044	930M/20 Ton Crane/Dump T	1	48	0	0	0		0
23	Seal Water Tank	64	512	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
24	Reclaim Reservoir Fresh Water Surge Tank	256	3,840	930M/20 Ton Crane/Dump T	2	64	0	0	0		0
25	Reclaim Reservoir Fresh Water Storage Tank	1,600	57,600	930M/20 Ton Crane/Dump T	30	160	0	0	0		0
26	Off Road Diesel Fuel Storage Tank (1)	784	18,816	930M/20 Ton Crane/Dump T	10	112	0	0	0		0
27	On Road Diesel Storage Tank	144	1,728	930M/20 Ton Crane/Dump T	1	48	0	0	0		0
28	Gasoline Storage Tank	144	1,728	930M/20 Ton Crane/Dump T	1	48	0	0	0		0
29	Recycle Water Tank - Truck Wash	144	1,728	930M/20 Ton Crane/Dump T	1	48	0	0	0		0
30	Lime Silo	625	25,000	930M/20 Ton Crane/Dump T	13	100	0	0	19	349F	1
31	Lime Slurry Tank	144	3,600	930M/20 Ton Crane/Dump T	2	48	0	0	0		0
32	Pax Mix Tank	64	683	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
33	Pax Distribution Tank	64	683	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
34	MIBC Storage Tank	64	384	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
35	No. 2 Diesel Storage Tank	64	384	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
36	NaHS Mix Tank	64	683	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
37	NaHS Distribution Tank	64	683	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
38	Moly Collector Mix Tank	64	384	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
39	Moly Collector Distribution Tank	64	384	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
40	AERO 238 Mix Tank	64	683	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
41	AERO 238 Distribution Tank	64	683	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
42	NaHS Stock Tank	64	683	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
43	Flocculant Tanks (1/2)	144	1,044	930M/20 Ton Crane/Dump T	1	48	0	0	0		0
44	Flocculant Tanks (2/2)	144	1,044	930M/20 Ton Crane/Dump T	1	48	0	0	0		0
45	Gravity Concentrator Concentrate Tank	144	1,368	930M/20 Ton Crane/Dump T	1	48	0	0	0		0
46	Copper concentrate stock tank	289	7,109	930M/20 Ton Crane/Dump T	4	68	0	0	0		0
47	Explosive Magazines (1/2)	64	512	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
48	Explosive Magazines (2/2)	64	512	930M/20 Ton Crane/Dump T	0	32	0	0	0		0
49	Ammonium Nitrate Silo	225	13,500	930M/20 Ton Crane/Dump T	7	60	0	0	0		0
			8,063,113						3,689		65

Project Name: Copper Flat Reclamation Bond Cost Esti
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_R
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Building & Foundation Demolition Costs

* Handbook for slab breaking production.

		Building Demolition			Wall Demolition			Slab Demolition			Total Costs		
	Description (required)	Total Labor Cost $	Total Equipment Cost $	Total Building Demolition Cost $	Total Labor Cost $	Total Equipment Cost $	Total Wall Demolition Cost $	Total Labor Cost $	Total Equipment Cost $	Total Slab Breaking Cost $	Total Labor Cost $	Total Equipment Cost $	Total Demolition Costs $
1	Primary Crusher Control/Mechanical Building	600	750	1,350	176	105	281	59	396	455	835	1,251	2,086
2	Concentrator Building, Grinding Area	278,400	348,000	626,400	1,698	1,011	2,709	1,007	6,734	7,741	281,105	355,745	636,850
3	Concentrator Building, Flotation Area	132,710	165,888	298,598	1,572	936	2,508	770	5,149	5,919	135,052	171,973	307,025
4	Concentrator Building, Maintenance Area	12,600	13,650	26,250	605	360	965	119	792	911	13,324	14,802	28,126
5	Concentrate Handling & Storage Area, Included in concentr	91,238	116,122	207,360	1,089	648	1,737	296	1,981	2,277	92,623	118,751	211,374
6	Concentrate Thickeners (1/2)	451	573	1,024	161	96	257	0	0	0	612	669	1,281
7	Concentrate Thickeners (2/2)	451	573	1,024	161	96	257	0	0	0	612	669	1,281
8	Ball Bins	3,669	4,670	8,339	806	480	1,286	178	1,188	1,366	4,653	6,338	10,991
9	Reagent Storage and Lime Handling	33,440	41,800	75,240	937	558	1,495	178	1,188	1,366	34,555	43,546	78,101
10	Flammable Material Storage Bldg.	421	536	957	338	199	537	59	396	455	818	1,131	1,949
11	Tailings Cyclone Station	18,000	19,500	37,500	630	375	1,005	0	0	0	18,630	19,875	38,505
12	Mine Shop/Warehouse	81,475	88,265	169,740	1,084	645	1,729	415	2,773	3,188	82,974	91,683	174,657
13	Wash Pad	0	0	0	907	540	1,447	237	1,584	1,821	1,144	2,124	3,268
14	Administration Building	16,589	17,971	34,560	0	0	0	237	1,584	1,821	16,826	19,555	36,381
15	Changehouse/Gatehouse	8,618	9,576	18,194	0	0	0	119	792	911	8,737	10,368	19,105
16	Assay & Metallurgical Laboratory	11,810	15,030	26,840	0	0	0	119	792	911	11,929	15,822	27,751
17	Copper Flat Electric Substation	0	0	0	0	0	0	0	0	0	0	0	0
18	Freshwater/Fire Tank (1)	6,336	8,064	14,400	0	0	0	0	0	0	6,336	8,064	14,400
19	Process water tank (1)	3,168	4,032	7,200	0	0	0	0	0	0	3,168	4,032	7,200
20	Fresh Water Pump Station Tanks (1/2)	6,336	8,064	14,400	0	0	0	0	0	0	6,336	8,064	14,400
21	Fresh Water Pump Station Tanks (2/2)	6,336	8,064	14,400	0	0	0	0	0	0	6,336	8,064	14,400
22	Potable Water Tank	115	146	261	0	0	0	0	0	0	115	146	261
23	Seal Water Tank	56	72	128	0	0	0	0	0	0	56	72	128
24	Reclaim Reservoir Fresh Water Surge Tank	422	538	960	0	0	0	0	0	0	422	538	960
25	Reclaim Reservoir Fresh Water Storage Tank	6,336	8,064	14,400	0	0	0	0	0	0	6,336	8,064	14,400
26	Off Road Diesel Fuel Storage Tank (1)	2,070	2,634	4,704	0	0	0	0	0	0	2,070	2,634	4,704
27	On Road Diesel Storage Tank	190	242	432	0	0	0	0	0	0	190	242	432
28	Gasoline Storage Tank	190	242	432	0	0	0	0	0	0	190	242	432
29	Recycle Water Tank - Truck Wash	190	242	432	0	0	0	0	0	0	190	242	432
30	Lime Silo	2,750	3,500	6,250	0	0	0	59	396	455	2,809	3,896	6,705
31	Lime Slurry Tank	396	504	900	0	0	0	0	0	0	396	504	900
32	Pax Mix Tank	75	96	171	0	0	0	0	0	0	75	96	171
33	Pax Distribution Tank	75	96	171	0	0	0	0	0	0	75	96	171
34	MIBC Storage Tank	42	54	96	0	0	0	0	0	0	42	54	96
35	No. 2 Diesel Storage Tank	42	54	96	0	0	0	0	0	0	42	54	96
36	NaHS Mix Tank	75	96	171	0	0	0	0	0	0	75	96	171
37	NaHS Distribution Tank	75	96	171	0	0	0	0	0	0	75	96	171
38	Moly Collector Mix Tank	42	54	96	0	0	0	0	0	0	42	54	96
39	Moly Collector Distribution Tank	42	54	96	0	0	0	0	0	0	42	54	96
40	AERO 238 Mix Tank	75	96	171	0	0	0	0	0	0	75	96	171
41	AERO 238 Distribution Tank	75	96	171	0	0	0	0	0	0	75	96	171
42	NaHS Stock Tank	75	96	171	0	0	0	0	0	0	75	96	171
43	Flocculant Tanks (1/2)	115	146	261	0	0	0	0	0	0	115	146	261
44	Flocculant Tanks (2/2)	115	146	261	0	0	0	0	0	0	115	146	261
45	Gravity Concentrator Concentrate Tank	150	192	342	0	0	0	0	0	0	150	192	342
46	Copper concentrate stock tank	782	995	1,777	0	0	0	0	0	0	782	995	1,777
47	Explosive Magazines (1/2)	56	72	128	0	0	0	0	0	0	56	72	128
48	Explosive Magazines (2/2)	56	72	128	0	0	0	0	0	0	56	72	128
49	Ammonium Nitrate Silo	1,485	1,890	3,375	0	0	0	0	0	0	1,485	1,890	3,375
		728,815	**891,713**	**1,620,528**	**10,164**	**6,049**	**16,213**	**3,852**	**25,745**	**29,597**	**742,831**	**923,507**	**1,666,338**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Building & Foundation - Foundation Cover and Growth Media Costs

		Foundation Cover								
	Description (required)	Material Volume cy	Placement Fleet	Cycle Time min	Haul Fleet Size	Fleet Productivity LCY/hr	Total Fleet Hours hrs	Total Labor Cost $	Total Equipment Cost $	Total Cover Cost $
1	Primary Crusher Control/Mechanical Building	33	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
2	Concentrator Building, Grinding Area	3,093	777G/992K/D9T	6.26	2	1,059	3	318	5,161	5,479
3	Concentrator Building, Flotation Area	2,304	777G/992K/D9T	6.26	2	1,059	2	212	3,441	3,653
4	Concentrator Building, Maintenance Area	389	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
5	Concentrate Handling & Storage Area, Included in concentr	1,152	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
6	Concentrate Thickeners (1/2)	28	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
7	Concentrate Thickeners (2/2)	28	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
8	Ball Bins	618	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
9	Reagent Storage and Lime Handling	929	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
10	Flammable Material Storage Bldg.	47	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
11	Tailings Cyclone Station	417	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
12	Mine Shop/Warehouse	1,257	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
13	Wash Pad	900	777G/992K/D9T	6.26	2	1,059	1	106	1,720	1,826
14	Administration Building						0	0	0	0
15	Changehouse/Gatehouse						0	0	0	0
16	Assay & Metallurgical Laboratory						0	0	0	0
17	Copper Flat Electric Substation						0	0	0	0
18	Freshwater/Fire Tank (1)						0	0	0	0
19	Process water tank (1)						0	0	0	0
20	Fresh Water Pump Station Tanks (1/2)						0	0	0	0
21	Fresh Water Pump Station Tanks (2/2)						0	0	0	0
22	Potable Water Tank						0	0	0	0
23	Seal Water Tank						0	0	0	0
24	Reclaim Reservoir Fresh Water Surge Tank						0	0	0	0
25	Reclaim Reservoir Fresh Water Storage Tank						0	0	0	0
26	Off Road Diesel Fuel Storage Tank (1)						0	0	0	0
27	On Road Diesel Storage Tank						0	0	0	0
28	Gasoline Storage Tank						0	0	0	0
29	Recycle Water Tank - Truck Wash						0	0	0	0
30	Lime Silo						0	0	0	0
31	Lime Slurry Tank						0	0	0	0
32	Pax Mix Tank						0	0	0	0
33	Pax Distribution Tank						0	0	0	0
34	MIBC Storage Tank						0	0	0	0
35	No. 2 Diesel Storage Tank						0	0	0	0
36	NaHS Mix Tank						0	0	0	0
37	NaHS Distribution Tank						0	0	0	0
38	Moly Collector Mix Tank						0	0	0	0
39	Moly Collector Distribution Tank						0	0	0	0
40	AERO 238 Mix Tank						0	0	0	0
41	AERO 238 Distribution Tank						0	0	0	0
42	NaHS Stock Tank						0	0	0	0
43	Flocculant Tanks (1/2)						0	0	0	0
44	Flocculant Tanks (2/2)						0	0	0	0
45	Gravity Concentrator Concentrate Tank						0	0	0	0
46	Copper concentrate stock tank						0	0	0	0
47	Explosive Magazines (1/2)						0	0	0	0
48	Explosive Magazines (2/2)						0	0	0	0
49	Ammonium Nitrate Silo						0	0	0	0
		11,195					16	**1,696**	**27,522**	**29,218**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Diversion Ditches - User Input

	Facility Description								Diversions Ditches				
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Diversion Length ft	Diversion Depth ft	Ditch Bottom Width ft	Ditch Sideslope Angle _H:1V	Excavate Volume (if calculated elsewhere) cy
1	EWRSP-1 - Diversion Channel, DC-1			WRD	Active Closure			FA	655	4.0	10.0	3.0	
2	EWRSP-1 - Diversion Swale, DS-1			WRD	Active Closure			FA	512	3.0	10.0	3.0	
3	EWRSP-1 - Toe Channel, TC-1			WRD	Active Closure			FA	1170	3.0	10.0	3.0	
4	EWRSP-1 - Toe Channel, TC-2			WRD	Active Closure			FA	636	3.0	10.0	3.0	
5	EWRSP-1 - Haul Road Channel, HC-1			WRD	Active Closure			FA	455	2.0	10.0	3.0	
6	EWRSP-2B - Top Surface Channel, TSC-1			WRD	Active Closure			FA	201	2.0	10.0	3.0	
7	EWRSP-1 - Toe Channel, TC-3			WRD	Active Closure			FA	525	4.0	10.0	3.0	
8	EWRSP-2B - Diversion Swale, DS-2			WRD	Active Closure			FA	455	3.0	10.0	3.0	
9	EWRSP-4 - Top Surface Channel, TSC-2			WRD	Active Closure			FA	890	3.0	10.0	3.0	
10	EWRSP-4 - Haul Road Channel, HC-2			WRD	Active Closure			FA	927	2.0	10.0	3.0	
11	EWRSP-4 - Toe Channel, TC-4			WRD	Active Closure			FA	1057	2.0	10.0	3.0	
12	WRSP-1 - Diversion Swale, DS-3 - built during operations			WRD	Active Closure			FA	0	3.0	10.0	3.0	
13	WRSP-1 - Diversion Swale, DS-4 - built during operations			WRD	Active Closure			FA	0	4.0	10.0	3.0	
14	WRSP-1 - Diversion Channel, DC-2			WRD	Active Closure			FA	596	3.0	10.0	3.0	
15	WRSP-1 - Top Surface Channel-3			WRD	Active Closure			FA	842	3.0	10.0	3.0	
16	WRSP-1 - Bench Channel, BC-1			WRD	Active Closure			FA	909	2.0	10.0	3.0	
17	WRSP-1 - Bench Channel, BC-2			WRD	Active Closure			FA	724	2.0	10.0	3.0	
18	WRSP-1 - Bench Channel, BC-3			WRD	Active Closure			FA	1590	2.0	10.0	3.0	
19	WRSP-1 - Bench Channel, BC-4			WRD	Active Closure			FA	1063	2.0	10.0	3.0	
20	WRSP-1 - Haul Road Channel, HC-3			WRD	Active Closure			FA	1800	3.0	10.0	3.0	
21	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during operations			WRD	Active Closure			FA	0	4.0	10.0	3.0	
22	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during operations			WRD	Active Closure			FA	0	3.0	10.0	3.0	
23	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during operations			WRD	Active Closure			FA	0	3.0	10.0	3.0	
24	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4			WRD	Active Closure			FA	1847	3.0	10.0	3.0	
25	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4			WRD	Active Closure			FA	741	3.0	10.0	3.0	
26	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5			WRD	Active Closure			FA	958	4.0	10.0	3.0	
27	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built with ACB			WRD	Active Closure			FA	723	2.0	20.0	3.0	
28	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built with ACB			WRD	Active Closure			FA	1203	2.0	20.0	3.0	
29	WRSP-2 and WRSP-3 - Toe Channel, TC-5			WRD	Active Closure			FA	1609	3.0	10.0	3.0	
30	WRSP-2 and WRSP-3 - Toe Channel, TC-6			WRD	Active Closure			FA	236	4.0	10.0	3.0	
31	WRSP-2 and WRSP-3 - Bench Channel, BC-5			WRD	Active Closure			FA	1267	3.0	10.0	3.0	
32	WRSP-2 and WRSP-3 - Bench Channel, BC-6			WRD	Active Closure			FA	1096	3.0	10.0	3.0	
33	WRSP-2 and WRSP-3 - Bench Channel, BC-7			WRD	Active Closure			FA	1495	3.0	10.0	3.0	
34	WRSP-2 and WRSP-3 - Bench Channel, BC-8			WRD	Active Closure			FA	1773	3.0	10.0	3.0	
35	WRSP-2 and WRSP-3 - Bench Channel, BC-9			WRD	Active Closure			FA	1684	3.0	10.0	3.0	
36	WRSP-2 and WRSP-3 - Bench Channel, BC-10			WRD	Active Closure			FA	829	3.0	10.0	3.0	
37	WRSP-2 and WRSP-3 - Bench Channel, BC-11			WRD	Active Closure			FA	1103	3.0	10.0	3.0	
38	WRSP-2 and WRSP-3 - Bench Channel, BC-12			WRD	Active Closure			FA	1390	3.0	10.0	3.0	
39	WRSP-2 and WRSP-3 - Bench Channel, BC-13			WRD	Active Closure			FA	1783	3.0	10.0	3.0	
40	WRSP-2 and WRSP-3 - Bench Channel, BC-14			WRD	Active Closure			FA	1058	3.0	10.0	3.0	
41	WRSP-2 and WRSP-3 - Bench Channel, BC-15			WRD	Active Closure			FA	1090	3.0	10.0	3.0	
42	WRSP-2 and WRSP-3 - Bench Channel, BC-16			WRD	Active Closure			FA	1104	3.0	10.0	3.0	
43	WRSP-2 and WRSP-3 - Bench Channel, BC-17			WRD	Active Closure			FA	611	3.0	10.0	3.0	

Closure Cost Estimate
Sediment & Drainage Control

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

44	WRSP-2 and WRSP-3 - Bench Channel, BC-18			WRD	Active Closure			FA	1058	3.0	10.0	3.0	
45	WRSP-2 and WRSP-3 - Bench Channel, BC-19			WRD	Active Closure			FA	538	3.0	10.0	3.0	
46	WRSP-2 and WRSP-3 - Bench Channel, BC-20			WRD	Active Closure			FA	579	3.0	10.0	3.0	
47	TSF - Downslope Channel, DSC-3 - built with ACB			Tailings Storage Facility	Active Closure			FA	965	2.0	20.0	3.0	
48	TSF - Downslope Channel, DSC-4 - built with ACB			Tailings Storage Facility	Active Closure			FA	933	2.0	20.0	3.0	
49	TSF - Downslope Channel, DSC-5 - built with ACB			Tailings Storage Facility	Active Closure			FA	556	3.0	20.0	3.0	
50	TSF - Top Surface Channel, TSC-6			Tailings Storage Facility	Active Closure			FA	3052	5.0	10.0	3.0	
51	TSF - Top Surface Channel, TSC-7			Tailings Storage Facility	Active Closure			FA	3673	5.0	10.0	3.0	
52	TSF - Bench Channel, BC-21			Tailings Storage Facility	Active Closure			FA	529	3.0	10.0	3.0	
53	TSF - Bench Channel, BC-22			Tailings Storage Facility	Active Closure			FA	2909	3.0	10.0	3.0	
54	TSF - Bench Channel, BC-23			Tailings Storage Facility	Active Closure			FA	723	3.0	10.0	3.0	
55	TSF - Bench Channel, BC-24			Tailings Storage Facility	Active Closure			FA	2274	3.0	10.0	3.0	
56	TSF - Bench Channel, BC-25			Tailings Storage Facility	Active Closure			FA	2662	3.0	10.0	3.0	
57	TSF - Bench Channel, BC-26			Tailings Storage Facility	Active Closure			FA	2359	3.0	10.0	3.0	
58	TSF - Bench Channel, BC-27			Tailings Storage Facility	Active Closure			FA	1415	3.0	10.0	3.0	
59	TSF - Bench Channel, BC-28			Tailings Storage Facility	Active Closure			FA	675	3.0	10.0	3.0	
60	TSF - Bench Channel, BC-29			Tailings Storage Facility	Active Closure			FA	1529	3.0	10.0	3.0	
61	TSF - Bench Channel, BC-30			Tailings Storage Facility	Active Closure			FA	1747	3.0	10.0	3.0	
62	TSF - Bench Channel, BC-31			Tailings Storage Facility	Active Closure			FA	1924	3.0	10.0	3.0	
63	TSF - Bench Channel, BC-32			Tailings Storage Facility	Active Closure			FA	552	3.0	10.0	3.0	
64	TSF - Bench Channel, BC-33			Tailings Storage Facility	Active Closure			FA	1707	3.0	10.0	3.0	
65	TSF - Bench Channel, BC-34			Tailings Storage Facility	Active Closure			FA	1920	3.0	10.0	3.0	
66	TSF - Bench Channel, BC-35			Tailings Storage Facility	Active Closure			FA	2042	3.0	10.0	3.0	
67	TSF - Bench Channel, BC-36			Tailings Storage Facility	Active Closure			FA	2173	3.0	10.0	3.0	
68	TSF - Bench Channel, BC-37			Tailings Storage Facility	Active Closure			FA	1075	3.0	10.0	3.0	
69	TSF - Bench Channel, BC-38			Tailings Storage Facility	Active Closure			FA	1813	3.0	10.0	3.0	
70	TSF - Bench Channel, BC-39			Tailings Storage Facility	Active Closure			FA	2004	3.0	10.0	3.0	
71	TSF - Bench Channel, BC-40			Tailings Storage Facility	Active Closure			FA	1924	3.0	10.0	3.0	
72	TSF - Bench Channel, BC-41			Tailings Storage Facility	Active Closure			FA	1997	3.0	10.0	3.0	
73	TSF - Bench Channel, BC-42			Tailings Storage Facility	Active Closure			FA	525	3.0	10.0	3.0	
74	TSF - Toe Channel, TC-7			Tailings Storage Facility	Active Closure			FA	1891	6.0	15.0	3.0	
75	TSF - Toe Channel, TC-8			Tailings Storage Facility	Active Closure			FA	1824	5.0	10.0	3.0	
76	TSF - Toe Channel, TC-9			Tailings Storage Facility	Active Closure			FA	1524	4.0	10.0	3.0	
77	PLANT - Perimeter Channel, PC-2			Yards	Active Closure			FA	2361	4.0	10.0	3.0	
78	PLANT - Downslope Channel, DSC-6			Yards	Active Closure			FA	218	3.0	10.0	3.0	
79	PLANT - Downslope Channel, DSC-7			Yards	Active Closure			FA	283	3.0	10.0	3.0	
80	PLANT - Toe Channel, TC-10			Yards	Active Closure			FA	606	3.0	10.0	3.0	
81	PIT - Perimeter Channel, PC-1			Pits	Active Closure			FA	2930	5.0	10.0	3.0	
82	PIT - Haul Road Channel, HC-5 - built with ACB			Pits	Active Closure			FA	7540	4.0	10.0	3.0	
83	Dissipaters - TSF - bottom of DSC-3			Tailings Storage Facility	Active Closure			FA	64	3.0	30.0	3.0	
84	Dissipaters - TSF - bottom of DSC-4			Tailings Storage Facility	Active Closure			FA	64	3.0	30.0	3.0	
85	Dissipaters - TSF - bottom of DSC-5			Tailings Storage Facility	Active Closure			FA	76	4.5	30.0	3.0	
86	Dissipaters - WRD1 - 1 - bottom of HC-3			WRD	Active Closure			FA	56	4.5	15.0	3.0	
87	Dissipaters - WRD3 - 1 - bottom of DSC-1			WRD	Active Closure			FA	64	3.0	30.0	3.0	
88	Dissipaters - WRD3 - 2 - bottom of DSC-2			WRD	Active Closure			FA	64	3.0	30.0	3.0	

Notes:
See User 10 for diversion lengths. ACB (articulated concrete block) will be used in some channels isntead of riprap. Quantities are estimated in User 10 and the costs are reflected in "Other User."
This estimate accounts for construction of diversion ditches during reclamation and closure. Those constructed during construction or operation phases are operational costs and not included in this estimate.
Riprap material will be available from characterised materials on site. Average haulage is accounted for in "Haul Materials" sheet.
Dissipaters constructed at channel outlets assumed length twice the width of the channel and the width of the dissipater 1.5 times the width of the channel. Depth is 1.5 times the depth of the channel.

Project Name: Copper Flat Reclamation Bond Cost E
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_R
Cost Estimate Type: FA Cost Basis: Copper Flat

Diversion Ditches - User Input

				Revegetation			Liner and Rip-Rap Installation				
	Description (required)	Excavating Material Condition (select)	Excavating Equipment Fleet (select)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Liner Area S.Y.	Liner Type (select)	Rip-Rap Area S.Y.	Rip-Rap Type (select)	Crew (select type)
1	EWRSP-1 - Diversion Channel, DC-1	1	Small	User Mix 1					2,474	Rip-Rap 3/8 to 1/4 m	B-12G
2	EWRSP-1 - Diversion Swale, DS-1	1	Small	User Mix 1					1,593	Rip-Rap 450 mm min	B-12G
3	EWRSP-1 - Toe Channel, TC-1	1	Small	User Mix 1					3,640	Rip-Rap 450 mm min	B-12G
4	EWRSP-1 - Toe Channel, TC-2	1	Small	User Mix 1					1,979	Rip-Rap 450 mm min	B-12G
5	EWRSP-1 - Haul Road Channel, HC-1	1	Small	User Mix 1					1,112	Rip-Rap 450 mm min	B-12G
6	EWRSP-2B - Top Surface Channel, TSC-1	1	Small	User Mix 1					491	Rip-Rap 450 mm min	B-12G
7	EWRSP-1 - Toe Channel, TC-3	1	Small	User Mix 1					1,983	Rip-Rap 450 mm min	B-12G
8	EWRSP-2B - Diversion Swale, DS-2	1	Small	User Mix 1					1,416	Rip-Rap 450 mm min	B-12G
9	EWRSP-4 - Top Surface Channel, TSC-2	1	Small	User Mix 1					2,769	Rip-Rap 450 mm min	B-12G
10	EWRSP-4 - Haul Road Channel, HC-2	1	Small	User Mix 1					2,266	Rip-Rap 450 mm min	B-12G
11	EWRSP-4 - Toe Channel, TC-4	1	Small	User Mix 1					2,584	Rip-Rap 450 mm min	B-12G
12	WRSP-1 - Diversion Swale, DS-3 - built during operations	1	Small	User Mix 1					0	Rip-Rap 450 mm min	B-12G
13	WRSP-1 - Diversion Swale, DS-4 - built during operations	1	Small	User Mix 1					0	Rip-Rap 450 mm min	B-12G
14	WRSP-1 - Diversion Channel, DC-2	1	Small	User Mix 1					1,854	Rip-Rap 450 mm min	B-12G
15	WRSP-1 - Top Surface Channel-3	1	Small	User Mix 1					2,620	Rip-Rap 450 mm min	B-12G
16	WRSP-1 - Bench Channel, BC-1	1	Small	User Mix 1					2,222	Rip-Rap 450 mm min	B-12G
17	WRSP-1 - Bench Channel, BC-2	1	Small	User Mix 1					1,770	Rip-Rap 450 mm min	B-12G
18	WRSP-1 - Bench Channel, BC-3	1	Small	User Mix 1					3,887	Rip-Rap 450 mm min	B-12G
19	WRSP-1 - Bench Channel, BC-4	1	Small	User Mix 1					2,598	Rip-Rap 450 mm min	B-12G
20	WRSP-1 - Haul Road Channel, HC-3	1	Small	User Mix 1					5,600	Rip-Rap 450 mm min	B-12G
21	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during	1	Small	User Mix 1					0	Rip-Rap 450 mm min	B-12G
22	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during	1	Small	User Mix 1					0	Rip-Rap 450 mm min	B-12G
23	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during	1	Small	User Mix 1					0	Rip-Rap 450 mm min	B-12G
24	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4	1	Small	User Mix 1					5,746	Rip-Rap 450 mm min	B-12G
25	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4	1	Small	User Mix 1					2,305	Rip-Rap 450 mm min	B-12G
26	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5	1	Small	User Mix 1					3,619	Rip-Rap 450 mm min	B-12G
27	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built w	1	Small	User Mix 1					2,571		B-12G
28	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built w	1	Small	User Mix 1					4,277		B-12G
29	WRSP-2 and WRSP-3 - Toe Channel, TC-5	1	Small	User Mix 1					5,006	Rip-Rap 450 mm min	B-12G
30	WRSP-2 and WRSP-3 - Toe Channel, TC-6	1	Small	User Mix 1					892	Rip-Rap 450 mm min	B-12G
31	WRSP-2 and WRSP-3 - Bench Channel, BC-5	1	Small	User Mix 1					3,942	Rip-Rap 450 mm min	B-12G
32	WRSP-2 and WRSP-3 - Bench Channel, BC-6	1	Small	User Mix 1					3,410	Rip-Rap 450 mm min	B-12G
33	WRSP-2 and WRSP-3 - Bench Channel, BC-7	1	Small	User Mix 1					4,651	Rip-Rap 450 mm min	B-12G
34	WRSP-2 and WRSP-3 - Bench Channel, BC-8	1	Small	User Mix 1					5,516	Rip-Rap 450 mm min	B-12G
35	WRSP-2 and WRSP-3 - Bench Channel, BC-9	1	Small	User Mix 1					5,239	Rip-Rap 450 mm min	B-12G
36	WRSP-2 and WRSP-3 - Bench Channel, BC-10	1	Small	User Mix 1					2,579	Rip-Rap 450 mm min	B-12G
37	WRSP-2 and WRSP-3 - Bench Channel, BC-11	1	Small	User Mix 1					3,432	Rip-Rap 450 mm min	B-12G
38	WRSP-2 and WRSP-3 - Bench Channel, BC-12	1	Small	User Mix 1					4,324	Rip-Rap 450 mm min	B-12G
39	WRSP-2 and WRSP-3 - Bench Channel, BC-13	1	Small	User Mix 1					5,547	Rip-Rap 450 mm min	B-12G
40	WRSP-2 and WRSP-3 - Bench Channel, BC-14	1	Small	User Mix 1					3,292	Rip-Rap 450 mm min	B-12G
41	WRSP-2 and WRSP-3 - Bench Channel, BC-15	1	Small	User Mix 1					3,391	Rip-Rap 450 mm min	B-12G
42	WRSP-2 and WRSP-3 - Bench Channel, BC-16	1	Small	User Mix 1					3,435	Rip-Rap 450 mm min	B-12G
43	WRSP-2 and WRSP-3 - Bench Channel, BC-17	1	Small	User Mix 1					1,901	Rip-Rap 450 mm min	B-12G

Project Name: Copper Flat Reclamation Bond Cost E
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_R
Cost Estimate Type: FA Cost Basis: Copper Flat

44	WRSP-2 and WRSP-3 - Bench Channel, BC-18	1	Small	User Mix 1					3,292	Rip-Rap 450 mm min	B-12G
45	WRSP-2 and WRSP-3 - Bench Channel, BC-19	1	Small	User Mix 1					1,674	Rip-Rap 450 mm min	B-12G
46	WRSP-2 and WRSP-3 - Bench Channel, BC-20	1	Small	User Mix 1					1,801	Rip-Rap 450 mm min	B-12G
47	TSF - Downslope Channel, DSC-3 - built with ACB	1	Small	User Mix 1					3,431		B-12G
48	TSF - Downslope Channel, DSC-4 - built with ACB	1	Small	User Mix 1					3,317		B-12G
49	TSF - Downslope Channel, DSC-5 - built with ACB	1	Small	User Mix 1					2,348		B-12G
50	TSF - Top Surface Channel, TSC-6	1	Small	User Mix 1					13,564	Rip-Rap 450 mm min	B-12G
51	TSF - Top Surface Channel, TSC-7	1	Small	User Mix 1					16,324	Rip-Rap 450 mm min	B-12G
52	TSF - Bench Channel, BC-21	1	Small	User Mix 1					1,646	Rip-Rap 450 mm min	B-12G
53	TSF - Bench Channel, BC-22	1	Small	User Mix 1					9,050	Rip-Rap 450 mm min	B-12G
54	TSF - Bench Channel, BC-23	1	Small	User Mix 1					2,249	Rip-Rap 450 mm min	B-12G
55	TSF - Bench Channel, BC-24	1	Small	User Mix 1					7,075	Rip-Rap 450 mm min	B-12G
56	TSF - Bench Channel, BC-25	1	Small	User Mix 1					8,282	Rip-Rap 450 mm min	B-12G
57	TSF - Bench Channel, BC-26	1	Small	User Mix 1					7,339	Rip-Rap 450 mm min	B-12G
58	TSF - Bench Channel, BC-27	1	Small	User Mix 1					4,402	Rip-Rap 450 mm min	B-12G
59	TSF - Bench Channel, BC-28	1	Small	User Mix 1					2,100	Rip-Rap 450 mm min	B-12G
60	TSF - Bench Channel, BC-29	1	Small	User Mix 1					4,757	Rip-Rap 450 mm min	B-12G
61	TSF - Bench Channel, BC-30	1	Small	User Mix 1					5,435	Rip-Rap 450 mm min	B-12G
62	TSF - Bench Channel, BC-31	1	Small	User Mix 1					5,986	Rip-Rap 450 mm min	B-12G
63	TSF - Bench Channel, BC-32	1	Small	User Mix 1					1,717	Rip-Rap 450 mm min	B-12G
64	TSF - Bench Channel, BC-33	1	Small	User Mix 1					5,311	Rip-Rap 450 mm min	B-12G
65	TSF - Bench Channel, BC-34	1	Small	User Mix 1					5,973	Rip-Rap 450 mm min	B-12G
66	TSF - Bench Channel, BC-35	1	Small	User Mix 1					6,353	Rip-Rap 450 mm min	B-12G
67	TSF - Bench Channel, BC-36	1	Small	User Mix 1					6,760	Rip-Rap 450 mm min	B-12G
68	TSF - Bench Channel, BC-37	1	Small	User Mix 1					3,344	Rip-Rap 450 mm min	B-12G
69	TSF - Bench Channel, BC-38	1	Small	User Mix 1					5,640	Rip-Rap 450 mm min	B-12G
70	TSF - Bench Channel, BC-39	1	Small	User Mix 1					6,235	Rip-Rap 450 mm min	B-12G
71	TSF - Bench Channel, BC-40	1	Small	User Mix 1					5,986	Rip-Rap 450 mm min	B-12G
72	TSF - Bench Channel, BC-41	1	Small	User Mix 1					6,213	Rip-Rap 450 mm min	B-12G
73	TSF - Bench Channel, BC-42	1	Small	User Mix 1					1,633	Rip-Rap 450 mm min	B-12G
74	TSF - Toe Channel, TC-7	1	Small	User Mix 1					10,716	Rip-Rap 450 mm min	B-12G
75	TSF - Toe Channel, TC-8	1	Small	User Mix 1					8,107	Rip-Rap 450 mm min	B-12G
76	TSF - Toe Channel, TC-9	1	Small	User Mix 1					5,757	Rip-Rap 450 mm min	B-12G
77	PLANT - Perimeter Channel, PC-2	1	Small	User Mix 1					8,919	Rip-Rap 450 mm min	B-12G
78	PLANT - Downslope Channel, DSC-6	1	Small	User Mix 1					678	Rip-Rap 450 mm min	B-12G
79	PLANT - Downslope Channel, DSC-7	1	Small	User Mix 1					880	Rip-Rap 450 mm min	B-12G
80	PLANT - Toe Channel, TC-10	1	Small	User Mix 1					1,885	Rip-Rap 450 mm min	B-12G
81	PIT - Perimeter Channel, PC-1	1	Small	User Mix 1					13,022	Rip-Rap 450 mm min	B-12G
82	PIT - Haul Road Channel, HC-5 - built with ACB	1	Small	User Mix 1					28,484		B-12G
83	Dissipaters - TSF - bottom of DSC-3	1	Small	User Mix 1					341	Rip-Rap 450 mm min	B-12G
84	Dissipaters - TSF - bottom of DSC-4	1	Small	User Mix 1					341	Rip-Rap 450 mm min	B-12G
85	Dissipaters - TSF - bottom of DSC-5	1	Small	User Mix 1					481	Rip-Rap 450 mm min	B-12G
86	Dissipaters - WRD1 - 1 - bottom of HC-3	1	Small	User Mix 1					261	Rip-Rap 450 mm min	B-12G
87	Dissipaters - WRD3 - 1 - bottom of DSC-1	1	Small	User Mix 1					341	Rip-Rap 450 mm min	B-12G
88	Dissipaters - WRD3 - 2 - bottom of DSC-2	1	Small	User Mix 1					341	Rip-Rap 450 mm min	B-12G

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Sediment & Drainage Control - Assumptions & Calculations

Diversion Ditch Volume Calculation

1) Assume 20% swell for excavations
2) Assumes heavy duty trenching bucket is used

Sediment/Evaporation Pond Construction Calculation

Cut = Fill
Push distance = pond width up to 2/3 max push distance (400 ft)

1) Assume balanced cut-to-fill for berm construction
2) Include cost for liner, if required.
3) Include line items for removal, if necessary.
4) Assume 20% swell for excavations
5) Minimum 1 hr ripping/scarifying per area
6) Minimum 1 acre revegetation crew time per area

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Diversion Ditches - Excavation Costs

	Description (required)	Diversion Ditch Volume LCY	Diversion Ditch Equipment	Corrected Excavator Productivity LCY/hr	Total Hours hrs	Diversion Ditch Labor Cost $	Diversion Ditch Equipment Cost $	Total Diversion Ditch Cost $
1	EWRSP-1 - Diversion Channel, DC-1	2,562	325F	398	6	200	439	639
2	EWRSP-1 - Diversion Swale, DS-1	1,297	325F	398	3	100	220	320
3	EWRSP-1 - Toe Channel, TC-1	2,964	325F	398	7	233	513	746
4	EWRSP-1 - Toe Channel, TC-2	1,611	325F	398	4	133	293	426
5	EWRSP-1 - Haul Road Channel, HC-1	647	325F	398	2	67	146	213
6	EWRSP-2B - Top Surface Channel, TSC-1	286	325F	398	1	33	73	106
7	EWRSP-1 - Toe Channel, TC-3	2,053	325F	398	5	167	366	533
8	EWRSP-2B - Diversion Swale, DS-2	1,153	325F	398	3	100	220	320
9	EWRSP-4 - Top Surface Channel, TSC-2	2,255	325F	398	6	200	439	639
10	EWRSP-4 - Haul Road Channel, HC-2	1,318	325F	398	3	100	220	320
11	EWRSP-4 - Toe Channel, TC-4	1,503	325F	398	4	133	293	426
12	WRSP-1 - Diversion Swale, DS-3 - built during operations				0	0	0	0
13	WRSP-1 - Diversion Swale, DS-4 - built during operations				0	0	0	0
14	WRSP-1 - Diversion Channel, DC-2	1,510	325F	398	4	133	293	426
15	WRSP-1 - Top Surface Channel-3	2,133	325F	398	5	167	366	533
16	WRSP-1 - Bench Channel, BC-1	1,293	325F	398	3	100	220	320
17	WRSP-1 - Bench Channel, BC-2	1,030	325F	398	3	100	220	320
18	WRSP-1 - Bench Channel, BC-3	2,261	325F	398	6	200	439	639
19	WRSP-1 - Bench Channel, BC-4	1,512	325F	398	4	133	293	426
20	WRSP-1 - Haul Road Channel, HC-3	4,560	325F	398	11	366	806	1,172
21	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during				0	0	0	0
22	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during				0	0	0	0
23	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during				0	0	0	0
24	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4	4,679	325F	398	12	400	879	1,279
25	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4	1,877	325F	398	5	167	366	533
26	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5	3,747	325F	398	9	300	659	959
27	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built w	1,671	325F	398	4	133	293	426
28	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built w	2,780	325F	398	7	233	513	746
29	WRSP-2 and WRSP-3 - Toe Channel, TC-5	4,076	325F	398	10	333	732	1,065
30	WRSP-2 and WRSP-3 - Toe Channel, TC-6	923	325F	398	2	67	146	213
31	WRSP-2 and WRSP-3 - Bench Channel, BC-5	3,210	325F	398	8	266	586	852
32	WRSP-2 and WRSP-3 - Bench Channel, BC-6	2,777	325F	398	7	233	513	746
33	WRSP-2 and WRSP-3 - Bench Channel, BC-7	3,787	325F	398	10	333	732	1,065
34	WRSP-2 and WRSP-3 - Bench Channel, BC-8	4,492	325F	398	11	366	806	1,172
35	WRSP-2 and WRSP-3 - Bench Channel, BC-9	4,266	325F	398	11	366	806	1,172
36	WRSP-2 and WRSP-3 - Bench Channel, BC-10	2,100	325F	398	5	167	366	533
37	WRSP-2 and WRSP-3 - Bench Channel, BC-11	2,794	325F	398	7	233	513	746
38	WRSP-2 and WRSP-3 - Bench Channel, BC-12	3,521	325F	398	9	300	659	959
39	WRSP-2 and WRSP-3 - Bench Channel, BC-13	4,517	325F	398	11	366	806	1,172
40	WRSP-2 and WRSP-3 - Bench Channel, BC-14	2,680	325F	398	7	233	513	746
41	WRSP-2 and WRSP-3 - Bench Channel, BC-15	2,761	325F	398	7	233	513	746
42	WRSP-2 and WRSP-3 - Bench Channel, BC-16	2,797	325F	398	7	233	513	746
43	WRSP-2 and WRSP-3 - Bench Channel, BC-17	1,548	325F	398	4	133	293	426

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

44	**WRSP-2 and WRSP-3 - Bench Channel, BC-18**	2,680	325F	398	7	233	513	746
45	**WRSP-2 and WRSP-3 - Bench Channel, BC-19**	1,363	325F	398	3	100	220	320
46	**WRSP-2 and WRSP-3 - Bench Channel, BC-20**	1,467	325F	398	4	133	293	426
47	**TSF - Downslope Channel, DSC-3 - built with ACB**	2,230	325F	398	6	200	439	639
48	**TSF - Downslope Channel, DSC-4 - built with ACB**	2,156	325F	398	5	167	366	533
49	**TSF - Downslope Channel, DSC-5 - built with ACB**	2,150	325F	398	5	167	366	533
50	**TSF - Top Surface Channel, TSC-6**	16,956	325F	398	43	1,432	3,149	4,581
51	**TSF - Top Surface Channel, TSC-7**	20,406	325F	398	51	1,698	3,735	5,433
52	**TSF - Bench Channel, BC-21**	1,340	325F	398	3	100	220	320
53	**TSF - Bench Channel, BC-22**	7,369	325F	398	19	633	1,391	2,024
54	**TSF - Bench Channel, BC-23**	1,832	325F	398	5	167	366	533
55	**TSF - Bench Channel, BC-24**	5,761	325F	398	14	466	1,025	1,491
56	**TSF - Bench Channel, BC-25**	6,744	325F	398	17	566	1,245	1,811
57	**TSF - Bench Channel, BC-26**	5,976	325F	398	15	500	1,098	1,598
58	**TSF - Bench Channel, BC-27**	3,585	325F	398	9	300	659	959
59	**TSF - Bench Channel, BC-28**	1,710	325F	398	4	133	293	426
60	**TSF - Bench Channel, BC-29**	3,873	325F	398	10	333	732	1,065
61	**TSF - Bench Channel, BC-30**	4,426	325F	398	11	366	806	1,172
62	**TSF - Bench Channel, BC-31**	4,874	325F	398	12	400	879	1,279
63	**TSF - Bench Channel, BC-32**	1,398	325F	398	4	133	293	426
64	**TSF - Bench Channel, BC-33**	4,324	325F	398	11	366	806	1,172
65	**TSF - Bench Channel, BC-34**	4,864	325F	398	12	400	879	1,279
66	**TSF - Bench Channel, BC-35**	5,173	325F	398	13	433	952	1,385
67	**TSF - Bench Channel, BC-36**	5,505	325F	398	14	466	1,025	1,491
68	**TSF - Bench Channel, BC-37**	2,723	325F	398	7	233	513	746
69	**TSF - Bench Channel, BC-38**	4,593	325F	398	12	400	879	1,279
70	**TSF - Bench Channel, BC-39**	5,077	325F	398	13	433	952	1,385
71	**TSF - Bench Channel, BC-40**	4,874	325F	398	12	400	879	1,279
72	**TSF - Bench Channel, BC-41**	5,059	325F	398	13	433	952	1,385
73	**TSF - Bench Channel, BC-42**	1,330	325F	398	3	100	220	320
74	**TSF - Toe Channel, TC-7**	16,641	325F	398	42	1,399	3,076	4,475
75	**TSF - Toe Channel, TC-8**	10,133	325F	398	25	833	1,831	2,664
76	**TSF - Toe Channel, TC-9**	5,961	325F	398	15	500	1,098	1,598
77	**PLANT - Perimeter Channel, PC-2**	9,234	325F	398	23	766	1,684	2,450
78	**PLANT - Downslope Channel, DSC-6**	552	325F	398	1	33	73	106
79	**PLANT - Downslope Channel, DSC-7**	717	325F	398	2	67	146	213
80	**PLANT - Toe Channel, TC-10**	1,535	325F	398	4	133	293	426
81	**PIT - Perimeter Channel, PC-1**	16,278	325F	398	41	1,365	3,002	4,367
82	**PIT - Haul Road Channel, HC-5 - built with ACB**	29,490	325F	398	74	2,464	5,419	7,883
83	**Dissipaters - TSF - bottom of DSC-3**	333	325F	398	1	33	73	106
84	**Dissipaters - TSF - bottom of DSC-4**	333	325F	398	1	33	73	106
85	**Dissipaters - TSF - bottom of DSC-5**	661	325F	398	2	67	146	213
86	**Dissipaters - WRD1 - 1 - bottom of HC-3**	319	325F	398	1	33	73	106
87	**Dissipaters - WRD3 - 1 - bottom of DSC-1**	333	325F	398	1	33	73	106
88	**Dissipaters - WRD3 - 2 - bottom of DSC-2**	333	325F	398	1	33	73	106
		327,622			824	**27,443**	**60,344**	**87,787**

Notes: LCM assumes 20% swell from ditch volume

Project Name: Copper Flat Reclamation Bond Cost E
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_R
Cost Estimate Type: FA Cost Basis: Copper Flat

Diversion Ditches - Excavation Costs

		Liner Installation				Rip-Rap Installation			
	Description (required)	Total Labor Cost $	Total Equipment Cost $	Total Material Cost $	Total Liner Cost $	Labor Cost $	Equipment Cost $	Material Cost $	Total Cost $
1	EWRSP-1 - Diversion Channel, DC-1	0	0	0	0	16,480	49,811	0	66,291
2	EWRSP-1 - Diversion Swale, DS-1	0	0	0	0	16,009	48,392	0	64,401
3	EWRSP-1 - Toe Channel, TC-1	0	0	0	0	36,582	110,583	0	147,165
4	EWRSP-1 - Toe Channel, TC-2	0	0	0	0	19,886	60,112	0	79,998
5	EWRSP-1 - Haul Road Channel, HC-1	0	0	0	0	11,178	33,789	0	44,967
6	EWRSP-2B - Top Surface Channel, TSC-1	0	0	0	0	4,938	14,927	0	19,865
7	EWRSP-1 - Toe Channel, TC-3	0	0	0	0	19,933	60,254	0	80,187
8	EWRSP-2B - Diversion Swale, DS-2	0	0	0	0	14,226	43,005	0	57,231
9	EWRSP-4 - Top Surface Channel, TSC-2	0	0	0	0	27,827	84,119	0	111,946
10	EWRSP-4 - Haul Road Channel, HC-2	0	0	0	0	22,773	68,841	0	91,614
11	EWRSP-4 - Toe Channel, TC-4	0	0	0	0	25,967	78,495	0	104,462
12	WRSP-1 - Diversion Swale, DS-3 - built during operations	0	0	0	0	0	0	0	0
13	WRSP-1 - Diversion Swale, DS-4 - built during operations	0	0	0	0	0	0	0	0
14	WRSP-1 - Diversion Channel, DC-2	0	0	0	0	18,635	56,331	0	74,966
15	WRSP-1 - Top Surface Channel-3	0	0	0	0	26,327	79,582	0	105,909
16	WRSP-1 - Bench Channel, BC-1	0	0	0	0	22,331	67,504	0	89,835
17	WRSP-1 - Bench Channel, BC-2	0	0	0	0	17,786	53,766	0	71,552
18	WRSP-1 - Bench Channel, BC-3	0	0	0	0	39,061	118,077	0	157,138
19	WRSP-1 - Bench Channel, BC-4	0	0	0	0	26,114	78,941	0	105,055
20	WRSP-1 - Haul Road Channel, HC-3	0	0	0	0	56,280	170,128	0	226,408
21	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during	0	0	0	0	0	0	0	0
22	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during	0	0	0	0	0	0	0	0
23	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during	0	0	0	0	0	0	0	0
24	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4	0	0	0	0	57,750	174,570	0	232,320
25	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4	0	0	0	0	23,169	70,036	0	93,205
26	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5	0	0	0	0	36,372	109,949	0	146,321
27	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built w	0	0	0	0	0	0	0	0
28	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built w	0	0	0	0	0	0	0	0
29	WRSP-2 and WRSP-3 - Toe Channel, TC-5	0	0	0	0	50,308	152,076	0	202,384
30	WRSP-2 and WRSP-3 - Toe Channel, TC-6	0	0	0	0	8,960	27,085	0	36,045
31	WRSP-2 and WRSP-3 - Bench Channel, BC-5	0	0	0	0	39,615	119,751	0	159,366
32	WRSP-2 and WRSP-3 - Bench Channel, BC-6	0	0	0	0	34,268	103,589	0	137,857
33	WRSP-2 and WRSP-3 - Bench Channel, BC-7	0	0	0	0	46,744	141,301	0	188,045
34	WRSP-2 and WRSP-3 - Bench Channel, BC-8	0	0	0	0	55,436	167,576	0	223,012
35	WRSP-2 and WRSP-3 - Bench Channel, BC-9	0	0	0	0	52,653	159,164	0	211,817
36	WRSP-2 and WRSP-3 - Bench Channel, BC-10	0	0	0	0	25,920	78,353	0	104,273
37	WRSP-2 and WRSP-3 - Bench Channel, BC-11	0	0	0	0	34,487	104,251	0	138,738
38	WRSP-2 and WRSP-3 - Bench Channel, BC-12	0	0	0	0	43,461	131,377	0	174,838
39	WRSP-2 and WRSP-3 - Bench Channel, BC-13	0	0	0	0	55,748	168,521	0	224,269
40	WRSP-2 and WRSP-3 - Bench Channel, BC-14	0	0	0	0	33,080	99,997	0	133,077
41	WRSP-2 and WRSP-3 - Bench Channel, BC-15	0	0	0	0	34,081	103,022	0	137,103
42	WRSP-2 and WRSP-3 - Bench Channel, BC-16	0	0	0	0	34,518	104,345	0	138,863
43	WRSP-2 and WRSP-3 - Bench Channel, BC-17	0	0	0	0	19,104	57,749	0	76,853

Project Name: Copper Flat Reclamation Bond Cost E
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_R
Cost Estimate Type: FA Cost Basis: Copper Flat

44	**WRSP-2 and WRSP-3 - Bench Channel, BC-18**	0	0	0	0	33,080	99,997	0	133,077
45	**WRSP-2 and WRSP-3 - Bench Channel, BC-19**	0	0	0	0	16,821	50,849	0	67,670
46	**WRSP-2 and WRSP-3 - Bench Channel, BC-20**	0	0	0	0	18,103	54,725	0	72,828
47	**TSF - Downslope Channel, DSC-3 - built with ACB**	0	0	0	0	0	0	0	0
48	**TSF - Downslope Channel, DSC-4 - built with ACB**	0	0	0	0	0	0	0	0
49	**TSF - Downslope Channel, DSC-5 - built with ACB**	0	0	0	0	0	0	0	0
50	**TSF - Top Surface Channel, TSC-6**	0	0	0	0	136,323	412,088	0	548,411
51	**TSF - Top Surface Channel, TSC-7**	0	0	0	0	164,061	495,937	0	659,998
52	**TSF - Bench Channel, BC-21**	0	0	0	0	16,540	49,999	0	66,539
53	**TSF - Bench Channel, BC-22**	0	0	0	0	90,955	274,946	0	365,901
54	**TSF - Bench Channel, BC-23**	0	0	0	0	22,606	68,335	0	90,941
55	**TSF - Bench Channel, BC-24**	0	0	0	0	71,100	214,928	0	286,028
56	**TSF - Bench Channel, BC-25**	0	0	0	0	83,232	251,600	0	334,832
57	**TSF - Bench Channel, BC-26**	0	0	0	0	73,758	222,962	0	296,720
58	**TSF - Bench Channel, BC-27**	0	0	0	0	44,242	133,740	0	177,982
59	**TSF - Bench Channel, BC-28**	0	0	0	0	21,105	63,798	0	84,903
60	**TSF - Bench Channel, BC-29**	0	0	0	0	47,807	144,514	0	192,321
61	**TSF - Bench Channel, BC-30**	0	0	0	0	54,623	165,119	0	219,742
62	**TSF - Bench Channel, BC-31**	0	0	0	0	60,157	181,848	0	242,005
63	**TSF - Bench Channel, BC-32**	0	0	0	0	17,259	52,173	0	69,432
64	**TSF - Bench Channel, BC-33**	0	0	0	0	53,372	161,338	0	214,710
65	**TSF - Bench Channel, BC-34**	0	0	0	0	60,032	181,470	0	241,502
66	**TSF - Bench Channel, BC-35**	0	0	0	0	63,847	193,001	0	256,848
67	**TSF - Bench Channel, BC-36**	0	0	0	0	67,942	205,382	0	273,324
68	**TSF - Bench Channel, BC-37**	0	0	0	0	33,612	101,604	0	135,216
69	**TSF - Bench Channel, BC-38**	0	0	0	0	56,686	171,357	0	228,043
70	**TSF - Bench Channel, BC-39**	0	0	0	0	62,658	189,409	0	252,067
71	**TSF - Bench Channel, BC-40**	0	0	0	0	60,157	181,848	0	242,005
72	**TSF - Bench Channel, BC-41**	0	0	0	0	62,440	188,748	0	251,188
73	**TSF - Bench Channel, BC-42**	0	0	0	0	16,415	49,621	0	66,036
74	**TSF - Toe Channel, TC-7**	0	0	0	0	107,692	325,542	0	433,234
75	**TSF - Toe Channel, TC-8**	0	0	0	0	81,472	246,281	0	327,753
76	**TSF - Toe Channel, TC-9**	0	0	0	0	57,861	174,908	0	232,769
77	**PLANT - Perimeter Channel, PC-2**	0	0	0	0	89,639	270,969	0	360,608
78	**PLANT - Downslope Channel, DSC-6**	0	0	0	0	6,816	20,604	0	27,420
79	**PLANT - Downslope Channel, DSC-7**	0	0	0	0	8,848	26,748	0	35,596
80	**PLANT - Toe Channel, TC-10**	0	0	0	0	18,948	57,276	0	76,224
81	**PIT - Perimeter Channel, PC-1**	0	0	0	0	130,873	395,615	0	526,488
82	**PIT - Haul Road Channel, HC-5 - built with ACB**	0	0	0	0	0	0	0	0
83	**Dissipaters - TSF - bottom of DSC-3**	0	0	0	0	3,430	10,370	0	13,800
84	**Dissipaters - TSF - bottom of DSC-4**	0	0	0	0	3,430	10,370	0	13,800
85	**Dissipaters - TSF - bottom of DSC-5**	0	0	0	0	4,837	14,623	0	19,460
86	**Dissipaters - WRD1 - 1 - bottom of HC-3**	0	0	0	0	2,626	7,939	0	10,565
87	**Dissipaters - WRD3 - 1 - bottom of DSC-1**	0	0	0	0	3,430	10,370	0	13,800
88	**Dissipaters - WRD3 - 2 - bottom of DSC-2**	0	0	0	0	3,430	10,370	0	13,800
		0	**0**	**0**	**0**	**3,140,272**	**9,492,690**	**0**	**12,632,962**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Diversion Ditches - Revegetation Costs

	Description (required)	Surface Area acres	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	EWRSP-1 - Diversion Channel, DC-1	0.50	423	423	218	1,064
2	EWRSP-1 - Diversion Swale, DS-1	0.30	423	423	131	977
3	EWRSP-1 - Toe Channel, TC-1	0.80	423	423	349	1,195
4	EWRSP-1 - Toe Channel, TC-2	0.40	423	423	174	1,020
5	EWRSP-1 - Haul Road Channel, HC-1	0.20	423	423	87	933
6	EWRSP-2B - Top Surface Channel, TSC-1	0.10	423	423	44	890
7	EWRSP-1 - Toe Channel, TC-3	0.40	423	423	174	1,020
8	EWRSP-2B - Diversion Swale, DS-2	0.30	423	423	131	977
9	EWRSP-4 - Top Surface Channel, TSC-2	0.60	423	423	262	1,108
10	EWRSP-4 - Haul Road Channel, HC-2	0.50	423	423	218	1,064
11	EWRSP-4 - Toe Channel, TC-4	0.50	423	423	218	1,064
12	WRSP-1 - Diversion Swale, DS-3 - built during operations		0	0	0	0
13	WRSP-1 - Diversion Swale, DS-4 - built during operations		0	0	0	0
14	WRSP-1 - Diversion Channel, DC-2	0.40	423	423	174	1,020
15	WRSP-1 - Top Surface Channel-3	0.60	423	423	262	1,108
16	WRSP-1 - Bench Channel, BC-1	0.50	423	423	218	1,064
17	WRSP-1 - Bench Channel, BC-2	0.40	423	423	174	1,020
18	WRSP-1 - Bench Channel, BC-3	0.80	423	423	349	1,195
19	WRSP-1 - Bench Channel, BC-4	0.60	423	423	262	1,108
20	WRSP-1 - Haul Road Channel, HC-3	1.20	508	508	523	1,539
21	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during		0	0	0	0
22	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during		0	0	0	0
23	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during		0	0	0	0
24	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4	1.20	508	508	523	1,539
25	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4	0.50	423	423	218	1,064
26	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5	0.80	423	423	349	1,195
27	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built w	0.50	423	423	218	1,064
28	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built w	0.90	423	423	392	1,238
29	WRSP-2 and WRSP-3 - Toe Channel, TC-5	1.10	465	465	480	1,410
30	WRSP-2 and WRSP-3 - Toe Channel, TC-6	0.20	423	423	87	933
31	WRSP-2 and WRSP-3 - Bench Channel, BC-5	0.80	423	423	349	1,195
32	WRSP-2 and WRSP-3 - Bench Channel, BC-6	0.70	423	423	305	1,151
33	WRSP-2 and WRSP-3 - Bench Channel, BC-7	1.00	423	423	436	1,282
34	WRSP-2 and WRSP-3 - Bench Channel, BC-8	1.20	508	508	523	1,539
35	WRSP-2 and WRSP-3 - Bench Channel, BC-9	1.10	465	465	480	1,410
36	WRSP-2 and WRSP-3 - Bench Channel, BC-10	0.60	423	423	262	1,108
37	WRSP-2 and WRSP-3 - Bench Channel, BC-11	0.70	423	423	305	1,151
38	WRSP-2 and WRSP-3 - Bench Channel, BC-12	0.90	423	423	392	1,238
39	WRSP-2 and WRSP-3 - Bench Channel, BC-13	1.20	508	508	523	1,539
40	WRSP-2 and WRSP-3 - Bench Channel, BC-14	0.70	423	423	305	1,151
41	WRSP-2 and WRSP-3 - Bench Channel, BC-15	0.70	423	423	305	1,151
42	WRSP-2 and WRSP-3 - Bench Channel, BC-16	0.70	423	423	305	1,151
43	WRSP-2 and WRSP-3 - Bench Channel, BC-17	0.40	423	423	174	1,020

Closure Cost Estimate
Sediment & Drainage Control

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

44	**WRSP-2 and WRSP-3 - Bench Channel, BC-18**	0.70	423	423	305	1,151
45	**WRSP-2 and WRSP-3 - Bench Channel, BC-19**	0.40	423	423	174	1,020
46	**WRSP-2 and WRSP-3 - Bench Channel, BC-20**	0.40	423	423	174	1,020
47	**TSF - Downslope Channel, DSC-3 - built with ACB**	0.70	423	423	305	1,151
48	**TSF - Downslope Channel, DSC-4 - built with ACB**	0.70	423	423	305	1,151
49	**TSF - Downslope Channel, DSC-5 - built with ACB**	0.50	423	423	218	1,064
50	**TSF - Top Surface Channel, TSC-6**	2.90	1,227	1,227	1,264	3,718
51	**TSF - Top Surface Channel, TSC-7**	3.50	1,481	1,481	1,526	4,488
52	**TSF - Bench Channel, BC-21**	0.40	423	423	174	1,020
53	**TSF - Bench Channel, BC-22**	1.90	804	804	828	2,436
54	**TSF - Bench Channel, BC-23**	0.50	423	423	218	1,064
55	**TSF - Bench Channel, BC-24**	1.50	635	635	654	1,924
56	**TSF - Bench Channel, BC-25**	1.80	762	762	785	2,309
57	**TSF - Bench Channel, BC-26**	1.60	677	677	698	2,052
58	**TSF - Bench Channel, BC-27**	0.90	423	423	392	1,238
59	**TSF - Bench Channel, BC-28**	0.40	423	423	174	1,020
60	**TSF - Bench Channel, BC-29**	1.00	423	423	436	1,282
61	**TSF - Bench Channel, BC-30**	1.20	508	508	523	1,539
62	**TSF - Bench Channel, BC-31**	1.30	550	550	567	1,667
63	**TSF - Bench Channel, BC-32**	0.40	423	423	174	1,020
64	**TSF - Bench Channel, BC-33**	1.10	465	465	480	1,410
65	**TSF - Bench Channel, BC-34**	1.30	550	550	567	1,667
66	**TSF - Bench Channel, BC-35**	1.40	592	592	610	1,794
67	**TSF - Bench Channel, BC-36**	1.40	592	592	610	1,794
68	**TSF - Bench Channel, BC-37**	0.70	423	423	305	1,151
69	**TSF - Bench Channel, BC-38**	1.20	508	508	523	1,539
70	**TSF - Bench Channel, BC-39**	1.30	550	550	567	1,667
71	**TSF - Bench Channel, BC-40**	1.30	550	550	567	1,667
72	**TSF - Bench Channel, BC-41**	1.30	550	550	567	1,667
73	**TSF - Bench Channel, BC-42**	0.30	423	423	131	977
74	**TSF - Toe Channel, TC-7**	2.30	973	973	1,003	2,949
75	**TSF - Toe Channel, TC-8**	1.70	719	719	741	2,179
76	**TSF - Toe Channel, TC-9**	1.20	508	508	523	1,539
77	**PLANT - Perimeter Channel, PC-2**	1.90	804	804	828	2,436
78	**PLANT - Downslope Channel, DSC-6**	0.10	423	423	44	890
79	**PLANT - Downslope Channel, DSC-7**	0.20	423	423	87	933
80	**PLANT - Toe Channel, TC-10**	0.40	423	423	174	1,020
81	**PIT - Perimeter Channel, PC-1**	2.80	1,185	1,185	1,221	3,591
82	**PIT - Haul Road Channel, HC-5 - built with ACB**	6.10	2,581	2,581	2,659	7,821
83	**Dissipaters - TSF - bottom of DSC-3**	0.10	423	423	44	890
84	**Dissipaters - TSF - bottom of DSC-4**	0.10	423	423	44	890
85	**Dissipaters - TSF - bottom of DSC-5**	0.10	423	423	44	890
86	**Dissipaters - WRD1 - 1 - bottom of HC-3**	0.10	423	423	44	890
87	**Dissipaters - WRD3 - 1 - bottom of DSC-1**	0.10	423	423	44	890
88	**Dissipaters - WRD3 - 2 - bottom of DSC-2**	0.10	423	423	44	890
		76.30	**44,005**	**44,005**	**33,264**	**121,275**

Closure Cost Estimate
Waste Disposal

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Waste Disposal - User Input - Solid Waste

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Waste Type (select)	Disposal Method (select)	Quantity cy	Landfill (Bulk) Disposal: Distance to Landfill ft	Landfill (Bulk) Disposal: Slope to Landfill % grade	Landfill (Bulk) Disposal: Number of Trucks (user override)	Dumpster: Months Dumpster Rental months
1	Solid waste			Waste Disposal	Active Closure			FA	Process - Other	Landfill (bulk)	314	5000	-5.0		
2	Demolition debris - see note below			Waste Disposal	Active Closure			FA	Process - Other	Landfill (bulk)	0				

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

For solid waste quantities, see User 26.
Demolition debris haulage is included in "Foundations & Buildings." By default, the RSMeans crew includes dump trucks employed during the time the rest of the demolition fleet is operating.
The dump trucks' share in demolition costs are provided in User 14.

Waste Disposal - User Input - Hazardous Materials

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Waste Type (select)	Container Type (select)	Vacuum Truck Size (select)	Liquid Quantity gallons	Soild Quantity cy	One Way Travel Distance to Disposal Site mi	One Way Travel Time to Disposal Site hr
1	Laboratory Wastes			Waste Disposal	Active Closure			FA	Process - Other	Liquid 55-gal drum	Small (2,200 ga	165		120	2.4
2	Reagent Wastes (see User 26)			Waste Disposal	Active Closure			FA							

Notes:
1. Use Other Demo & Equip Removal Sheet for tank removal

Quantities at closure assumed.
Disposal in or near El Paso.

Waste Disposal - User Input - Hydrocarbon Contaminated Soils

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Waste Type (select)	Disposal Method (select)	Quantity cy	Travel Distance to Offsite Disposal mi
1	Residual PCS			Waste Disposal				FA	Waste Mgmt & Disposal	On site	100	1
2	Used oils (see User 26)			Waste Disposal				FA	Waste Mgmt & Disposal	Off site		
3	Used hydraulic fluids (see User 26)			Waste Disposal				FA	Waste Mgmt & Disposal	Off site		

Notes:
1. Use Yards or Landfills Sheets for bioremediation facility reclamation

Residual PCS quantities assumed.
Off-site disposal at Las Cruces (see User 26).

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Waste Disposal - Assumptions & Calculations

Solid Waste Disposal

Off site disposal assumes use of average rolloff dumpster [30 cy (m3), 10 ton (tonne)]
On site disposal assumes use of small loader/truck fleet for haulage
Average density for on site disposal = 2,600 lb/cy (1,540 kg/m3)
For on site disposal only 1 truck is required unless total truck hours > 8, only 2 trucks unless total truck hours are > 16

Hazardous Materials Disposal

Assumes all hazardous materials are known
Enter EITHER solid or liquid quantity each line.
If container type = 55 gallon (200 liter) drum then solid waste hauling costs apply
Average density for solids assumed to be 2,600 lb/cy (1,540 kg/m3)
Vacuum truck sizes: small = 2,200 gal (~8,300 litres), large = 5,000 gal (~19,000 litres)
Vacuum truck on site for 4 hours for each load

Hydrocarbon Contaminated Soils Disposal

Assumes all hazardous materials are known
On site disposal assumes biopad treatment
Exavation productivity =45 cy./hr (35 m3/hr) (Means Heavy Construction, 2006: 02315-424-0360)

Closure Cost Estimate
Waste Disposal

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Waste Disposal - Solid Waste Disposal

								Off-Site	On-Site		
	Description (required)	Waste Volume cy	Number of Off Site Dumpster Loads	Landfill Fleet Equipment	Landfill Fleet Productivity LCY/hr	Number of Trucks	Total Fleet Hours hrs	Total Dumpster Cost $	Total Labor Cost $	Total Equipment Cost $	Total Waste Disposal Cost $
1	Solid waste	314		730C2	105	1	3	0	248	1,145	1,393
2	Demolition debris - see note below	0		730C2	Enter Data!	Enter Data!	Enter Data!	0	0	0	0
		314					3	**0**	**248**	**1,145**	**1,393**

Waste Disposal - Hazardous Materials Disposal

	Description (required)	Liquid Waste Volume gallons	Solid Waste Volume cy	Number of Truck Loads	Tons of Waste Tons	Pick-up Fees $	Transport Fees $	Disposal Fees $	Total Hazardous Material Cost $
1	Laboratory Wastes	165		1	1	795	1,416	305	2,516
2	Reagent Wastes (see User 26)	0	0	Enter Quantity!	0	0	0	0	0
		165	0		1	**795**	**1,416**	**305**	**2,516**

Waste Disposal - Hydrocarbon Contaminated Soils

	Description (required)	Quantity cy	Total Fleet Hours hrs	Treatment Cost $	Transport Fees $	Disposal Fees $	Total Labor Cost $	Total Equipment Cost $	Total Waste Disposal Cost $
1	Residual PCS	100	0	2,425			34	87	2,546
2	Used oils (see User 26)	0	0	0	Travel Dist!	Travel Dist!	0	0	0
3	Used hydraulic fluids (see User 26)	0	0	0	Travel Dist!	Travel Dist!	0	0	0
		100	0	**2,425**	**0**	**0**	**34**	**87**	**2,546**

Closure Cost Estimate
Misc. Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Fence Removal

									Input		Costs		
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Length ft	Type (select type)	Labor Cost $	Equipment Cost $	Total Cost $
1	Property boundary fence			Buildings	Active Closure			FA	48,457	Barbed 4-strand Removal	32,951	32,466	65,417
											32,951	**32,466**	**65,417**

Notes:

Fence Installation

									Input		Costs			
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Length ft	Type (select type)	Labor Cost $	Equipment Cost $	Material Cost $	Total Cost $
1	Pit perimeter fence			Pits	Active Closure			FA	9,252	Barbed 5-strand	7,402	4,811	6,014	18,227
2	Pit perimeter fence replacement (Closure Year 50)			Pits	Fence Replacement			FA	9,252	Barbed 5-strand	7,402	4,811	6,014	18,227
3	Pit perimeter fence replacement (Closure Year 100[87])			Pits	Fence Replacement			FA	9,252	Barbed 5-strand	7,402	4,811	6,014	18,227
											22,206	**14,433**	**18,042**	**54,681**

Notes:

Closure Cost Estimate
Misc. Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Culvert & Buried Pipe Removal

									Input			Costs		
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Length ft	Type (select type)	Location (select)	Labor Cost $	Equipment Cost $	Total Cost $
1	Landbridge 1 culvert			Yards	Active Closure			FA	100	36 in (1m) Diameter	On site	566	626	1,192
2	Landbridge 2 culvert			Yards	Active Closure			FA	100	36 in (1m) Diameter	On site	566	626	1,192
												1,132	**1,252**	**2,384**

Notes:

Surface Pipe Removal

									Input			Costs		
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Length ft	Type (select type)	Location (select)	Labor Cost $	Equipment Cost $	Total Cost $
1	Tailings Pipeline Removal (2 pipelines)			Miscellaneous Linear Facilities	Active Closure			FA	12,000	10 in (250 mm) - 18 in (450 mm	On site	37,080	9,600	46,680
2	Water reclaim pipeline removal (2 pipelines)			Miscellaneous Linear Facilities	Active Closure			FA	24,000	10 in (250 mm) - 18 in (450 mm	On site	74,160	19,200	93,360
3	Other pipelines site-wide			Miscellaneous Linear Facilities	Active Closure			FA	12,000	10 in (250 mm) - 18 in (450 mm	On site	37,080	9,600	46,680
												148,320	**38,400**	**186,720**

Notes: **The dump trucks accompanying the demolition fleet will have availability to haul the removed pipelines.**

Closure Cost Estimate
Misc. Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Power Line and Substation Removal

									Input				Costs			Cost Bre
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phase	Location	Property	Cost Type	Power Line Length miles	Power Line Type (select)	Number of Substations #	Location (select)	Power Line Removal $	Substation Removal $	Total Cost $	Labor Cost $
1	On-site powerline removal			Miscellaneous Linear Facilities	Active Closure			FA	2.0	Double Pole Powerlines	1	On site	38,744	29,250	67,994	13,599
													38,744	**29,250**	**67,994**	**13,599**

Notes: If substation owned by operator, use Other Demo & Equipment Removal sheet
User may need to add line items in Foundations & Buildings for substation slab demolition and fence removal
Labor/Equipment costs assume approximately 80% of cost are equipment and 20% are labor related costs
On-site power poles may be left in place to the extent possible as bird perching sites
The existing 115-kV transmission line and the electrical substation constructed on State land will be left in place. The local power utility owns these facilities and will be responsible for their continued operation and maintenance.

Rip-Rap & Rock Lining

									Input			Costs			
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Area S.Y.	Type (select type)	Crew (select type)	Labor Cost $	Equipment Cost $	Material Cost $	Total Cost $
1	EWRSP-1 slope armor 1			WRD	Active Closure			FA	1,030	Rip-Rap 450 mm min thick, no	B-12G	10,356	31,305	0	41,661
2	EWRSP-2B slope armor 1			WRD	Active Closure			FA	393	Rip-Rap 450 mm min thick, no	B-12G	3,946	11,929	0	15,875
3	EWRSP-2B slope armor 2			WRD	Active Closure			FA	674	Rip-Rap 450 mm min thick, no	B-12G	6,776	20,483	0	27,259
4	EWRSP-4 slope armor 1			WRD	Active Closure			FA	463	Rip-Rap 450 mm min thick, no	B-12G	4,657	14,076	0	18,733
5	WRSP-1 slope armor 1			WRD	Active Closure			FA	1,389	Rip-Rap 450 mm min thick, no	B-12G	13,959	42,198	0	56,157
6	WRSP-1 slope armor 2			WRD	Active Closure			FA	1,356	Rip-Rap 450 mm min thick, no	B-12G	13,623	41,182	0	54,805
7	WRSP-1 slope armor 3			WRD	Active Closure			FA	1,623	Rip-Rap 450 mm min thick, no	B-12G	16,312	49,310	0	65,622
8	TSF slope armor 1			Tailings Storage Facility	Active Closure			FA	9,951	Rip-Rap 450 mm min thick, no	B-12G	100,009	302,315	0	402,324
												169,638	**512,798**	**0**	**682,436**

Closure Cost Estimate
Misc. Costs

eakdown
Equipment Cost $
54,395
54,395

Closure Cost Estimate
Monitoring

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Reclamation Monitoring

	Description (required)	Staff	ID Code	Construction Year [1]	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Number of Staff	Number of Trucks	Hrs/Day	Days/Year	Number of Years
1	Field work	Field Geologist/Engineer			Monitoring	Long-term Monitoring			FA	1	1	8	4	12
2	Field work	Range Scientist			Monitoring	Long-term Monitoring			FA	1		8	4	12
3	Reporting	Field Geologist/Engineer			Monitoring	Long-term Monitoring			FA	1		8	4	12
4	Reporting	Range Scientist			Monitoring	Long-term Monitoring			FA	1		8	4	12
5	Tailings dam monitoring	Field Geologist/Engineer			Monitoring	Long-term Monitoring			FA	2	1	8	2	12

Notes:

Water and Rock Sample Analysis

	Description (required)	Analysis Type	ID Code	Construction Year [1]	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Samples #	Events/Year #	No. Years #	First Sample Year closure year	No. of Samplers #	Days/Event #	Hrs/Day #	Reporting Hours/Event #	Comments
1	Well Monitoring - Years 1 thru 3	GW Analysis Profile 1			Monitoring	Active Closure			FA	25	1	3	1	2	5	8	60	
2	Well Monitoring - Years 4 thru 4	GW Analysis Profile 1			Monitoring	Active Closure			FA	24	1	1	4	2	5	8	60	
3	Well Monitoring - Years 1 thru 3	GW Analysis Profile 2			Monitoring	Active Closure			FA	25	3	3	1	2	5	8	60	
4	Well Monitoring - Years 4 thru 4	GW Analysis Profile 2			Monitoring	Active Closure			FA	24	3	1	4	2	5	8	60	
5	Well Monitoring - Years 5 thru 5	GW Analysis Profile 3			Monitoring	Active Closure			FA	24	2	1	5	2	5	8	40	
6	Well Monitoring - Years 6 thru 8	GW Analysis Profile 3			Monitoring	Long-term Monitoring			FA	22	2	3	6	2	4	8	40	
7	Well Monitoring - Years 9 thru 16	GW Analysis Profile 3			Monitoring	Long-term Monitoring			FA	22	1	8	9	2	4	8	40	
8	Well Monitoring - Years 16 thru 86	GW Analysis Profile 3			Monitoring	Long-term Monitoring			FA	20	1	71	16	2	3	8	40	
9	Well Monitoring - Years 87 thru 100*	GW Analysis Profile 3			Monitoring	Long-term Monitoring			FA	20	14	1	87	2	3	8	40	* Total number of years SRCE schedules are 100; therefore, costs have been truncated at Year 100.
10	SW Monitoring - Years 1 thru 1	SW Analysis Profile 4			Monitoring	Active Closure			FA	8	1	1	1	2	2	8	10	
11	SW Monitoring - Years 1 thru 3	SW Analysis Profile 4			Monitoring	Active Closure			FA	6	1	3	1	1	1	8	5	
12	SW Monitoring - Years 2 thru 2	SW Analysis Profile 4			Monitoring	Active Closure			FA	5	1	1	2	1	1	8	5	
13	SW Monitoring - Years 3 thru 4	SW Analysis Profile 4			Monitoring	Active Closure			FA	2	1	2	3	1	1	4	5	
14	SW Monitoring - Years 1 thru 1	SW Analysis Profile 5			Monitoring	Active Closure			FA	8	3	1	1	2	2	8	10	
15	SW Monitoring - Years 1 thru 4	SW Analysis Profile 5			Monitoring	Active Closure			FA	5	4	4	1	1	1	8	5	
16	SW Monitoring - Years 2 thru 2	SW Analysis Profile 5			Monitoring	Active Closure			FA	5	3	1	2	1	1	8	5	
17	SW Monitoring - Years 3 thru 4	SW Analysis Profile 5			Monitoring	Active Closure			FA	2	3	2	3	1	1	4	5	
18	SW Monitoring - Years 5 thru 5	SW Analysis Profile 6			Monitoring	Active Closure			FA	2	2	1	5	1	1	4	5	
19	SW Monitoring - Years 6 thru 8	SW Analysis Profile 6			Monitoring	Long-term Monitoring			FA	1	2	3	6	2	1	8	10	Sampling time short, but travel to site time consuming
20	SW Monitoring - Years 9 thru 86	SW Analysis Profile 6			Monitoring	Long-term Monitoring			FA	1	1	78	9	2	1	8	10	Sampling time short, but travel to site time consuming
21	SW Monitoring - Years 87 thru 100*	SW Analysis Profile 6			Monitoring	Long-term Monitoring			FA	1	14	1	87	2	1	8	10	* Total number of years SRCE schedules are 100; therefore, costs have been truncated at Year 100.

Notes:
(1) This is the first year that the monitoring commitment is made (e.g. included in permit or approved monitoring plan)
(2) Monitoring may not extend beyond the maximum number of schedule years (100)
(3) First Sample Year can not be before first closure year shown in schedule (-13).

*** Total number of years SRCE schedules are 100; therefore, costs have been truncated at Year 100.**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Reclamation Monitoring

	Description (required)	Labor Rate $/hr	Equipment Rate $/hr	Labor Cost $	Equipment Cost $	Total $
1	Field work	128.93	12.33	49,509	4,735	54,244
2	Field work	128.93	0.00	49,509	0	49,509
3	Reporting	128.93	0.00	49,509	0	49,509
4	Reporting	128.93	0.00	49,509	0	49,509
5	Tailings dam monitoring	128.93	12.33	49,509	2,367	51,876
				247,546	**7,102**	**254,648**

Water and Rock Sample Analysis

	Description (required)	Analysis Cost $/sample	Supplies $/sample	Labor Cost $	Equipment Cost $	Material Cost $	Lab Cost $	Reporting Cost $	Total $
1	Well Monitoring - Years 1 thru 3	1,254.00	6.00	28,466	1,480	450	94,050	23,207	147,653
2	Well Monitoring - Years 4 thru 4	1,254.00	6.00	9,489	493	144	30,096	7,736	47,958
3	Well Monitoring - Years 1 thru 3	739.00	6.00	85,399	4,439	1,350	166,275	69,622	327,085
4	Well Monitoring - Years 4 thru 4	739.00	6.00	28,466	1,480	432	53,208	23,207	106,793
5	Well Monitoring - Years 5 thru 5	554.00	6.00	18,978	986	288	26,592	10,314	57,158
6	Well Monitoring - Years 6 thru 8	554.00	6.00	45,546	2,367	792	73,128	30,943	152,777
7	Well Monitoring - Years 9 thru 16	554.00	6.00	60,728	3,156	1,056	97,504	41,258	203,702
8	Well Monitoring - Years 16 thru 86	554.00	6.00	404,223	21,010	8,520	786,680	366,161	1,586,594
9	Well Monitoring - Years 87 thru 100*	554.00	6.00	79,706	4,143	1,680	155,120	72,201	312,850
10	SW Monitoring - Years 1 thru 1	1,573.00	6.00	3,796	197	48	12,584	1,289	17,914
11	SW Monitoring - Years 1 thru 3	1,573.00	6.00	2,847	296	108	28,314	1,934	33,499
12	SW Monitoring - Years 2 thru 2	1,573.00	6.00	949	99	30	7,865	645	9,587
13	SW Monitoring - Years 3 thru 4	1,573.00	6.00	949	99	24	6,292	1,289	8,653
14	SW Monitoring - Years 1 thru 1	1,058.00	6.00	11,387	592	144	25,392	3,868	41,382
15	SW Monitoring - Years 1 thru 4	1,058.00	6.00	15,182	1,578	480	84,640	10,314	112,195
16	SW Monitoring - Years 2 thru 2	1,058.00	6.00	2,847	296	90	15,870	1,934	21,037
17	SW Monitoring - Years 3 thru 4	1,058.00	6.00	2,847	296	72	12,696	3,868	19,778
18	SW Monitoring - Years 5 thru 5	873.00	6.00	949	99	24	3,492	1,289	5,853
19	SW Monitoring - Years 6 thru 8	873.00	6.00	11,387	592	36	5,238	7,736	24,988
20	SW Monitoring - Years 9 thru 86	873.00	6.00	148,025	7,694	468	68,094	100,565	324,847
21	SW Monitoring - Years 87 thru 100*	873.00	6.00	26,569	1,381	84	12,222	18,050	58,306
				988,733	**52,772**	**16,320**	**1,765,352**	**797,432**	**3,620,609**

Notes: Sampling labor cost = No. Samplers x Years x Events/year x Days/event x Hour/Day x Labor Rate
Sampling equipment costs include 1 pickup truck for every two samplers

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Total Revegetation Surface Area (1, 2,3) acres
Information from Reclamation Quantities Sheet:	1,033

Revegetation Maintenance

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Revegetation Surface Area (user override)	% Area Requiring Reseeding	Seed Mix (select)	Area Requiring Reseeding acres	Seed $/acres	Labor $/acres	Equipment $/acres	Labor Cost $	Equipment Cost $	Material Cost $	Total $
1	**Revegetation maintenance**			Reclamation Maintenance	**Active Closure**			**FA**		**10%**	**User Mix 1**	103.3	435.96	423.14	423.14	43,728	43,728	45,053	132,509
															Total Revegetation Matinenance	**43,728**	**43,728**	**45,053**	**132,509**

Notes: 1) Calculated based on cost type and current filters - (See Reclamation Quantities sheet)
2) Will use values from Reclamation Quantities sheet if user does not override
3) Surface area is NOT the same as footprint disturbance area typically used for permitting purposes.
Includes mob-demob.

	Total Cover Volume cy	Average Placement Cost $/cy
Information from Reclamation Quantities Sheet:	11,195	2.61

Cover Maintenance

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Total Cover Volume (1) (user override)	% Volume Requiring Maintenance	Average Placement Cost (1) (user override)	Volume Requiring Replacement cy	Labor (assume: 25%) $/cy	Equipment (assume: 75%) $/cy	Labor Cost $	Equipment Cost $	Total $
														Total Cover Maintenance	**0**	**0**	**0**

Notes: 1) Will use values from Reclamation Quantities sheet if user does not override

	Total GM Volume cy	Average Placement Cost $/cy
Information from Reclamation Quantities Sheet:	4,663,671	3.34

Growth Media Maintenance

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Total Volume (user override)	% Volume Requiring Maintenance	Average Placement Cost (user override)	Volume Requiring Replacement cy	Labor (assume: 25%) $/cy	Equipment (assume: 75%) $/cy	Labor Cost $	Equipment Cost $	Total $
1	**Growth media maintenance**			Reclamation Maintenance	**Active Closure**			**FA**		**5%**		233,184	0.84	2.51	194,709	584,126	778,835
														Total Growth Media Maintenance	**194,709**	**584,126**	**778,835**

Notes: 1) Will use values from Reclamation Quantities sheet if user does not override
Includes mob-demob.

Closure Cost Estimate
Constr. Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Construction Management

									Construction Management Staff			Construction Support		
	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Duration mo.	Hours/ Month hrs	Number of Supervisors	Temporary Office Units	Temporary Toilet Units	First Construction Year closure year
1	Active reclamation			Construction Management	Active Closure			FA	84	88	1	2	5	19

Notes:

Road Maintenance

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Water Truck (select)	Grader (select)	Fleet Size number	Duration mo.	First Maintenance Year closure year	Hours/ Month hrs	Equipment Fleet	Fleet Hours hrs	Labor Cost $	Equipment Cost $	Totals $
1	Active reclamation			Construction Management	Active Closure			FA	Small	Small	1	84	1	88	613E (5,000 gal)/14M	7,392	364,056	2,241,772	2,605,828
																	364,056	**2,241,772**	**2,605,828**

Notes:

Water Fees

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Gallons/Day	Days/ Month	Duration mo.	First Year closure year	Cost/ Gallon $	Totals $
														0

Notes:

Construction Management

		Construction Management Staff				Construction Support				
	Description (required)	Supervisor Rate $/hr	Labor Cost $	Equipment Cost[1] $	Totals $	Office Rental Rate $/mo	Toilet Rental Rate $/mo	Generator Cost $/mo	Totals $	Totals $
1	Active reclamation	84.96	628,024	91,143	719,167	198	198	2,140	296,197	1,015,364
		85	**628,024**	**91,143**	**719,167**				**296,197**	**1,015,364**

Notes: Office rental assumes only 1 generator required for every 4 trailers

Closure Cost Estimate
Other User

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Other Cost Items Calculated Elsewhere

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Quantity	Units	Total Capital Cost $	Material Unit Cost $	Labor Unit Cost $	Equipment/ Operating Unit Cost $	Total Cost $	Comments
1	Pit perimeter signs (500-ft intervals) - Signs			Pits	Active Closure			FA	20	each		41.00	31.89	8.20	1,622	
2	Pit perimeter signs (500-ft intervals) - Sign posts			Pits	Active Closure			FA	20	each		32.50	11.16	2.87	931	
3	Landbridge North excavation (Tailings pipeline crossing)			Yards	Active Closure			FA	184	hr			92.56	368.15	84,771	See User 12 for estimate of quantity, fleet, and productivity.
4	Landbridge South excavation (Access road)			Yards	Active Closure			FA	144	hr			92.56	368.15	66,342	See User 12 for estimate of quantity, fleet, and productivity.
5	EWRSP-1 Setback			WRD	Active Closure			FA	15	hr			92.56	368.15	6,911	See User 12 for estimate of quantity, fleet, and productivity.
6	Plant Area Pullback			Yards	Active Closure			FA	258	hr			92.56	368.15	118,863	See User 12 for estimate of quantity, fleet, and productivity.
7	EWRSP-4 Excavation Take-off			WRD	Active Closure			FA	29	hr			92.56	368.15	13,361	See User 12 for estimate of quantity, fleet, and productivity.
8	Tank cutting			Buildings	Active Closure			FA	1	LS		27,973.98	10,815.28	9,003.12	47,792	See User 13.
9	TSF additional piping installation			TSF Draindown Management	Active Closure			FA	1,000	ft		5.65	2.01	5.32	12,980	
10	Articulated concrete block installation - WRD			WRD	Active Closure			FA	6,848	SY		81.00	2.04	0.40	571,408	See User 10 for crew.
11	Articulated concrete block installation - TSF			Tailings Storage Facility	Active Closure			FA	9,096	SY		81.00	2.04	0.40	758,984	See User 10 for crew.
12	Articulated concrete block installation - pit			Pits	Active Closure			FA	28,484	SY		81.00	2.04	0.40	2,376,750	See User 10 for crew.
13	Road Regrading			Roads	Active Closure			FA	96	hours			25.96	145.58	16,468	See User 17 for assumptions
14	Bench Channels TSF Emb.			Tailings Storage Facility	Active Closure			FA	251	hours			25.96	210.52	59,437	See User 18 for assumptions
15	Riprap supply costs			Riprap Supply	Active Closure			FA	65,557	CY				3.75	245,839	See User 21 for source of costs
16	Tailings toe liner cutting			Tailings Storage Facility	Active Closure			FA	79	hours			63.68	73.23	10,816	See User 22
17	Tailings toe berm reclamation			Tailings Storage Facility	Active Closure			FA	76	hr			25.96	123.31	11,345	See User 22
18	Process buildings add'l costs for infrastructure removal etc.			Buildings	Active Closure			FA	1	LS				190,601.00	190,601	See User 24.
19	Evaporator setup			TSF Draindown Management	Active Closure			FA	1	LS		10,880.00	16,392.96	11,524.16	38,797	See user 15
20	Evaporator decommissioning			TSF Draindown Management	Active Closure			FA	1	LS		0.00	1,944.32	964.16	2,908	See user 15
21	Hazardous solid waste disposal			Waste Disposal	Active Closure			FA	1	LS				38,715.00	38,715	See User 26
22	Used oils			Waste Disposal	Active Closure			FA	1	LS				25,927.50	25,928	See User 26
23	Used hydraulic fluids			Waste Disposal	Active Closure			FA	1	LS				51,633.75	51,634	See User 26
24	Well abandonment - Year 1			Wells	Active Closure			FA	1	LS				125,780.00	125,780	See User 27
25	Well abandonment - Year 4			Wells	Active Closure			FA	1	LS				30,544.00	30,544	See User 27
26	Well abandonment - Year 7			Wells	Active Closure			FA	1	LS				14,360.00	14,360	See User 27
27	Well abandonment - Year 13			Wells	Active Closure			FA	1	LS				23,496.00	23,496	See User 27
28	Well abandonment - Year 19			Wells	Active Closure			FA	1	LS				32,300.00	32,300	See User 27
29	Well abandonment - Year 30			Wells	Active Closure			FA	1	LS				15,000.00	15,000	See User 27
30	Well abandonment - Year 114 (100)*			Wells	Active Closure			FA	1	LS				43,460.00	43,460	* Total number of years SRCE schedules are 100; therefore, costs have been truncated at Year 100.
31	Well repair costs - Closure Year 15			Wells	Active Closure			FA	1	LS				8,000.00	8,000	See User 27
32	Well repair costs - Closure Year 50			Wells	Active Closure			FA	1	LS				8,000.00	8,000	See User 27
33	Well repair costs - Closure Year 80			Wells	Active Closure			FA	1	LS				8,000.00	8,000	See User 27
											0	3,644,642	197,006	1,220,492	5,062,140	

Notes:
Capital cost is lump sum (i.e. not multiplied by the quantity).
Material, Labor and Equipment/Operating costs are unit costs (i.e. multiplied by the quantity).

Mobilization/Demobilization

	Equipment	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type
1	D9T			Mob/demob	Concurrent EWRSPs			FA
2	D8T			Mob/demob	Concurrent EWRSPs			FA
3	988K			Mob/demob	Concurrent EWRSPs			FA
4	740C			Mob/demob	Concurrent EWRSPs			FA
5	14M			Mob/demob	Concurrent EWRSPs			FA
6	D9T			Mob/demob	Concurrent WRSP-3			FA
7	D9T			Mob/demob	EOM Reclamation			FA
8	992K			Mob/demob	EOM Reclamation			FA
9	777G			Mob/demob	EOM Reclamation			FA
10	14M			Mob/demob	EOM Reclamation			FA
11	D8T			Mob/demob	EOM Reclamation			FA
12	988K			Mob/demob	EOM Reclamation			FA
13	740C			Mob/demob	EOM Reclamation			FA
14	930M			Mob/demob	EOM Reclamation			FA
15	Dump Truck (10-12 yd3)			Mob/demob	EOM Reclamation			FA
16	20 Ton Crane			Mob/demob	EOM Reclamation			FA
17	325F			Mob/demob	EOM Reclamation			FA
18	966M			Mob/demob	EOM Reclamation			FA
19	420F2			Mob/demob	EOM Reclamation			FA
20	Light Truck - 1.5 Ton			Mob/demob	EOM Reclamation			FA
21	Supervisor's Truck			Mob/demob	EOM Reclamation			FA
22	349F			Mob/demob	EOM Reclamation			FA
23	D7E			Mob/demob	EOM Reclamation			FA
24	Light Truck - 1.5 Ton			Mob/demob	Fence Replacement			FA
25	Light Truck - 1.5 Ton			Mob/demob	Fence Replacement			FA
26	D8T			Mob/demob	Final Closure			FA
27	988K			Mob/demob	Final Closure			FA
28	740C			Mob/demob	Final Closure			FA
29	Heavy Duty Drill Rig			Mob/demob	Final Well Abandonment			FA

Equipment Information Sources: CAT Performance Handbook ed. 46;CAT website (http://www.cat.com/en_US/products/new/) (as of June 2017)
Komatsu Equipment Company (http://www.komatsuamerica.com/equipment/)
Hitachi Construction Machinery Company (https://www.hitachiconstruction.com/)
Liebherr (https://www.liebherr.com/en/nld/products/mobile-and-crawler-cranes/mobile-cranes/ltm-mobile-cranes/)
Tadano Ltd. (https://www.tadano.com/products/productstype/LC/)

NOTES:

(1) Only demobilization required for Shovels and Trucks larger than 777.

USER NOTES:

Mobilization/demobilization costs have been input into the SRCE assembly/disassembly costs table for manageability.

Mobilization/Demobilization

	Equipment	Units Mobilized	Transport Method	Total Load/ Secure Unload/ Secure Time	Assembly/ Disassembly [1]	Assembly/ Disassembly Override	Equipment Weight	Road Distance (return trip)	Ship/Barge Distance (return trip)	Rail Distance (return trip)	Air Distance (return trip)	Comments
		#	(select)	hrs	Total $	Total $	tons	mi	mi	mi	mi	
1	D9T	1	Road only		9,900		52.5					
2	D8T	1	Road only		5,800		42.9					See User 16
3	988K	1	Road only		8,550		55.6					See User 16
4	740C	7	Road only		4,900		39.2					See User 16
5	14M	1	Road only		5,600		26.4					See User 16
6	D9T	1	Road only		9,900		52.5					See User 16
7	D9T	1	Road only		9,900		52.5					See User 16
8	992K	1	Road only		47,900		108.6					See User 16
9	777G	7	Road only		58,666		180.4					See User 16
10	14M	1	Road only		5,600		26.4					See User 16
11	D8T	1	Road only		5,800		42.9					See User 16
12	988K	1	Road only		8,550		55.6					See User 16
13	740C	2	Road only		4,900		39.2					See User 16
14	930M	1	Road only		4,700		15.3					See User 16
15	Dump Truck (10-12 yd3)	2	Road only		2,506		35.0					See User 16
16	20 Ton Crane	1	Road only		1,356		25.0					See User 16
17	325F	1	Road only		5,600		28.2					See User 16
18	966M	1	Road only		4,700		25.3					See User 16
19	420F2	1	Road only		1,000		12.0					See User 16
20	Light Truck - 1.5 Ton	1	Road only		0		2.9					See User 16
21	Supervisor's Truck	1	Road only		0		2.4					See User 16
22	349F	2	Road only		8,100		56.3					See User 16
23	D7E	1	Road only		4,900		28.3					See User 16
24	Light Truck - 1.5 Ton	1	Road only		0		2.9					See User 16
25	Light Truck - 1.5 Ton	1	Road only		0		2.9					See User 16
26	D8T	1	Road only		5,800		42.9					See User 16
27	988K	1	Road only		8,550		55.6					See User 16
28	740C	2	Road only		4,900		39.2					See User 16
29	Heavy Duty Drill Rig	0	Road only		1,356		0.0					Mob-demob costs for drill rigs are included in User 27

Equipment Information Sources:

Closure Cost Estimate
Mobilization

Minimum number of road lanes (one direction) on route:	

Road Transportation - Haulers and Escort Vehicles

	Equipment	Road Transport Method	Units Mobilized #	Required Number of Haulers per Piece #	Required Number of Pilot Cars per Hauler #	Pilot Car Override #	Hours of travel @ 80 mph hrs	Deadhead Distance mi
1	**D9T**	hauler	1	1	0		0	0
2	**D8T**	hauler	1	1	0		0	0
3	**988K**	hauler	1	1	0		0	0
4	**740C**	hauler	7	1	0		0	0
5	**14M**	hauler	1	1	0		0	0
6	**D9T**	hauler	1	1	0		0	0
7	**D9T**	hauler	1	1	0		0	0
8	**992K**	hauler	1	2	0		0	0
9	**777G**	hauler	7	3	0		0	0
10	**14M**	hauler	1	1	0		0	0
11	**D8T**	hauler	1	1	0		0	0
12	**988K**	hauler	1	1	0		0	0
13	**740C**	hauler	2	1	0		0	0
14	**930M**	hauler	1	1	0		0	0
15	**Dump Truck (10-12 yd3)**	self mobilized	2	1	0		0	0
16	**20 Ton Crane**	self mobilized	1	0	0		0	0
17	**325F**	hauler	1	1	0		0	0
18	**966M**	hauler	1	1	0		0	0
19	**420F2**	hauler	1	1	0		0	0
20	**Light Truck - 1.5 Ton**	self mobilized	1	0	0		0	0
21	**Supervisor's Truck**	self mobilized	1	0	0		0	0
22	**349F**	hauler	2	1	0		0	0
23	**D7E**	hauler	1	1	0		0	0
24	**Light Truck - 1.5 Ton**	self mobilized	1	0	0		0	0
25	**Light Truck - 1.5 Ton**	self mobilized	1	0	0		0	0
26	**D8T**	hauler	1	1	0		0	0
27	**988K**	hauler	1	1	0		0	0
28	**740C**	hauler	2	1	0		0	0
29	**Heavy Duty Drill Rig**	self mobilized	0	0	0		0	0

NOTES:
(1) Only demobilization required for Shovels and Trucks larger than 777.
(2) Miscellaneous costs could include, fees, permits, ancillary equipment, etc.)

Closure Cost Estimate
Mobilization

Road Transportation - Haulers and Es		One-way road transport costs										
	Equipment	Miscellaneous Costs per Hauler[2] $	Load/Secure Unload/Secure Labor Cost $	Escort Vehicle Labor Cost $	Hauler Labor Cost $	Load/Secure Unload/Secure Equipment Cost $	Escort Vehicle Equipment Cost $	Hauler Equipment Cost $	Total Labor Costs $	Total Equipment Costs $	Total Miscellaneous Costs $	Total Costs $
1	D9T		0	0	0	211	0	0	0	211	0	211
2	D8T		0	0	0	146	0	0	0	146	0	146
3	988K		0	0	0	259	0	0	0	259	0	259
4	740C		0	0	0	1,250	0	0	0	1,250	0	1,250
5	14M		0	0	0	176	0	0	0	176	0	176
6	D9T		0	0	0	211	0	0	0	211	0	211
7	D9T		0	0	0	211	0	0	0	211	0	211
8	992K		0	0	0	459	0	0	0	459	0	459
9	777G		0	0	0	3,679	0	0	0	3,679	0	3,679
10	14M		0	0	0	176	0	0	0	176	0	176
11	D8T		0	0	0	146	0	0	0	146	0	146
12	988K		0	0	0	259	0	0	0	259	0	259
13	740C		0	0	0	357	0	0	0	357	0	357
14	930M		0	0	0	70	0	0	0	70	0	70
15	Dump Truck (10-12 yd3)		0	0	0	108	0	0	0	108	0	108
16	20 Ton Crane		0	0	0	93	0	0	0	93	0	93
17	325F		0	0	0	73	0	0	0	73	0	73
18	966M		0	0	0	98	0	0	0	98	0	98
19	420F2		0	0	0	43	0	0	0	43	0	43
20	Light Truck - 1.5 Ton		0	0	0	30	0	0	0	30	0	30
21	Supervisor's Truck		0	0	0	12	0	0	0	12	0	12
22	349F		0	0	0	245	0	0	0	245	0	245
23	D7E		0	0	0	123	0	0	0	123	0	123
24	Light Truck - 1.5 Ton		0	0	0	30	0	0	0	30	0	30
25	Light Truck - 1.5 Ton		0	0	0	30	0	0	0	30	0	30
26	D8T		0	0	0	146	0	0	0	146	0	146
27	988K		0	0	0	259	0	0	0	259	0	259
28	740C		0	0	0	357	0	0	0	357	0	357
29	Heavy Duty Drill Rig		0	0	0	0	0	0	0	0	0	0

NOTES:

Road Transportation - Haulers and Es		Total Transport Costs					
	Equipment	Total Assembly/ Disassembly Cost $	Road Transport Cost $	Ship/Barge Transport (cost/lb/mi) $	Rail Transport (cost/lb/mi) $	Air Transport (cost/lb/mi) $	Total Mobilization/ Demobilization Cost $
1	**D9T**	9,900	211	0	0	0	10,111
2	**D8T**	5,800	146	0	0	0	5,946
3	**988K**	8,550	259	0	0	0	8,809
4	**740C**	34,300	1,250	0	0	0	35,550
5	**14M**	5,600	176	0	0	0	5,776
6	**D9T**	9,900	211	0	0	0	10,111
7	**D9T**	9,900	211	0	0	0	10,111
8	**992K**	47,900	459	0	0	0	48,359
9	**777G**	410,662	3,679	0	0	0	414,341
10	**14M**	5,600	176	0	0	0	5,776
11	**D8T**	5,800	146	0	0	0	5,946
12	**988K**	8,550	259	0	0	0	8,809
13	**740C**	9,800	357	0	0	0	10,157
14	**930M**	4,700	70	0	0	0	4,770
15	**Dump Truck (10-12 yd3)**	5,012	108	0	0	0	5,120
16	**20 Ton Crane**	1,356	93	0	0	0	1,449
17	**325F**	5,600	73	0	0	0	5,673
18	**966M**	4,700	98	0	0	0	4,798
19	**420F2**	1,000	43	0	0	0	1,043
20	**Light Truck - 1.5 Ton**	0	30	0	0	0	30
21	**Supervisor's Truck**	0	12	0	0	0	12
22	**349F**	16,200	245	0	0	0	16,445
23	**D7E**	4,900	123	0	0	0	5,023
24	**Light Truck - 1.5 Ton**	0	30	0	0	0	30
25	**Light Truck - 1.5 Ton**	0	30	0	0	0	30
26	**D8T**	5,800	146	0	0	0	5,946
27	**988K**	8,550	259	0	0	0	8,809
28	**740C**	9,800	357	0	0	0	10,157
29	**Heavy Duty Drill Rig**	0	0	0	0	0	0
						TOTAL	**649,137**

Default Escort Car Requirements (based on trailer width)	
Exceeds 12 feet (on 2 and 3 lane roads)	1 Front
Exceeds 14 feet (on 2 and 3 lane roads)	1 Front/1 Rear
Exceeds 16 feet (on 2 and 3 lane roads)	2 Front/1 Rear
Exceeds 14 feet (on 4 or more lane roads)	1 Rear
Exceeds 16 feet (on 4 or more lane roads)	1 Front/1 Rear

Source: Nevada Department of Transportation (https://www.nevadadot.com/doing-business/commercial-vehicles/commercial-vehicle-permits/escort-information-and-guidelines)

Assembly/Disassembly Source:	N/A

Closure Cost Estimate
Equip Use

Project Name: Copper Flat Reclamation Bond Cost Esti
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_R
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Cost type:	**FA**

Budget Year:	**1**
First Year of Operation:	**1**
Closure Year 1:	**14**
Closure Period:	**7**
Post Closure Period:	**20**

ID Code Filter:	
FacilityType Filter:	
Phase Filter:	
Location Filter:	
Property Filter:	

		FA Hours
Dozers	D6T	0
	D6R w/ Winch	0
	D7E	0
	D8T	33
	D9T	5,676
	D10T2	0
	D11T	0
	824K	0
	834K	0
	844K	0
	854K	0
Graders	12M2	7,392
	14M	876
	16M3	0
	24M	0
Excavators	312F	0
	320F	0
	325F	887
	330F	0
	349F	65
	374F	0
	390F	0
Scrapers	631K	0
	637K	0
Loaders	926M	0
	930M	0
	950M	0
	966M	0
	972M	0
	980M	0
	988K	66
	990K	0
	992K	10,875
	994K	0
	L2350	0
Shovels	PC2000	0
	PC3000	0
	PC4000	0
	PC5500	0
	PC8000	0
	EX2500	0
Hammers	H120Es (fits 325)	0
	H160Es (fits 349)	0
	H180Es (fits 374/390)	0
Shears	S3050 (fits 320/325/330)	0
	S3070 (fits 330/349)	0
	S3090 (fits 374/390)	0

Closure Cost Estimate
Equip Use

Project Name: Copper Flat Reclamation Bond Cost Esti
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_R
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Cost type:	FA

Budget Year:	1
First Year of Operation:	1
Closure Year 1:	14
Closure Period:	7
Post Closure Period:	20

ID Code Filter:	
FacilityType Filter:	
Phase Filter:	
Location Filter:	
Property Filter:	

Grapples	G315B (fits 320/325)	0
	G320B (fits 325/330)	0
	G330 (fits 349/374)	0
Other Equipment	420F2	0
	430F2	0
	CS54B	0
	CS64B	0
	CP54B	0
	CP68B	0
	Light Truck - 1.5 Ton	0
	Supervisor's Truck	0
	Flatbed Truck	0
	Air Compressor + tools	0
	Welding Equipment	0
	Heavy Duty Drill Rig	0
	Pump (plugging) Drill Rig	0
	Concrete Pump	0
	Gas Engine Vibrator	0
	Generator 5KW	0
	HDEP Welder (pipe or liner)	0
	5 Ton Crane	0
	20 Ton Crane	0
	50 Ton Crane	0
	120 Ton Crane	0
Trucks	725C2	0
	730C2	0
	735C	0
	740C	66
	770G	0
	773G	0
	777G	10,875
	785D	0
	789D	0
	793F	0
	797F	0
	613E (5,000 gal)	0
	621E (8,000 gal)	0
	777G H2O Truck	0
	785D H2O Truck	0
	Dump Truck (10-12 yd3)	0
		36,811

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Reclamation Quantity Summary - FA

	Description	Total Regrade or Haul Volume cy	Total Regrade or Haul Cost $	Total Backfill/Berm Volume cy	Backfill Cost $	Total Cover Volume cy	Cover Placement Cost $	Total Growth Media Volume cy	Growth Media Placement Cost $	Revegetation Surface Area acres	Total Scarify Cost $	Total Revetation Cost $	Geosynthetics ft2	Geosynthetics Cost $	TOTALS $	Unit Costs: Regrade Unit Cost $/CY	Backfill or Berm Construction Unit Cost $/CY	Material Haul Unit Cost $/CY	Cover Unit Cost $/CY	Growth Media Unit Cost $/CY	Scarify Unit Cost $/ac	Revegetation Unit Cost $/ac	Geosynthetics $/ft2	Area Unit Cost $/acres
1	Waste Rock Dumps	1,297,523	435,602			-	0	1,580,340	5,645,884	393.15	64,298	421,468			6,567,252	0.34	N/A	N/A		3.57	163.55	1,072.03	N/A	16,704.19
2	Tailings Impoundments	246,348	242,629			-	0	2,700,333	8,897,800	252.53	89,282	715,387			9,945,098	0.98	N/A	N/A		3.30	353.55	2,832.88	N/A	39,381.85
3	Heap Leach Pads	-	0	-	0	-	0	-	0	-	0	0			0			N/A					N/A	
4	Open Pits			-	0					-		0			0	N/A		N/A	N/A	N/A	N/A		N/A	
5	Quarries & Borrow Pits	-	0	22,616	8,041	-	0	223,221	584,287	117.73	15,116	150,958			758,402		0.36	N/A		2.62	128.40	1,282.24	N/A	6,441.88
6	Roads	-	0					13,443	28,633	16.66	2,419	21,363			52,415		N/A	N/A	N/A	2.13	145.20	1,282.29	N/A	3,146.16
7	Ponds			332,592	499,370			-	0	49.10		62,956	1,075,990	1,581,531	2,143,857	N/A	1.50	N/A	N/A		N/A	1,282.20	1.47	43,663.07
8	Yards	117,000	125,810			-	0	146,334	425,478	127.94	20,558	164,054			735,900	1.08	N/A	N/A		2.91	160.68	1,282.23	N/A	5,751.73
9	Landfills	-	0			-	0	-	0	-	0	0			0		N/A	N/A					N/A	
10	Generic Haulage/Backfill	140,597	366,607			-	0	-	0	-	0	0			366,607	N/A	N/A	2.61						
11	Buildings	-	0			11,195	29,218	-	0	-	0	0			29,218		N/A	N/A	2.61					
12	Diversion Ditches	327,622	87,787							76.30		121,275	-	0	209,062	0.27		N/A				1,589.45		2,740.00
13	Sediment Ponds	-	0					-	0	-	0	0	-	0	0			N/A						
14	Exploration Roads	-	0					-	0	-	0	0			0		N/A	N/A						
15	Exploration Trenches	-	0							-		0			0		N/A	N/A						
16	Adit/Decline Backfilling1			-	0										0	N/A		N/A	N/A	N/A	N/A	N/A		
17	Shaft Backfilling			-	0										0	N/A		N/A	N/A	N/A	N/A	N/A		
	TOTALS	2,129,090	1,258,435	355,208	507,411	11,195	29,218	4,663,671	15,582,082	1,033.41	191,673	1,657,461	1,075,990	1,581,531	20,807,810									
	Average Costs	per CY	0.59	per CY	1.43	per CY	2.61	per CY	3.34	per acre	185.48	8.65	per CY	1.47	20,135	per acre								

Closure Cost Estimate
Labor Rates

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS			
Cost Basis/Project Region	Copper Flat FA	0	
Power Equipment Operators	none	0.00	
Truck Drivers	none	0.00	
Laborers	none	0.00	

INDIRECT COSTS	
Unemployment (%)	1.84%
Retirement/SS/Medicare (%)	7.65%
Workman's Compensation (%)	13.30%
Other Indirects	
Total Other Indirects	**0.00%**

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Labor Group	Base Rate $/hr	Zone Adjustment $/hr	Hourly Wage $/hr	Fringe $/hr	Retirement/ Medicare $/hr	Unemployment Insurance $/hr	Workman's Compensation $/hr	Other Indirect Costs $/hr	Additional User Markups to Base Rate† $/hr	Additional User Markups to Base Rate† %	Additional User Markups to Base Rate† $/hr	Total $/hr
Equipment Operators (2)													
Bulldozers													
D6T		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
D6R w/ Winch		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
D7E		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
D8T		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
D9T		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
D10T2		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
D11T		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
Wheeled Dozers													
824K												0	0.00
834K												0	0.00
844K												0	0.00
854K												0	0.00
Motor Graders													
12M2		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
14M		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
16M3		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
24M		21.14	0.00	21.14		1.62	0.39	2.81	0.00			0	25.96
Track Excavators													
312F		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
320F		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
325F		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
330F		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
349F		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
374F		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
390F		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
Scrapers													
631K		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
637K		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
Wheeled Loaders													
926M		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
930M		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
950M		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
966M		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
972M		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
980M		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
988K		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
990K		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
992K		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
994K		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
L2350		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
Shovels/Excavators													
PC2000												0	0.00
PC3000												0	0.00
PC4000												0	0.00
PC5500												0	0.00
PC8000												0	0.00
EX2500												0	0.00
Hydraulic Hammers													
H120Es (fits 325)													
H160Es (fits 349)													
H180Es (fits 374/390)													
Demolition Shears													
S3050 (fits 320/325/330)													
S3070 (fits 330/349)													
S3090 (fits 374/390)													
Demolition Grapples													
G315B (fits 320/325)													
G320B (fits 325/330)													
G330 (fits 349/374)													

Closure Cost Estimate
Labor Rates

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS		
Cost Basis/Project Region	Copper Flat FA	0
Power Equipment Operators	none	0.00
Truck Drivers	none	0.00
Laborers	none	0.00

INDIRECT COSTS	
Unemployment (%)	1.84%
Retirement/SS/Medicare (%)	7.65%
Workman's Compensation (%)	13.30%
Other Indirects	
Total Other Indirects	**0.00%**

HOURLY LABOR RATE TABLE

Other Equipment													
420F2		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
430F2		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
CS54B		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
CS64B		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
CP54B		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
CP68B		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
Light Truck - 1.5 Ton		0.00		0.00		0.00	0.00	0.00	0.00			0	0.00
Supervisor's Truck		0.00		0.00		0.00	0.00	0.00	0.00			0	0.00
Flatbed Truck												0	
Air Compressor + tools	Group 3	14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
Welding Equipment		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
Heavy Duty Drill Rig		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
Pump (plugging) Drill Rig		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
Concrete Pump												0	
Gas Engine Vibrator		14.03	0.00	14.03		1.07	0.26	1.87	0.00			0	17.23
Generator 5KW												0	
HDEP Welder (pipe or liner)												0	
5 Ton Crane		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
20 Ton Crane		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
50 Ton Crane		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30
120 Ton Crane		27.12	0.00	27.12		2.07	0.50	3.61	0.00			0	33.30

NOTES:

(1) Equipment Type:	Catepillar model or equivalent, LeTourneau
(2) Equipment Operator Source:	
(3) Zone Basis:	

Truck Drivers (4)													
725C2		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
730C2		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
735C		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
740C		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
770G		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
773G		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
777G		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
785D		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
789D		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
793F		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
797F		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
613E (5,000 gal)		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
621E (8,000 gal)		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
777G H2O Truck		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
785D H2O Truck		18.97	0.00	18.97		1.45	0.35	2.52	0.00			0	23.29
Dump Truck (10-12 yd3)		11.90	0.00	11.90		0.91	0.22	1.58	0.00			0	14.61
Tractor/Trailer (20 ton)												0	0.00
Tractor/Trailer (50 ton)												0	0.00
Tractor/Trailer (80 ton)												0	0.00

NOTES:

(4) Truck Driver Source:	
(5) Zone Basis:	

Laborers (6,7)													
General Laborer		12.37	0.00	12.37	0.00	0.95	0.23	1.65	0.00			0	15.19
Skilled Laborer		17.97	0.00	17.97	0.00	1.37	0.33	2.39	0.00			0	22.06
Driller's Helper		17.83	0.00	17.83	0.00	1.36	0.33	2.37	0.00			0	21.89
Rodmen (reinforcing concrete)		17.74	0.00	17.74	0.00	1.36	0.33	2.36	0.00			0	21.78
Cement finisher		17.83	0.00	17.83	0.00	1.36	0.33	2.37	0.00			0	21.89
Carpenter		22.26	0.00	22.26	6.20	1.70	0.41	2.96	0.00			0	33.53

NOTES:

(6) Laborer Source:	From SRCE User 7
(7) Carpenter Source:	From SRCE User 7
(8) Zone Basis:	

Project Management and Technical Labor (9)													
Project Manager		69.19	0.00	69.19	0.00	5.29	1.27	9.20	0.00			0	84.96
Foreman		64.13	0.00	64.13	0.00	4.91	1.18	8.53	0.00			0	78.74
Field Geologist/Engineer		105.00	0.00	105.00	0.00	8.03	1.93	13.96	0.00			0	128.93
Field Tech/Sampler		96.60	0.00	96.60	0.00	7.39	1.78	12.85	0.00			0	118.61
Range Scientist		105.00	0.00	105.00	0.00	8.03	1.93	13.96	0.00			0	128.93
Electrical foreman (R-3; 2018)		58.70	0.00	58.70	0.00	4.49	1.08	7.81	0.00			0	72.08
Electrician (R-3; 2018)		58.20	0.00	58.20	0.00	4.45	1.07	7.74	0.00			0	71.46
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								

NOTES:

(9) Project Manager:	
(9) Foreman Source:	
(9) Techical Labor Source:	
Other Labor Source:	
Other Labor Source:	
†Additional User Markups	
(These are added by the user to the	
base rate to account for site-specific	
conditions or corporate requirements)	

Project Name: Copper Flat Reclamation Equipment Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Monthly Rental Basis:	176	hrs month
Wet Rates?	No	

EQUIPMENT RENTAL RATE TABLE

EQUIPMENT TYPE (1)	Monthly Owner/Rental Rate $/mo	Equipment Hourly Rate $/hr	Fuel/Lube/ Wear $/hr	Total Rate $/hr
Bulldozers				
D6T	6,570.00	37.33	51.21	88.54
D6R w/ Winch	6,570.00	37.33	51.21	88.54
D7E	18,300.00	103.98	19.33	123.31
D8T	20,180.00	114.66	30.92	145.58
D9T	30,100.00	171.02	39.50	210.52
D10T2	44,500.00	252.84	52.59	305.43
D11T	56,234.00	319.51	234.25	553.77
Wheeled Dozers				
824K	19,849.00	112.78	113.98	226.76
834K	24,929.00	141.64	139.86	281.50
844K	33,734.00	191.67	183.76	375.43
854K	33,802.00	192.06	221.47	413.53
Motor Graders				
12M2	8,670.00	49.26	48.19	97.46
14M	14,790.00	84.03	91.55	175.58
16M3	18,806.00	106.85	126.76	233.61
24M	20,686.00	117.53	150.02	267.55
Track Excavators				
312F	5,610.00	31.88	7.92	39.79
320F	7,750.00	44.03	12.13	56.17
325F	10,750.00	61.08	12.15	73.23
330F	11,500.00	65.34	16.86	82.20
349F	16,730.00	95.06	27.37	122.42
374F	23,119.00	131.36	106.95	238.31
390F	28,472.00	161.77	121.92	283.69

Closure Cost Estimate

Equipment Costs

Project Name: Copper Flat Reclamation Equip Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Scrapers				
631K	27,700.00	157.39	70.57	227.96
637K	36,819.00	209.20	201.22	410.42
Wheeled Loaders				
926M	5,610.00	31.88	17.67	49.54
930M	6,530.00	37.10	33.35	70.46
950M	9,520.00	54.09	30.42	84.51
966M	11,500.00	65.34	32.83	98.17
972M	13,480.00	76.59	39.18	115.77
980M	15,690.00	89.15	56.56	145.70
988K	19,589.00	111.30	147.84	259.14
990K	28,299.00	160.79	234.32	395.11
992K	41,068.00	233.34	225.27	458.61
994K	45,175.00	256.68	361.02	617.70
L2350	82,607.00	469.36	624.21	1,093.57

Closure Cost Estimate

Equipment Costs

Project Name: Copper Flat Reclamation Equipment Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Shovels				
PC2000	70,917.00	402.94	277.54	680.48
PC3000	72,526.00	412.08	344.19	756.26
PC4000	74,135.00	421.22	426.02	847.24
PC5500	81,548.00	463.34	559.76	1,023.10
PC8000	89,703.00	509.68	655.02	1,164.69
EX2500	87,877.00	499.30	412.69	911.99
Hydraulic Hammers				
H120Es (fits 325)	3,420.00	19.43	11.57	31.00
H160Es (fits 349)	7,028.00	39.93	23.24	63.17
H180Es (fits 374/390)	8,168.00	46.41	24.96	71.37
Demolition Shears				
S3050 (fits 320/325/330)	3,524.00	20.02	20.50	40.52
S3070 (fits 330/349)	4,131.00	23.47	25.23	48.70
S3090 (fits 374/390)	6,593.00	37.46	31.61	69.07
Demolition Grapples				
G315B (fits 320/325)				0.00
G320B (fits 325/330)				0.00
G330 (fits 349/374)				0.00

Project Name: Copper Flat Reclamation Equipment Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Other Equipment				
420F2	3,240.00	18.41	24.86	43.27
430F2	3,870.00	21.99	26.22	48.21
CS54B	4,402.00	25.01	26.60	51.61
CS64B	4,291.00	24.38	27.92	52.30
CP54B	4,085.00	23.21	32.14	55.35
CP68B	6,588.00	37.43	37.59	75.02
Light Truck - 1.5 Ton	2,184.00	12.41	17.45	29.85
Supervisor's Truck	834.00	4.74	7.59	12.33
Flatbed Truck	621.00	3.53	21.53	25.06
Air Compressor + tools	597.00	3.39	5.55	8.94
Welding Equipment	405.00	2.30	6.26	8.56
Heavy Duty Drill Rig	52,018.00	295.56	314.59	610.15
Pump (plugging) Drill Rig	52,018.00	295.56	310.25	605.81
Concrete Pump	14,864.20	84.46	21.70	106.16
Gas Engine Vibrator	357.00	2.03	3.63	5.66
Generator 5KW	938.00	5.33	6.84	12.16
HDEP Welder (pipe or liner)	7,022.96	39.90	4.34	44.24
5 Ton Crane	7,159.50	40.68	42.08	82.76
20 Ton Crane	7,955.00	45.20	48.20	93.40
50 Ton Crane	15,154.00	86.10	88.73	174.83
120 Ton Crane	28,943.00	164.45	176.92	341.37

Closure Cost Estimate

Equipment Costs

Project Name: Copper Flat Reclamation Equip Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Trucks				
725C2	10,824.00	61.50	80.34	141.84
730C2	14,640.00	83.18	59.42	142.60
735C	16,730.00	95.06	65.76	160.82
740C	18,820.00	106.93	71.62	178.55
770G	15,155.00	86.11	114.88	200.99
773G	18,267.00	103.79	148.98	252.77
777G	37,226.00	211.51	314.12	525.63
785D	40,948.00	232.66	367.66	600.32
789D	45,043.00	255.93	367.66	623.59
793F	49,547.00	281.52	476.07	757.59
797F	89,160.00	506.59	835.78	1,342.37
613E (5,000 gal)	8,726.00	49.58	78.11	127.69
621E (8,000 gal)	10,006.00	56.85	103.78	160.63
777G H2O Truck	37,226.00	211.51	314.12	525.63
785D H2O Truck	40,948.00	232.66	367.66	600.32
Dump Truck (10-12 yd3)	3,752.00	21.32	32.78	54.10
Tractor/Trailer (20 ton)	5,259.00	29.88	30.38	60.26
Tractor/Trailer (50 ton)	10,863.00	61.72	39.06	100.78
Tractor/Trailer (80 ton)	27,097.00	153.96	47.74	201.70

NOTES:

Power Equipment Source:	
Power Equipment Type:	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels
Drilliing Equipment Source:	
Other Equipment Source:	
Note:	Drill rig includes support (pipe) truck

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

FUEL, LUBE AND WEAR CALCULATIONS

EQUIPMENT TYPE	PM Cost (1) $/hr	Under carriage or Tires $/hr	G.E.T Consumption (2) $/hr	Fuel Use Rate gal/hr (3)	Fuel Cost@ 2.17/gal	Total Hourly Equipment Cost $/hr
Bulldozers						
D6T	34.60		2.61	6.45	14.00	51.21
D6R w/ Winch	34.60		2.61	6.45	14.00	51.21
D7E	2.69		3.84	5.90	12.80	19.33
D8T	3.49		4.86	10.40	22.57	30.92
D9T	3.61		6.59	13.50	29.30	39.50
D10T2	3.79		8.22	18.70	40.58	52.59
D11T	160.74		16.66	26.20	56.85	234.25
Wheeled Dozers						
824K	49.58	38.56	1.32	11.30	24.52	113.98
834K	59.69	49.72	1.70	13.25	28.75	139.86
844K	77.91	70.88	2.42	15.00	32.55	183.76
854K	90.20	87.64	2.40	19.00	41.23	221.47
Motor Graders						
12M2	20.32	18.90	0.62	3.85	8.35	48.19
14M	37.21	42.00	1.38	5.05	10.96	91.55
16M3	50.42	60.78	2.00	6.25	13.56	126.76
24M	55.46	66.86	2.20	11.75	25.50	150.02
Track Excavators						
312F	2.14		1.33	2.05	4.45	7.92
320F	2.38		1.94	3.60	7.81	12.13
325F	2.64		1.48	3.70	8.03	12.15
330F	3.01		2.67	5.15	11.18	16.86
349F	3.36		2.85	9.75	21.16	27.37
374F	80.63		3.97	10.30	22.35	106.95
390F	91.31		5.11	11.75	25.50	121.92
Scrapers						
631K	3.22	32.68	1.86	15.12	32.81	70.57
637K	116.00	30.28	2.11	24.35	52.83	201.22

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Wheeled Loaders						
926M	9.33	4.24	0.19	1.80	3.91	17.67
930M	16.35	12.28	0.60	1.90	4.12	33.35
950M	2.30	20.52	0.87	3.10	6.73	30.42
966M	2.42	21.40	0.87	3.75	8.14	32.83
972M	2.53	26.56	1.08	4.15	9.01	39.18
980M	2.57	40.64	1.41	5.50	11.94	56.56
988K	57.81	65.20	2.26	10.40	22.57	147.84
990K	85.58	106.84	3.71	17.60	38.19	234.32
992K	11.87	130.76	32.73	23.00	49.91	225.27
994K	122.36	143.84	4.99	41.40	89.84	361.02
L2350	203.53	268.16	9.30	66.00	143.22	624.21
Shovels						
PC2000	183.38		13.87	37.00	80.29	277.54
PC3000	218.80		16.89	50.00	108.50	344.19
PC4000	254.21		19.91	70.00	151.90	426.02
PC5500	279.63		21.90	119.00	258.23	559.76
PC8000	307.59		24.09	149.00	323.33	655.02
EX2500	277.02		25.00	51.00	110.67	412.69
Hydraulic Hammers						
H120Es (fits 325)	N/A		11.57			11.57
H160Es (fits 349)	N/A		23.24			23.24
H180Es (fits 374/390)	N/A		24.96			24.96
Demolition Shears						
S3050 (fits 320/325/330)	N/A		20.50			20.50
S3070 (fits 330/349)	N/A		25.23			25.23
S3090 (fits 374/390)	N/A		31.61			31.61
Demolition Grapples						
G315B (fits 320/325)	N/A					0.00
G320B (fits 325/330)	N/A					0.00
G330 (fits 349/374)	N/A					0.00

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Other Equipment						
420F2	11.81	3.18	0.54	4.30	9.33	24.86
430F2	12.20	3.22	0.60	4.70	10.20	26.22
CS54B	19.33			3.35	7.27	26.60
CS64B	20.65			3.35	7.27	27.92
CP54B	24.87			3.35	7.27	32.14
CP68B	29.78			3.60	7.81	37.59
Light Truck - 1.5 Ton	8.67	5.52		1.50	3.26	17.45
Supervisor's Truck	3.62	1.80		1.00	2.17	7.59
Flatbed Truck	3.85	7.48		4.70	10.20	21.53
Air Compressor + tools	3.38		N/A	1.00	2.17	5.55
Welding Equipment	1.92		N/A	2.00	4.34	6.26
Heavy Duty Drill Rig	278.95		9.60	12.00	26.04	314.59
Pump (plugging) Drill Rig	278.95		9.60	10.00	21.70	310.25
Concrete Pump			N/A	10.00	21.70	21.70
Gas Engine Vibrator	1.46		N/A	1.00	2.17	3.63
Generator 5KW	3.58		N/A	1.50	3.26	6.84
HDEP Welder (pipe or liner)			N/A	2.00	4.34	4.34
5 Ton Crane	23.22	12.35		3.00	6.51	42.08
20 Ton Crane	25.80	13.72		4.00	8.68	48.20
50 Ton Crane	45.47	33.06		4.70	10.20	88.73
120 Ton Crane	80.14	85.50		5.20	11.28	176.92

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Trucks						
725C2	28.22	41.16		5.05	10.96	80.34
730C2	2.76	44.94		5.40	11.72	59.42
735C	2.86	47.82		6.95	15.08	65.76
740C	2.97	51.72		7.80	16.93	71.62
770G	39.70	64.44		4.95	10.74	114.88
773G	47.92	83.16		8.25	17.90	148.98
777G	95.60	189.12		13.55	29.40	314.12
785D	105.16	208.03		25.10	54.47	367.66
789D	115.68	228.84		36.85	79.96	424.48
793F	127.24	251.72		44.75	97.11	476.07
797F	204.78	484.20		67.65	146.80	835.78
613E (5,000 gal)	45.31	18.84	0.94	6.00	13.02	78.11
621E (8,000 gal)	50.66	29.22	0.57	10.75	23.33	103.78
777G H2O Truck	95.60	189.12		13.55	29.40	314.12
785D H2O Truck	105.16	208.03		25.10	54.47	367.66
Dump Truck (10-12 yd3)	N/A	21.50	N/A	5.20	11.28	32.78
Tractor/Trailer (20 ton)	N/A		N/A	14.00	30.38	30.38
Tractor/Trailer (50 ton)	N/A		N/A	18.00	39.06	39.06
Tractor/Trailer (80 ton)	N/A		N/A	22.00	47.74	47.74

Notes:

(1) PM Source:	
(2) G.E.T. Source:	
(3) Fuel Use Source:	Caterpillar Handbook, Edition 46, Ch. 20; or estimated average for smaller vehicles

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

TIRE COST TABLES

Equipment	Tire Size	# of Tires Per Piece of Equipment	Cost Per Tire	Tire Cost [1][2] $	Life Expectency Hours (Low/Zone A) [3]	Tire Cost per Hour $/hr
Bulldozers						
D6T			N/A			
D6R w/ Winch			N/A			
D7E			N/A			
D8T			N/A			
D9T			N/A			
D10T2			N/A			
D11T			N/A			
Wheeled Dozers						
824K	29.5R25	4	33,740	134,960	3,500	38.56
834K	35/65-R33	4	43,505	174,020	3,500	49.72
844K	45/65-R39	4	62,020	248,080	3,500	70.88
854K	45/65-R45	4	76,685	306,740	3,500	87.64
Motor Graders						
12M2	13PR24	6	11,025	66,150	3,500	18.90
14M	20.5R25	6	24,500	147,000	3,500	42.00
16M3	23.5R25	6	35,455	212,730	3,500	60.78
24M	23.5R25	6	39,001	234,003	3,500	66.86
Track Excavators						
312F			N/A			
320F			N/A			
325F			N/A			
330F			N/A			
349F			N/A			
374F			N/A			
390F			N/A			

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Scrapers						
631K	37.25R35	4	32,680	130,720	4,000	32.68
637K	37.25R35	4	30,280	121,120	4,000	30.28
Wheeled Loaders						
926M	17.5R25	4	4,770	19,080	4,500	4.24
930M	17.5R25	4	13,815	55,260	4,500	12.28
950M	26.5R25	4	23,085	92,340	4,500	20.52
966M	26.5R25	4	24,075	96,300	4,500	21.40
972M	26.5R25	4	29,880	119,520	4,500	26.56
980M	29.5R25	4	45,720	182,880	4,500	40.64
988K	35/65-33	4	73,350	293,400	4,500	65.20
990K	41.25/70-39	4	120,195	480,780	4,500	106.84
992K	45/65R45	4	147,105	588,420	4,500	130.76
994K	55/85R57	4	161,816	647,262	4,500	143.84
L2350	55/85R57	4	301,680	1,206,720	4,500	268.16
Shovels						
PC2000			N/A			
PC3000			N/A			
PC4000			N/A			
PC5500			N/A			
PC8000			N/A			
EX2500			N/A			
Hydraulic Hammers						
H120Es (fits 325)			N/A			
H160Es (fits 349)			N/A			
H180Es (fits 374/390)			N/A			
Demolition Shears						
S3050 (fits 320/325/330)			N/A			
S3070 (fits 330/349)			N/A			
S3090 (fits 374/390)			N/A			
Demolition Grapples						
G315B (fits 320/325)			N/A			
G320B (fits 325/330)			N/A			
G330 (fits 349/374)			N/A			

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Other Equipment						
420F2	340/80R18-19.5LR24	2	4,770	9,540	3,000	3.18
430F2	340/80R18-16.9R28	2	4,830	9,660	3,000	3.22
CS54B			N/A			
CS64B			N/A			
CP54B			N/A			
CP68B			N/A			
Light Truck - 1.5 Ton		4	4,140	16,560	3,000	5.52
Supervisor's Truck		4	1,350	5,400	3,000	1.80
Flatbed Truck		22	1,020	22,440	3,000	7.48
Air Compressor + tools			N/A			
Welding Equipment			N/A			
Heavy Duty Drill Rig		4		0	3,000	
Pump (plugging) Drill Rig		4		0	3,000	
Concrete Pump			N/A			
Gas Engine Vibrator			N/A			
Generator 5KW			N/A			
HDEP Welder (pipe or liner)			N/A			
5 Ton Crane		4	9,261	37,044	3,000	12.35
20 Ton Crane		4	10,290	41,160	3,000	13.72
50 Ton Crane		6	16,530	99,180	3,000	33.06
120 Ton Crane		6	42,750	256,500	3,000	85.50

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm

Trucks						
725C2	23.5R25	6	13,720	82,320	2,000	41.16
730C2	23.5R25	6	14,980	89,880	2,000	44.94
735C	26.5R25	6	15,940	95,640	2,000	47.82
740C	29.5R25	6	17,240	103,440	2,000	51.72
770G	18.00R33	6	64,440	386,640	6,000	64.44
773G	24.00R35	6	69,300	415,800	5,000	83.16
777G	27.00R49	6	157,600	945,600	5,000	189.12
785D	33.00R51	6	138,688	832,128	4,000	208.03
789D	40.00R57	6	152,557	915,341	4,000	228.84
793F	40.00R57	6	167,812	1,006,875	4,000	251.72
797F	40.00R57	6	322,800	1,936,800	4,000	484.20
613E (5,000 gal)	23.5R25	6	18,840	113,040	6,000	18.84
621E (8,000 gal)	33.25R29	6	38,960	233,760	8,000	29.22
777G H2O Truck	27.00R49	6	157,600	945,600	5,000	189.12
785D H2O Truck	33.00R51	6	138,688	832,128	4,000	208.03
Dump Truck (10-12 yd3)		10	12,900	129,000	6,000	21.50
Tractor/Trailer (20 ton)			N/A			
Tractor/Trailer (50 ton)			N/A			
Tractor/Trailer (80 ton)			N/A			

Notes:

(1) Unit Cost Basis:	
(2) Cost Basis:	
(3) Tire Cost Source:	
(4) Tire Wear Source:	

Closure Cost Estimate
Material Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Revegetation Materials

Seed Mixes

Seed Mix	Description		Cost $/acres
None			
Mix 1	Basins		
Mix 2	Low Hills		
Mix 3	Uplands		
Mix 4	Riparian or Custom		
User Mix 1	**Permit Approved Seed Mix**		**$435.96**
User Mix 2			
User Mix 3			
User Mix 4			
	Cost/lb	**lbs/Acre**	**Cost/Acre**
User Mix 5 (from Seed Mix sheet)	#DIV/0!	0.00	0.00
Notes:			
	See User 03		

Closure Cost Estimate
Material Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamat
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xls
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Well Abandonment Materials

Description	Cost/50lb bag	Units	Cost*
			$/unit
Cement	7.57	cy	36.07
Grout (Low Grade Bentonite)	8.65	cy	41.19
Inert Material/Cuttings		cy	

* Assumes 1 bag mixes with water to make 0.21 y3 or 0.16 m3 of grout/cement slurry.

Closure Cost Estimate
Material Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_2
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Monitoring Costs

Description	Units	Cost
		$/unit
Monitor Well Pump	ea.	2,500.00
Sampling Supplies	ea.	6.00
GW Analysis Profile 1	ea.	1,254.00
GW Analysis Profile 2	ea.	739.00
GW Analysis Profile 3	ea.	554.00
SW Analysis Profile 4	ea.	1,573.00
SW Analysis Profile 5	ea.	1,058.00
SW Analysis Profile 6	ea.	873.00
	ea.	

Closure Cost Estimate
Material Costs

Revegetation Method				
Slopes				
Disturbance Type	**Seed Application Method**	**Labor** $/acres	**Equipment** $/acres	**Total** $/acres
Waste Rock Dumps	**Drill**	423.14	423.14	846.28
Heap Leach	**Drill**	423.14	423.14	846.28
Tailings	**Drill**	423.14	423.14	846.28
Quarries & Borrow Pits	**Drill**	423.14	423.14	846.28
Flat Areas and Undifferentiated				
Disturbance Type	**Seed Application Method**	**Labor** $/acres	**Equipment** $/acres	**Total** $/acres
Exploration Trenches	**Drill**	423.14	423.14	846.28
Exploration Roads	**Drill**	423.14	423.14	846.28
Waste Rock Dumps	**Drill**	423.14	423.14	846.28
Heap Leach	**Drill**	423.14	423.14	846.28
Tailings	**Drill**	423.14	423.14	846.28
Quarries & Borrow Pits	**Drill**	423.14	423.14	846.28
Roads	**Drill**	423.14	423.14	846.28
Pits	**Drill**	423.14	423.14	846.28
Haul Material	**Drill**	423.14	423.14	846.28
Foundations & Buildings	**Drill**	423.14	423.14	846.28
Sediment & Drainge Control	**Drill**	423.14	423.14	846.28
Process Ponds	**Drill**	423.14	423.14	846.28
Landfills	**Drill**	423.14	423.14	846.28
Yards, Etc.	**Drill**	423.14	423.14	846.28
Revegetation Maintenance	**Drill**	423.14	423.14	846.28

Closure Cost Estimate
Material Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamat
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xls
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Fuel, Etc.

Description	Units	Cost	User Overrides
		$/unit	
Off-road Diesel - delivered (1)	gal	2.170	
Pickup Truck Mileage	$/mi	0.545	
Electical Power	$/kWh	0.078	
Copper Flat Fuel Cost.pdf			
https://www.irs.gov/newsroom/standard-mileage-rates-for-2018-up-from-rates-for-2017			
Copper Flat Power Cost.pdf			

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Revegetation

	Means Number	Unit	Crew	Daily Output	Daily Output User	Materials	Labor	Equipment	Total	Notes
Seeding - Broadcast Manual		acres					423.14	423.14	846.28	
Seeding - Broadcast Mechanical		acres					423.14	423.14	846.28	
Seeding - Drill		acres		365			423.14	423.14	846.28	
Seeding - Hydroseeding				365			423.14	423.14	846.28	
Shrub Planting - bare root 6-10 in (150- 250mm)	02910-400-0561	ea.	1 Clab	365			0.33	0.00	0.33	
Tree Planting - bare root 11-16 in (270- 400mm)	02910-400-0562	ea.	1 Clab	260			0.47	0.00	0.47	
Cactus Planting		ea.	1 Clab						0.00	

NOTES:

Seeding Source:	SRCE User 03
Shrub Source:	
Tree Source:	
Cactus Source:	

Building and Wall Demolition

Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .
All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets

	Means Number	Unit	Crew	Daily Output	Daily Output User	Labor	Equipment	Premium	Total	Notes
Building Demolition										
Lg. steel	02220-110-0012	C.F.	B-8	21500		0.08	0.10		0.18	
Lg. concrete	02220-110-0050	C.F.	B-8	15300		0.11	0.14		0.25	
Lg. masonry	02220-110-0080	C.F.	B-8	20100		0.08	0.11		0.19	
Lg. mixed	02220-110-0100	C.F.	B-8	20100		0.08	0.11		0.19	
Sm. steel	02220-110-0500	C.F.	B-3	14800		0.09	0.10		0.19	
Sm. concrete	02220-110-0600	C.F.	B-3	11300		0.12	0.13		0.25	
Sm. masonry	02220-110-0650	C.F.	B-3	14800		0.09	0.10		0.19	
Sm. wood	02220-110-0700	C.F.	B-3	14800		0.09	0.10		0.19	
Wall Demolition										
Block 4 in (100 mm) thick	02220-130-2000	S.F.	1 Clab	180		0.68	0.00	20%	0.82	
Block 6 in (150 mm) thick	02220-130-2040	S.F.	1 Clab	170		0.71	0.00	20%	0.85	
Block 8 in (200 mm) thick	02220-130-2080	S.F.	1 Clab	150		0.81	0.00	20%	0.97	
Block 12 in (300 mm) thick	02220-130-2100	S.F.	1 Clab	150		0.81	0.00	20%	0.97	
Conc 6 in (150 mm) thick	02220-130-2400	S.F.	B-9	160		0.76	0.45	10%	1.33	
Conc 8 in (200 mm) thick	02220-130-2420	S.F.	B-9	140		0.87	0.51	10%	1.52	
Conc 10 in (250 mm) thick	02220-130-2440	S.F.	B-9	120		1.01	0.60	10%	1.77	
Conc 12 in (300 mm) thick	02220-130-2500	S.F.	B-9	100		1.22	0.72	10%	2.13	

Waste Disposal

Unit rates from Means Heavy Construction 2006 Edition by permission of R.S.Means/Reed Construction Data .

	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment		Total	Notes
Rubbish Handling										
Dumpster delivery (average for all sizes)	02220-350-0910	ea.			82.50				82.50	
Haul (average for all sizes)	02220-350-0920	ea.			259.00				259.00	
Rent per month (average for all sizes)	02220-350-0940	ea.			88.00				88.00	
Disposal fee per ton (tonne) (average for all sizes)	02220-350-0950	ton			97.00				97.00	

NOTES:

Dumpster Cost Source:	SRCE User 03
Disposal Fee Source:	SRCE User 03

Hazardous Material Handling - Solids (+ Liquids in drums)										
Pickup fees 55 gal. drums	02110-300-1100	ea.			265.00				265.00	
Bulk material (average)	02110-300-1220/1230	ton			432.50				432.50	
Transport - truck load (80 drums, 25 cy (m3), 18 tons)	02110-300-1260/1270	mile			5.90				5.90	
Dump site disposal fee	02110-300-6000/6020	ton			305.00				305.00	

NOTES:

Solid Handling Cost Source:	
Solid Disposal Fee Source:	

Hazardous Material Handling - Liquids										
Vacuum Truck Pickup (2200 gal or 9,700 litres)	02110-300-3110	hr.			155.00				155.00	
Vacuum Truck Pickup (5000 gal or 2,000 litres)	02110-300-3120	hr.			225.00				225.00	
Dump site disposal fee	02110-300-6000/6020	ton			305.00				305.00	

NOTES:

Liquid Handling Cost Source:	SRCE User 03
Liquid Disposal Fee Source:	SRCE User 03

Hydrocarbon Contaminated Soils (HCS)										
Insitu Biotreatment	02115-200-2020/2021	C.Y.			24.25				24.25	
HCS disposal fee	02115-200-2050/2055	C.Y.			295.00				295.00	

NOTES:

Insitu Treatement Cost Source:	SRCE User 03
HCS Disposal Fee Source:	SRCE User 03

Concrete Structure Installation

Weekly dumpster rental rates from Means Heavy Construction 2005 Edition with permission by R.S.Means/Reed Construction Data .
Weekly dumpster rental rates include haul to off-site disposal site and disposal fees

	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Reinforced Concrete Bulkheads and Shaft Covers										
Grade walls - 15 in thick, 8 ft high	03310-240-4300	C.Y.	C-14D	80.02		79.51	12.41		91.92	includes reinforcing
Grade walls - 15 in thick, 12 ft high	03310-240-4350	C.Y.	C-14D	26.2		242.85	37.91		280.76	includes reinforcing
Elevated conc, 1-way beam & slab - 15ft span	03310-240-2700	C.Y.	C-14B	20.59		308.39	48.24		356.63	includes reinforcing
Elevated conc, 1-way beam & slab - 25ft span	03310-240-2750	C.Y.	C-14B	28.36		223.90	35.02		258.92	includes reinforcing
Bat Gate/Foam Plug Installation										
Bat Gate		ea.								materials $/ea. Installed
Culvert Gate		ea.								materials $/ea. Installed
Adit Foam Plug		ea./C.Y.								materials $/cy placed
Production Opening Foam Plug		ea./C.Y.								materials $/cy placed

NOTES:

Bat Gate Source:	
Foam Plug Source:	

Misc. Linear Projects

Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .
All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets

	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Fencing Installation										
Barbed 3-strand	02820-170-1650	L.F.	B-80A	760	0.39	0.48	0.31		1.18	
Barbed 4-strand	extrapolated	L.F.	B-80A	570	0.52	0.64	0.42		1.58	
Barbed 5-strand	02820-130-0920	L.F.	B-80A	456	0.65	0.80	0.52		1.97	
Chain link 8 ft -10 ft Install	02820-130-0920	L.F.	B-80C	180	32.00	2.03	1.33		35.36	
Wood stockade fence 6 ft high - Install	02820-510-1240	L.F.	B-80C	150	13.15	2.43	1.59		17.17	
	user	L.F.							0.00	
	user	L.F.							0.00	
	user	L.F.							0.00	
	user	L.F.							0.00	
Fencing Removal										
Barbed 3-strand Removal	02220-220-1600	L.F.	2 Clab	430		0.57	0.56		1.13	
Barbed 4-strand Removal	extrapolated	L.F.	2 Clab	355		0.68	0.67		1.35	
Barbed 5-strand Removal	02220-220-1650	L.F.	2 Clab	280		0.87	0.85		1.72	
Chain link 8 ft -10 ft Removal	02220-220-1700	L.F.	B-6	445		1.14	1.27		2.41	
Wood, all types 4 ft -6 ft high Removal	02220-220-1775	L.F.	2 Clab	430		0.57	0.56		1.13	
	user	L.F.								
	user	L.F.							0.00	
	user	L.F.							0.00	
	user	L.F.							0.00	
Culvert Removal										
12 in (300 mm) Diameter	02220-220-2900	L.F.	B-6	175		2.91	3.22		6.13	
18 in (450 mm) Diameter	02220-220-2930	L.F.	B-6	150		3.40	3.76		7.16	
24 in (600 mm) Diameter	02220-220-2960	L.F.	B-6	120		4.25	4.70		8.95	
36 in (1m) Diameter	02220-220-3000	L.F.	B-6	90		5.66	6.26		11.92	
Pipeline Removal										
Plastic Pipe 3/4 in (mm) - 4 in (100 mm) diameter	02220-381-1600	L.F.	B-20	700		1.33	0.34		1.67	
6 in (150 mm) - 8 in (200 mm)	02220-381-1700	L.F.	B-20	500		1.86	0.48		2.34	
10 in (250 mm) - 18 in (450 mm)	02220-381-1800	L.F.	B-20	300		3.09	0.80		3.89	
20 in (500 mm) - 36 in (1 m)	02220-381-1900	L.F.	B-20	200		4.64	1.19		5.83	
Pipe and Drainpipe Installation										
Water 4in (100mm) 40ft (12m) length, welded HDPE	02510-760-0100	L.F.	B-22A	400	2.50	1.91	5.06		9.47	
Water 6in (150mm) 40ft (12m) length, welded HDPE	02510-760-0200	L.F.	B-22A	380	5.65	2.01	5.32		12.98	
Water 12in (300mm) 40ft (12m) length, welded HDPE	02510-760-0500	L.F.	B-22A	260	13.00	2.94	7.78		23.72	
Drain 4in (100mm) perforated PVC	02620-630-2100	L.F.	B-14	315	1.64	3.98	1.86		7.48	
Drain 6in (150mm) perforated PVC	02620-630-2110	L.F.	B-14	300	3.49	4.18	1.95		9.62	
Drain 4in (100mm) corrugated, perf or plain	02620-660-0040	L.F.	2 Clab	1200	0.74	0.20	0.20		1.14	
Drain 6in (150mm) corrugated., perf or plain	02620-660-0060	L.F.	2 Clab	900	1.88	0.27	0.27		2.42	

Note: HDPE Water Pipe in 40ft (12m) lengths, welded

Drain Rock Preparation										
Crushing		C.Y.								
Screening		C.Y.							1.00	
TOTAL									1.00	
Misc.										
Backhoe work	02210-700-0120	C.Y.	B-11M	28		4.92	12.36		17.28	
Powerline and Transformer Removal										
Single Pole Powerlines		mile							19,371.80	
Double Pole Powerlines		mile							19,371.80	
Substation		ea.							29,250.00	

NOTES:

Single Pole Source:	
Double Pole Source:	
Transformer Source:	

Erosion and Sedimentation Control

Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .
All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets
* some crews modifed to reflect actual crews used for riprap placement at mine sites

	Means Number	Unit	Crew	Means Daily Output	Materials	Labor	Equipment	User Daily Output	Total	Notes
Rip-Rap & Rock Lining										
Rip-Rap 3/8 to 1/4 CY pieces, grouted	02370-450-0110	S.Y.	B-13	80	0.00	17.28	17.48		34.76	assumes on-site source of rip-rap
Rip-Rap 18-inch min thick, no grout	02370-450-0200	S.Y.	B-13	53	0.00	26.08	26.39		52.47	assumes on-site source of rip-rap
Rip-Rap 3/8 to 1/4 CY pieces, grouted	02370-450-0110*	S.Y.	B-12G	80	0.00	6.66	20.13		26.79	assumes on-site source of rip-rap
Rip-Rap 18-inch min thick, no grout	02370-450-0200*	S.Y.	B-12G	53	0.00	10.05	30.38		40.43	assumes on-site source of rip-rap
Gabions, 6 in (150 mm) deep	02370-450-0400	S.Y.	B-13	200	0.00	6.91	6.99		13.90	assumes on-site source rock fill for gabions
Gabions, 9 in (250 mm) deep	02370-450-0500	S.Y.	B-13	163	0.00	8.48	8.58		17.06	assumes on-site source rock fill for gabions
Gabions, 12 in (300 mm) deep	02370-450-0200	S.Y.	B-13	153	0.00	9.04	9.14		18.18	assumes on-site source rock fill for gabions
Gabions, 18 in (450 mm) deep	02370-450-0200	S.Y.	B-13	102	0.00	13.55	13.71		27.26	assumes on-site source rock fill for gabions
Gabions, 36 in (1m) deep	02370-450-0200	S.Y.	B-13	60	0.00	23.04	23.31		46.35	assumes on-site source rock fill for gabions
HDEP Liner Installation										
Finish grading large area	2310-100-0100	S.F.	B-11L	54000		0.01	0.03		0.04	
Compaction-riding, vibrating roller - 12in (300mm) lifts	2315-310-5100	C.Y.	B-10Y	2600		0.10	0.16		0.26	
Geotextile	2660-610-0010	S.F.	3 Skwk	1600		0.42	0.44		0.86	
Geonet	2660-610-0010	S.F.	3 Skwk	1600		0.42	0.44		0.86	
Geogrid	2660-610-0010	S.F.	3 Skwk	1600		0.42	0.44		0.86	
60 mil HDPE	2660-610-0010	S.F.	3 Skwk	1600	0.58	0.42	0.44		1.44	
80 mil HDPE	user	S.F.	3 Skwk	149	$9.00	4.48	4.70		18.18	
40 mil VLDPE	user	S.F.	3 Skwk	150	$7.00	4.45	4.67		16.12	
	user	S.F.	3 Skwk						0.00	
	user	S.F.	3 Skwk						0.00	

Transport Costs										
Ship/Barge Transport Cost		cost/lb/mi								
Rail Transport Cost		cost/lb/mi								
Air Transport Cost		cost/lb/mi								
Escort Vehicle Deadhead Rate ($/mi)		cost/lb/mi								
Construction Management Support										
Office Trailer, Furnished, no hook-ups	0150-500-0250	mo.			198.00				198.00	
Toilet Portable, chemical	1590-400-6410	mo.			198.00				198.00	
TOTAL					396.00				396.00	

Pump and Casing Removal	Pump Type	Measurement	Unit				Labor	Equipment		Total	Notes
Pump Removal											
Submersible			L.F.				2.57	5.58		8.14	
Line Shaft			L.F.				5.99	13.02		19.00	

NOTES:

Pump Removal Source:	NV costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
RIPPING						
Rip road						
Waste rock dumps, heaps, tails - rip flat surfaces						
Surface preparation						
Scarify						
Small Dozer w/ multi-shank						
D6T				88.54	25.96	114.50
Totals				88.54	25.96	114.50
Medium Dozer w/ multi-shank						
D7E				123.31	25.96	149.27
Totals				123.31	25.96	149.27
Large Dozer w/ multi-shank						
D8T				145.58	25.96	171.54
Totals				145.58	25.96	171.54
Grader w/ multi-shank						
14M				175.58	25.96	201.54
Totals				175.58	25.96	201.54
GRADING						
Grading storage and structure areas						
Grading waste rock dumps and heaps						
Grading landfills						
Constructing pit safety berms						
Small Dozer Fleet						
D7E				123.31	25.96	149.27
Totals				123.31	25.96	149.27
Medium Dozer Fleet						
D8T				145.58	25.96	171.54
Totals				145.58	25.96	171.54
Large Dozer Fleet						
D9T				210.52	25.96	236.48
Totals				210.52	25.96	236.48
EXPLORATION GRADING						
Backfilling and grading exploration trenches						
Grading flat exploration roads						
Small Dozer Fleet						
D7E				123.31	25.96	149.27
Totals				123.31	25.96	149.27
Medium Dozer Fleet						
D9T				210.52	25.96	236.48
Totals				210.52	25.96	236.48
Large Dozer Fleet						
D10T2				305.43	25.96	331.39
Totals				305.43	25.96	331.39

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
EXCAVATING						
Earthen Berms						
Diversion ditch excavation and backfill						
Underground openings backfill - excavate and place						
Pit berm construction (excavator option)						
Small Excavator						
325F				73.23	33.30	106.53
Totals				73.23	33.30	106.53
Medium Excavator						
330F				82.20	33.30	115.50
Totals				82.20	33.30	115.50
Large Excavator						
349F				122.42	33.30	155.72
Totals				122.42	33.30	155.72
EXCAVATE AND RECONTOUR						
Recontour large roads (haul roads, access roads, etc.)						
Ponds - Excavate and pull liner and bury						
Small Excavator + Dozer						
325F				73.23	33.30	106.53
D6T				88.54	25.96	114.50
Total Equipment				161.77	59.26	221.03
Medium Excavator + Dozer						
330F				82.20	33.30	115.50
D7E				123.31	25.96	149.27
Totals				205.51	59.26	264.77
Large Excavator + Dozer						
349F				122.42	33.30	155.72
D8T				145.58	25.96	171.54
Totals				268.00	59.26	327.26
EXPLORATION ROAD/PAD RECONTOUR						
Recontour small roads (exploration roads, service roads, etc.)						
Cut and Fill reclamation on slopes						
Drill pad recountour						
Drill sump backfill						
Small Dozer						
D7E				123.31	25.96	149.27
Totals				123.31	25.96	149.27
Large Dozer						
D10T2				305.43	25.96	331.39
Totals				305.43	25.96	331.39
Grader						
14M				175.58	25.96	201.54
Totals				175.58	25.96	201.54
Small Excavator						
320F				56.17	33.30	89.47
Totals				56.17	33.30	89.47
Medium Excavator						
349F				122.42	33.30	155.72
Totals				122.42	33.30	155.72

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
LOAD CRUSHER/TRAM BACKFILL						
Load crusher with wheeled loader Tram backfill into portals						
Small Crusher Loader Fleet						
950M		1		84.51	33.30	117.81
Totals				84.51	33.30	117.81
Medium Crusher Loader Fleet						
950M		1		84.51	33.30	117.81
Totals				84.51	33.30	117.81
Large Crusher Loader Fleet						
972M		1		115.77	33.30	149.07
Totals				115.77	33.30	149.07
Extra Large Crusher Loader Fleet						
980M		1		145.70	33.30	179.00
Totals				145.70	33.30	179.00
COMPACT COVER						
From Means Heavy Construction - Costs in Misc. Unit Costs. Assumes compaction-riding, vibrating roller - 12in (300mm) lifts						
Compactor						
CS54B		1		51.61	17.23	68.84
Totals				51.61	17.23	68.84
LOAD, HAUL AND PLACE MATERIAL						
Rock placement Haul overburden for backfill Haul borrow for backfill Haul cover or growth media						
Small Truck/Loader Fleet						
730C2				142.60	23.29	165.89
972M	**Loader**			115.77	33.30	149.07
D7E		1		123.31	25.96	149.27
Totals				381.68	82.55	464.23
Medium Truck/Loader Fleet						
740C				178.55	23.29	201.84
988K	**Loader**			259.14	33.30	292.44
D8T		1		145.58	25.96	171.54
Totals				583.27	82.55	665.82
Large Truck/Loader Fleet						
777G				525.63	23.29	548.92
992K	**Loader**			458.61	33.30	491.91
D9T		1		210.52	25.96	236.48
Totals				1,194.76	82.55	1,277.31
Extra Large Truck/Loader Fleet						
770G				200.99	23.29	224.28
988K	**Loader**			259.14	33.30	292.44
D11T		1		553.77	25.96	579.73
Totals				1,013.90	82.55	1,096.45
Scraper/Dozer Fleet						
631K				227.96	17.23	245.19
D10T2				305.43	25.96	331.39
D10T2		1		305.43	25.96	331.39
Totals				838.82	69.15	907.97
Tandem Scraper Fleet						
637K				410.42	17.23	427.65
D7E		1		123.31	25.96	149.27

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
Totals				533.73	43.19	576.92

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
MISC. LOAD AND HAUL AND EARTHWORKS						
Sludge removal Drainage controls						
Misc. - Cat 325B Excavator / 10-12 yd3 Truck						
325F				73.23	33.30	106.53
Dump Truck (10-12 yd3)				54.10	14.61	68.71
Totals				127.33	47.91	175.24
Misc. - Cat D9R Dozer/ Loader (5 yd3) / 10-12 yd3 Truck						
D9T				210.52	25.96	236.48
966M				98.17	33.30	131.47
Dump Truck (10-12 yd3)				54.10	14.61	68.71
Totals				362.79	73.87	436.66
Misc. - Cat D6 Dozer / Cat 966 Loader / 10-12 yd3 Truck						
D6T				88.54	25.96	114.50
966M				98.17	33.30	131.47
Dump Truck (10-12 yd3)				54.10	14.61	68.71
Totals				240.81	73.87	314.68
LINER REMOVAL						
Liner removal						
Small - Cat 325B Excavator w/ H140D s Hammer						
325F				73.23	33.30	106.53
General Laborer		2		0.00	30.38	30.38
Totals				73.23	63.68	136.91

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
CONCRETE BREAKING						
Slab demolition						
Footing demolition						
Wall demolition						
Small - Cat 325F Excavator w/ H120E s Hammer						
325F				73.23	33.30	106.53
H120Es (fits 325)				31.00	0.00	31.00
D9T				210.52	25.96	236.48
Totals				314.75	59.26	374.01
Medium - Cat 349F Excavator w/ H160E s Hammer						
349F				122.42	33.30	155.72
H160Es (fits 349)				63.17	0.00	63.17
D9T				210.52	25.96	236.48
Totals				396.11	59.26	455.37
Large - Cat 374F Excavator w/ H180E s Hammer						
374F				238.31	33.30	271.61
H180Es (fits 374/390)				71.37	0.00	71.37
D9T				210.52	25.96	236.48
Totals				520.20	59.26	579.46
DRILL HOLE ABANDONMENT						
Drill Hole - Grout or Cement						
Pump (plugging) Drill Rig				605.81	17.23	623.04
Driller's Helper		2		0.00	43.78	43.78
Totals				605.81	61.01	666.82
Drill Hole - Inert Media (Means Crew B-11M+ 1 Laborer)						
420F2				43.27	17.23	60.50
General Laborer		1		0.00	15.19	15.19
Totals				43.27	32.42	75.69
Drill Hole - Casing Perforation or Removal						
Heavy Duty Drill Rig				610.15	17.23	627.38
Driller's Helper		2		0.00	43.78	43.78
Totals				610.15	61.01	671.16
MAINTENANCE FLEET						
Road Grading, Dust Suppression, Clean Up						
Maintenance - Small Water Truck and Cat 14G Grader						
613E (5,000 gal)				127.69	23.29	150.98
14M				175.58	25.96	201.54
Totals				303.27	49.25	352.52
Maintenance - Medium Water Truck and Cat 16G Grader						
621E (8,000 gal)				160.63	23.29	183.92
14M				175.58	25.96	201.54
Totals				336.21	49.25	385.46
Maintenance - Large Water Truck and Cat 16G Grader						
777G H2O Truck				525.63	23.29	548.92
14M				175.58	25.96	201.54
Totals				701.21	49.25	750.46
PROJECT SUPERVISION						
Foreman		1		0.00	78.74	78.74
Supervisor's Truck		1		12.33	0.00	12.33
Totals				12.33	78.74	91.07

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
MEANS CREW DEFINITIONS						
Crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . For use with misc. unit costs where Means is the source for productivity						
1 Clab - Seedling Planting/Block Wall Demolition						
General Laborer		1		0.00	15.19	15.19
Totals				0.00	15.19	15.19
2 Clab - Barbed Wire/Wood Fence Removal, Drainpipe Installation, Pumping, Evaporation						
General Laborer		2		0.00	30.38	30.38
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				29.85	30.38	60.23
2 Clab + Excavator - Pond Liner Cut and Fold						
General Laborer		2		0.00	30.38	30.38
325F				73.23	33.30	106.53
Totals				73.23	63.68	136.91
2 Clab + Welder - Bat Gates						
General Laborer		2		0.00	30.38	30.38
Welding Equipment				8.56	33.30	41.86
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				38.41	63.68	102.09
3 Clab - Foam Adit Plugs						
General Laborer		2		0.00	30.38	30.38
420F2				43.27	17.23	60.50
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				73.12	47.61	120.73
3 Clab + Welder - Culvert Bat Gate						
General Laborer		2		0.00	30.38	30.38
Welding Equipment				8.56	33.30	41.86
420F2				43.27	17.23	60.50
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				81.68	80.91	162.59
3 Clab D - 3 Laborers + Foreman - Decontamination						
General Laborer		3		0.00	45.57	45.57
Foreman		1		0.00	78.74	78.74
Supervisor's Truck		1		12.33	0.00	12.33
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				42.18	124.31	166.49
3 SKWK - Liner Installation						
Skilled Laborer		3		0.00	66.18	66.18
HDEP Welder (pipe or liner)		1		44.24	0.00	44.24
420F2		1		43.27	17.23	60.50
				0.00		0.00
				0.00		0.00
				0.00		0.00
Totals				87.51	83.41	170.92

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-3 - Small Building Demoltion						
LABOR						
General Laborer		2		0.00	30.38	30.38
Foreman		1		0.00	78.74	78.74
				0.00		0.00
				0.00		0.00
				0.00		0.00
EQUIPMENT						
930M		1		70.46	33.30	103.76
Dump Truck (10-12 yd3)		2		108.20	29.22	137.42
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
Totals				178.66	171.64	350.30
B-6 - Chain Link Fence/Culvert Removal						
General Laborer		2		0.00	30.38	30.38
930M		1		70.46	33.30	103.76
Totals				70.46	63.68	134.14
B-8 - Large Building Demolition						
LABOR						
General Laborer		2		0.00	30.38	30.38
Foreman		1		0.00	78.74	78.74
				0.00		0.00
				0.00		0.00
				0.00		0.00
EQUIPMENT						
930M		1		70.46	33.30	103.76
20 Ton Crane		1		93.40	33.30	126.70
Dump Truck (10-12 yd3)		2		108.20	29.22	137.42
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
				0.00		0.00
Totals				272.06	204.94	477.00
B-9 - Concrete Wall Demolition						
General Laborer		4		0.00	60.76	60.76
Foreman		1		0.00	78.74	78.74
Air Compressor + tools				8.94	17.23	26.17
Totals				8.94	156.73	165.67

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-10Y - General Compaction						
General Laborer		1		0.00	15.19	15.19
CS54B		1		51.61	17.23	68.84
Totals				51.61	32.42	84.03
B-11L - Fine Grading for Evaporation Pond Liner Base						
General Laborer		1		0.00	15.19	15.19
14M		1		175.58	25.96	201.54
Totals				175.58	41.15	216.73
B-11M - Backhoe Work						
420F2		1		43.27	17.23	60.50
Totals				43.27	17.23	60.50
B-12G - Rip-Rap Machine Placed (Modified)						
General Laborer		2		0.00	30.38	30.38
966M		1		98.17	33.30	131.47
325F		1		73.23	33.30	106.53
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				201.25	66.60	267.85
B-13 - Grouted Rip-Rap & Gabion Baskets						
General Laborer		4		0.00	60.76	60.76
Foreman		1		0.00	78.74	78.74
50 Ton Crane		1		174.83	33.30	208.13
Totals				174.83	172.80	347.63
B-14 PVC Drain Pipe Installation						
Foreman		1		0.00	78.74	78.74
General Laborer		4		0.00	60.76	60.76
420F2		1		43.27	17.23	60.50
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				73.12	156.73	229.85
B-20 - Remove Pipelines						
Foreman		1		0.00	78.74	78.74
Skilled Laborer		1		0.00	22.06	22.06
General Laborer		1		0.00	15.19	15.19
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				29.85	115.99	145.84
B-22A - HDEP Installation - Pipe or Liner						
Skilled Laborer		1		0.00	22.06	22.06
General Laborer		2		0.00	30.38	30.38
D7E		1		123.31	25.96	149.27
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
420F2		1		43.27	17.23	60.50
Generator 5KW		1		12.16	0.00	12.16
HDEP Welder (pipe or liner)		1		44.24	0.00	44.24
Totals				252.83	95.63	348.46
B-34N - Equipment Mobilization (40-ton)						
Skilled Laborer		1		0.00	22.06	22.06
General Laborer		2		0.00	30.38	30.38
D7E		1		123.31	25.96	149.27
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
420F2		1		43.27	17.23	60.50
Generator 5KW		1		12.16	0.00	12.16
HDEP Welder (pipe or liner)		1		44.24	0.00	44.24
Totals				252.83	95.63	348.46

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: December 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_Rev01_20181211_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_Rev01_20181207_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

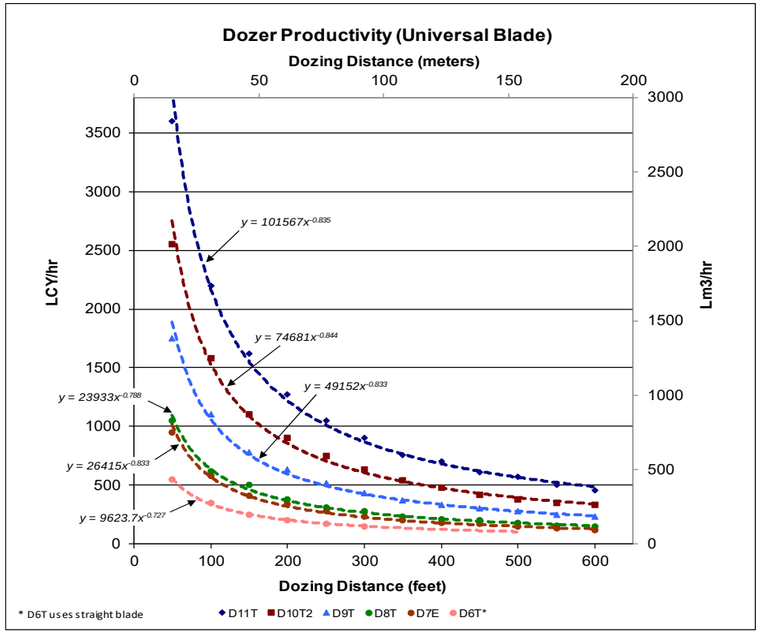
EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-34U - Equipment Mobilization (20-ton)						
Skilled Laborer		1		0.00	22.06	22.06
General Laborer		2		0.00	30.38	30.38
D7E		1		123.31	25.96	149.27
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
420F2		1		43.27	17.23	60.50
Generator 5KW		1		12.16	0.00	12.16
HDEP Welder (pipe or liner)		1		44.24	0.00	44.24
Totals				252.83	95.63	348.46
B-34V - Equipment Mobilization (50-ton)						
Skilled Laborer		1		0.00	22.06	22.06
General Laborer		2		0.00	30.38	30.38
D7E		1		123.31	25.96	149.27
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
420F2		1		43.27	17.23	60.50
Generator 5KW		1		12.16	0.00	12.16
HDEP Welder (pipe or liner)		1		44.24	0.00	44.24
Totals				252.83	95.63	348.46
B-80A - Install Barbed Wire Fence						
General Laborer		3		0.00	45.57	45.57
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				29.85	45.57	75.42
B-80C - Install Chain Link Fence (Flatbed truck has small crane)						
General Laborer		3		0.00	45.57	45.57
Light Truck - 1.5 Ton		1		29.85	0.00	29.85
Totals				29.85	45.57	75.42
C-14B - Elevated Concrete Slabs (Reinforced Concrete Shaft Covers)						
Foreman		1		0.00	78.74	78.74
Supervisor's Truck		1		12.33	0.00	12.33
Carpenter		16		0.00	536.48	536.48
General Laborer		2		0.00	30.38	30.38
Rodmen (reinforcing concrete)		4		0.00	87.12	87.12
Cement finisher		2		0.00	43.78	43.78
Gas Engine Vibrator		1		5.66	17.23	22.89
Concrete Pump		1		106.16	0.00	106.16
Totals				124.15	793.73	917.88
C-14D - Concrete Walls Formed in Place (Reinforced Concrete Adit Bulkheads)						
Foreman		1		0.00	78.74	78.74
Supervisor's Truck		1		12.33	0.00	12.33
Carpenter		18		0.00	603.54	603.54
General Laborer		2		0.00	30.38	30.38
Rodmen (reinforcing concrete)		2		0.00	43.56	43.56
Cement finisher		1		0.00	21.89	21.89
Gas Engine Vibrator		1		5.66	17.23	22.89
Concrete Pump		1		106.16	0.00	106.16
Totals				124.15	795.34	919.49

Productivity - Bulldozers

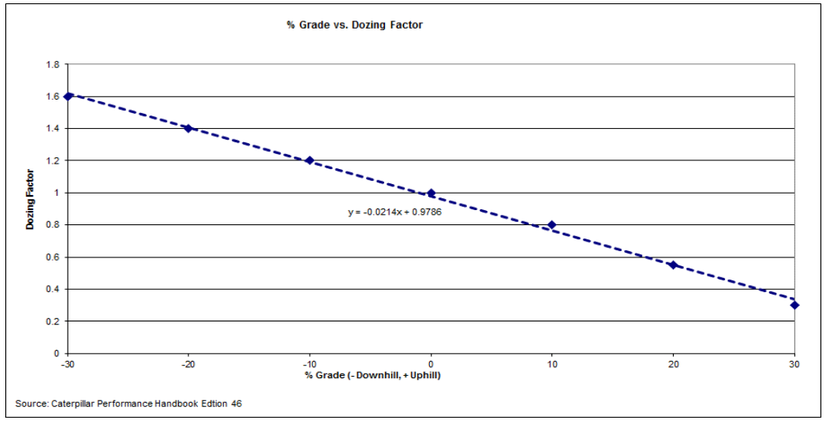
Dozer Specifications						
Description	**D6T**	**D7E**	**D8T**	**D9T**	**D10T2**	**D11T**
Blade Width (SU) (ft)	10.67	12.17	12.92	14.08	16.25	18.33
Shank Guage (3 shanks) (ft)	6.58	5.92	7.08	7.67	8.67	9.83
Pocket Spacing (ft)	3.25	2.92	3.58	3.86	4.33	4.92
Ripping Width (Ripper + 1 Pocket) (ft)	9.83	8.84	10.66	11.53	13	14.75
Ripping Speed (mph)	1	1	1	1	1	1
Ripping Maneuver (turn) Time (min)	0.25	0.25	0.25	0.25	0.25	0.25
Altitude Deration Factor	1	1	1	1	1	1
Ripping Hourly Production (excluding maneuvering time) (ft)	5,280	5,016	5,280	5,280	5,280	4,541
Source: Caterpillar Performance Handbook Edition 47						

Dozer Productivity vs. Grading Distance						
	Production (LCY/hr)					
Average Dozing Distance (feet)	**D6T**	**D7E**	**D8T**	**D9T**	**D10T2**	**D11T**
50	550	950	1,050	1,750	2,550	3,600
100	350	580	620	1,100	1,580	2,200
200	205	340	380	630	900	1,270
300	150	230	280	430	630	900
400		180	210	330	480	700
500		150	180	280	380	570
600		120	150	230	330	460
Source: Caterpillar Performance Handbook Edition 47						
dozer productivity = k x Dozing Distance^{p} (see graph)						
k =	9623.7	26451	23933	49152	74681	101567
p =	-0.727	-0.833	-0.788	-0.833	-0.844	-0.835



Productivity - Bulldozers (cont.)

% Grade vs. Dozing Factor	
% Grade	**Dozing Factor**
-30	1.6
-20	1.4
-10	1.2
0	1
10	0.8
20	0.55
30	0.3
Source: Caterpillar Performance Handbook Edition 47	
% Grade Dozing Factor = -0.0214x + 0.9786 (see graph)	



Source: Caterpillar Performance Handbook Edtion 46

Job Condition Correction Factors - Bulldozers	
OPERATOR	
Average	0.75
MATERIAL (1)	
Loose stockpile	1.2
Normal	1
Hard to cut; frozen — with tilt cylinder	0.8
Hard to drift; "dead" (dry,non-cohesive material) or very sticky material	0.8
Rock, ripped or blasted	0.6
SLOT DOZING OR SIDE BY SIDE (1)	1.2
VISIBILITY	
Good conditions	1
JOB EFFICIENCY	
50 min/hr	0.83
(1) Selected in facility worksheets. Other factors included as standard factors.	
Source: Caterpillar Performance Handbook Edition 47	

Material Densities(1)		
Material	**lb/yd3**	
Alluvium	2,900	
Basalt	3,300	
Clay - Dry	2,500	
Granite - broken	2,800	
Gravel	2,550	
Limestone - broken	2,600	
Limestone - crushed	2,600	
Sandstone	2,550	
Shale	2,100	
Stone - crushed	2,700	
Tailings - Coarse (dry, loose sand)	2,400	Note: uses Sand & Gravel - Dry from Caterpillar Handbook
Tailings - Slimes (loose sand & clay)	2,700	
Topsoil	1,600	
(1) Source: Caterpillar Performance Handbook Edition 47		

Productivity - Scrapers

Scraper Specifications		
Description	**631K**	**637K**
Empty Weight (lb)	102,750	112,760
Payload Capacity (yd3)		
Struck	24	24
Heaped	34	34
Average	29	29
Loaded by	One D10	Self*
Load Time (min)	0.50	0.50
Maneuver and Spread (min)	0.70	0.60
Job Efficiency	0.83	0.83
Rolling Resistance**	2.50	2.50
Altitude Deration Factor	1	1

* Requires pair

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials			Downhill Speed (mph) - Grade Retarding vs. Effective Grade (%Grade - Rolling Resistance)																		
			631K										637K PP									
Material	**lb/yd3**	**Scraper Load (lb)**	**Loaded Weight (lb)**	**18**	**16**	**14**	**12**	**10**	**8**	**6**	**4**	**2**	**Loaded Weight (lb)**	**18**	**16**	**14**	**12**	**10**	**8**	**6**	**4**	**2**
Alluvium	2,900	84,100	186,850	8	8	8	8	10.6	14.3	19.2	26	35	196,860	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Basalt	3,300	95,700	198,450	8	8	8	8	10.6	14.3	19.2	26	35	208,460	8	10.6	10.6	10.6	14.2	19.2	19.2	35	35
Clay - Dry	2,500	72,500	175,250	8	8	8	10.6	10.6	14.3	19.2	26	35	185,260	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Granite - broken	2,800	81,200	183,950	8	8	8	8	10.6	14.3	19.2	26	35	193,960	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Gravel	2,550	73,950	176,700	8	8	8	10.6	10.6	14.3	19.2	26	35	186,710	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Limestone - broken	2,600	75,400	178,150	8	8	8	8	10.6	14.3	19.2	26	35	188,160	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Limestone - crushed	2,600	75,400	178,150	8	8	8	8	10.6	14.3	19.2	26	35	188,160	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Sandstone	2,550	73,950	176,700	8	8	8	10.6	10.6	14.3	19.2	26	35	186,710	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Shale	2,100	60,900	163,650	8	8	8	10.6	10.6	14.3	19.2	35	35	173,660	10.6	10.6	10.6	14.2	19.2	19.2	35	35	35
Stone - crushed	2,700	78,300	181,050	8	8	8	8	10.6	14.3	19.2	26	35	191,060	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Tailings - Coarse (dry, loose sand)	2,400	69,600	172,350	8	8	8	10.6	10.6	14.3	19.2	35	35	182,360	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Tailings - Slimes (loose sand & clay)	2,700	78,300	181,050	8	8	8	8	10.6	14.3	19.2	26	35	191,060	10.6	10.6	10.6	10.6	19.2	19.2	26	35	35
Topsoil	1,600	46,400	149,150	8	8	10.6	10.6	14.3	19.2	26	35	35	159,160	10.6	10.6	10.6	19.2	19.2	19.2	35	35	35
			Empty	14.3	14.3	14.3	14.3	19.2	19.2	26	35	35	Empty	14.2	19.2	19.2	19.2	19.2	35	35	35	35

assumes medium compression breaking

Source: Caterpillar Performance Handbook Edition 46

Weight of Materials			Uphill Speed (mph) - Rimpull vs. Total Resistance (%Grade + Rolling Resistance)																		
			631K										637K PP									
Material	**lb/yd3**	**Scraper Load (lb)**	**Loaded Weight (lb)**	**18**	**16**	**14**	**12**	**10**	**8**	**6**	**4**	**2**	**Loaded Weight (lb)**	**18**	**16**	**14**	**12**	**10**	**8**	**6**	**4**	**2**
Alluvium	2,900	84,100	186,850	4	5.5	6.5	7.4	9	11.2	15	22.3	33.2	196,860	6.7	7.6	8.7	9.4	12	15.2	20.5	29.8	35
Basalt	3,300	95,700	198,450	3.9	4.1	6.1	7	8.5	11	14	22.3	32	208,460	6.5	6.9	8.3	9.2	11.5	14.2	19.1	28.8	35
Clay - Dry	2,500	72,500	175,250	4.1	6.1	6.9	8.2	9.2	12	16.2	23	33	185,260	6.9	8.2	9	10.7	12.5	15.9	21.6	31	35
Granite - broken	2,800	81,200	183,950	4.1	6	6.6	7.8	9	11.5	15.9	23	32	193,960	6.8	7.8	8.8	9.6	12	15.3	20.9	30.2	35
Gravel	2,550	73,950	176,700	4.2	6.1	6.8	8.8	9.2	11.9	16	23.2	33	186,710	6.9	8.2	9	10.6	12.5	15.8	21.5	30.8	35
Limestone - broken	2,600	75,400	178,150	4.1	6	6.7	8.2	9	11.8	15.8	23	32	188,160	6.9	8.1	9	10.4	12.5	15.7	21.3	30.8	35
Limestone - crushed	2,600	75,400	178,150	4.1	6	6.7	8.2	9	11.8	15.8	23	32	188,160	6.9	8.1	9	10.4	12.5	15.7	21.3	30.8	35
Sandstone	2,550	73,950	176,700	4.2	6.1	6.8	8.8	9.2	11.9	16	23.2	33	186,710	6.9	8.2	9	10.6	12.5	15.8	21.5	30.8	35
Shale	2,100	60,900	163,650	5.8	6.5	7	8.8	9.5	12.5	16.6	26	34	173,660	7.8	8.7	9.3	11.4	13.5	16.6	22.6	31.6	35
Stone - crushed	2,700	78,300	181,050	4.2	6	6.6	8	9	11.4	15.5	22.5	33	191,060	6.8	8	8.9	10	12	15.5	21.1	30.4	35
Tailings - Coarse (dry, loose sand)	2,400	69,600	172,350	4.3	6.2	6.8	8.3	9.5	11.8	16	25	34	182,360	7	8.4	9.1	10.8	12.5	16	21.9	31.2	35
Tailings - Slimes (loose sand & clay)	2,700	78,300	181,050	4.2	6	6.6	8	9	11.4	15.5	22.5	33	191,060	6.8	8	8.9	10	12	15.5	21.1	30.4	35
Topsoil	1,600	46,400	149,150	6.3	6.9	8.4	9.2	11.2	14	19.6	24	34	159,160	8.5	9.1	10.7	12.2	15	18.3	25	32.4	35
			Empty	9	9.4	11.5	12.6	16	17.5	18.5	25	35	Empty	12.5	14.7	16.3	19.7	22.7	29.1	32.7	34.6	35

Source: Caterpillar Performance Handbook Edition 47

Productivity - Haul Trucks

Haul Truck Specifications

Description	770G	773G	777G	785D	789D	793F	797F
Chassis Weight (lb)	56,144	77,582	115,171	180,827	222,233	269,006	472,880
Body Weight (lb)	17,103	24,358	35,429	50,700	58,656	59,289	97,610
Standard Liner Weight (lb)	6,195	8,218	12,555	17,886	21,367	13,688	16,870
Total Truck Weight (lb)	79,442	110,158	163,155	249,413	302,256	341,983	587,360
Payload Capacity (yd3)							
Struck	24	34.5	54.6	77	106	173	315
Heaped	33.9	46	78.6	102	141	230	350
Average	28.7	40.25	66.6	89.5	123.5	201.5	332.5
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials				Downhill Speed (mph) - Grade Retarding vs. Effective Grade (%Grade - Rolling Resistance)																				
				770G												773G										
Material	lb/yd3	Truck 770G Load (lb)	Truck 773G Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0		Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0
Alluvium	2,900	83,230	116,725	162,672	7	10	10	13.5	18	18	25	35	35	35		226,883	10.6	10.6	10.6	10.6	19.2	19.2	19.2	35	35	35
Basalt	3,300	94,710	132,825	174,152	7	7	10	10	13.5	18	25	35	35	35		242,983	10.6	10.6	10.6	10.6	14.2	19.2	19.2	35	35	35
Clay - Dry	2,500	71,750	100,625	151,192	10	10	10	13.5	18	25	33.5	35	35	35		210,783	10.6	10.6	10.6	10.6	19.2	19.2	25.9	35	35	35
Granite - broken	2,800	80,360	112,700	159,802	7	10	10	13.5	18	18	25	35	35	35		222,858	10.6	10.6	10.6	10.6	19.2	19.2	19.2	35	35	35
Gravel	2,550	73,185	102,638	152,627	10	10	10	13.5	18	25	33.5	35	35	35		212,796	10.6	10.6	10.6	10.6	19.2	19.2	25.9	35	35	35
Limestone - broken	2,600	74,620	104,650	154,062	7	10	10	13.5	18	25	33.5	35	35	35		214,808	10.6	10.6	10.6	10.6	19.2	19.2	25.9	35	35	35
Limestone - crushed	2,600	74,620	104,650	154,062	7	10	10	13.5	18	25	33.5	35	35	35		214,808	10.6	10.6	10.6	10.6	19.2	19.2	25.9	35	35	35
Sandstone	2,550	73,185	102,638	152,627	10	10	10	13.5	18	25	33.5	35	35	35		212,796	10.6	10.6	10.6	10.6	19.2	19.2	25.9	35	35	35
Shale	2,100	60,270	84,525	139,712	10	10	13.5	18	18	25	33.5	35	35	35		194,683	10.6	10.6	10.6	10.6	19.2	19.2	25.9	35	35	35
Stone - crushed	2,700	77,490	108,675	156,932	10	10	10	13.5	18	25	33.5	35	35	35		218,833	10.6	10.6	10.6	10.6	19.2	19.2	25.9	35	35	35
Tailings - Coarse (dry, loose sand)	2,400	68,880	96,600	148,322	10	10	10	13.5	18	25	33.5	35	35	35		206,758	10.6	10.6	10.6	10.6	19.2	19.2	25.9	35	35	35
Tailings - Slimes (loose sand & clay)	2,700	77,490	108,675	156,932	10	10	10	13.5	18	25	33.5	35	35	35		218,833	10.6	10.6	10.6	10.6	19.2	19.2	25.9	35	35	35
Topsoil	1,600	45,920	64,400	125,362	10	13.5	13.5	18	25	25	33.5	35	35	35		174,558	10.6	10.6	10.6	14.2	19.2	19.2	35	35	35	35
				Empty	18	25	33.5	33.5	33.5	35	35	35	35	35		Empty	14.2	19.2	19.2	19.2	25.9	35	35	35	35	35

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials				Downhill Speed (mph) - Grade Retarding vs. Effective Grade (%Grade - Rolling Resistance)																				
				777G												785D										
Material	lb/yd3	Truck 777G Load (lb)	Truck 785D Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0		Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0
Alluvium	2,900	193,140	259,550	356,295	8	9	9	9	13	16.8	16.8	22.8	35	35		508,963	7.8	7.8	7.8	10.5	10.5	14.2	19.2	35	35	35
Basalt	3,300	219,780	295,350	382,935	8	9	9	13	13	16.8	22.8	35	35	35		544,763	7.8	7.8	7.8	10.5	10.5	14.2	19.2	26.1	35	35
Clay - Dry	2,500	166,500	223,750	329,655	9	9	13	13	17	22.8	30.6	35	35	35		473,163	7.8	7.8	10.5	10.5	14.2	14.2	19.2	35	35	35
Granite - broken	2,800	186,480	250,600	349,635	9	9	9	13	17	16.8	22.8	35	35	35		500,013	7.8	7.8	7.8	10.5	10.5	14.2	19.2	35	35	35
Gravel	2,550	169,830	228,225	332,985	9	9	13	13	17	22.8	30.6	35	35	35		477,638	7.8	7.8	10.5	10.5	14.2	14.2	19.2	35	35	35
Limestone - broken	2,600	173,160	232,700	336,315	9	9	9	13	17	22.8	30.6	35	35	35		482,113	7.8	7.8	7.8	10.5	14.2	14.2	19.2	35	35	35
Limestone - crushed	2,600	173,160	232,700	336,315	9	9	9	13	17	22.8	30.6	35	35	35		482,113	7.8	7.8	7.8	10.5	14.2	14.2	19.2	35	35	35
Sandstone	2,550	169,830	228,225	332,985	9	9	13	13	17	22.8	30.6	35	35	35		477,638	7.8	7.8	10.5	10.5	14.2	14.2	19.2	35	35	35
Shale	2,100	139,860	187,950	303,015	9	9	13	17	17	22.8	30.6	35	35	35		437,363	7.8	7.8	10.5	10.5	14.2	19.2	26.1	35	35	35
Stone - crushed	2,700	179,820	241,650	342,975	9	9	9	13	17	16.8	22.8	35	35	35		491,063	7.8	7.8	7.8	10.5	10.5	14.2	19.2	35	35	35
Tailings - Coarse (dry, loose sand)	2,400	159,840	214,800	322,995	9	9	13	13	17	22.8	30.6	35	35	35		464,213	7.8	7.8	10.5	10.5	14.2	19.2	19.2	35	35	35
Tailings - Slimes (loose sand & clay)	2,700	179,820	241,650	342,975	9	9	9	13	17	16.8	22.8	35	35	35		491,063	7.8	7.8	10.5	10.5	14.2	14.2	19.2	35	35	35
Topsoil	1,600	106,560	143,200	269,715	9	12.5	12.5	16.8	22.8	22.8	30.6	35	35	35		392,613	7.8	10.5	10.5	14.2	14.2	19.2	26.1	35	35	35
				Empty	22.8	22.8	22.8	30.6	35	35	35	35	35	35		Empty	14.2	14.2	19.2	19.2	26.1	35	35	35	35	35

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials				Downhill Speed (mph) - Grade Retarding vs. Effective Grade (%Grade - Rolling Resistance)																				
				789D												793F										
Material	lb/yd3	Truck 789D Load (lb)	Truck 793F Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0		Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0
Alluvium	2,900	358,150	584,350	660,406	7.8	7.8	7.8	7.8	10.5	10.5	19.2	26.1	35	35		926,333	8.1	8.1	10.9	10.9	14.8	20	26.1	35	35	35
Basalt	3,300	407,550	664,950	709,806	7.8	7.8	7.8	7.8	10.5	10.5	14.4	26.1	35	35		1,006,933	8.1	8.1	8.1	8.1	10.9	14.8	20	26.1	35	35
Clay - Dry	2,500	308,750	503,750	611,006	7.8	7.8	7.8	10.5	10.5	14.4	19.2	26.1	35	35		845,733	8.1	8.1	8.1	10.9	0	14.8	20	35	35	35
Granite - broken	2,800	345,800	564,200	648,056	7.8	7.8	7.8	7.8	10.5	14.4	19.2	26.1	35	35		906,183	8.1	8.1	8.1	10.9	10.9	14.8	20	26.1	35	35
Gravel	2,550	314,925	513,825	617,181	7.8	7.8	7.8	10.5	10.5	14.4	19.2	26.1	35	35		855,808	8.1	8.1	8.1	10.9	0	14.8	20	35	35	35
Limestone - broken	2,600	321,100	523,900	623,356	7.8	7.8	7.8	10.5	10.5	14.4	19.2	26.1	35	35		865,883	8.1	8.1	8.1	10.9	10.9	14.8	20	35	35	35
Limestone - crushed	2,600	321,100	523,900	623,356	7.8	7.8	7.8	10.5	10.5	14.4	19.2	26.1	35	35		865,883	8.1	8.1	8.1	10.9	10.9	14.8	20	35	35	35
Sandstone	2,550	314,925	513,825	617,181	7.8	7.8	7.8	10.5	10.5	14.4	19.2	26.1	35	35		855,808	8.1	8.1	8.1	10.9	0	14.8	20	35	35	35
Shale	2,100	259,350	423,150	561,606	7.8	7.8	7.8	10.5	10.5	14.4	19.2	35	35	35		765,133	8.1	8.1	10.9	10.9	14.8	20	26.1	35	35	35
Stone - crushed	2,700	333,450	544,050	635,706	7.8	7.8	7.8	7.8	10.5	14.4	19.2	26.1	35	35		886,033	8.1	8.1	8.1	10.9	10.9	14.8	20	35	35	35
Tailings - Coarse (dry, loose sand)	2,400	296,400	483,600	598,656	7.8	7.8	7.8	10.5	10.5	14.4	19.2	26.1	35	35		825,583	8.1	8.1	8.1	10.9	14.8	14.8	20	35	35	35
Tailings - Slimes (loose sand & clay)	2,700	333,450	544,050	635,706	7.8	7.8	7.8	7.8	10.5	14.4	19.2	26.1	35	35		886,033	8.1	8.1	8.1	10.9	10.9	14.8	20	35	35	35
Topsoil	1,600	197,600	322,400	499,856	7.8	7.8	10.5	10.5	14.4	19.2	19.2	35	35	35		664,383	8.1	10.9	10.9	14.8	14.8	20	26.1	35	35	35
				Empty	10.5	14.4	14.4	19.2	19.2	26.1	35	35	35	35		Empty	14.8	20	20	26.1	26.1	35	35	35	35	35

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials			Downhill Speed (mph) - Grade Retarding vs. Effective Grade (%Grade - Rolling Resistance)										
			797F										
Material	lb/yd3	Truck 797F Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0
Alluvium	2,900	964,250	1,551,610	5.4	6.8	7.2	8.7	9.6	13.8	17.3	23.2	35	35
Basalt	3,300	1,097,250	1,684,610	5.4	5.4	7.2	7.2	9.6	12.9	17.2	23.4	35	35
Clay - Dry	2,500	831,250	1,418,610	6.3	7.2	7.5	9.6	11.4	12.9	17.2	23.4	35	35
Granite - broken	2,800	931,000	1,518,360	5.4	6.9	7.2	9	9.6	12.9	17.2	23.4	35	35
Gravel	2,550	847,875	1,435,235	6.3	7.2	7.2	9.6	11.2	12.9	17.2	23.4	35	35
Limestone - broken	2,600	864,500	1,451,860	6	7.2	7.2	9.6	10.7	12.9	17.2	23.4	35	35
Limestone - crushed	2,600	864,500	1,451,860	6	7.2	7.2	9.6	10.7	12.9	17.2	23.4	35	35
Sandstone	2,550	847,875	1,435,235	6.3	7.2	7.2	9.6	11.2	12.9	17.2	23.4	35	35
Shale	2,100	698,250	1,285,610	7.2	7.2	9.6	9.6	12.9	15	19.8	31.5	35	35
Stone - crushed	2,700	897,750	1,485,110	6.8	7.2	7.2	9.6	10	12.9	17.2	23.4	35	35
Tailings - Coarse (dry, loose sand)	2,400	798,000	1,385,360	6.6	7.2	8	9.6	11.8	12.9	17.2	26	35	35
Tailings - Slimes (loose sand & clay)	2,700	897,750	1,485,110	6.8	7.2	7.2	9.6	10	12.9	17.2	23.4	35	35
Topsoil	1,600	532,000	1,119,360	6.5	9.6	9.6	12.9	12.9	17.2	23.4	31.5	35	35
			Empty	13.8	17.3	17.3	23.2	23.3	31.4	35	35	35	35

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials				Uphill Speed (mph) - Rimpull vs. Total Resistance (%Grade + Rolling Resistance)																				
				770G												773G										
Material	lb/yd3	Truck 770G Load (lb)	Truck 773G Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2		Loaded Weight (lb)	18	16	14	12	10	8	6	4	2
Alluvium	2,900	83,230	116,725	162,672	4	5	6.3	7.5	8.9	11.3	15.2	22.3	35		226,883	5.6	6.6	7.4	8.7	10.4	13.2	17.5	25.7	35
Basalt	3,300	94,710	132,825	174,152	4	4.4	5.9	6.8	8.5	10.6	14.6	21.6	35		242,983	5.3	6	7	8	9.8	12.2	16.2	24.3	35
Clay - Dry	2,500	71,750	100,625	151,192	4.8	6	6.8	8.4	9.5	12.1	16.4	24.8	35		210,783	6.2	7.1	8	9.5	10.9	14	18.7	28	35
Granite - broken	2,800	80,360	112,700	159,802	4.2	5.3	6.5	12.8	14	11.6	15.5	22.5	35		222,858	5.9	6.8	7.7	8.9	10.5	13.3	17.9	26.6	35
Gravel	2,550	73,185	102,638	152,627	4.5	6	6.8	8.3	9.5	12	16.2	23.4	35		212,796	6.2	7.1	7.9	9.4	10.8	13.9	18.5	27.4	35
Limestone - broken	2,600	74,620	104,650	154,062	4.3	5.8	6.7	8.2	9.3	12	16	24.5	35		214,808	6	7	7.9	9.2	10.8	13.7	18.3	27.4	35
Limestone - crushed	2,600	74,620	104,650	154,062	4.3	5.8	6.7	8.2	9.3	12	16	24.5	35		214,808	6	7	7.9	9.2	10.8	13.7	18.3	27.4	35
Sandstone	2,550	73,185	102,638	152,627	4.5	6	6.8	8.3	9.5	12	16.2	23.4	35		212,796	6.2	7.1	7.9	9.4	10.8	13.9	18.5	27.4	35
Shale	2,100	60,270	84,525	139,712	5.3	6.5	7.5	8.7	10.5	12.5	16.8	27	35		194,683	6.8	7.6	8.8	10.2	12	15.2	19.9	30.8	35
Stone - crushed	2,700	77,490	108,675	156,932	4.3	5.5	6.6	8	9.2	11.8	15.8	23.1	35		218,833	6	7.8	7.8	9	10.6	13.6	18	26.7	35
Tailings - Coarse (dry, loose sand)	2,400	68,880	96,600	148,322	4.9	6.2	7.1	8.5	10	12.3	16.5	25.7	35		206,758	6.4	7.3	8.1	9.7	11.5	14.2	18.9	28.6	35
Tailings - Slimes (loose sand & clay)	2,700	77,490	108,675	156,932	4.3	5.5	6.6	8	9.2	11.8	15.8	23.1	35		218,833	6	7.8	7.8	9	10.6	13.6	18	26.7	35
Topsoil	1,600	45,920	64,400	125,362	6.5	7.5	8.5	9.8	11.8	15	20.2	29.5	35		174,558	7.5	8.2	9.5	10.8	13.3	16.7	22.3	33.4	35
				Empty	11.4	12.5	15	17	21.2	26	34.7	35	35		Empty	13.1	14.5	16.7	19.2	23	29.4	35	35	35

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials				Uphill Speed (mph) - Rimpull vs. Total Resistance (%Grade + Rolling Resistance)																		
				777G										785D								
Material	lb/yd3	Truck 777G Load (lb)	Truck 785D Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2
Alluvium	2,900	193,140	259,550	356,295	4	5	6	7	8	10.5	14.2	20.5	35	508,963	4	4.4	6.4	7.1	8.8	11	14.6	21.8	33.6
Basalt	3,300	219,780	295,350	382,935	4	5	6	7	8	10	13.2	19.6	35	544,763	3.6	4.2	5.8	6.8	8.2	9.6	13	20.6	33.2
Clay - Dry	2,500	166,500	223,750	329,655	5	6	7	8	9	11	14.8	23.3	35	473,163	4.3	6	6.8	7.7	9.4	11.8	15.9	23.3	34
Granite - broken	2,800	186,480	250,600	349,635	4	5	6	7	8	10.6	14.3	21.5	35	500,013	4	4.5	6.5	7.2	9	11.2	14.8	22.4	33.8
Gravel	2,550	169,830	228,225	332,985	5	6	6	8	9	11	14.9	23	35	477,638	4.2	5.8	6.7	7.7	9.4	11.8	15.8	23.1	33.9
Limestone - broken	2,600	173,160	232,700	336,315	5	6	6	8	9	11	14.6	22.9	35	482,113	4.2	5.7	6.7	7.4	9.2	11.6	15.6	23	33.9
Limestone - crushed	2,600	173,160	232,700	336,315	5	6	6	8	9	11	14.6	22.9	35	482,113	4.2	5.7	6.7	7.4	9.2	11.6	15.6	23	33.9
Sandstone	2,550	169,830	228,225	332,985	5	6	6	8	9	11	14.9	23	35	477,638	4.2	5.8	6.7	7.7	9.4	11.8	15.8	23.1	33.9
Shale	2,100	139,860	187,950	303,015	6	6	7	8	10	12.5	16.4	25.1	35	437,363	5.3	6.5	7.2	8.6	9.6	12.7	16.9	23.6	34
Stone - crushed	2,700	179,820	241,650	342,975	5	6	6	8	9	10.8	14.6	22.2	35	491,063	4.1	5.4	6.6	7.2	9	11.4	15.2	22.5	33.7
Tailings - Coarse (dry, loose sand)	2,400	159,840	214,800	322,995	5	6	7	8	9	10.2	15.1	23.9	35	464,213	4.2	6.1	6.9	8	9.5	12.1	16.1	23.4	34
Tailings - Slimes (loose sand & clay)	2,700	179,820	241,650	342,975	5	6	6	8	9	10.8	14.6	22.2	35	491,063	4.1	5.4	6.6	7.2	9	11.4	15.2	22.5	33.7
Topsoil	1,600	106,560	143,200	269,715	6	7	8	9.3	10.8	13.8	18.6	27.4	35	392,613	6.5	7.1	8.2	9.2	11.4	13.2	17.6	28.5	34.6
				Empty	10.8	12.5	14.2	16.6	19.6	25	33	35	35	Empty	9.6	11	13.5	14.8	17.3	22.2	29.4	33.2	35

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials				Uphill Speed (mph) - Rimpull vs. Total Resistance (%Grade + Rolling Resistance)																		
				789D										793F								
Material	lb/yd3	Truck 789D Load (lb)	Truck 793F Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2
Alluvium	2,900	358,150	584,350	660,406	5	6.4	7	8.6	9.8	12.7	16.8	24.2	34.7	926,333	3.3	4	6.5	7.2	9	11	14.4	22.6	34.8
Basalt	3,300	407,550	664,950	709,806	4.6	5.8	6.7	7.3	9.4	11.8	15.7	23.6	34.3	1,006,933	2.8	3.5	5.8	7	8.2	9.8	13.3	20	34.1
Clay - Dry	2,500	308,750	503,750	611,006	6.2	7	7.3	9.3	10.5	13.2	17.7	28	34.9	845,733	3.9	6.1	7.1	8	9.7	12.3	16.5	24	35
Granite - broken	2,800	345,800	564,200	648,056	5.4	6.6	7.2	8.7	9.8	12.8	17	24.3	34.7	906,183	3.2	4	6.6	7.2	9.3	11.3	15	22.7	34.9
Gravel	2,550	314,925	513,825	617,181	6.1	6.9	7.2	9.1	10.4	13.2	17.6	27.7	34.8	855,808	4.8	6	7	7.9	9.7	12.3	16.4	24	35
Limestone - broken	2,600	321,100	523,900	623,356	5.9	6.8	7.2	9	10.1	13.1	17.4	26.9	34.8	865,883	4.6	5.8	7	7.8	9.6	12.2	16	23.9	35
Limestone - crushed	2,600	321,100	523,900	623,356	5.9	6.8	7.2	9	10.1	13.1	17.4	26.9	34.8	865,883	4.6	5.8	7	7.8	9.6	12.2	16	23.9	35
Sandstone	2,550	314,925	513,825	617,181	6.1	6.9	7.2	9.1	10.4	13.2	17.6	27.7	34.8	855,808	4.8	6	7	7.9	9.7	12.3	16.4	24	35
Shale	2,100	259,350	423,150	561,606	6.7	7.2	8.6	9.6	11.8	14.4	19.5	30.6	35	765,133	5.9	6.9	7.6	9.2	10.4	13.3	17.9	25.9	35
Stone - crushed	2,700	333,450	544,050	635,706	5.6	6.7	7.2	8.8	9.8	12.8	17.3	25.1	34.7	886,033	3.5	5.6	6.8	7.4	9.4	11.6	15.4	23.4	35
Tailings - Coarse (dry, loose sand)	2,400	296,400	483,600	598,656	6.4	6	7.9	9	11.1	13.2	17.8	28.6	35	825,583	3.9	6.3	7.2	8.4	9.8	12.7	17	24.4	35
Tailings - Slimes (loose sand & clay)	2,700	333,450	544,050	635,706	5.6	6.7	7.2	8.8	9.8	12.8	17.3	25.1	34.7	886,033	3.5	5.6	6.8	7.4	9.4	11.6	15.4	23.4	35
Topsoil	1,600	197,600	322,400	499,856	7.2	8.4	9.4	11.1	13	16.7	22.2	32.5	35	664,383	7	7.4	9.1	9.8	12.6	15.4	20.8	30.6	35
				Empty	12	13	15.4	17.8	21.6	27	33	35	35	Empty	13	13.8	16.7	18.2	23.1	28.5	34.7	35	35

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials			Uphill Speed (mph) - Rimpull vs. Total Resistance (%Grade + Rolling Resistance)									
			797F									
Material	lb/yd3	Truck 797F Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2
Alluvium	2,900	964,250	1,551,610	4	5	6.1	6.6	8.5	10.5	13.6	20.9	35
Basalt	3,300	1,097,250	1,684,610	3.2	4	5.8	6.5	7.8	9	12	19.4	35
Clay - Dry	2,500	831,250	1,418,610	4.1	6	6.5	7.8	8.8	11.2	15	21.2	35
Granite - broken	2,800	931,000	1,518,360	4	5.5	6.2	7	8.6	10.9	14.4	21	35
Gravel	2,550	847,875	1,435,235	4	5.9	6.5	7.5	8.8	11.2	15	21	35
Limestone - broken	2,600	864,500	1,451,860	4	5.6	6.5	7.5	8.8	11.1	14.9	21	35
Limestone - crushed	2,600	864,500	1,451,860	4	5.6	6.5	7.5	8.8	11.1	14.9	21	35
Sandstone	2,550	847,875	1,435,235	4	5.9	6.5	7.5	8.8	11.2	15	21	35
Shale	2,100	698,250	1,285,610	5.8	6.4	7	8.5	10	11.8	15.8	25.7	35
Stone - crushed	2,700	897,750	1,485,110	4	5.5	6.4	7.1	8.8	11	14.2	21	35
Tailings - Coarse (dry, loose sand)	2,400	798,000	1,385,360	5	6	6.5	7.9	8.8	11.5	15.4	23	35
Tailings - Slimes (loose sand & clay)	2,700	897,750	1,485,110	4	5.5	6.4	7.1	8.8	11	14.2	21	35
Topsoil	1,600	532,000	1,119,360	6.5	7	8.2	9.4	11.5	14.5	19.5	28.2	35
			Empty	10.8	13.2	15.2	17	21	26.3	33.3	35	35

Source: Caterpillar Performance Handbook Edition 47

Productivity - Articulated Trucks

Articulated Truck Specifications

Description	725C2	730C2	735C	740C
Empty Weight (lb)	50,795	53,131	69,446	79,366
Payload Capacity (yd3)				
Struck	14.4	17.4	19.6	23.5
Heaped	19.6	23	26.8	30.1
Average	17	20.2	23.2	26.8
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 47

Closure Cost Estimate
Productivity

Weight of Materials				Downhill Speed (mph) - Grade Retarding vs. Effective Grade (%Grade - Rolling Resistance)																				
				725C2												730C2										
Material	lb/yd3	Truck 725C2 Load (lb)	Truck 730C2 Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0		Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0
Alluvium	2,900	49,300	58,580	100,095	6	7	8	9	11	13.5	18	25.5	34	34		111,711	5	10	10	10	15	23	23	35	35	35
Basalt	3,300	56,100	66,660	106,895	6	7	8	9	11	13	17	25.5	34	34		119,791	5	10	10	10	15	15	23	35	35	35
Clay - Dry	2,500	42,500	50,500	93,295	6	8	8	10	12	14.5	20	27	34	34		103,631	10	10	10	15	15	23	30	35	35	35
Granite - broken	2,800	47,600	56,560	98,395	6	7	8	9	11	14	17.8	27.3	34	34		109,691	10	10	10	15	15	23	31	35	35	35
Gravel	2,550	43,350	51,510	94,145	6	7	10	10	12	14.5	18.5	27	34	34		104,641	10	15	10	15	15	23	30	35	35	35
Limestone - broken	2,600	44,200	52,520	94,995	6	7	8	9	11	14.5	18.5	27.5	34	34		105,651	10	15	10	15	15	23	30	35	35	35
Limestone - crushed	2,600	44,200	52,520	94,995	6	7	8	9	11	14.5	18.5	27.5	34	34		105,651	10	15	10	15	15	23	30	35	35	35
Sandstone	2,550	43,350	51,510	94,145	6	7	10	10	12	14.5	18.5	27	34	34		104,641	10	15	10	15	15	23	30	35	35	35
Shale	2,100	35,700	42,420	86,495	7	8	9	10	13	15.5	20	29.5	34	34		95,551	10	15	15	15	23	23	35	35	35	35
Stone - crushed	2,700	45,900	54,540	96,695	6	7	8	10	11	14.3	18	28	34	34		107,671	10	10	10	15	15	23	31	35	35	35
Tailings - Coarse (dry, loose sand)	2,400	40,800	48,480	91,595	7	8	9	10	12	14.8	19	28.5	34	34		101,611	10	10	10	15	15	23	29	35	35	35
Tailings - Slimes (loose sand & clay)	2,700	45,900	54,540	96,695	6	7	8	10	11	14.3	18	28	34	34		107,671	10	10	10	15	15	23	31	35	35	35
Topsoil	1,600	27,200	32,320	77,995	8	9	10	12	14.3	19.5	24	34	34	34		85,451	10	15	15	15	23	23	33	35	35	35
				Empty	12	13.8	15	18	21.5	34	34	34	34	34		Empty	15	15	15	15	23	35	35	35	35	35

assumes medium compression breaking

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials				Downhill Speed (mph) - Grade Retarding vs. Effective Grade (%Grade - Rolling Resistance)																				
				735C												740C										
Material	lb/yd3	Truck 735C Load (lb)	Truck 740C Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0		Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	0
Alluvium	2,900	67,280	77,720	136,726	9	12	12	15	20	24.3	30.8	35	35	35		157,086	9	9	12	15	15	20.8	25	35	35	35
Basalt	3,300	76,560	88,440	146,006	9	9	12	15	15	20.3	32.5	35	35	35		167,806	9	9	12	15	15	20.8	25	35	35	35
Clay - Dry	2,500	58,000	67,000	127,446	12	12	15	15	20	24.3	35	35	35	35		146,366	9	12	15	15	21	25	25	35	35	35
Granite - broken	2,800	64,960	75,040	134,406	9	12	12	15	20	20	30	35	35	35		154,406	9	9	12	15	15	20.8	25	35	35	35
Gravel	2,550	59,160	68,340	128,606	9	12	15	15	20	24.3	35	35	35	35		147,706	9	12	15	15	21	25	33	35	35	35
Limestone - broken	2,600	60,320	69,680	129,766	9	12	15	15	20	24.3	29	35	35	35		149,046	9	12	15	15	21	25	33	35	35	35
Limestone - crushed	2,600	60,320	69,680	129,766	9	12	15	15	20	24.3	29	35	35	35		149,046	9	12	15	15	21	25	33	35	35	35
Sandstone	2,550	59,160	68,340	128,606	9	12	15	15	20	24.3	35	35	35	35		147,706	9	12	15	15	21	25	33	35	35	35
Shale	2,100	48,720	56,280	118,166	12	12	15	15	20	24.3	35	35	35	35		135,646	12	12	15	15	21	25	35	35	35	35
Stone - crushed	2,700	62,640	72,360	132,086	9	12	15	15	20	24.3	29.5	35	35	35		151,726	9	12	15	15	21	25	33.5	35	35	35
Tailings - Coarse (dry, loose sand)	2,400	55,680	64,320	125,126	12	12	15	15	20	24.3	35	35	35	35		143,686	9	12	15	15	21	25	32	35	35	35
Tailings - Slimes (loose sand & clay)	2,700	62,640	72,360	132,086	9	12	15	15	20	24.3	29.5	35	35	35		151,726	9	12	15	15	21	25	33.5	35	35	35
Topsoil	1,600	37,120	42,880	106,566	12	14.8	14.8	20	24.3	24.3	35	35	35	35		122,246	12	15	15	20.8	25	25	35	35	35	35
				Empty	14.8	20	24.3	24.3	35	35	35	35	35	35		Empty	20.8	25	25	25	35	35	35	35	35	35

assumes medium compression breaking

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials				Uphill Speed (mph) - Rimpull vs. Total Resistance (%Grade + Rolling Resistance)																	
				725C2										730C2							
Material	lb/yd3	Truck 725C2 Load (lb)	Truck 730C2 Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2
Alluvium	2,900	49,300	58,580	100,095	5.2	6.1	6.9	8	9.5	11.6	15.1	20.5	31.9	111,711	6	6.7	7.6	8.8	10.5	13.2	17	23.2	33.3
Basalt	3,300	56,100	66,660	106,895	4.6	5.7	6.5	7.6	8.9	10.9	14.1	19.6	31.1	119,791	5.7	6.3	7.1	8.2	9.8	12.3	16.1	22.1	32.7
Clay - Dry	2,500	42,500	50,500	93,295	5.8	6.6	7.4	8.4	10.2	12.2	16.1	21.8	32.7	103,631	6.5	7.2	8.2	9.4	11.2	14.2	18.1	24.4	33.8
Granite - broken	2,800	47,600	56,560	98,395	5.3	6.2	7.1	8.1	9.7	11.8	15.3	20.6	32.2	109,691	6.1	6.8	7.7	8.9	10.7	13.4	17.3	23.5	33.4
Gravel	2,550	43,350	51,510	94,145	5.7	6.5	7.4	8.3	10.1	12.1	16	21.5	32.7	104,641	6.5	7.1	8.2	9.3	11.1	14	18	24.2	33.8
Limestone - broken	2,600	44,200	52,520	94,995	5.7	6.4	7.3	8.3	10	12.1	15.9	21.5	32.8	105,651	6.4	7.1	8.1	9.2	11	13.9	17.9	24.1	33.7
Limestone - crushed	2,600	44,200	52,520	94,995	5.7	6.4	7.3	8.3	10	12.1	15.9	21.5	32.8	105,651	6.4	7.1	8.1	9.2	11	13.9	17.9	24.1	33.7
Sandstone	2,550	43,350	51,510	94,145	5.7	6.5	7.4	8.3	10.1	12.1	16	21.5	32.7	104,641	6.5	7.1	8.2	9.3	11.1	14	18	24.2	33.8
Shale	2,100	35,700	42,420	86,495	6.3	7.1	7.9	9.1	10.9	12.9	17	23	33.3	95,551	7	7.8	8.9	10.2	12.3	15.3	19.2	25.9	34.4
Stone - crushed	2,700	45,900	54,540	96,695	5.5	6.3	7.2	8.2	9.8	11.9	15.6	21.2	32.4	107,671	6.3	7	7.9	9.1	10.8	13.6	17.6	23.8	33.6
Tailings - Coarse (dry, loose sand)	2,400	40,800	48,480	91,595	5.9	6.7	7.6	8.5	10.4	12.4	16.4	22	33	101,611	6.6	7.3	8.4	9.6	11.4	14.5	18.4	24.8	34
Tailings - Slimes (loose sand & clay)	2,700	45,900	54,540	96,695	5.5	6.3	7.2	8.2	9.8	11.9	15.6	21.2	32.4	107,671	6.3	7	7.9	9.1	10.8	13.6	17.6	23.8	33.6
Topsoil	1,600	27,200	32,320	77,995	6.9	7.8	8.5	10.1	12	14.7	18.5	24.6	33.9	85,451	7.8	8.7	9.9	11.3	13.7	16.7	20.9	27.9	34.9
				Empty	10.4	11.6	12.7	14.9	17.8	20.4	25.2	31.7	35	Empty	12.6	14	15.9	17.8	20.4	24	29.2	33.7	35

Source: Caterpillar Performance Handbook Edition 47

Weight of Materials				Uphill Speed (mph) - Rimpull vs. Total Resistance (%Grade + Rolling Resistance)																	
				735C										740C							
Material	lb/yd3	Truck 735C Load (lb)	Truck 740C Load (lb)	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2	Loaded Weight (lb)	18	16	14	12	10	8	6	4	2
Alluvium	2,900	67,280	77,720	136,726	5.4	6.6	7.4	9	10.2	12.4	18	24	33	157,086	5.6	6.2	7.4	8.7	10.4	12.8	17.2	24	34
Basalt	3,300	76,560	88,440	146,006	5.1	5.8	6	8.2	9.8	12.1	16.8	22	32.8	167,806	5.2	5.8	7	8	10	12.2	16	22.4	34
Clay - Dry	2,500	58,000	67,000	127,446	6	7.1	8.9	9.6	11.2	13.5	19.2	26.8	33.2	146,366	6	7	7.9	9.6	11.1	13.4	19.3	25.7	34
Granite - broken	2,800	64,960	75,040	134,406	5.8	6.8	7.5	9.1	10.4	12.7	18.5	25.5	32.8	154,406	5.7	6.6	7.5	9	10.6	12.8	17.3	22.9	34
Gravel	2,550	59,160	68,340	128,606	6	7	8.9	9.5	11.2	13	19	26.7	33.2	147,706	5.9	7	7.8	9.5	11	13.3	19.2	25.7	34
Limestone - broken	2,600	60,320	69,680	129,766	5.9	6.8	7.8	9.5	11	13	19.2	24.5	33	149,046	5.8	6.8	7.8	9.5	10.9	13.2	19.2	25.7	34
Limestone - crushed	2,600	60,320	69,680	129,766	5.9	6.8	7.8	9.5	11	13	19.2	24.5	33	149,046	5.8	6.8	7.8	9.5	10.9	13.2	19.2	25.7	34
Sandstone	2,550	59,160	68,340	128,606	6	7	8.9	9.5	11.2	13	19	26.7	33.2	147,706	5.9	7	7.8	9.5	11	13.3	19.2	25.7	34
Shale	2,100	48,720	56,280	118,166	6.7	7.4	9.1	10.2	11.8	15.4	20.5	27.5	33.5	135,646	6.4	7.4	8.6	10.2	11.9	14.3	20.2	28.4	34
Stone - crushed	2,700	62,640	72,360	132,086	5.4	6.8	7.4	9.2	10.6	12.7	18.5	25	33	151,726	5.7	6.7	7.7	9.3	10.8	13	18.3	25.6	34
Tailings - Coarse (dry, loose sand)	2,400	55,680	64,320	125,126	6.1	7	8.2	9.6	11.3	14.6	19.6	27	33.2	143,686	6	7.2	8	9.8	11.1	13.8	19.3	27	34
Tailings - Slimes (loose sand & clay)	2,700	62,640	72,360	132,086	5.4	6.8	7.4	9.2	10.6	12.7	18.5	25	33	151,726	5.7	6.7	7.7	9.3	10.8	13	18.3	25.6	34
Topsoil	1,600	37,120	42,880	106,566	7.3	8.6	9.7	11	12.6	17.2	21.2	29	33.5	122,246	7.4	8.2	9.7	11	12.8	16.4	21.5	29.3	34
				Empty	11.5	12.4	15.2	17.8	20.3	24.6	30.3	33	33.5	Empty	11.3	12.5	14	16.6	20.8	23	29.5	33.8	34

Source: Caterpillar Performance Handbook Edition 47

Productivity - Wheel Loaders

Wheel Loader Specifications

Description	926M	930M	950M	966M	972M	972M (2)	980M	988K	988K (2)	990K	992K	992K (2)	994K	994K (2)	L2350
Payload Capacity (yd3)															
Struck	2.2	2.5	3.5	4.3	4.7	4.7	6	6.9	6.9	9.5	12.4	12.4	18.3	18.3	
Heaped	2.7	3	4.1	5	5.6	5.6	7.1	8.33	8.33	11.25	15	15	22.5	22.5	
Average	2.45	2.75	3.8	4.65	5.15	5.15	6.55	7.62	7.62	10.38	13.7	13.7	20.4	20.4	53
Matched Truck	N/A	N/A	N/A	725C2	730C2	735C	N/A	740C	770G	773G	777G	785D	789D	793F	797F
Average Cycle Time (min)	0.475	0.475	0.475	0.525	0.525	0.525	0.525	0.575	0.575	0.575	0.575	0.65	0.65	0.65	0.75
Passes to Fill Truck	N/A	N/A	N/A	4	4	5	N/A	4	4	4	5	7	10	10	6
Altitude Deration Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Operator Efficiency	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	N/A	N/A	N/A	2.1	2.1	2.63	N/A	2.3	2.3	2.3	2.88	4.55	6.5	6.5	4.5
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Loader matched to small truck fleet
Loader matched to medium truck fleet
Loader matched to large truck fleet
Loader matched to extra large truck fleet

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered
992K (2) - can be used to load 785 with 6 passes

Source: Caterpillar Performance Handbook Edition 47; LeTourneau/actual Chilean mine operating data for L2350.

Matched Wheeled Loader Buckets

Wheeled Loaders	General Purpose yd3	Heavy Duty Rock yd3
930M	2.85	-
950M	4.25	-
966M	5.5	-
972M	6	-
980M	7.88	-
988K	-	8.3
990K	-	11.25
992K	-	14
994K	-	26.5

note: capacities are 2:1 heaped, SAE standards
NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECo & available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR PERFORMANCE HANDBOOK, ED 47; Section 23, Wheel Loader

Bucket capacity and width dictated by material weight and configuration, ie., shot, loose, light bank, stockpile, rock, etc. Typical Nevada applications were used to determine above bucket capacities as related to materials & densities. Job site specifics may alter specific bucket requirements. (Cashman Equipment, Elko, Nevada)

Productivity - Shovels

Shovel/Excavator Specifications (Komatsu or Hitachi equivalent)

Description	PC2000	PC3000	PC4000	PC5500	PC8000	EX2500
Payload Capacity (yd3)						
Struck	10.46	18.84	26.16	33.48	47.09	
Heaped	14.39	25.9	35.97	46.04	64.75	
Average	12.43	22.37	31.07	39.76	55.92	19.63
Matched Truck	740	777D	785C	793C	797B	789C
Average Cycle Time (min)	0.49	0.49	0.59	0.59	0.69	0.68
Passes to Fill Truck	2.05	2.84	3.38	4.69	5.11	6
Altitude Deration Factor	1	1	1	1	1	1
Operator Efficiency	1	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	1.68	2.33	3.32	4.61	5.86	6.08
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5

Shovel matched to small truck fleet
Shovel matched to medium truck fleet
Shovel matched to large truck fleet
Shovel matched to extra large truck fleet

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

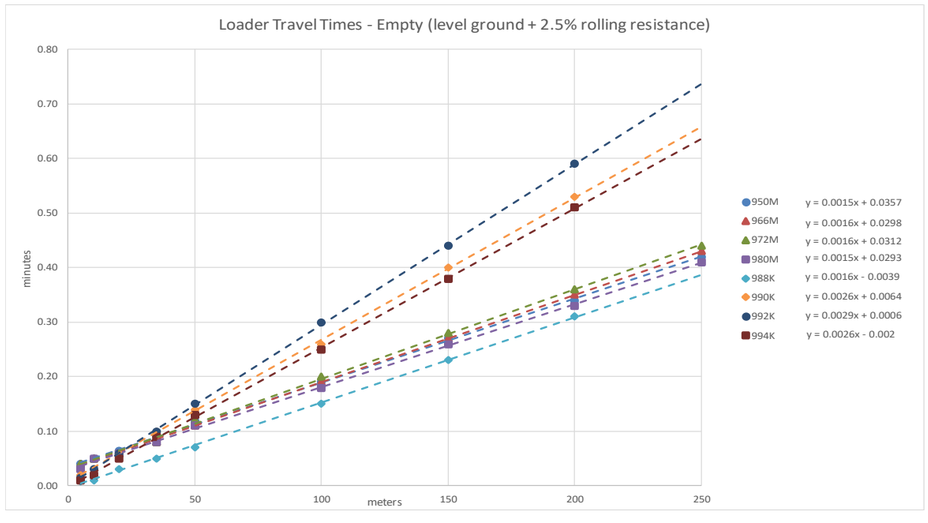
Source: Caterpillar Performance Handbook Edition 46; Komatsu actual Peruvian mine (Lagunas Norte) operating data for PC4000.

Loader Travel Times - Empty

Loader Model	Distance (ft) 16.4041995	32.808399	65.616798	114.8293965	164.041995	328.08399	492.125985	656.16798	820.209975	a	b
950M	0.04	0.05	0.07	0.09	0.12	0.19	0.27	0.34	0.42	0.0015	0.0357
966M	0.04	0.05	0.06	0.08	0.11	0.19	0.27	0.35	0.43	0.0016	0.0298
972M	0.04	0.05	0.06	0.08	0.12	0.20	0.28	0.36	0.44	0.0016	0.0312
980M	0.03	0.05	0.06	0.08	0.11	0.18	0.26	0.33	0.41	0.0015	0.0293
988K	0.01	0.01	0.03	0.05	0.07	0.15	0.23	0.31		0.0016	0.0039
990K	0.02	0.03	0.06	0.10	0.14	0.26	0.40	0.53		0.0026	0.0064
992K	0.02	0.03	0.06	0.10	0.15	0.30	0.44	0.59		0.0029	0.0006
994K	0.01	0.02	0.05	0.09	0.13	0.25	0.38	0.51		0.0026	-0.002

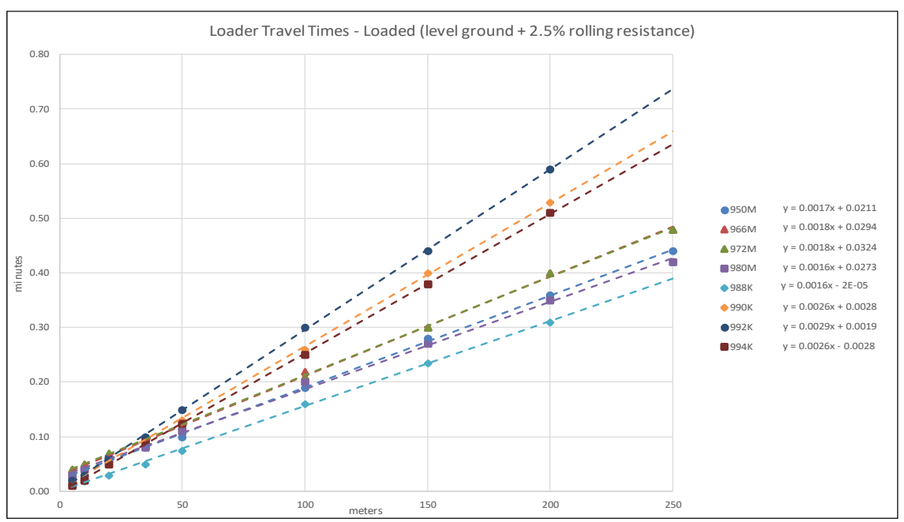
Travel Time (min) = a(distance) + b

Source: Caterpillar Performance Handbook Edition 47



Loader Travel Times - Loaded											
	Distance (ft)										
Loader Model	16.4041995	32.808399	65.616798	114.8293965	164.041995	328.08399	492.125985	656.16798	820.209975	a	b
950M	0.03	0.04	0.06	0.08	0.10	0.19	0.28	0.36	0.44	0.0017	0.0211
966M	0.04	0.05	0.06	0.09	0.12	0.22	0.30	0.40	0.48	0.0018	0.0294
972M	0.04	0.05	0.07	0.10	0.12	0.21	0.30	0.40	0.48	0.0018	0.0324
980M	0.03	0.04	0.06	0.08	0.11	0.20	0.27	0.35	0.42	0.0016	0.0273
988K	0.01	0.02	0.03	0.05	0.08	0.16	0.24	0.31		0.0016	-0.00002
990K	0.02	0.03	0.06	0.09	0.13	0.26	0.40	0.53		0.0026	0.0028
992K	0.02	0.03	0.06	0.10	0.15	0.30	0.44	0.59		0.0029	0.0019
994K	0.01	0.02	0.05	0.09	0.13	0.25	0.38	0.51		0.0026	-0.0028
Travel Time (min) =	a(distance) + b										

Source: Caterpillar Performance Handbook Edition 47



Productivity - Motor Graders

Motor Grader Specifications				
Description	**12M2**	**14M**	**16M3**	**24M**
Grader Width (ft)	8.25	9.2	11.2	14
Blade Width (ft)	12	14	16	24
Number of Shanks	5	7	7	7
Ripper Width (7 shanks) (ft)	7.6	8.5	9.75	12.83
Road Maintence Speed (mph)				
Minimum	3	3	3	3
Maximum	9.5	9.5	9.5	9.5
Average	6.25	6.25	6.25	6.25
Hourly Production (ft)	33,000	33,000	33,000	33,000
Ripping Speed (mph)	1	1	1	1
Minimum	0	0	0	0
Maximum	3	3	3	3
Average	1.5	1.5	1.5	1.5
Altitude Deration Factor	1	1	1	1
Ripping Hourly Production (with job efficiency correction & altitude deration factors) (excluding manuever time) (ft)	6,574	6,574	6,574	6,574
Maneuver time per pass (min)	0.5	0.5	0.5	0.5
Operator Efficiency	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83

Source: Caterpillar Performance Handbook Edition 47

Productivity - Excavators

Track Excavator Specifications							
Description	**312F**	**320F**	**325F**	**330F**	**349F**	**374F**	**390F**
Bucket Capacity (yd3)	0.68	1.57	2.22	2.22	3.00	4.60	7.30
Fill Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Average Bucket Load (yd3)	0.612	1.413	1.998	1.998	2.7	4.14	6.57
Soil Type	packed earth	hard clay	hard clay	hard clay	hard clay	hard clay	hard clay
Job Condition	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard
Cycle Times (minutes) - based on hard clay							
Load Bucket	0.07	0.09	0.09	0.09	0.13	0.1	0.19
Swing Loaded	0.06	0.06	0.06	0.07	0.07	0.09	0.06
Dump Bucket	0.03	0.03	0.04	0.04	0.02	0.04	0.03
Swing Empty	0.05	0.05	0.06	0.07	0.06	0.07	0.07
Total Cycle Time	0.21	0.23	0.25	0.27	0.28	0.3	0.35
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Operator Efficiency	1	1	1	1	1	1	1
Altitude Deration Factor	1	1	1	1	1	1	1
Corrected Productivity (LCY/hr)	145	306	398	369	480	687	935
Exploration Road Cycle Time [1] (min)	N/A	0.38	0.4	N/A	0.42	N/A	N/A
Exploration Road Corr Prod (LCY/hr)	N/A	185	249	N/A	320	N/A	N/A
Track Width (ft)	8.17	9.17	9.83	10.5	11.42	11.5	11.5

Source: Caterpillar Performance Handbook Edition 47

Concrete Breaking Production

Track Excavator w/Hammer Specifications			
Description	**320F**	**349F**	**374F**
Hydraulic Hammer	H120Es	H160Es	H180Es
Material	reinforced concrete		
Min Shift Production (yd3/8hr)	160	300	385
Max Shift Production (yd3/8hr)	300	850	1,705
Avg Shift Production (8hr)	230	575	1,045
Job Efficiency	0.83	0.83	0.83
Altitude Deration Factor	1	1	1

Source: Caterpillar Performance Handbook Edition 47

Drill Hole Plugging Productivity

Drill Hole Plugging Productivity		
Description	**Drill Rig**	**Pump Rig**
Move-to-hole, set-up, tear-down [1]	2 hrs	2 hrs
Trip in tremmie pipe (1) (ft/hr)	500	
Pulling casing (threaded, not cemented) (1) (ft/hr)	200	
FALSE	Productivity (all passes) (2) (ft/hr)	Passes
4	60	4
6	60	4
8	50	4
12	45	6
18	40	9
24	28	12
Perforation setup,trip in/out,tear-down	2 hrs	
Perforation tool cost (wear cost) [3]	2.5 hrs	
Inert Material Placement (backfill)		
Grouting/Cement [4] (cy/hr)		5.33
Cuttings (see below) (cy/hr)		3.5

Sources:
1. Drillers daily logs from Newmont, Barrick, New West Gold, Agnico Eagle, Idaho General Mines Inc.
2. Drillers daily logs from Newmont, Barrick, Target Minerals
3. Drillers daily logs from Newmont
4. WDC Exploration, Dec 2005

Sournce: WDC Exploration, Dec 2005

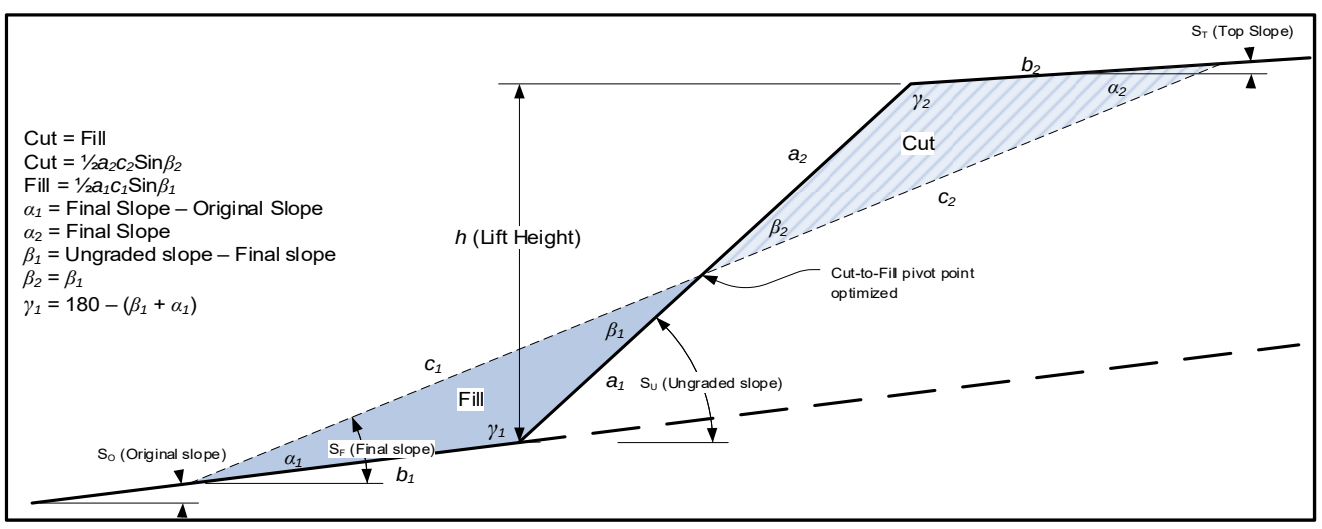
Cuttings Placement Productivity

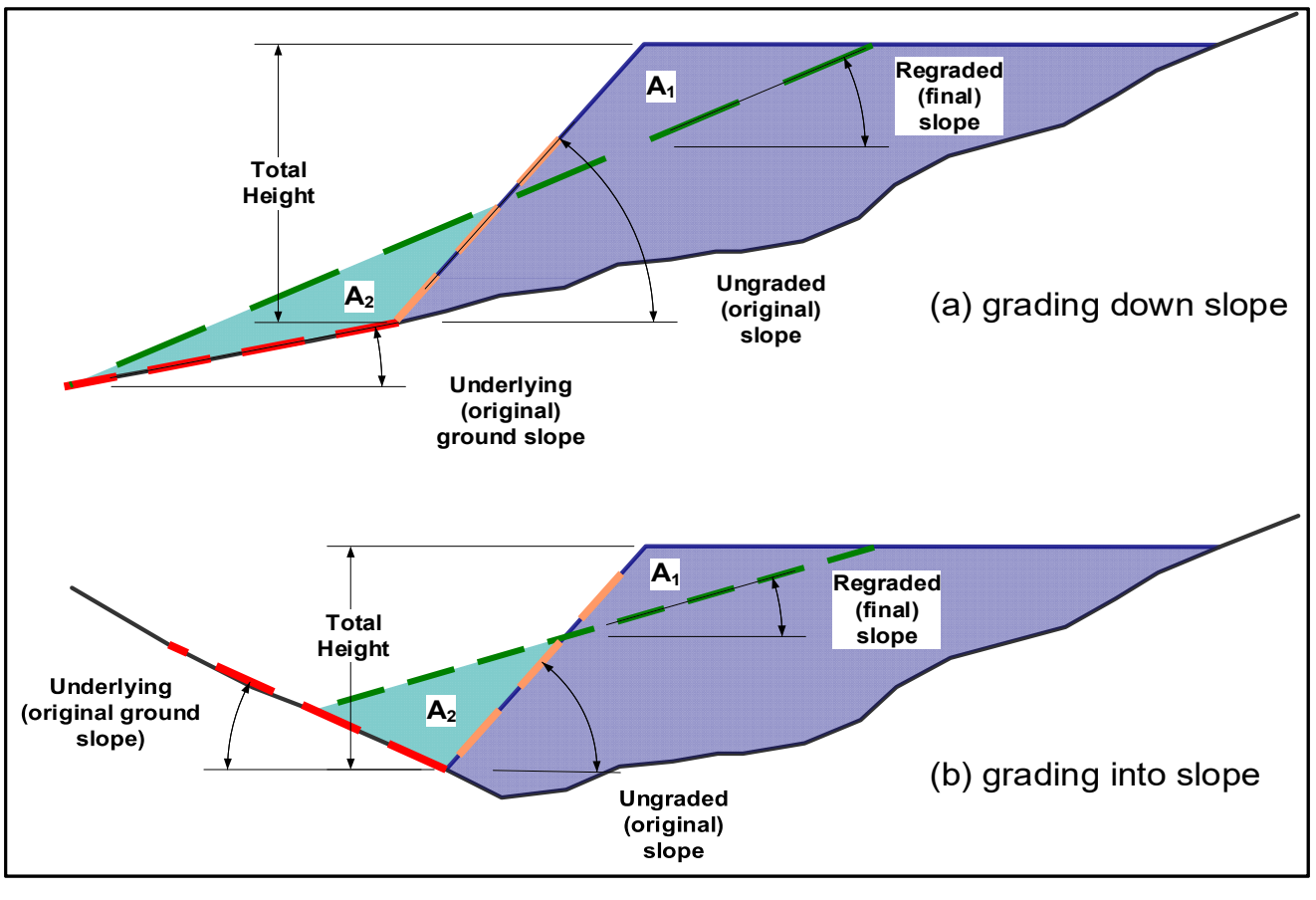
Shift productivity (Means 02210-700-0120; Crew B11M)	28	(yd3/shift)
Shift length	8	hours
Estimated Hourly Productivity	3.5	(yd3/hr)

FIGURES

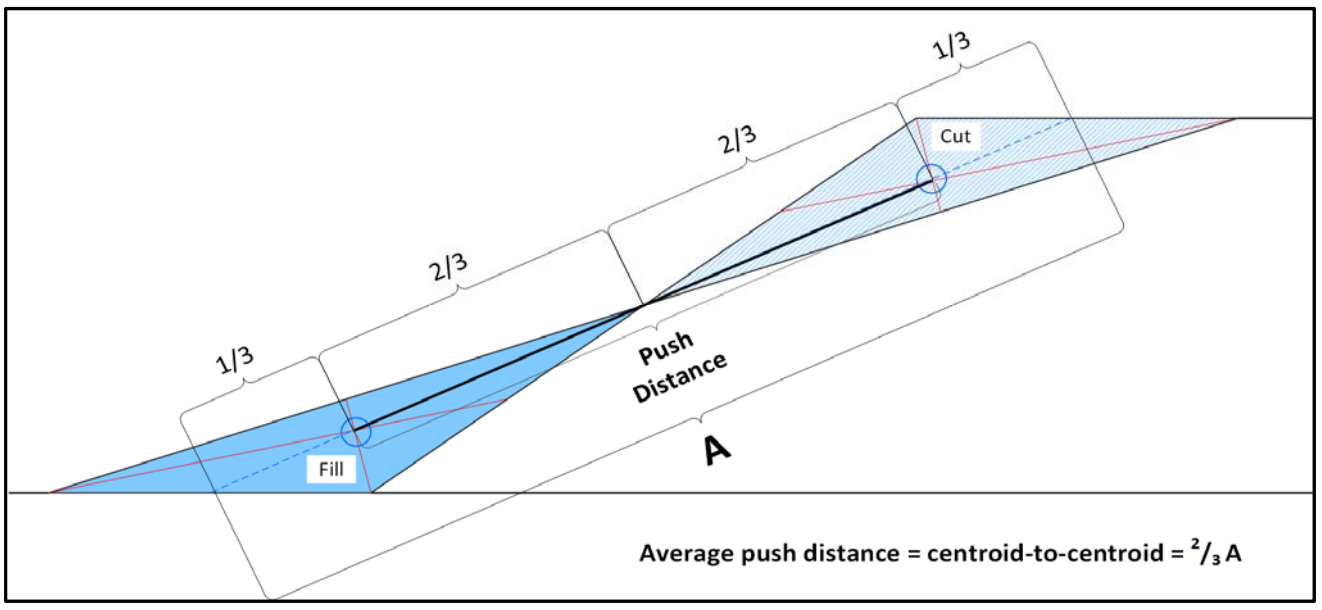
These figures show key inputs to the model and important calculations used by the model

Slope Regrading Volumes

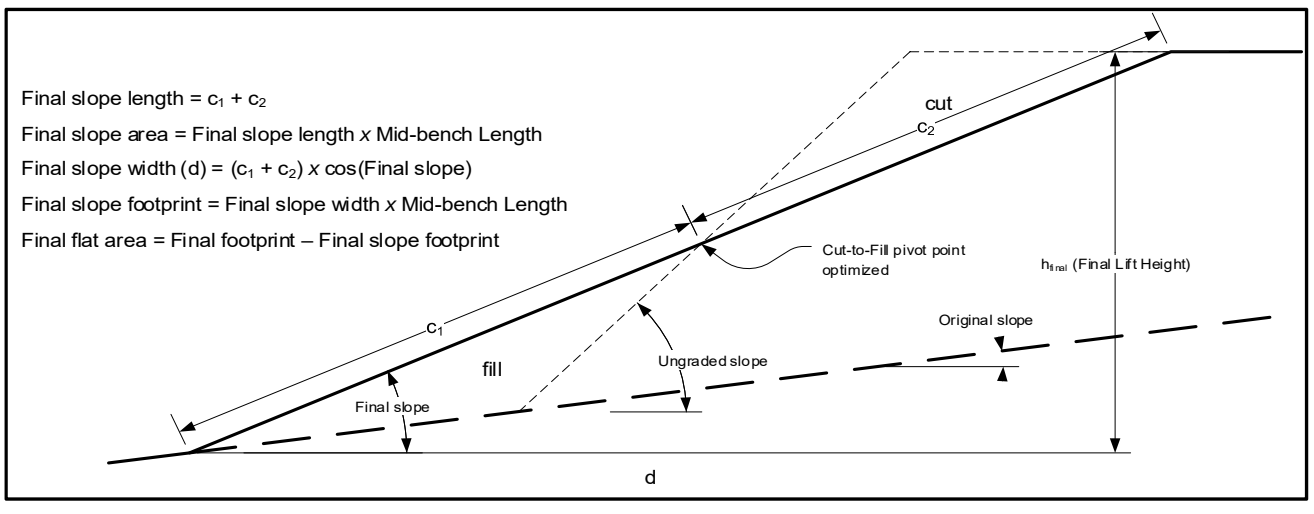




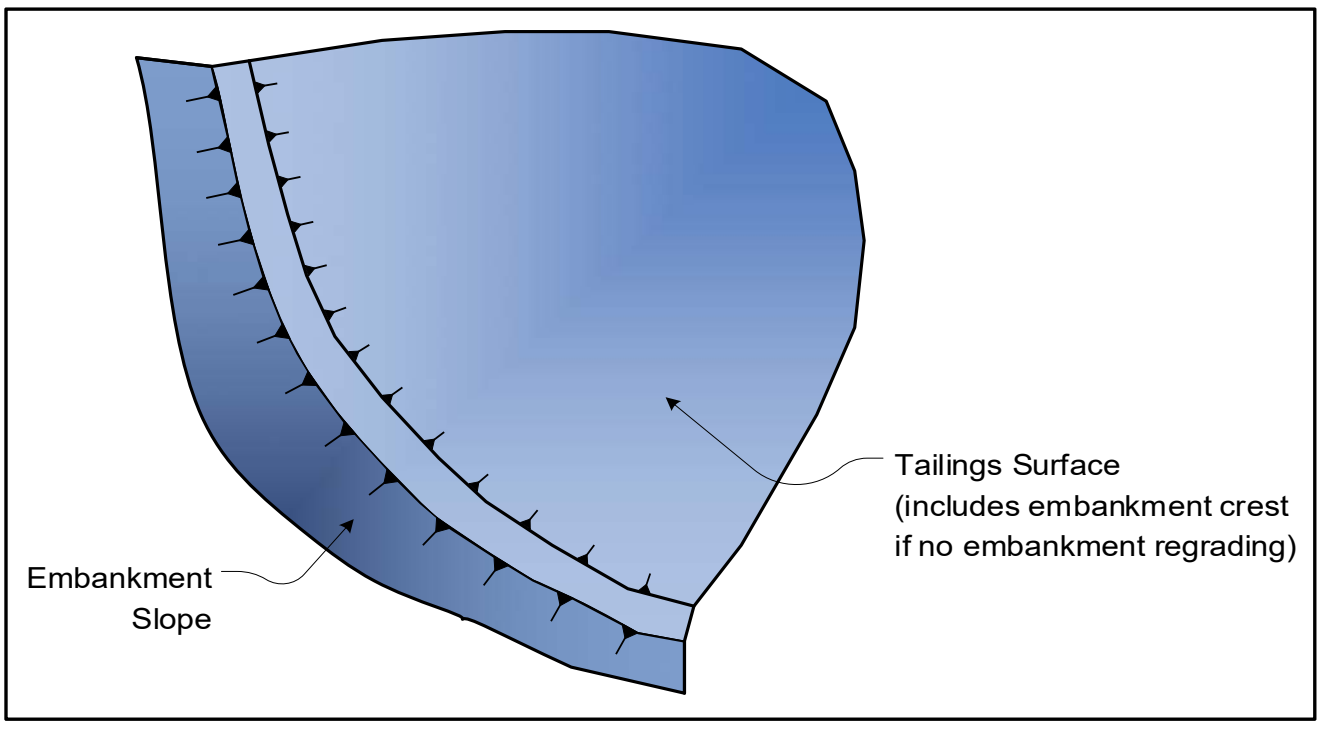
Slope Regrading Push Distance



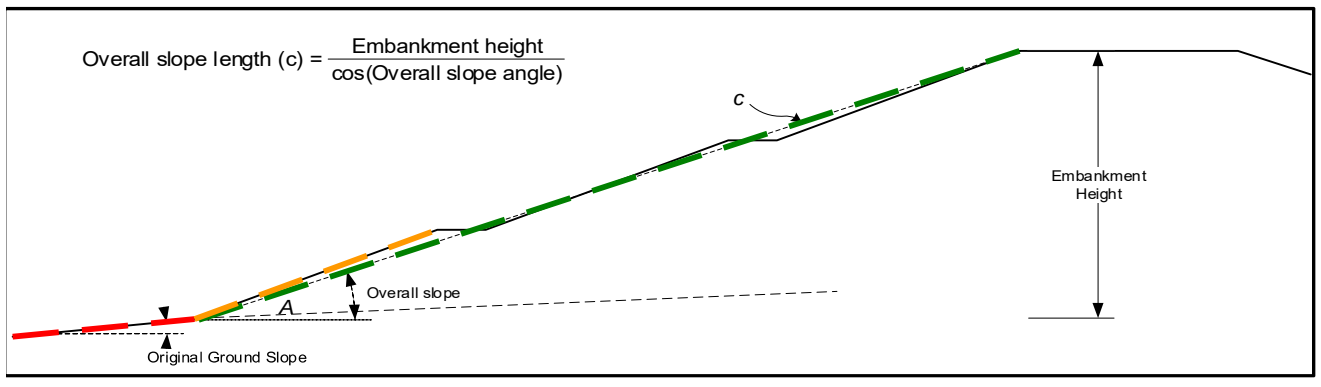
Slope/Flat Area Calculations



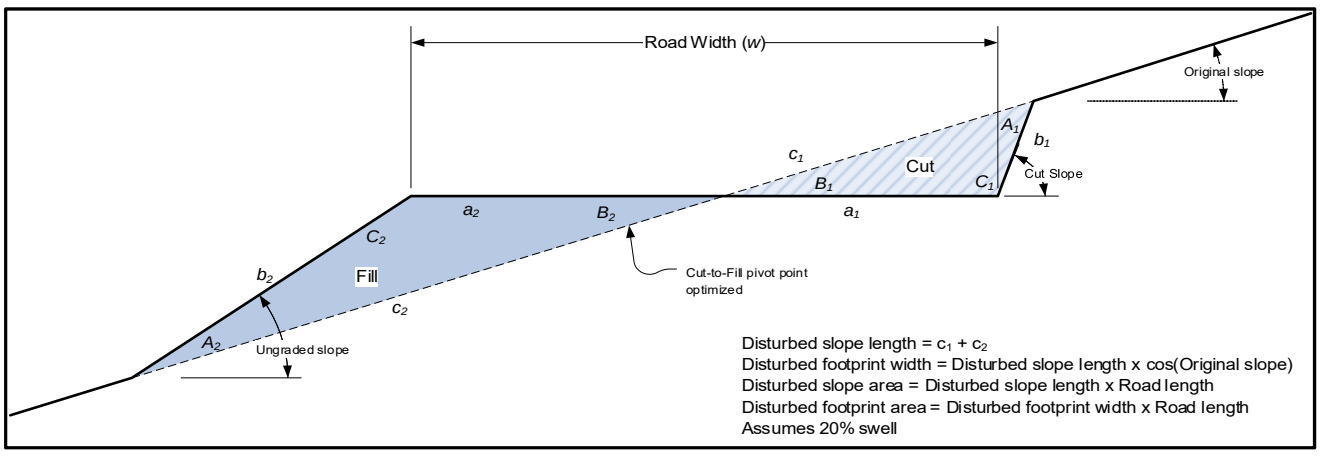
Tailings Impoundments



Tailings Embankments

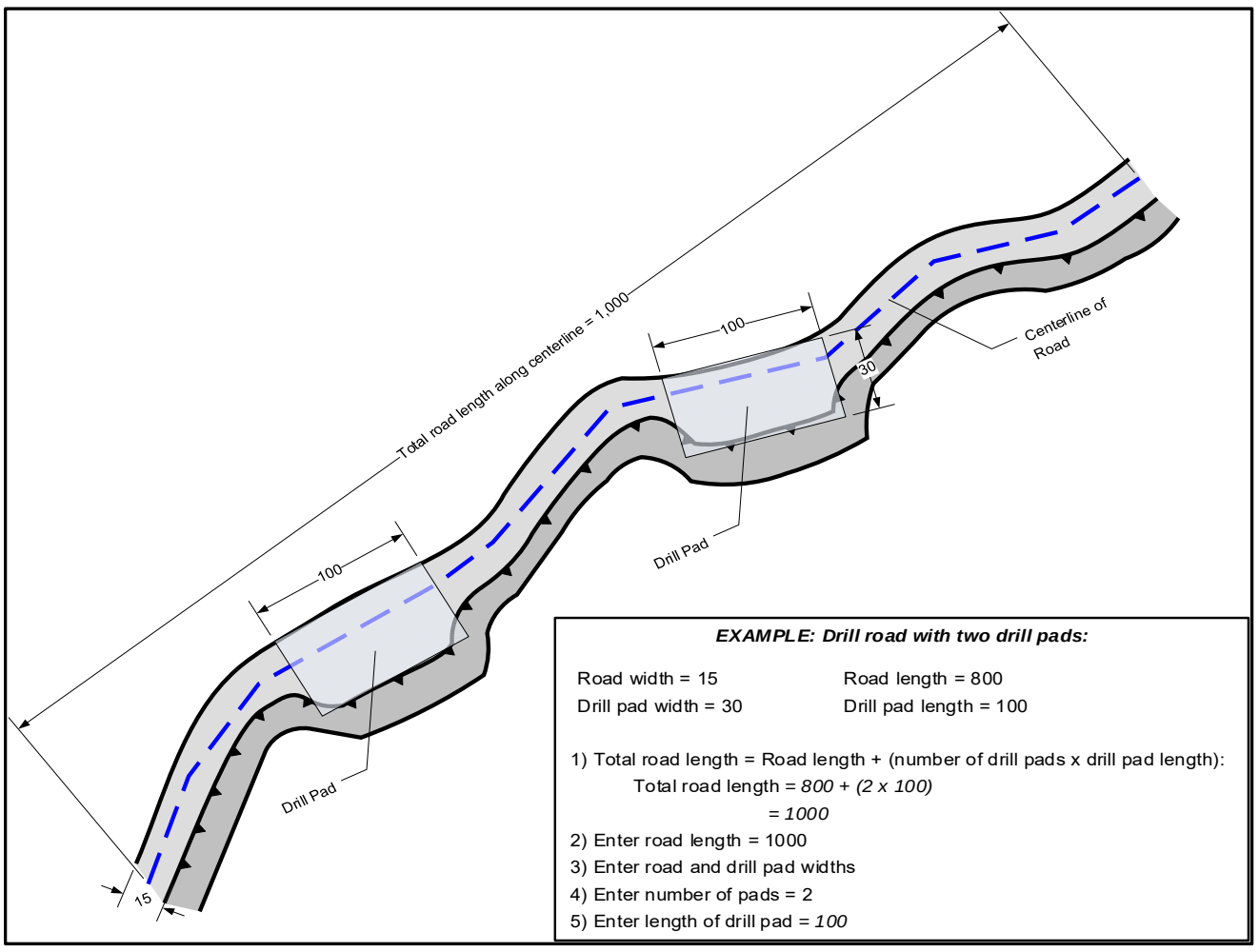


Road Regrading Volume Calculations



Disturbed slope length = $c_1 + c_2$
Disturbed footprint width = Disturbed slope length x cos(Original slope)
Disturbed slope area = Disturbed slope length x Road length
Disturbed footprint area = Disturbed footprint width x Road length
Assumes 20% swell

Exploration Road Calculations

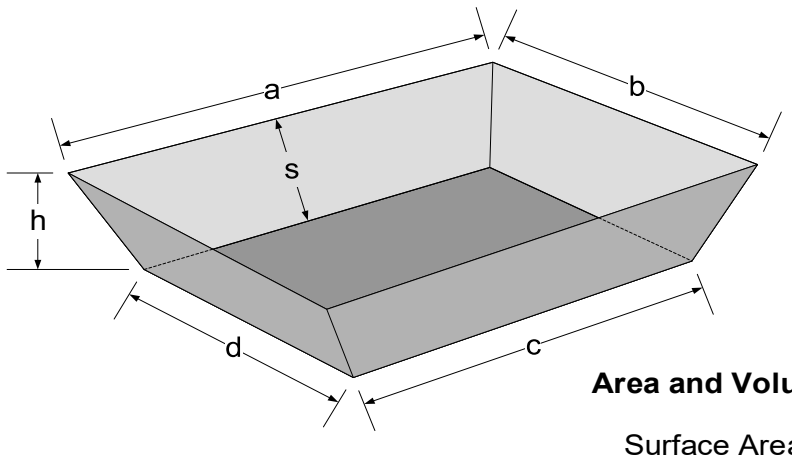


EXAMPLE: Drill road with two drill pads:

Road width = 15	Road length = 800
Drill pad width = 30	Drill pad length = 100

1) Total road length = Road length + (number of drill pads x drill pad length):
   Total road length = *800 + (2 x 100)*
   = *1000*
2) Enter road length = 1000
3) Enter road and drill pad widths
4) Enter number of pads = 2
5) Enter length of drill pad = *100*

Pond Volume Calculations



Area and Volume of the Frustrum of a Pyramid

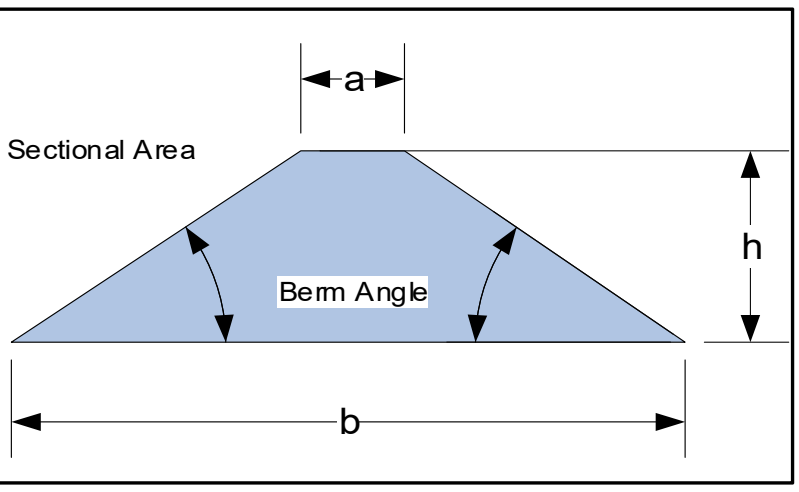
$$\text{Surface Area} = ab + cd + (a+b+c+d) \times \frac{s}{2}$$

$$\text{Volume} = \frac{h\,(ab + cd + \sqrt{abcd}\,)}{3}$$

Berm Volume Calculations

Cross Sectional Area =

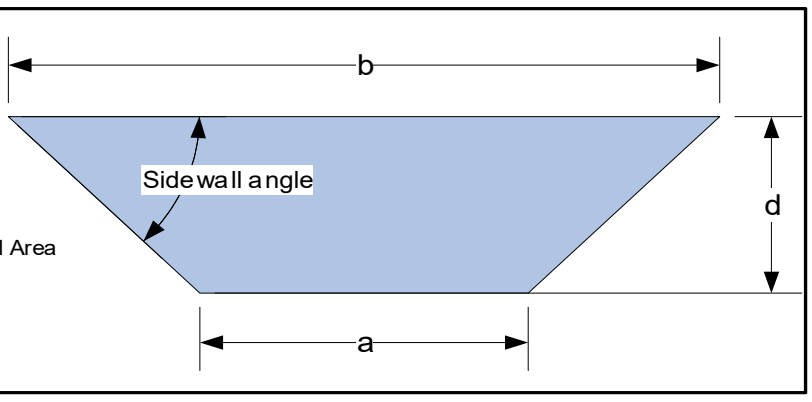
Berm Volume = Berm Length x Cross Sectional Area



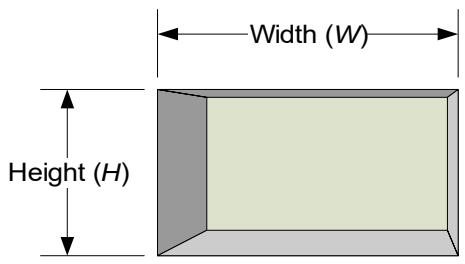
Ditch Volume Calculations

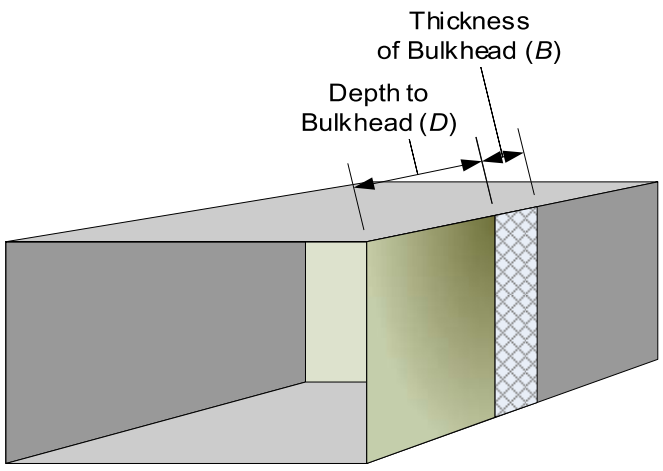
Cross Sectional Area = $\frac{(a+b)}{2} \times d$

Ditch Volume = Ditch Length x Cross Sectional Area



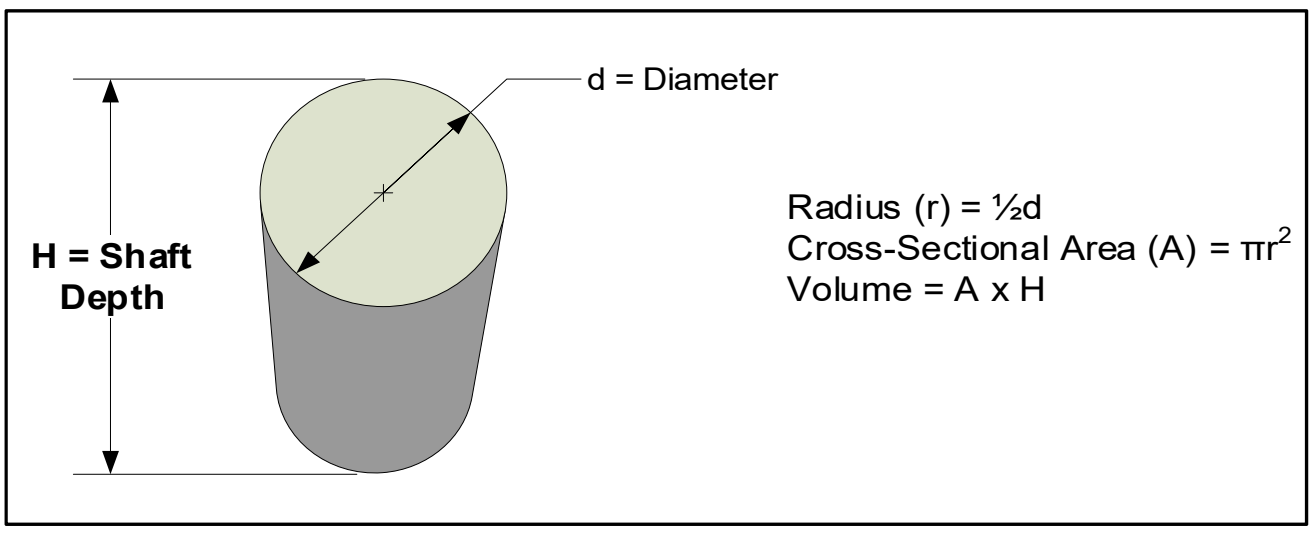
Portal/Adit Measurements



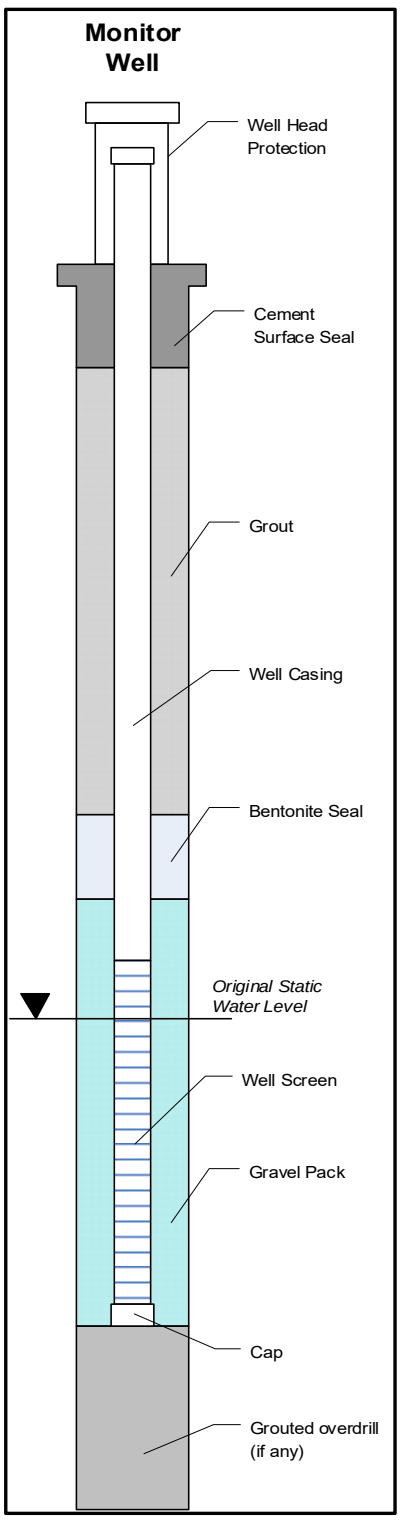


Cross-Sectional Area (A) = *W* x *H*
Volume of Concrete Bulkhead = *A* x *B*
Volume of Backfill = *A* x *D*

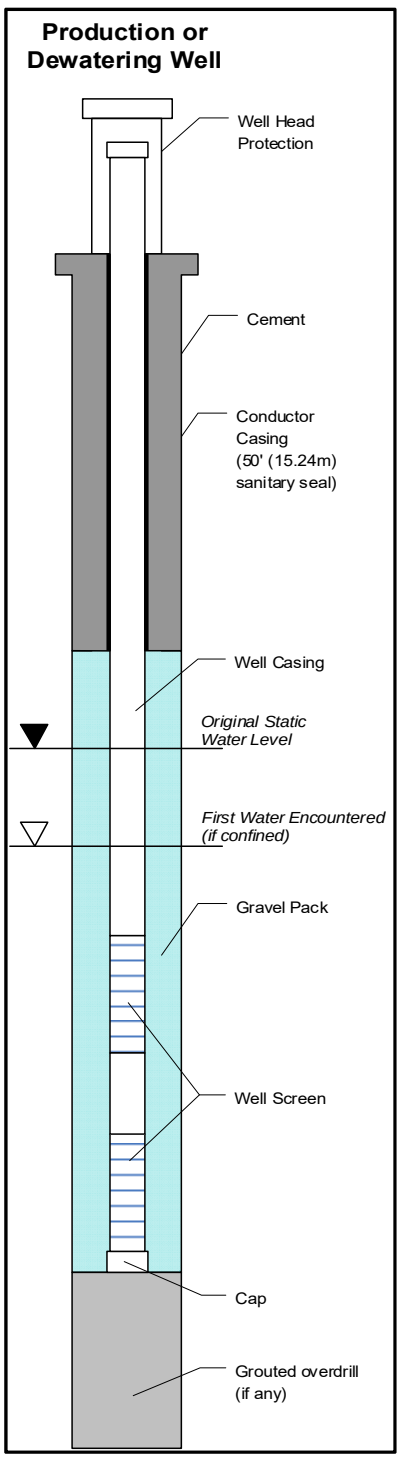
Shaft Measurements



Production Well



Monitor Well



Closure Cost Estimate
User 02 Solution Management

Solution Management

	gpm	
Average TSF draindown rate - Year 1	445	<--Solution Mgmt sheet, Pumping table, item # 13, cost category TSF Draindown Management
Average TSF draindown rate - Year 2	310	<--Solution Mgmt sheet, Pumping table, item # 14, cost category TSF Draindown Management
Average TSF draindown rate - Year 3	210	<--Solution Mgmt sheet, Pumping table, item # 15, cost category TSF Draindown Management
Average TSF draindown rate - Year 4	140	<--Solution Mgmt sheet, Pumping table, item # 16, cost category TSF Draindown Management
Average TSF draindown rate - Year 5	90	<--Solution Mgmt sheet, Pumping table, item # 17, cost category TSF Draindown Management

Source: Figure E5 of "Attachment 2_TSF Water Management Plan Rev1_20170717.pdf"

Closure Cost Estimate
User 03 Miscellaneous Crews

Rubbish and Waste Handling					
RSMeans 2018	Unit	p.	RSMeans no.	Total Inc. O&P	
Dumpster delivery (average for all sizes)	ea.		41 02 41 19.19 0910	82.5	<--CDF, Misc. Unit Costs
Haul (average for all sizes)	ea.		41 02 41 19.19 0920	259	<--CDF, Misc. Unit Costs
Rent per month (average for all sizes)	ea.		41 02 41 19.19 0940	88	<--CDF, Misc. Unit Costs
Disposal fee per ton (tonne) (average for all sizes)	ton		41 02 41 19.19 0950	97	<--CDF, Misc. Unit Costs

Hazardous Material Handling - Solids					
RSMeans 2018	Unit	p.	RSMeans no.	Total Inc. O&P	
Pickup fees 55 gal. drums	ea.		44 02 81 20.10 1100	265	<--CDF, Misc. Unit Costs
Bulk material (minimum)	ton		44 02 81 20.10 1120	210	
Bulk material (maximum)	ton		44 02 81 20.10 1130	655	
Bulk material (average)	ton		average	432.5	<--CDF, Misc. Unit Costs
Transport - truck load (80 drums, 25 cy (m3), 18 tons)			02 81 20.10 1260	4.45	
(maximum)	mile		44		
Transport - truck load (80 drums, 25 cy (m3), 18 tons)			02 81 20.10 1270	7.35	
(maximum)	mile		44		
Transport - truck load (80 drums, 25 cy (m3), 18 tons)			average	5.9	
(average)	mile				<--CDF, Misc. Unit Costs
Dump site disposal fee (minimum)	ton		44 02 81 20.10 6000	155	
Dump site disposal fee (maximum)	ton		44 02 81 20.10 6020	455	
Dump site disposal fee (average)	ton		average	305	<--CDF, Misc. Unit Costs

Hazardous Material Handling - Liquids					
RSMeans 2018	Unit	p.	RSMeans no.	Total Inc. O&P	
Vacuum Truck Pickup (2200 gal or 9,700 litres)	hr.		44 02 81 20.10 3110	155	<--CDF, Misc. Unit Costs
Vacuum Truck Pickup (5000 gal or 2,000 litres)	hr.		44 02 81 20.10 3120	225	<--CDF, Misc. Unit Costs
Dump site disposal fee (minimum)	ton		44 02 81 20.10 6000	155	
Dump site disposal fee (maximum)	ton		44 02 81 20.10 6020	455	
Dump site disposal fee (average)	ton		average	305	<--CDF, Misc. Unit Costs

Hydrocarbon Contaminated Soils (HCS)					
RSMeans 2018	Unit	p.	RSMeans no.	Total Inc. O&P	
Insitu Biotreatment (minimum)	CY		43 02 65 10.30 2020	23	
Insitu Biotreatment (maximum)	CY		43 02 65 10.30 2021	25.5	
Insitu Biotreatment (average)	CY		average	24.25	<--CDF, Misc. Unit Costs
HCS disposal fee (minimum)	CY		43 02 65 10.30 2050	150	
HCS disposal fee (maximum)	CY		43 02 65 10.30 2055	440	
HCS disposal fee (average)	CY		average	295	<--CDF, Misc. Unit Costs

Closure Cost Estimate
User 03 Miscellaneous Crews

Fencing Installation

RSMeans 2018	Unit	p.	RSMeans no.	Material	
Barbed 3-strand	LF		319 32 31 13.40 1650	0.39	<--CDF, Misc. Unit Costs
Barbed 4-strand	LF		319 32 31 13.40 1650	0.52	<--CDF, Misc. Unit Costs
Barbed 5-strand	LF		319 32 31 13.40 1650	0.65	<--CDF, Misc. Unit Costs
Chain link 8 ft -10 ft Install	LF		317 32 31 13.20 0920	32	<--CDF, Misc. Unit Costs
Wood stockade fence 6 ft high - Install	LF		322 32 31 29.10 1240	13.15	<--CDF, Misc. Unit Costs

Pipe and Drainpipe Installation

RSMeans 2018	Unit	p.	RSMeans no.	Material	
Water 4in (100mm) 40ft (12m) length, welded HDPE	LF		352 33 11 13.35 0100	2.5	<--CDF, Misc. Unit Costs
Water 6in (150mm) 40ft (12m) length, welded HDPE	LF		352 33 11 13.35 0200	5.65	<--CDF, Misc. Unit Costs
Water 12in (300mm) 40ft (12m) length, welded HDPE	LF		352 33 11 13.35 0500	13	<--CDF, Misc. Unit Costs
Drain 4in (100mm) perforated PVC	LF		352 33 41 16.30 2100	1.64	<--CDF, Misc. Unit Costs
Drain 6in (150mm) perforated PVC	LF		352 33 41 16.30 2110	3.49	<--CDF, Misc. Unit Costs
Drain 4in (100mm) corrugated, perf or plain	LF		352 33 46 16.35 0040	0.74	<--CDF, Misc. Unit Costs
Drain 6in (150mm) corrugated., perf or plain	LF		352 33 46 16.35 0060	1.88	<--CDF, Misc. Unit Costs

Powerline Removal Unit Cost Development

Daily	Labor Rate ($/hr)	Equipment Rate ($/hr)	#	Labor Cost ($/hr)	Equipment Cost ($/hr)	subtotal ($/hr)
R-3 *(modified)*						
Electrical foreman	72.08		1	72.08	0	**72.08**
Electrician	71.46		1	71.46	0	**71.46**
5-ton crane	33.30	82.76	0.5	16.65	41.38	**58.03**
Laborer *(added)*	15.19		1	15.19	0.00	**15.19**
Light truck *(added)*		29.85	1	0.00	29.85	**29.85**
				175.38	**71.23**	**246.61**

Utility Pole Demolition	Crew	Daily output	Labor-hrs	Unit	Materials	Labor	Equipment
	R-3	6	3.3	ea	0	233.84	94.97

Assume average distance between powerpoles (ft): 150
Powerpoles per mile (assume double): 70

Cost per mile:	Labor ($/mile)	Equipment ($/mile)	total ($/mile)	
	$ 16,369	$ 6,648	$ 23,017	<--CDF, Misc. Unit Costs

Closure Cost Estimate
User 03 Miscellaneous Crews

Liner Installation

RSMeans 2018	Unit	p.	RSMeans no.	Material	
Membrane lining 60 mil thick	SF		218 31 05 19.53 1200		0.58 <--CDF, Misc. Unit Costs

Construction Management Support

RSMeans 2018	Unit	p.	RSMeans no.	Material	
Office Trailer, Furnished, no hook-ups	Month		17 01 52 13.20 0250		198 <--CDF, Misc. Unit Costs
Toilet Portable, chemical	Month		546 01 54 33.40 6410		198 <--CDF, Misc. Unit Costs

Install Signs

Daily	Labor Rate ($/hr)	Equipment Rate ($/hr)	#	Labor Cost ($/hr)	Equipment Cost ($/hr)	subtotal ($/hr)
B-80						
Foreman	78.74		1	78.74	0	**78.74**
Laborer	15.19		1	15.19	0	**15.19**
Flatbed Truck	141.84	25.06	1	141.84	25.06	**166.90**
Auger, truck-mounted	43.27	46.73	1	43.27	46.73	**90.00**
				279.04	**71.79**	**350.83**

Signage, Guide and directional	Crew	Daily output	Labor-hrs	Unit	Materials	Labor	Equipment
10 14 53.20 0600	B-80	70	0.457	ea	41	31.89	8.2
					*Other User, item # 1, cost category Pits		

Steel post, galvanized, 10' upgright	Crew	Daily output	Labor-hrs	Unit	Materials	Labor	Equipment
10 14 53.20 1500	B-80	200	0.16	ea	32.5	11.16	2.87
					*Other User, item # 2, cost category Pits		

Closure Cost Estimate
User 03 Miscellaneous Crews

From "Copper Flat Reveg Calcs.xlsx"

Copper Flat FA
Revegitation Cost Estimate
12/7/2018

SRCE COST $ **1,282 per acre**

See Attachment H to Basis of Estimate

Weighted average: seed drill (90%); broadcast (8%); hydro seed (2%)
Includes contract labor, seed supply, seed bed preparation, placement, mulch, crimp, mobilization, per diem

SEED SUPPLY
Basis: MORP Seed mix, Table E7, Final reclamation column
Table E7 application rate assumes seed drill
Quotes from Curtis, Granite, Bamert. Bamert determined to be non conforming and excluded from average
double application rate/cost for broadcast & hydroseed placement
PLS = Pure Live Seed

Company	Pricing $/acre	Notes
Curtis	$ 174.72	<= 100 ac, MORP PLS/ac
Curtis	$ 163.79	> 100 acres, MORP PLS/ac
Granite	$ 198.16	adjust to MORP PLS/ac
~~Bamert~~	~~$ 760.00~~	~~nonconforming; exclude~~

Average Cost 179 Drill Seed
358 Broadcast or Hydroseed

CONTRACTOR
Basis: MORP Description
Quotes from Curtis, Rocky Mountain, 814
per diem rate 125 $/man-day

Contractor	**Curtis**	**R Mtn**	**814**	**Curtis**	**R Mtn**	**814**	**Curtis**	**R Mtn**	**814**
Method	**Drill**	**Drill**	**Drill**	**Broadcast**	**Broadcast**	**Broadcast**	**Hydroseed**	**Hydroseed**	**Hydroseed**
Acres Quoted	240	240	240	140	140	140	20	20	20
Crew Size	5	5	5	5	5	5	5	5	5
Days @ 12 HPD	18.33	20.17	22.00	10.00	10.83	11.67	5.00	5.00	5.00
Cost									
Disc & Prep	$ 16,800.00	$ 8,000.00	$ 31,440.00	$ 9,800.00	$ 6,000.00	$ 18,340.00	$ 1,400.00	$ -	$ -
Seed Mix	$ 42,960.00	$ 42,960.00	$ 42,960.00	$ 50,120.00	$ 50,120.00	$ 50,120.00	$ 7,160.00	$ 7,160.00	$ 7,160.00
Seed Placement	$ 40,800.00	$ 40,000.00	$ 32,880.00	$ 16,800.00	$ 50,000.00	$ 21,140.00	#########	$ 38,000.00	$ 24,840.00
Mulch/Crimp	$ 117,600.00	$ 213,853.00	$ 214,080.00	$ 68,600.00	$ 124,747.00	$ 124,880.00	$ -	$ -	$ -
Mob/Demob	$ 2,000.00	$ 4,000.00	$ 1,565.00	$ 2,000.00	$ 4,000.00	$ 1,565.00	$ 2,000.00	$ 4,000.00	$ 925.00
Per Diem	$ 11,458.33	$ 12,604.17	$ 13,750.00	$ 6,250.00	$ 6,770.83	$ 7,291.67	$ 3,125.00	$ 3,125.00	$ 3,125.00
Sum	$ 231,618.33	$ 321,417.17	$ 336,675.00	$ 153,570.00	$ 241,637.83	$ 223,336.67	#########	$ 52,285.00	$ 36,050.00
Unit Rate, $/Acre									
Disc & Prep	$ 70.00	$ 33.33	$ 131.00	$ 70.00	$ 42.86	$ 131.00	$ 70.00	$ -	$ -
Seed Mix	$ 179.00	$ 179.00	$ 179.00	$ 358.00	$ 358.00	$ 358.00	$ 358.00	$ 358.00	$ 358.00
Seed Placement	$ 170.00	$ 166.67	$ 137.00	$ 120.00	$ 357.14	$ 151.00	$ 7,500.00	$ 1,900.00	$ 1,242.00
Mulch/Crimp	$ 490.00	$ 891.05	$ 892.00	$ 490.00	$ 891.05	$ 892.00	$ -	$ -	$ -
Mob/Demob	$ 8.33	$ 16.67	$ 6.52	$ 14.29	$ 28.57	$ 11.18	$ 100.00	$ 200.00	$ 46.25
Per Diem	$ 47.74	$ 52.52	$ 57.29	$ 44.64	$ 48.36	$ 52.08	$ 156.25	$ 156.25	$ 156.25
Sum	$ 965.08	$ 1,339.24	$ 1,402.81	$ 1,096.93	$ 1,725.98	$ 1,595.26	$ 8,184.25	$ 2,614.25	$ 1,802.50
	vvvvvvvvvvvv	vvvvvvvvvvvv	vvvvvvvvvvvv	vvvvvvvvvvvv	vvvvvvvvvvvv	vvvvvvvvvvvv	vvvvvvvvvvvv	vvvvvvvvvvvv	vvvvvvvvvvvv
Average		$ 1,235.71			$ 1,472.73			$ 2,614.25	
Weight		90%			8%			2%	

Unit Rate	**$/Acre**	**Weight**
Avg Drill Seed	$ 1,236	90%
Avg Broadcast	$ 1,473	8%
Avg Hydroseed	$ 2,614	2%
Weighted Avg	$ 1,282	

Breakdown of weighted average cost:

Materials	34%	$ 435.96	<--SRCE "Material Costs" sheet
Labor	33%	$ 423.14	<--CDF "Misc. Unit Costs" sheet
Equipment	33%	$	

Closure Cost Estimate
User 03 Miscellaneous Crews

Category	Item	Comments	Cost	Units	Amount
DISPOSAL	HYDROCARBONS PUMPABLE, NON HAZ, DIESEL/OIL FOR FUELS BLENDING <5% WATER	4500 GALLONS	$ 0.75	GALLON	4500
DISPOSAL	HYDROCARBONS PUMPABLE, NON HAZ, DIESEL/OIL FOR LANDFILL >5% WATER	4500 GALLONS	$ 1.65	GALLON	4500
TRANSPORTATION	TANKER TRUCK CLASS A	HYDROCARBONS PUMPABLE TO FINAL TSDF	$ 2.75	MILE	
DISPOSAL	BULK HAZARDOUS WASTE FOR RCRA LANDFILL	20 YARD BIN 9 TON MINIMUM	$ 285.00	TON	9
TRANSPORTATION	ROLLOFF TRUCK DRAGON TRAILER CLASS A	BULK HAZARDOUS WASTE TO FINAL TSDF	$ 2.65	MILE	
SUPPLIES	EPA MANIFEST FEE		$ 15.00	EA	1

Source: ACT_Enviro_Disposal_QuoteNM COPPER CORP 11-27-18.pdf

Closure Cost Estimate
User 04 Bldgs & tanks backup

Source: EIS Facility Lists All Alternatives 2014.07.23.xlsx

EIS 2	↓F&B	↓F&B	↓F&B	↓F&B		↓F&B	↓User 13	
Facility	**Length (ft)**	**Width (ft)**	**Height (ft)**	**Diameter (ft)**	**Slab (ft)**	**Slab (in)**	**Tank?**	**Construction Type**
Primary Crusher Control/Mechanical Building	20	15	25		0.67	8		Metal roof,metal siding
Concentrator Building, Grinding Area	192	145	125		0.50 -1.00	12		Metal roof, metal siding
Concentrator Building, Flotation Area	216	96	80		0.50 -1.00	12		Metal roof, metal siding
Concentrator Building, Maintenance Area	70	50	30		0.83	10		Metal roof, metal siding
Concentrate Handling & Storage Area, Included in concentrator building	144	72	80		0.83	10		Metal roof, metal siding, included in concentrator building
Concentrate Thickeners (1/2)	-	-	16	16	-		Yes	Steel Tank
Concentrate Thickeners (2/2)	-	-	16	16	-		Yes	Steel Tank
Ball Bins	109	51			1	12		Concrete
Reagent Storage and Lime Handling	110	76	50		0.5	6		Metal roof, concrete block and metal siding
Flammable Material Storage Bldg.	25	17	9		0.67	8		Metal roof, metal siding
Tailings Cyclone Station	75	50	40		-			Centraly located open steel structure
Mine Shop/Warehouse	123	92	60		1	12		Metal roof, metal siding on existing slab
Wash Pad	90	90			0.83	10		Concrete
Administration Building	96	60	24		1	12		Prefabricated modular placed on existing slab
Changehouse/Gatehouse	84	60	19		0.5	6		Prefabricated modular placed on existing slab
Assay & Metallurgical Laboratory	122	40	22		0.5	6		Prefabricated modular placed on existing slab
Copper Flat Electric Substation	115	70	0		-			Constructed on graded, graveled, fenced area
Freshwater/Fire Tank (1)	-	-	36	40	-		Yes	Carbon steel, 300,000 gal
Process water tank (1)	-	-	32	30	-		Yes	Carbon steel, 150,000 gal
Fresh Water Pump Station Tanks (1/2)	-	-	36	40	-		Yes	Carbon steel, 300,000 gal
Fresh Water Pump Station Tanks (2/2)	-	-	36	40	-		Yes	Carbon steel, 300,000 gal
Potable Water Tank	-	-	7.25	12	-		Yes	Carbon steel, 6,000 gal
Seal Water Tank	-	-	8	8	-		Yes	Carbon steel, 3,000 gal
Reclaim Reservoir Fresh Water Surge Tank	16	-	15	8	-		Yes	Carbon steel, 5,500 gal
Reclaim Reservoir Fresh Water Storage Tank	-	-	36	40	-		Yes	Carbon steel, 300,000 gal
Off Road Diesel Fuel Storage Tank (1)	-	-	24	28	-		Yes	nominal 100,000 gal tank, field erected steel tank
On Road Diesel Storage Tank	-	-	12	12	-		Yes	Carbon steel, 10,000 gal
Gasoline Storage Tank	-	-	12	12	-		Yes	Carbon steel, 10,000 gal
Recycle Water Tank - Truck Wash	-	-	12	12	-		Yes	Carbon steel, 10,000 gal
Lime Silo	-	-	40	25	0.83	10	Yes	300 ton capacity
Lime Slurry Tank	-	-	25	12	-		Yes	Carbon steel, 20,000 gal
Pax Mix Tank	-	-	10.67	8	-		Yes	Carbon steel, 4,000 gal
Pax Distribution Tank	-	-	10.67	8	-		Yes	Carbon steel, 4,000 gal
MIBC Storage Tank	-	-	6	8	-		Yes	Carbon steel, 2,000 gal
No. 2 Diesel Storage Tank	-	-	6	8	-		Yes	Carbon steel, 2,000 gal
NaHS Mix Tank	-	-	10.67	8	-		Yes	Carbon steel, 4,000 gal
NaHS Distribution Tank	-	-	10.67	8	-		Yes	Carbon steel, 4,000 gal
Moly Collector Mix Tank	-	-	6	8	-		Yes	Carbon steel, 2,000 gal
Moly Collector Distribution Tank	-	-	6	8	-		Yes	Carbon steel, 2,000 gal
AERO 238 Mix Tank	-	-	10.67	8	-		Yes	Carbon steel, 4,000 gal
AERO 238 Distribution Tank	-	-	10.67	8	-		Yes	Carbon steel, 4,000 gal
NaHS Stock Tank	-	-	10.67	8	-		Yes	Carbon steel, 4,000 gal
Flocculant Tanks (1/2)	-	-	7.25	12	-		Yes	Carbon steel
Flocculant Tanks (2/2)	-	-	7.25	12	-		Yes	Carbon steel
Gravity Concentrator Concentrate Tank	-	-	9.5	12	-		Yes	Carbon steel, 8,000 gal
Copper concentrate stock tank	-	-	24.6	17	-		Yes	Carbon steel, 42,000 gal
Explosive Magazines (1/2)	8	8	8		-			Manufactured/Constructed, located and secured per federal and state regulations
Explosive Magazines (2/2)	8	8	8		-			Manufactured/Constructed, located and secured per federal and state regulations
Ammonium Nitrate Silo	-	-	60	15	-		Yes	Manufactured/Constructed, located and secured per federal and state regulations

Filter Deck	Included with Concentrate Handling & Storage							
Lime Mill	Included with Reagent Storage and Lime Handlng							
Acid Storage Building	Included with Reagent Storage and Lime Handlng							
Reagent Building	Included with Reagent Storage and Lime Handlng							
Tire/ Lube	Included with Mine Shop/Warehouse							
Small Vehicle Repair Building	Included with Mine Shop/Warehouse							
Tailings Thickener	Not Used in Plan							
Gatehouse	Included with Changehouse							
Records & Receiving Office	Included with Warehouse							
Engine Oil Storage Tank	-	-	-		-			1,000 gal, carbon steel
Hydraulic Fluid Storage Tank	-	-	-		-			1,000 gal, carbon steel
ATF Fluid Storage Tank	-	-	-		-			1,000 gal, carbon steel
Gear Oil Storage Tank	-	-	-		-			1,000 gal, carbon steel
Anti-freeze Storage Tank	-	-	-		-			1,000 gal, carbon steel
Used Oil Storage Tank	-	-	-		-			2,000 gal, carbon steel
Used antifreeze storage tank	-	-	-		-			2,000 gal, carbon steel
Primary Crusher	90	30	113		0.83	10		Existing, below ground, reinforced concrete
Coarse Ore Stockpile Tunnel	400	16	26		0.50 -1.00	12		Existing, below ground, reinforced concrete

Closure Cost Estimate
User 05 Growth Media Stockpiles

MORP Table E5. Required Reclamation Growth Media/Cover Material Storage

Facility	Size1 (Acres)	Required Material 2, 3 (reclamation cy)
Growth Media Stockpile 1	29.33	2,197,930
Growth Media Stockpile 2	31.55	1,826,877
Growth Media Stockpile 3	14.1	511,904
Surface Impoundment Backfill Areas	NA	320,000
Horizontal Construction Alignments4	NA	20,000
Total:		4,876,711

Notes:

1 – Includes GMSP and associated disturbance areas.

2 – Reclamation volumes are calculated from bank volumes and account for material swell and re-consolidation at excavation, storage, re-handle, and cover placement. See Section 3.0 for factors applied.

3 – Storage capacity of the GMSPs is sufficient to store the volume required.

4 – Provided by NMCC. Additional material will be salvaged as encountered during miscellaneous horizontal construction (roads, ditches, pipelines, power lines).

cy – Cubic yards NA – Not applicable

Closure Cost Estimate
User 06 Earthworks inputs

Facility	Source	Item	Lift Height (ft)	Midbench length (ft)	Area (acre)	Other length (ft)
EWRSP-1	FIG_EWRSP1_MIDBENCHES_20180402.pdf	EWRSP1-MB1	30	1161		
EWRSP-1	FIG_EWRSP1_MIDBENCHES_20180402.pdf	EWRSP1-MB2	30	650		
EWRSP-1	FIG_EWRSP1_MIDBENCHES_20180402.pdf	EWRSP1-MB3	25	333		
EWRSP-1	FIG_EWRSP1_MIDBENCHES_20180402.pdf	EWRSP1-MB4	20	351		
EWRSP-1	FIG_EWRSP1_MIDBENCHES_20180402.pdf	area			25.1	
EWRSP-2B	FIG_EWRSP2B_MIDBENCHES_20180402.pdf	EWRSP2B-MB1	30	529		
EWRSP-2B	FIG_EWRSP2B_MIDBENCHES_20180402.pdf	EWRSP2B-MB2	70	477		
					25	
EWRSP-4	FIG_EWRSP4_EOML_20180330.pdf	EWRSP4-MB1	10	148		
EWRSP-4	FIG_EWRSP4_EOML_20180330.pdf	EWRSP4-MB2	50	319		
EWRSP-4	FIG_EWRSP4_EOML_20180330.pdf	EWRSP4-MB3	30	223		
EWRSP-4	FIG_EWRSP4_EOML_20180330.pdf	EWRSP4-MB4	20	331		
EWRSP-4	FIG_EWRSP4_EOML_20180330.pdf	EWRSP4-MB5	30	591		
EWRSP-4	FIG_EWRSP4_EOML_20180330.pdf	EWRSP4-MB6	10	499		
EWRSP-4	FIG_EWRSP4_EOML_20180330.pdf	EWRSP4-MB7	10	1000		
EWRSP-4	FIG_EWRSP4_RECLAIMED_20180330.pdf	EWRSP4-MB1-Area			3.31	
EWRSP-4	FIG_EWRSP4_RECLAIMED_20180330.pdf	EWRSP4-MB2-Area			2.89	
EWRSP-4	FIG_EWRSP4_RECLAIMED_20180330.pdf	EWRSP4-MB3-Area			1.83	
EWRSP-4	FIG_EWRSP4_RECLAIMED_20180330.pdf	EWRSP4-MB4-Area			1.5	
EWRSP-4	FIG_EWRSP4_RECLAIMED_20180330.pdf	EWRSP4-MB5-Area			5.07	
EWRSP-4	FIG_EWRSP4_RECLAIMED_20180330.pdf	EWRSP4-MB6-Area			2.39	
EWRSP-4	FIG_EWRSP4_RECLAIMED_20180330.pdf	EWRSP4-MB7-Area			4.27	
WRSP-2	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP2-MB1	75	1369		
WRSP-2	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP2-MB2	75	2212		
WRSP-2	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP2-MB3	75	2009		
WRSP-3	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP3-MB1	75	1680		
WRSP-3	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP3-MB2	75	3346		
WRSP-3	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP3-MB3	75	3144		
WRSP-3	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP3-MB4	75	1704		
WRSP-3	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP3-MB5	75	1430		
WRSP-3	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP3-MB6	75	2426		
WRSP-3	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP3-MB7	35	469		
WRSP-3	FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180402.pdf	WRSP3-MB8	35	1570		
WRSP-2	FIG_WRSP2_WRSP3_REGRADE_20180402.pdf	WRSP2-Area			47.7	
WRSP-3	FIG_WRSP2_WRSP3_REGRADE_20180402.pdf	WRSP3-Area			118.5	
WRSP-1	FIG_WRSP1_EWRSP2A_EOML_20180402.pdf	WRSP1-MB1	75	494		
WRSP-1	FIG_WRSP1_EWRSP2A_EOML_20180402.pdf	WRSP1-MB2	50	211		
WRSP-1	FIG_WRSP1_EWRSP2A_EOML_20180402.pdf	WRSP1-MB3	50	143		
WRSP-1	FIG_WRSP1_EWRSP2A_EOML_20180402.pdf	WRSP1-MB4	75	2091		
WRSP-1	FIG_WRSP1_EWRSP2A_EOML_20180402.pdf	WRSP1-MB5	25	219		
WRSP-1	FIG_WRSP1_EWRSP2A_EOML_20180402.pdf	WRSP1-MB6	50	1806		
WRSP-1	FIG_WRSP1_EWRSP2A_EOML_20180402.pdf	WRSP1-MB7	50	748		
EWRSP2-A	FIG_WRSP1_EWRSP2A_EOML_20180402.pdf	EWRSP2-A-MB1	50	1166		
WRSP-1	FIG_WRSP1_EWRSP2A_RECLAIMED_20180330.pdf	WRSP1-MB1-Area			3.11	
WRSP-1	FIG_WRSP1_EWRSP2A_RECLAIMED_20180330.pdf	WRSP1-MB2-Area			1.44	
WRSP-1	FIG_WRSP1_EWRSP2A_RECLAIMED_20180330.pdf	WRSP1-MB3-Area			included above	
WRSP-1	FIG_WRSP1_EWRSP2A_RECLAIMED_20180330.pdf	WRSP1-MB4-Area			12.01	
WRSP-1	FIG_WRSP1_EWRSP2A_RECLAIMED_20180330.pdf	WRSP1-MB5-Area			1.3	
WRSP-1	FIG_WRSP1_EWRSP2A_RECLAIMED_20180330.pdf	WRSP1-MB6-Area			19.27	
WRSP-1	FIG_WRSP1_EWRSP2A_RECLAIMED_20180330.pdf	WRSP1-MB7-Area			included above	
EWRSP2-A	FIG_WRSP1_EWRSP2A_RECLAIMED_20180330.pdf	EWRSP2A-MB1-Area			6.22	
TSF	FIG_TSF_MIDBENCHES_20180402.pdf	TSF Surface Area			305.39	
TSF	FIG_TSF_MIDBENCHES_20180402.pdf	TSF Embankment Area			244.99	
TSF	FIG_TSF_MIDBENCHES_20180402.pdf	TSF-MB1		17289		
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV1				2456
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV2				2789
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV3				3438
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV4				9206
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV5				8640
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV6				8072
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV7				4098
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV8				1627
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV9				5217
TSF Diversion Channels	FIG_TSF_DIVERSION_CHANNELS_20180402.pdf	TSF-DIV10				3673
Pit Berm	FIG_PIT_BERM_20180402.pdf	Berm length				9252
GMSP-1					24.74	
GMSP-2					28.91	
GMSP-3					11.98	

Closure Cost Estimate
User 06 Earthworks inputs

Waste Rock Dumps	Lift (dump) Height	Midbench length	Area
	ft	ft	acres
WRSP1-MB1	75	494	3.11
WRSP1-MB2	50	211	0.86
WRSP1-MB3	50	143	0.58
WRSP1-MB4	75	2091	12.01
WRSP1-MB5	25	219	1.3
WRSP1-MB6	50	1806	13.63
WRSP1-MB7	50	748	5.64
WRSP2-MB1	75	1369	11.68
WRSP2-MB2	75	2212	18.88
WRSP2-MB3	75	2009	17.14
WRSP3-MB1	75	1680	12.62
WRSP3-MB2	75	3346	25.14
WRSP3-MB3	75	3144	23.63
WRSP3-MB4	75	1704	12.81
WRSP3-MB5	75	1430	10.75
WRSP3-MB6	75	2426	18.23
WRSP3-MB7	35	469	3.52
WRSP3-MB8	35	1570	11.8
EWRSP1-MB1	30	1161	11.68
EWRSP1-MB2	30	650	6.54
EWRSP1-MB3	25	333	3.35
EWRSP1-MB4	20	351	3.53
EWRSP2A-MB1	50	1166	6.22
EWRSP2B-MB1	30	529	13.15
EWRSP2B-MB2	70	477	11.85
EWRSP4-MB1	10	148	3.31
EWRSP4-MB2	50	319	2.89
EWRSP4-MB3	30	223	1.83
EWRSP4-MB4	20	331	1.5
EWRSP4-MB5	30	591	5.07
EWRSP4-MB6	10	499	2.39
EWRSP4-MB7	10	1000	4.27

Tailings	Final (Regraded) Embankment Footprint	Mid-Embankment Length	Final Tailings Surface Area	
	acres	ft	acres	
TSF	244.99	17,289	305.39	**<--Tailings sheet**

Table E4. Summary of Copper Flat Surface Impoundments

					Calculations for SRCE				
Impoundment	Size1 (Acres)	Storage Volume2 (Gallons)	Total Excavation Volume3 (cy)	Required Backfill Import3 (cy)	**Backfill 1 (cy)**	**Backfill 2 (cy)**	**Backfill 1 (%)**	**Backfill 2 (%)**	
Impacted Storm Water Impoundment A	2.9	7,306,971	43,000	11,000	**32,000**	**11,000**	**74%**	**26%**	**<-- Process Ponds**
Impacted Storm Water Impoundment B	2.69	5,598,421	34,000	9,000	**25,000**	**9,000**	**74%**	**26%**	**<-- Process Ponds**
Impacted Storm Water Impoundment C	4.44	10,513,870	63,000	16,000	**47,000**	**16,000**	**75%**	**25%**	**<-- Process Ponds**
Process Water Reservoir	2.12	5,433,849	32,000	8,000	**24,000**	**8,000**	**75%**	**25%**	**<-- Process Ponds**
Surge Pond	1.86	1,610,000	12,000	3,000	**9,000**	**3,000**	**75%**	**25%**	**<-- Process Ponds**
TSF Underdrain Collection Pond	7.9	12,240,000	80,000	20,000	**80,000**		**100%**	**0%**	**<-- Process Ponds**
TSF Evaporation Pond	22.3	21,934,379	163,000	41,000	**122,000**	**41,000**	**75%**	**25%**	**<-- Process Ponds**
Total:	44.21	64,637,490	427,000	108,000					

Notes:
1 –Surface impoundment areas also include disturbed areas (embankment, access road, etc.) associated with each impoundment.
2 – Surface impoundment storage volumes account for 2-feet of freeboard.
3 – Backfill volume total = full excavation volume to match storage capacity + 2' freeboard. Import volume assumes that 75% of reclamation backfill is retrieved from excavated material stored within pond embankments, etc.
cy – Cubic yards

Closure Cost Estimate
User 07 Labor rates

https://www.wdol.gov/wdol/scafiles/davisbacon/NM12.dvb?v=1

General Decision Number: NM180012 02/23/2018 NM12
Superseded General Decision Number: NM20170012
State: New Mexico
Construction Type: Heavy

SUNM2009-006 09/14/2010

	Basic Rate ($/hr)	Fringes ($/hr)	**Total**	
Carpenter	**$ 22.26**	**$ 6.20**	$ 28.46	<--to cost data file
Ironworker, reinforcing	$ 22.75	$ 9.60	$ 32.35	
Laborer: Common or Gene	**$ 12.37**	**$ -**	$ 12.37	<--to cost data file
Laborer: Flagger	$ 10.90	$ -	$ 10.90	
Operator: Backhoe	$ 14.03	$ -	**$ 14.03**	<--to cost data file
Operator: Grader/Blade	$ 18.79	$ 2.35	**$ 21.14**	<--to cost data file
Operator: Loader (Front En	$ 22.07	$ 5.05	**$ 27.12**	<--to cost data file
Operator: Scraper	$ 14.03	$ -	**$ 14.03**	<--to cost data file
Pipefitter	$ 25.64	$ 11.31	$ 36.95	
Plumber	$ 26.27	$ 7.69	$ 33.96	
Truck Driver: Dump Truck	$ 11.90	$ -	**$ 11.90**	<--to cost data file
Truck Driver: Water Truck	$ 13.72	$ 5.25	**$ 18.97**	<--to cost data file

Closure Cost Estimate
User 08 Rapid Fill

File: Copper Flat Alt2-4900CB RF2200_4July2017.xlsm
Tab: Rapid Fill Water Balance

ft3/day to gpm conversion: 192.5

ft3/day	**gpm**	
577,500	**3,000**	**<--to Solution Mgmt sheet, item #1 cost category Pit Rapid Fill**
577,500	**3,000**	**<--to Solution Mgmt sheet, item #2 cost category Pit Rapid Fill**
577,500	**3,000**	**<--to Solution Mgmt sheet, item #3 cost category Pit Rapid Fill**
577,500	**3,000**	**<--to Solution Mgmt sheet, item #4 cost category Pit Rapid Fill**
577,500	**3,000**	**<--to Solution Mgmt sheet, item #5 cost category Pit Rapid Fill**
288,800	**1,500**	**<--to Solution Mgmt sheet, item #6 cost category Pit Rapid Fill**

Closure Cost Estimate
User 09 Haul Distances

	Elevation
GMSP-1	5350
GMSP-2	5275
GMSP-3	5300

From	To	Distance	Start Elevation	End Elevation	Grade	
GMSP-1	TSF	7,426	5350	5450	-1.3	
GMSP-2	TSF	10,536	5275	5450	-1.7	**<--Tailings**
GMSP-2	WRSP-1	13,179	5275	5675	-3	**<--WRD**
GMSP-2	WRSP-2	9,309	5275	5725	-4.8	**<--WRD**
GMSP-3	WRSP-3	8,047	5300	5575	-3.4	**<--WRD**
GMSP-3	EWRSP-1	13,044	5300	5575	-2.1	**<--WRD**
GMSP-2	EWRSP2A	13,179	5275	5610	-2.5	**<--WRD**
GMSP-2	EWRSP2B	13,179	5275	5600	-2.5	**<--WRD**
GMSP-2	EWRSP4	12,000	5275	5485	-1.8	**<--WRD**
GMSP-3	Plant	5,071	5300	5475	-3.5	**<--Yards**
locally	Impacted Storm	500	5375	5375	0	**<--Process Ponds**
locally	Impacted Storm	500	5500	5500	0	**<--Process Ponds**
locally	Impacted Storm	500	5300	5300	0	**<--Process Ponds**
locally	Process Water R	500	5450	5450	0	**<--Process Ponds**
locally	Surge Pond	500	5350	5350	0	**<--Process Ponds**
locally	New evaporation	500	5150	5150	0	**<--Process Ponds**
locally	New evaporation	500	5150	5150	0	**<--Process Ponds**

Closure Cost Estimate
User 10 Diversion channels

Date: 10/10/2016
Project No.: 1531453
Subject: Channel Schedule
Project Short Title: COPPER FLAT MORP AND MINE PERMIT APPLICATION

Made by: HNL
Checked by: TLS
Reviewed by: TLS

CHANNEL SCHEDULE

Reach Designation1		Qdesign (cfs)	Reach Design Bottom Width (ft)	Bed Slope (%)	Left Side Slope (H:1V)	Right Side Slope (H:1V)	Normal Flow Depth (ft)	Average Velocity (fps)	Min. D50 (in)		Reports to	Channel Length (ft)	Channel depth (ft)	Channel area (sy)	Volume = Channel area * D50 * 2
EWRSP-1															
Diversion Channel, DC-1		100	10	0.5	3	3	2.06	3		3	Grayback Diversion	655	4	2,474	412
Diversion Swale, DS-1		12	10	0.5	3	3	0.64	1.58		3	Grayback Diversion	512	3	1,593	266
Toe Channel, TC-1		27	10	3	3	3	0.62	3.74		3	Grayback Diversion	1170	3	3,640	607
Toe Channel, TC-2		17	10	0.5	3	3	0.78	1.75		3	Grayback Diversion	636	3	1,979	330
Toe Channel, TC-3*	TC-3	125.6	10	2.9	3	3	1.54	3.61		12	Pit Perimeter Channel to Pit	525	4	1,983	1322
Haul Road Channel, HC-1		12.9	10	10	3	3	0.28	4.24		6	Grayback Diversion	455	2	1,112	371
EWRSP-2B															
Top Surface Channel, TSC-1	TSC-1	81.2	10	1	3	3	0.31	1.01		3	Pit Perimeter Channel to Pit	201	2	491	82
Diversion Swale, DS-2	DS-2	3.4	10	0.5	3	3	1.46	5.98		0	Pit Perimeter Channel to Pit	455	3	1,416	0
EWRSP-4															
Top Surface Channel, TSC-2	TSC-2	86	10	2.5	3	3	1.24	5.06		3	Haul Road Channel HC-2 to Pit	890	3	2,769	462
Haul Road Channel, HC-2	HC-2	20	10	6.7	3	3	0.41	4.39		3	Pit	927	2	2,266	378
Toe Channel, TC-4	TC-4	13	10	7.4	3	3	0.31	3.87		3	Grayback Arroyo	1057	2	2,584	431
WRSP-1															
Diversion Swale, DS-3	DS-3	27	10	0.5	3	3	1.02	2.03		3	Off Site	682	3	0	0
Diversion Swale, DS-4	DS-4	69	10	0.5	3	3	1.7	2.69		3	Natural Ground to Pit	2030	4	0	0
Diversion Channel, DC-2	DC-2	39	10	0.5	3	3	1.25	2.28		3	Off Site	596	3	1,854	309
Top Surface Channel, TSC-3	TSC-3	32.5	10	5.6	3	3	0.57	4.87		6	Pit Perimeter Channel to Pit	842	3	2,620	873
Bench Channel, BC-1	BC-1 through BC-4	97	10	1	3	3	0.39	1.65		3	Pit Perimeter Channel to Pit	909	2	2,222	370
Bench Channel, BC-2	BC-1 through BC-4	97	10	1	3	3	0.39	1.65		3	Pit Perimeter Channel to Pit	724	2	1,770	295
Bench Channel, BC-3	BC-1 through BC-4	97	10	1	3	3	0.39	1.65		3	Pit Perimeter Channel to Pit	1590	2	3,887	648
Bench Channel, BC-4	BC-1 through BC-4	97	10	1	3	3	0.39	1.65		3	Pit Perimeter Channel to Pit	1063	2	2,598	433
Haul Road Channel, HC-3	HC-3	97	10	10.3	3	3	0.89	8.57		12	Pit Perimeter Channel to Pit	1800	3	5,600	3733
WRSP-2 and WRSP-3															
Diversion Swale, DS-5	DS-5	112	10	0.5	3	3	2.19	3.09		3	Natural Ground to Pit	830	4	0	0
Diversion Swale, DS-6	DS-6	52	10	0.5	3	3	1.46	2.48		3	Off Site	679	3	0	0
Diversion Swale, DS-7	DS-7	26	10	0.5	3	3	1	2.02		3	Off Site	1068	3	0	0
Haul Road Channel, HC-4	HC-4	63.9	10	9.6	3	3	0.72	7.31		12	Pit	1847	3	5,746	3831
Top Surface Channel, TSC-4	TSC-4	42	10	1	3	3	1.07	2.96		3	Grayback Arroyo	741	3	2,305	384
Top Surface Channel, TSC-5	TSC-5	100	10	1	3	3	1.72	3.84		18	Grayback Arroyo	958	4	3,619	3619
Downslope Channel, DSC-1	DSC-1	127.1	20	29	3	3	0.28	22.03	ACB		Grayback Arroyo	723	2	2,571	
Downslope Channel, DSC-2	DSC-2	240.1	20	30.2	3	3	0.4	28.36	ACB		Grayback Arroyo	1203	2	4,277	
Toe Channel, TC-5	TC-5	229.8	10	13	3	3	0.97	10.09		3	Grayback Arroyo	1609	3	5,006	834
Toe Channel, TC-6	TC-6	242.9	10	8.6	3	3	1.55	10.67		18	Grayback Arroyo	236	4	892	892
Bench Channel, BC-5	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1267	3	3,942	657
Bench Channel, BC-6	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1096	3	3,410	568
Bench Channel, BC-7	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1495	3	4,651	775
Bench Channel, BC-8	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1773	3	5,516	919
Bench Channel, BC-9	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1684	3	5,239	873
Bench Channel, BC-10	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	829	3	2,579	430
Bench Channel, BC-11	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1103	3	3,432	572
Bench Channel, BC-12	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1390	3	4,324	721
Bench Channel, BC-13	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1783	3	5,547	925
Bench Channel, BC-14	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1058	3	3,292	549
Bench Channel, BC-15	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1090	3	3,391	565
Bench Channel, BC-16	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1104	3	3,435	573
Bench Channel, BC-17	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	611	3	1,901	317
Bench Channel, BC-18	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	1058	3	3,292	549
Bench Channel, BC-19	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	538	3	1,674	279
Bench Channel, BC-20	BC-5 through BC-20	39	10	1	3	3	1.03	2.89		3	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo	579	3	1,801	300
TSF															
Downslope Channel, DSC-3	DSC-3	181.8	20	27.6	3	3	0.35	24.85	ACB		Off Site	965	2	3,431	
Downslope Channel, DSC-4	DSC-4	165.6	20	27.8	3	3	0.33	24.03	ACB		Grayback Arroyo	933	2	3,317	
Downslope Channel, DSC-5	DSC-5	478	20	29	3	3	0.61	36.08	ACB		Grayback Arroyo	556	3	2,348	
Top Surface Channel, TSC-6	TSC-6	243	10	0.5	3	3	2.79	3.72		3	DSC-5 to Grayback Arroyo	3052	5	13,564	2261
Top Surface Channel, TSC-7	TSC-7	236.4	10	0.5	3	3	2.76	3.69		3	DSC-5 to Grayback Arroyo	3673	5	16,324	2721
Bench Channels, BC-21	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	529	3	1,646	274
Bench Channels, BC-22	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	2909	3	9,050	1508
Bench Channels, BC-23	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	723	3	2,249	375
Bench Channels, BC-24	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	2274	3	7,075	1179
Bench Channels, BC-25	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	2662	3	8,282	1380
Bench Channels, BC-26	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	2359	3	7,339	1223
Bench Channels, BC-27	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1415	3	4,402	734
Bench Channels, BC-28	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	675	3	2,100	350
Bench Channels, BC-29	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1529	3	4,757	793
Bench Channels, BC-30	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1747	3	5,435	906
Bench Channels, BC-31	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1924	3	5,986	998
Bench Channels, BC-32	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	552	3	1,717	286
Bench Channels, BC-33	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1707	3	5,311	885
Bench Channels, BC-34	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1920	3	5,973	996
Bench Channels, BC-35	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	2042	3	6,353	1059
Bench Channels, BC-36	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	2173	3	6,760	1127
Bench Channels, BC-37	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1075	3	3,344	557
Bench Channels, BC-38	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1813	3	5,640	940
Bench Channels, BC-39	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	2004	3	6,235	1039
Bench Channels, BC-40	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1924	3	5,986	998
Bench Channels, BC-41	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	1997	3	6,213	1036
Bench Channels, BC-42	BC-21 through BC-42	38	10	1	3	3	1.02	2.83		3	Off Site or Grayback Arroyo	525	3	1,633	272
Toe Channel, TC-7	TC-7	487.7	15	0.5	3	3	4	4.52		3	Off Site	1891	6	10,716	1786
Toe Channel, TC-8	TC-8	213.2	10	0.5	3	3	3.03	3.69		3	Grayback Arroyo	1824	5	8,107	1351
Toe Channel, TC-9	TC-9	192.5	10	3.5	3	3	1.74	7.25		12	Grayback Arroyo	1524	4	5,757	3838
PLANT															
Perimeter Channel, PC-2	PC-2	200	10	1	3	3	2.46	4.67		3	Grayback Arroyo	2361	4	8,919	1487
Downslope Channel, DSC-6**	DSC-6		10	1	3	3	2.46	4.67		3		218	4	678	113
Downslope Channel, DSC-7**	DSC-7		10	1	3	3	2.46	4.67		3		283	4	880	147
Toe Channel, TC-10	TC-10	36	10	1	3	3	0.98	2.82		3	Pit	606	3	1,885	314
PIT															
Perimeter Channel, PC-1	PC-1	294	10	2	3	3	2.51	6.67		3	Pit	2930	5	13,022	2170
Haul Road Channel, HC-5	HC-5	984.4	10	10	3	3	1.76	36.7	ACB		Pit	7540	4	28,484	

Notes:
1 - See Mine Reclamation and Closure Plan drawing set for location of specific reach. Hydrolgy and Hydraulics calculation packet available upon request.
ACB - Articulated concrete block.
cfs - Cubic feet per second
ft - Feet
fps - Feet per second
in - Inch
Qdesign - Design flows for channel determined from Hydrologic Modeling System (HEC-HMS) developed by the Hydrologic Engineering Center within the U.S. Army Corps of Engineers.
Min. D50 - median diameter or the medium value of the particle size distribution
Rip Rap size calculations based on the following criteria: U.S. Army Corps of Engineers (USACE, 1994) mild slope, <2% slopes; USACE steep slope, >2% to <20% slopes; Robinson method (1997), >20% to ,40% slopes; ACB for all downslope channels.
* TC-3 was previously shown under EWRSP-2B in the original channel schedule received by SRK; it has been moved to EWRSP-1 by Filiz Toprak per agency comment.
** Added on 11/19/2018 by Filiz Toprak. Physical parameters measured from Drawing C-16 in Mine Reclamation and Closure Plan.

Source: H:\Copper_Flat\New Mexico Copper Corp\191000.060_Copper Flat Bond\020_Project Data\20180713_channel_schedule
NMCC Channel Schedule - 20161014

Total area of ACB: **44,428**
to Other User; note sum of Other User items #10, 11, and 12^
Volume of riprap **65,557**
^
See Haul Material item # 2 for Hauling material suitable for riprap from pit to cyclone plant area (see User 21 for supply)

Per call with Matthew Stovall of Contech, July 25, 2018, crew for ACB installation:

	#	Labor rate ($/hr)	Equipment rate ($/hr)	Labor costs ($/hr)	Equipment costs ($/hr)	subtotal ($/hr)
20 ton crane	1	93.40	33.30	$ 93.40	$ 33.30	$ 126.70
laborers	5	15.19		$ 75.95	$ -	$ 75.95
				$ 169.35	$ 33.30	$ 202.65

Daily productivity (sf/day): 6000
Daily productivity (SY/day): 667
Hourly productivity (SY/hr): 83

	Labor unit cost ($/SY)	Equipment unit cost ($/SY)	
Unit cost ($/SY):	$ 2.04	$ 0.40	**<--Other User item # 10 t 12**

Closure Cost Estimate
User 11 Surface Areas of Ponds

Surface Areas of Ponds	Crest Length (ft)	Crest Width (ft)	Bottom Length (ft)	Bottom Width (ft)	Side Length (ft)	Surface area (ft2)	Hours*	
	a	b	c	d	s	A=ab+cd+(a+b+c+d)*s/2		
Impacted Storm Water Impoundment A (measured from "DS-PLANT-EOML.dwg")	359	258	284	240	40	183,602	31	<--Process Ponds sheet for liner cutting calcs, item # 1
Impacted Storm Water Impoundment B	474	392	444	374	16	365,336	61	<--Process Ponds sheet for liner cutting calcs, item # 2
Impacted Storm Water Impoundment C	1200	265	1168	247	17	630,976	105	<--Process Ponds sheet for liner cutting calcs, item # 3
Process Water Reservoir (measured from "DS-PLANT-EOML.dwg")	278	265	158	247	63	142,558	24	<--Process Ponds sheet for liner cutting calcs, item # 4
Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-SURG-BRKL.dwg")(disturbance under cyclone area pad)	332.5	143	286	125	24	93,763	16	<--Process Ponds sheet for liner cutting calcs, item # 5

* Pond liner cut time assumed (sq. ft./hr) based on experience with similar projects: 6000

Closure Cost Estimate
User 12 Excavation work

This sheet documents the assumptions made in various excavating activities across the site to allow for free drainage on the Grayback Arroyo after reclamation.
These include those at the plant area and on the EWRSP-1.
See Attachment L to the "Copper Flat Life-of-Mine Basis of Reclamation and Closure Cost Estimate" for figures.

See Appendix L for take-offs

Fleet:

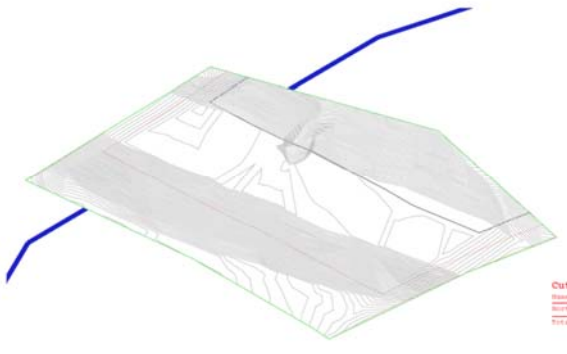
Excavator selected:	349F
Productivity of excavator (LCY/hr):	480
Productivity adjusted for activity (LCY/hr):	400
Number of excavators:	2
Dozer selected:	D7E
Number of dozers:	1
excavator labor rate ($/hr):	33.3
excavator equipment rate ($/hr):	122.42
excavator hourly labor cost ($/hr):	66.6
excavator hourly equipment cost ($/hr):	244.84
dozer labor rate ($/hr):	25.96
dozer equipment rate ($/hr):	123.31
dozer hourly labor cost ($/hr):	25.96
dozer hourly equipment cost ($/hr):	123.31
total hourly labor cost ($/hr):	92.56 <--Other User
total hourly equipment cost ($/hr):	368.15 <--Other User

material expansion factor 1.2

Tailings Pipeline Crossing (Landbridge North)

volume of material to be moved (cy):	73,457
time required to pull material back (hr):	184 **<--Other User item # 3 cost category Yards**

North_Land_Bridge_201081114-Model.pdf



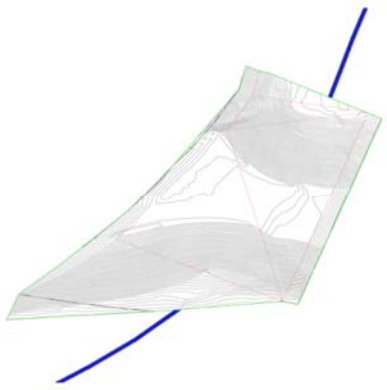
Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
North_Land_Bridge	1.000	1.000	62394.99 Sq. Ft.	73023.85 Cu. Yd.	64.63 Cu. Yd.	72457.32 Cu. Yd.<Cut>
Totals			62394.99 Sq. Ft.	73023.85 Cu. Yd.	64.63 Cu. Yd.	72457.32 Cu. Yd.<Cut>

Access Road (Landbridge South)

volume of material to be moved (cy):	57,702.00
time required to pull material back (hr):	144 **<--Other User item # 4 cost category Yards**

South Land Bridge.pdf



Cut/Fill Summary

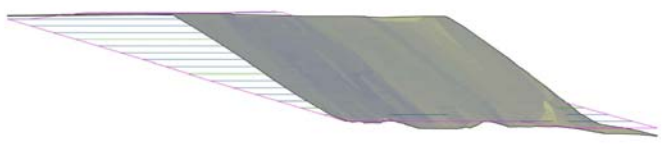
Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
South_Land_Bridge	1.000	1.000	60787.19 Sq. Ft.	57714.36 Cu. Yd.	12.07 Cu. Yd.	57702.29 Cu. Yd.<Cut>
Totals			60787.19 Sq. Ft.	57714.36 Cu. Yd.	12.07 Cu. Yd.	57702.29 Cu. Yd.<Cut>

EWRSP-1 Pullback
Based on measurements made for SRCE and documented in the "Waste Rock Dumps" sheet:
EWRSP1-MB3

N (original slope)(_H:1V):	1.4
Q (final slope)(_H:1V):	3
h (height of slope)(ft):	25
A (cross-sectional area)(ft2):	500
length of slope (ft):	333
bank volume of pullback material (ft3):	166500
bank volume of pullback material (cy):	6167
material expansion factor:	1.2
time required to pull material back (hr):	15 **<--Other User item # 5 cost category WRD**

Plant Area Pullback

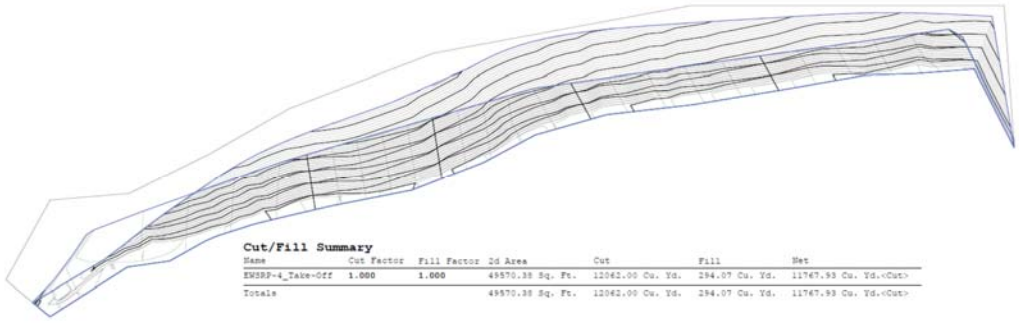
Bench volume of plant area pullback (CY):	103,383
time required to pull material back (hr):	258 **<--Other User item # 6 cost category Yards**



FRONT SECTION
SCALE: 1" = 60'

EWRSP-4 Excavation Take-off

Total volume (CY):	11768
time required to excavate material (hr):	29 **<--Other User item # 7 cost category WRD**



Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
EWSRP-4_Take-Off	1.000	1.000	49570.38 Sq. Ft.	12062.00 Cu. Yd.	294.07 Cu. Yd.	11767.93 Cu. Yd.<Cut>
Totals			49570.38 Sq. Ft.	12062.00 Cu. Yd.	294.07 Cu. Yd.	11767.93 Cu. Yd.<Cut>

Closure Cost Estimate
User 13 Tank cutting

Source: User 4

Facility	Height (ft)	Diameter (ft)	Construction Type	Circumference	Number of Cuts (Top/Bottom)	Cuts (ft)	No. of Cuts (sid	Cuts (ft)	No. Cuts on Circumference (Horiz)	Circ. Cuts (ft)	total Cuts (ft)	No. of tanks	Total Cuts (ft)
Concentrate Thickeners (1/2)	16	16	Steel Tank	50.24	7	224	6	96	9	453	773	1	773
Concentrate Thickeners (2/2)	16	16	Steel Tank	50.24	7	224	6	96	9	453	773	1	773
Freshwater/Fire Tank (1)	36	40	Carbon steel, 300,000 gal	125.6	16	1280	13	468	18	2261	4009	1	4009
Process water tank (1)	32	30	Carbon steel, 150,000 gal	94.2	12	720	10	320	14	1319	2359	1	2359
Fresh Water Pump Station Tanks (1/2)	36	40	Carbon steel, 300,000 gal	125.6	16	1280	13	468	18	2261	4009	1	4009
Fresh Water Pump Station Tanks (2/2)	36	40	Carbon steel, 300,000 gal	125.6	16	1280	13	468	18	2261	4009	1	4009
Potable Water Tank	7.25	12	Carbon steel, 6,000 gal	37.68	5	120	4	29	7	264	413	1	413
Seal Water Tank	8	8	Carbon steel, 3,000 gal	25.12	4	64	3	24	6	151	239	1	239
Reclaim Reservoir Fresh Water Surge Tank	15	8	Carbon steel, 5,500 gal	25.12	4	64	3	45	6	151	260	1	260
Reclaim Reservoir Fresh Water Storage Tank	36	40	Carbon steel, 300,000 gal	125.6	16	1280	13	468	18	2261	4009	1	4009
Off Road Diesel Fuel Storage Tank (1)	24	28	nominal 100,000 gal tank, field erected steel tank	87.92	12	672	9	216	14	1231	2119	1	2119
On Road Diesel Storage Tank	12	12	Carbon steel, 10,000 gal	37.68	5	120	4	48	7	264	432	1	432
Gasoline Storage Tank	12	12	Carbon steel, 10,000 gal	37.68	5	120	4	48	7	264	432	1	432
Recycle Water Tank - Truck Wash	12	12	Carbon steel, 10,000 gal	37.68	5	120	4	48	7	264	432	1	432
Lime Silo	40	25	300 ton capacity	78.5	10	500	8	320	12	942	1762	1	1762
Lime Slurry Tank	25	12	Carbon steel, 20,000 gal	37.68	5	120	4	100	7	264	484	1	484
Pax Mix Tank	10.67	8	Carbon steel, 4,000 gal	25.12	4	64	3	33	6	151	248	1	248
Pax Distribution Tank	10.67	8	Carbon steel, 4,000 gal	25.12	4	64	3	33	6	151	248	1	248
MIBC Storage Tank	6	8	Carbon steel, 2,000 gal	25.12	4	64	3	18	6	151	233	1	233
No. 2 Diesel Storage Tank	6	8	Carbon steel, 2,000 gal	25.12	4	64	3	18	6	151	233	1	233
NaHS Mix Tank	10.67	8	Carbon steel, 4,000 gal	25.12	4	64	3	33	6	151	248	1	248
NaHS Distribution Tank	10.67	8	Carbon steel, 4,000 gal	25.12	4	64	3	33	6	151	248	1	248
Moly Collector Mix Tank	6	8	Carbon steel, 2,000 gal	25.12	4	64	3	18	6	151	233	1	233
Moly Collector Distribution Tank	6	8	Carbon steel, 2,000 gal	25.12	4	64	3	18	6	151	233	1	233
AERO 238 Mix Tank	10.67	8	Carbon steel, 4,000 gal	25.12	4	64	3	33	6	151	248	1	248
AERO 238 Distribution Tank	10.67	8	Carbon steel, 4,000 gal	25.12	4	64	3	33	6	151	248	1	248
NaHS Stock Tank	10.67	8	Carbon steel, 4,000 gal	25.12	4	64	3	33	6	151	248	1	248
Flocculant Tanks (1/2)	7.25	12	Carbon steel	37.68	5	120	4	29	7	264	413	1	413
Flocculant Tanks (2/2)	7.25	12	Carbon steel	37.68	5	120	4	29	7	264	413	1	413
Gravity Concentrator Concentrate Tank	9.5	12	Carbon steel, 8,000 gal	37.68	5	120	4	38	7	264	422	1	422
Copper concentrate stock tank	24.6	17	Carbon steel, 42,000 gal	53.38	7	238	6	148	9	481	867	1	867
Ammonium Nitrate Silo	60	15	Manufactured/Constructed, located and secured per federal and state regulations	47.1	6	180	5	300	8	377	857	1	857

subtotal **32,154**

Steel Cutting Task

RS Means	Crew	Daily Output	Labor-Hours	Unit	Material unit cost	Labor unit cost	Equipment unit cost
02 41 19.27 0020	E-25	360	0.22	l.f.	0.87	1.26	0.28

RSMeans 2018, page 42.

	Material cost	Labor cost	Equipment cost	Total cost
Total Steel Cuttir	$ 27,973.98	$ 10,815.28	$ 9,003.12	$ 47,792.38

^Other User item # 8 cost category Buildings

Steel Cutting hours

Daily Output (LF/day)	360
Total length to cut (ft):	32154
Total number of days:	89
Hours in a day:	8
Total number of hours:	712

Hourly output (ft/hr):	45

	Labor/LF	Equipment/LF
Cost per linear foot	1.26	0.28

RSMeans Crew E-25	Labor rate (USD)	Equipment rate (USD)
Welder	56.65	
Torch		12.6
subtotal, USD	56.65	12.6

Closure Cost Estimate
User 14 Demo Debris Disposal

Activity	Crews	hours	hourly crew cost	hourly dump truck cost	Subtotal dump truck cost
Small Building	B-3	811	$ 335	**$ 137**	**$ 111,448**
Large Building	B-8	2764	$ 462	**$ 137**	**$ 379,829**
				Total dump truck cost to haul demolition debris:	**$ 491,277**

For information purposes only; not linked anywhere. Bundled with cost category for Buildings.^

	Means Number	Unit	Crew	Daily Output	Hourly Output	Hours
Lg. steel	02220-110-0012	C.F.	B-8	21,500	2,688	2071
Lg. concrete	02220-110-0050	C.F.	B-8	15,300	1,913	693
Lg. masonry	02220-110-0080	C.F.	B-8	20,100	2,513	0
Lg. mixed	02220-110-0100	C.F.	B-8	20,100	2,513	0
Sm. steel	02220-110-0500	C.F.	B-3	14,800	1,850	52
Sm. concrete	02220-110-0600	C.F.	B-3	11,300	1,413	759
Sm. masonry	02220-110-0650	C.F.	B-3	14,800	1,850	0
Sm. wood	02220-110-0700	C.F.	B-3	14,800	1,850	0

Small Building Demolition

B-3	#	Labor hourly rate	Equipment hourly rate	Labor hourly cost	Equipment hourly cost	subtotal
General laborer	1	15.19	0	15.19	0	15.19
Foreman	1	78.74	0	78.74	0	78.74
930M	1	33.30	70.46	33.3	70.46	103.76
Dump Truck (10-12 yd3)	2	14.61	54.10	29.22	108.2	137.42
				156.45	178.66	**335.11**

Large Building Demolition

B-8	#	Labor hourly rate	Equipment hourly rate	Labor hourly cost	Equipment hourly cost	subtotal
General laborer	1	15.19	0	15.19	0	15.19
Foreman	1	78.74	0	78.74	0	78.74
930M	1	33.30	70.46	33.3	70.46	103.76
20 Ton Crane	1	33.30	93.40	33.3	93.4	126.7
Dump Truck (10-12 yd3)	2	14.61	54.10	29.22	108.2	137.42
				189.75	272.06	**461.81**

Closure Cost Estimate
User 15 Evaporator setup

This sheet documents the assumptions in setting up evaporators and decommissioning them.

Evaporator setup costs:

Crew:	#	# hours	Labor rate ($/hour)	Equipment rate ($/hour)	Labor cost ($)	Equipment cost ($)
Laborer	4	96	15.19		5832.96	0
Trailer/Forklift	1	16		60.26	0	964.16
					5832.96	**964.16**

Setup material costs per evaporator	$	8,000
# evaporators		4
Total setup material costs	$	32,000

	Material costs	**Labor costs**	**Equipment costs**
Split setup material costs by labor, equipment, and materials:	$ 10,880	$ 10,560	$ 10,560
	34%	33%	33%

Summary of Costs:

	Material costs	**Labor costs**	**Equipment costs**	
Evaporator setup crew		$ 5,833	$ 964	
Setup material costs:	**$ 10,880**	**$ 10,560**	**$ 10,560**	
subtotal	**$ 10,880**	**$ 16,393**	**$ 11,524**	**<--Other User item # 19 with cost category TSF Draindown Management**

Evaporator decommissioning costs:

Crew:	#	# hours	Labor rate ($/hour)	Equipment rate ($/hour)	Labor cost ($)	Equipment cost ($)
Laborer	4	32	15.19		1944.32	0
Trailer/Forklift	1	16		60.26	0	964.16
					1944.32	**964.16**

Summary of Costs:

	Material costs	**Labor costs**	**Equipment costs**	
Evaporator decommissioning crew		$ 1,944	$ 964	**<--Other User item # 20 with cost category TSF Draindown Management**

Closure Cost Estimate
User 16 Mob-demob campaigns

This sheet identifies the fleets used in reclaiming different facilities with fleet details and fleet components detailed.
The number of variable equipment (typically trucks) are obtained from respective sheets ("Waste Rock Dumps," "Tailings," etc.).
The fleet names identified here link to the respective sheets ("Waste Rock Dumps," "Tailings," etc.)
Fleet details are based on the fleet name and corresponding info in "Fleets(Crews)."
Fleet components are derived from "Fleets(Crews)" sheet.
Below the table is a list that is developed per reclamation campaign. Any time an equipment appears in the table, a "Yes" is entered to guide the user to include that in the list.
When any equipment appears repeatedly over the course of the campaign, it is designated as "shared."
In the case of trucks, attention has been given to take note of the maximum number of trucks in the truck fleets that are used in various areas.

Note:
For the closure period, the waste rock dump reclamation and the TSF reclamation activities are close enough to each other in time that 1 mobilization-demobilization campaign will be sufficient for both.

Waste Rock Dumps	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**	**Concurrent Reclamation WRSP-3**	**End-of-Mine Reclamation**	**Pit perimeter fence replacement (Closure Year 50)**	**Pit perimeter fence replacement (Closure Year 100[87])**	**Final Closure/ Conversion to E-Cells**
	Regrading	Large	D9T	D9T	1	Yes	Yes	Yes			
	Growth Media Placement - Concurrent Reclamation	Med Truck	740C/988K/D8T	D8T	1	Yes					
				988K	1	Yes					
				740C	7	Yes					
	Growth Media Placement - End of Mine Reclamation	Large Truck	777G/992K/D9T	D9T	1			shared			
				992K	1			Yes			
				777G	7			Yes			
	Ripping/Scarifying	Grader	14M	14M	1	Yes		Yes			
Tailings	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
	Embankment Regrading	*See User 18*	D9T	D9T							
	Surface Regrading	Large	D9T	D9T	1			shared			
	Growth Media Placement	Large Truck	777G/992K/D9T	D9T	1			shared			
				992K	1			shared			
				777G	5			shared			
	Ripping/Scarifying	Grader	14M	14M				shared			
Quarries and Borrow Pits	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
(Open pit)	Growth Media Placement	Large Truck	777G/992K/D9T	D9T	1			shared			
				992K	1			shared			
				777G	3			shared			
	Ripping/Scarifying	Grader	14M	14M	1			shared			
	Berm Construction	Dozer	D9T	D9T	1			shared			
Roads	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
	Regrading	*See User 17*	D8T	D8T							
	Growth Media Placement	Med Truck	740C/988K/D8T	D8T	1			Yes			
				988K	1			Yes			
				740C	2			Yes			
	Ripping/Scarifying	Grader	14M	14M	1			shared			
Process Ponds	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
	Liner Cutting and Folding										
	Backfill/Cover 1 Placement - Haul to Placement	Large Truck	777G/992K/D9T	D9T	1			shared			
				992K	1			shared			
				777G	2			shared			
	Backfill/Cover 2 Placement - Haul to Placement	Large Truck	777G/992K/D9T	D9T	1			shared			
				992K	1			shared			
				777G	2			shared			
	E-Cell Conversion - Backfill/Cover 1 Haul	Med Truck	740C/988K/D8T	D8T	1						Yes
				988K	1						Yes
				740C	2						Yes
Yards, Etc.	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
	Regrading	0	Select Fleet								
	Growth Media Placement	Large Truck		D9T	1			shared			
				992K	1			shared			
				777G	7			shared			
	Ripping/Scarifying	0			1			shared			
Haul Material	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
	Crush/Screen										
	Haul Material	Large Truck	777G/992K/D9T	D9T	1			shared			
				992K	1			shared			
				777G	5			shared			
Buildings and Foundations	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
	Small Building Demolition	Small Building Demolition	930M/Dump Truck (10-12 yd3)	930M	1			Yes			
				Dump Truck (10-12 yd3)	2			Yes			
	Large Building Demolition	Large Building Demolition	930M/20 Ton Crane/Dump Truck (10-12 yd3)	930M	1			shared			
				20 Ton Crane	1			Yes			
				Dump Truck (10-12 yd3)	2			shared			
	Slab Demolition	Med Excavator	349F	1	1			shared			
	Cover Placement	Large Truck		D9T	1			shared			
				992K	1			shared			
				777G	2			shared			
Diversion Ditches	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
	Backfilling/Regrading	325F		325F	1			Yes			
	Rip-Rap Installation	B-12G		966M	1			Yes			
				325F	1			shared			
				Light Truck - 1.5 Ton	1			shared			
Well Abandonment	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**			**Final Closure/Conversion to E-Cells**
	Monitoring Well Abandonment	Drill		Drill rig	1			Yes			
Others	**Activity**	**Fleet Name**	**Fleet Details**	**Fleet Components**	**# Equip.**	**Concurrent Reclamation EWRSPs**		**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
	Landbridges	Excavator fleet		349F	2			Yes			
				D7	1			Yes			

		Concurrent Reclamation EWRSPs	**Concurrent Reclamation WRSP-3**	**End-of-Mine Reclamation**	**Pit perimeter fence replacement (C**	**Pit perimeter fence replacement (Cl**	**Final Closure/Conversion to E-Cells**
1	D9T	1	1	1			
2	992K			1			
3	777G			7			
4	14M	1		1			
5	D8T	1		1			1
6	988K	1		1			1
7	740C	7		2			2
8	930M			1			
9	Dump Truck (10-12 yd3)			2			
10	20 Ton Crane			1			
11	325F			1			
12	966M			1			
13	Light truck			1	1	1	1
14	349F			2			
15	D7E			1			
		^ to Mob sheet, items # 1 through 5	**^ to Mob sheet, items # 6**	**^ to Mob sheet, items # 7 through 23**	**^ to Mob sheet, items # 24**	**^ to Mob sheet, items # 25**	**^ to Mob sheet, items # 26 through 29**

Closure Cost Estimate
User 17 Road Regrading

Road Regrading Calculations

Linear feet of road (LF):	26,000	
Cross-sectional area (ft2) per LF road:	100	Triangle sections: 10 ft tall, 20 ft wide by 0.5
Dozer productivity (CY/hr):	1,000	Short push
Total CY earthworks:	96,296	
Hours of dozer time required:	96	**<--Other User**
Dozer model:	D8T	
Dozer operator hourly wage ($/hr):	25.96	**<--Other User**
Dozer hourly rental rate ($/hr):	145.58	**<--Other User**

	hrs	Labor rate	Equipment rate	subtotal
Total road regrading cost	96	$ 25.96	$ 145.58	$ 16,468

see Other User sheet item # 13 and cost category Roads^

Closure Cost Estimate
User 18 Bench Channels TSF Emb.

Bench Channel Construction at TSF Embankment

Linear feet of channel:	50,896	
Cross-sectional area (ft2) per LF channel:	100	triangular excavation: 20 ft by 10 ft by 0.5
Dozer productivity (CY/hr)	750	(D9T short push at 150 ft)
Total CY excavation:	188,504	
Total dozer hours required:	251	**<--see Other User sheet item # 14 and cost category Tailings Storage Facility**
Dozer model:	D9T	
Dozer operator hourly wage ($/hr):	25.96	**<--see Other User sheet item # 14 and cost category Tailings Storage Facility**
Dozer hourly rental rate ($/hr):	210.52	**<--see Other User sheet item # 14 and cost category Tailings Storage Facility**

Closure Cost Estimate
User 19 Trench Backfill

Backfill volume (cy): 25,040 **<-- Haul Materials sheet, item # 3 cost category Yards**

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Trench	1.000	1.000	63987.59 Sq. Ft.	24.10 Cu. Yd.	25064.04 Cu. Yd.	25039.95 Cu. Yd.<Fill>
Totals			63987.59 Sq. Ft.	24.10 Cu. Yd.	25064.04 Cu. Yd.	25039.95 Cu. Yd.<Fill>

Closure Cost Estimate
User 21 Riprap supply

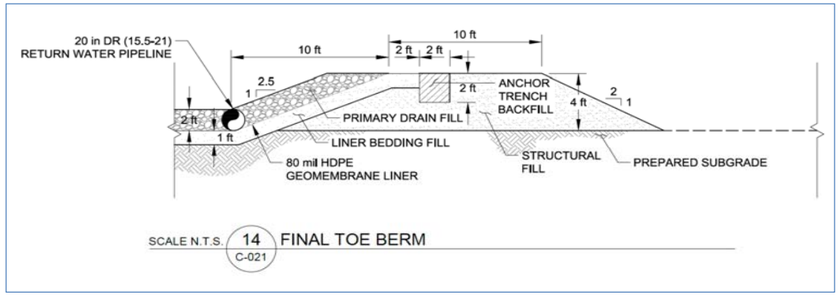
The below calculations provide unit costs and assumptions of ratio of screened rock versus rock mined for the purpose of supplying riprap onsite.
A portion of the riprap comes during TSF construction or from andesite breccia quarry in footprint of WRSP-3.

Source	$/CY	% used in preparing riprap
Screening waste rock with grizzly*	2.50	50%
Mining riprap*	5.00	50%

* Per Jeff Smith, 11/15/2018

Average cost of supplying riprap ($/CY)	3.75	**<--Other User item # 15 cost category Riprap Supply**
Quantity of riprap (User 10) (cy)	65,557	**<--Other User item # 15 cost category Riprap Supply and Haul Materials item # 2**
Cost of supplying riprap ($):	245,839	**<--Other User item # 15 cost category Riprap Supply**

Closure Cost Estimate
User 22 Toe berm reclamation



Tailings berm length (ft): 19000 Measured from Drawing C-011

Average liner width between berm and TSF (ft): 25

Liner area requiring cutting (ft2): 475000 **<--Yards item # 19 Cover area 36", prepare, and revegetate**

Liner cutting productivity (ft2/hr): 6000

Hours liner cutting: 79 **<--Other User item # 16 cost category Tailings Storage Facility**

Liner cutting crew (same with Ponds):
(2) Pond liner removal crew (2Clab + excavator) = 2 General Laborers + 325C Excavator

Liner Cutting Crew	#	Labor hourly rate	Equip hourly rate	Labor hourly cost	Equip hourly cost	subtotal ($/hr)
General laborer	2	15.19		30.38	0	30.38
Excavator	1	33.30	73.23	33.3	73.23	106.53
				63.68	73.23	136.91

Other User item # 16 cost category Tailings Storage Facility ^

Average width of berm (ft): 21.5

Tailings berm height (ft): 4

Berm bank volume (ft3): 1,634,000

Berm bank volume (cy): 60,519

Bank volume to loose volume factor: 1.2

Berm loose volume (LCY): 72,623

Dozer Productivity vs. Grading Distance						
	Production (LCY/hr)					
Average Dozing Distance (feet)	D6T	D7E	D8T	D9T	D10T2	D11T
50	550	950	1,050	1,750	2,550	3,600
100	350	580	620	1,100	1,580	2,200
200	205	340	380	630	900	1,270
300	150	230	280	430	630	900
400		180	210	330	480	700
500		150	180	280	380	570
600		120	150	230	330	460
						Source: Caterpillar Performance Handbook Edition 47
dozer productivity = k x Dozing Distancep (see graph)						
k =	9623.7	26451	23933	49152	74681	101567
p =	-0.727	-0.833	-0.788	-0.833	-0.844	(0.84)

Dozer model: D7E

The tailings toe berm will be dozed over a distance of approximately ____ft. 50

Dozer productivity (LCY/hr): 950

Time to doze the berm (hr): 76 **<--Other User item # 17 cost category Tailings Storage Facility**

Dozer model operator rates ($/hr): 25.96 **<--Other User item # 17 cost category Tailings Storage Facility**

Dozer model equipment rates ($/hr): 123.31 **<--Other User item # 17 cost category Tailings Storage Facility**

Closure Cost Estimate
User 24 Process Bld Addtl

This sheet estimates additional costs to remove utilities and equipment from the following buildings at end of operations.
These costs are assumed to be of total cost to demolish building, break slabs, etc. as estimated in the "Foundations & Buildings" tab.

2	Concentrator Building, Grinding Area	$ 642,329
3	Concentrator Building, Flotation Area	$ 310,678
	subtotal	$ 953,007

Percent markup for removal of utilities and equipment: 20%

Markup total: $ 190,601 **<--Other User item # 18 cost category Buildings**

Closure Cost Estimate
User 25 Indirects backup

This sheet details NMCC's proposal for indirects.

Engineering Redesign	4.0%
Contractor Profit and Overhead	10.0%
Contract/Reclamation Administration	5.0%
Performance & Payment Bonds	3.0%
State Procurement	2.0%
BLM Indirects	1.5%
Liability insurance*	0.3%
Contingency	6.0%
Total	**31.8%**

Engineering, Design and Construction Plan (%)	4.0%
Contingency (%)	6.0%
Contractor OH and Profit (%)	10.0%
Contract Administration (%)	11.8%
Total	**31.8%**

* Liability insurance is proposed as 1.5% of labor subtotals.
Labor subtotals are estimated in User 28.
Labor subtotals are 20.4% of total direct costs.
Therefore, liability insurance is 1.5% of 20.4%, or 0.3% of total direct costs.

Closure Cost Estimate
User 26 Waste Quantities

Solid Waste

Per the EPA,

Pounds waste per person per day	**4.4**

Source:
https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/

Density of municipal waste per EPA (Commercial):	lbs/CY
Commercial - dry waste (lower end)	56
Commercial - dry waste (higher end)	73
Average:	**64.5**

Source:
https://www.epa.gov/sites/production/files/2016-04/documents/volume_to_weight_conversion_factors_memorandum_04192016_508fnl.pdf

Total equipment operator hours (per Equipment Use sheet):	36,811
Hours per day:	8
Total equipment operator days:	4,601

Total pounds waste (equipment operator days times pounds waste per person per day):	**20,244**

Total volume waste (pounds waste divided by average uncompacted waste density) (CY):	**314**	**<--'Waste Disposal' sheet, 'Solid Waste' table, item # 1**

The above estimate assumes an operator disposes of all waste generated during their day on site, not adjusting for hours off site.

Used Oils and Hydraulic Fluids

Used oils

Estimate based on SRCE "Equipment Use" sheet estimate of man-/equipment-hours:		36,811
Assume change oil every ___hours:		300
# oil changes:		123
Assume gallon of oil per oil change:		200
Total quantity of oil disposed of (gallons):		24,600
Disposal cost per gallon <5% water (see User 03)	$	0.75
Disposal cost per gallon >5% water (see User 03)	$	1.65
Assumed cost per gallon (assume approximately 70% is <5% water type)	$	1.00
Subtotal disposal costs	**$**	**24,600**
Capacity of tanker truck (gallons)		4,500
# trips (total gallons divided by capacity of tanker)		6
Distance of trip (miles)		75
Transportation cost ($/mile)	$	2.75
Transportation cost per trip		206
Transportation subtotal	**$**	**1,238**
EPA Manifest Fee (per trip)	$	15
EPA Manifest Fee subtotal	**$**	**90**
Used oils disposal, transport, and fees subtotal	**$**	**25,928**

<--Other User item # 22 cost category Waste Disposal

Used hydraulic fluids

Assume ratio relative to quantity of used oils:		200%
Total quantity of hydraulic fluids disposed of (gallons):		49,200
Disposal cost per gallon <5% water (see User 03)	$	0.75
Disposal cost per gallon >5% water (see User 03)	$	1.65
Assumed cost per gallon (assume approximately 70% is <5% water type)	$	1.00
Subtotal disposal costs	**$**	**49,200**
Capacity of tanker truck (gallons)		4,500
# trips (total gallons divided by capacity of tanker)		11
Distance of trip (miles)		75
Transportation cost ($/mile)	$	2.75
Transportation cost per trip		206
Transportation subtotal	**$**	**2,269**
EPA Manifest Fee (per trip)	$	15
EPA Manifest Fee subtotal	**$**	**165**
Used hydraulic fluids disposal, transport, and fees subtotal	**$**	**51,634**

<--Other User item # 23 cost category Waste Disposal

Closure Cost Estimate
User 26 Waste Quantities

	Hazardous Solid Waste	ContainerType	Soild Quantity cy	Solid Quantity tons (1.3 tons/cy)	One Way Travel Distance to Disposal Site mi
2	Reagent Wastes	Solid Bulk	100	130	120

Quantities at closure assumed.
Disposal in or near El Paso.

Disposal unit cost ($/ton) (see User 03)	$	285.00	(source: ACT_Enviro_Disposal_QuoteNM COPPER CORP 11-27-18.pdf)
Transportation unit cost ($/miles) (see User 03)	$	2.65	(source: ACT_Enviro_Disposal_QuoteNM COPPER CORP 11-27-18.pdf)
EPA Manifest Fee (per trip)	$	15.00	

# tons		130
disposal cost	**$**	**37,050**

# trips (min. 9 tons, at max 20 CY --> 20 CY*1.3 tons/CY=26 tons)		5
miles		120
Transporation cost (transportation rate times distance times # trip	**$**	**1,590**

EPA Manifest Fee subtotal (fee times number trips)	**$**	**75**

Hazardous solid waste total:	**$**	**38,715**	**<--Other User item # 21 cost category Waste Disposal**

Closure Cost Estimate
User 27 Wells P&A & Maint

Well Plugging and Abandonment

Copper Flat Monitoring Wells Anticipated for Plugging and Abandonment
Based on MW Plan
Revised 19 Nov 2018

Costs per JSAI

mob to site	$3,000	per campaign
Labor	$4,500	ea, factor >6" d using 6/10ths rule
Grout Pump	$1,000	ea, factor >6" d using 6/10ths rule
Grout Supply	$40	per cu ft total casing volume + 10%
Excess Grout Factor	10%	

										plan year	1	4	7	13	19	30	114 (100)
										closure year (1 = 1st year after EOM)							
Wells to Plug/Abandon	**Year Closed**	**casing dia (in)**	**total depth (ft bgl**	**Reason to Close**	**cu ft**	**Grout**	**Labor**	**Equip**	**w/o Mob Tot**		**-13**	**-10**	**-7**	**-1**	**5**	**16**	**100 (87)**
GWQ-10	1	3	125	TSF expansion	7	$280	$4,500	$1,000	$5,780		x						
NP-1	1	2	110	TSF expansion	3	$120	$4,500	$1,000	$5,620		x						
NP-2	1	2	110	TSF expansion	3	$120	$4,500	$1,000	$5,620		x						
NP-3	1	2	90	TSF expansion	3	$120	$4,500	$1,000	$5,620		x						
NP-4	1	2	100	TSF expansion	3	$120	$4,500	$1,000	$5,620		x						
NP-5	1	2	90	TSF expansion	3	$120	$4,500	$1,000	$5,620		x						
GWQ94-13	1	5	106	TSF expansion	16	$640	$4,500	$1,000	$6,140		x						
GWQ94-14	3	5	159	TSF expansion	24	$960	$4,500	$1,000	$6,460		x						
GWQ94-15	3	4	142	TSF expansion	14	$560	$4,500	$1,000	$6,060		x						
GWQ94-16	1	5	46	TSF expansion	7	$280	$4,500	$1,000	$5,780		x						
GWQ94-17	1	4	150	TSF expansion	15	$600	$4,500	$1,000	$6,100		x						
GWQ94-18	1	4	51	TSF expansion	5	$200	$4,500	$1,000	$5,700		x						
GWQ94-19	1	4	53	TSF expansion	6	$240	$4,500	$1,000	$5,740		x						
GWQ94-20	1	4	338	TSF expansion	33	$1,320	$4,500	$1,000	$6,820		x						
GWQ94-21A	3	2	263	TSF expansion	7	$280	$4,500	$1,000	$5,780		x						
GWQ94-21B	3	2	315	TSF expansion	8	$320	$4,500	$1,000	$5,820		x						
GWQ96-22A	1	2	244	redundant	6	$240	$4,500	$1,000	$5,740		x						
GWQ96-22B	17	2	380	anticipate not needed	10	$400	$4,500	$1,000	$5,900						x		
GWQ11-26	12	4	43	eventually dry	5	$200	$4,500	$1,000	$5,700					x			
GWQ11-24A	6	2	90	eventually dry	3	$120	$4,500	$1,000	$5,620				x				
GWQ11-24B	7	2	250	eventually dry	6	$240	$4,500	$1,000	$5,740				x				
GWQ-1	4	14	391	redundant	460	$18,400	$7,482	$1,663	$27,544			x					
GWQ-8	10	8	148	redundant	57	$2,280	$5,348	$1,188	$8,816					x			
PGWQ-16	19	4	180	anticipate not needed	18	$720	$4,500	$1,000	$6,220						x		
PGWQ-19	19	4	75	anticipate not needed	8	$320	$4,500	$1,000	$5,820						x		
GWQ-5R	13	4	120	eventually dry	12	$480	$4,500	$1,000	$5,980					x			
PGWQ-9	30	4	100	anticipate not needed	10	$400	$4,500	$1,000	$5,900							x	
PGWQ-3	30	4	150	anticipate not needed	15	$600	$4,500	$1,000	$6,100							x	
PGWQ-20	19	4	30	anticipate not needed	3	$120	$4,500	$1,000	$5,620						x		
PGWQ-6	19	4	55	anticipate not needed	6	$240	$4,500	$1,000	$5,740						x		
GWQ-11	1	3	70	TSF expansion	4	$160	$4,500	$1,000	$5,660		x						
IW-1	1	4	49	TSF expansion	5	$200	$4,500	$1,000	$5,700		x						
IW-2	1	4	46	TSF expansion	5	$200	$4,500	$1,000	$5,700		x						
IW-3	1	4	45	TSF expansion	5	$200	$4,500	$1,000	$5,700		x						
MW-9	40	4	252.5	End of 100 year monitoring	25	$1,000	$4,500	$1,000	$6,500								x
MW-10	40	4	128	End of 100 year monitoring	13	$520	$4,500	$1,000	$6,020								x
MW-11	40	4	65	End of 100 year monitoring	7	$280	$4,500	$1,000	$5,780								x
BOR_MW-1	40	2	33	End of 100 year monitoring	1	$40	$4,500	$1,000	$5,540								x
BOR_MW-2	40	2	29	End of 100 year monitoring	1	$40	$4,500	$1,000	$5,540								x
BOR_MW-3	40	2	25	End of 100 year monitoring	1	$40	$4,500	$1,000	$5,540								x
BOR_MW-4	40	2	29	End of 100 year monitoring	1	$40	$4,500	$1,000	$5,540								x
						$33,760	$188,329	$41,851	$263,940								

monitor wells closed	21	1	2	3	5	2	7	sum
closure	$122,780	$27,544	$11,360	$20,496	$29,300	$12,000	$40,460	$263,940
mob	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$21,000
Total w/ mob	$125,780	$30,544	$14,360	$23,496	$32,300	$15,000	$43,460	$284,940

Source: "Monitor Well Close Schedule.xlsx" per e-mail from Jeff Smith, December 10, 2018

Year 1	$125,780	**<--Other User - item # 24 cost category Wells**
Year 4	$30,544	**<--Other User - item # 25 cost category Wells**
Year 7	$14,360	**<--Other User - item # 26 cost category Wells**
Year 13	$23,496	**<--Other User - item # 27 cost category Wells**
Year 19	$32,300	**<--Other User - item # 28 cost category Wells**
Year 30	$15,000	**<--Other User - item # 29 cost category Wells**
Year 114 (100)*	$43,460	**<--Other User - item # 30 cost category Wells**

** Total number of years SRCE schedules are 100; therefore, costs have been truncated at Year 100.*

Closure Cost Estimate
User 27 Wells P&A & Maint

Well repair costs

	Closure year			
	15	50	80	sum
Monitor Well Repairs	$8,000	$8,000	$8,000	$24,000

Basis = JSAI estimate
Includes mob/demob, workover rig, labor, materials
Source: Jeff Smith e-mail December 10, 2018

Closure Year 15	8000	**<--Other User - item # 31 cost category Wells**
Closure Year 50	8000	**<--Other User - item # 32 cost category Wells**
Closure Year 80	8000	**<--Other User - item # 33 cost category Wells**

Closure Cost Estimate
User 28 L, E, M subtotals

Sheet	Activity	Labor subtotal
Waste Rock Dumps	Regrading	$ 47,819
	Growth Media Placement	$ 323,527
	Ripping/Scarifying	$ 8,285
	Revegetation	$ 83,412
Tailings	Surface Regrading	$ 26,635
	Growth Media Placement	$ 450,169
	Ripping/Scarifying	$ 11,500
	Revegetation	$ 236,078
Quarries & Borrow Pits	Growth Media Placement	$ 31,766
	Ripping/Scarifying	$ 1,947
	Revegetation	$ 39,030
	Berm Construction	$ 883
	Berm Revegetation	$ 10,786
Roads	Growth Media Placement	$ 3,493
	Ripping/Scarifying	$ 312
	Revegetation	$ 7,050
Process Ponds	Liner Cutting and Folding	$ 15,091
	Backfill/Cover 1 Placement	$ 27,943
	Backfill/Cover 2 Placement	$ 27,943
	Revegetation	$ 20,775
	E-Cell/ET-Cell Liner	$ 451,816
	E-Cell/ET-Cell Piping	$ 48,476
Yards	Regrading	$ 13,815
	Growth Media Placement	$ 22,269
	Ripping/Scarifying	$ 2,649
	Revegetation	$ 54,137
Haul Material	Haul Material	$ 19,099
Buildings and Foundations	Building Demolition	$ 728,815
	Wall Demolition	$ 10,164
	Slab Demolition	$ 3,852
	Cover Placement	$ 1,696
Diversion Ditches	Backfilling/Regrading	$ 27,443
	Rip-Rap Installation	$ 3,140,272
	Revegetation	$ 44,005
Solution Management	Pumping	$ 1,049,933
	Decontamination	$ 40,771
Waste Management	Solid Waste	$ 248
Other User Costs	Labor subtotal	$ 197,006
Misc. Costs	Fence Removal	$ 32,951
	Fence Installation	$ 22,206
	Culvert & Buried Pipe Removal	$ 1,132
	Surface Pipe Removal	$ 148,320
	Power Line and Substation Removal	$ 38,744
Rip-Rap & Rock Lining	Rip-Rap & Rock Lining	$ 169,638
Monitoring	Reclamation Monitoring	$ 247,546
	Water/Rock Sample Analysis - Labor	$ 988,733
	Water/Rock Sample Analysis - Reporting	$ 797,432
Reclamation Maintenance	Revegetation Maintenance	$ 43,728
	Growth Media Maintenance	$ 194,709
Construction Management	Construction Management	$ 628,024
	Road Maintenance	$ 364,056

Labor subtotal	**$**	**10,908,163**
Total directs	$	53,553,975
Labor as a % of total directs:		**20.4%**

to User 25 Indirects backup^