THEMAC RESOURCES | NEW MEXICO COPPER CORPORATION

August 9, 2018

Mr. David Ennis
Reclamation Specialist/Permit Lead
New Mexico Energy, Minerals and Natural Resources Department
Mining and Minerals Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Financial Assurance Proposal
Copper Flat Mine
New Mexico Copper Corporation
New Mine Permit S10227RN

Dear Mr. Ennis,

Per your letter of July 13, 2018, and as required by 19.10.6.605.F NMAC and 19.10.12.1201.A NMAC, New Mexico Copper Corporation (NMCC) hereby submits its proposal for financial assurance of reclamation and closure of the Copper Flat Mine. As set forth in paragraph 1201.A, this proposal is based on estimates for a third-party contractor to complete the reclamation work. NMCC considers that this proposal is the basis for initiation of discussions with New Mexico Mines and Minerals Division (MMD) and other agencies, i.e., the New Mexico Environment Department (NMED) and the US Bureau of Land Management (BLM), that will ultimately result in the Director's determination of the amount of financial assurance needed to issue the permit. As such, it is understood that there may be questions and clarifications required of NMCC as agency review proceeds in order to reach agreement upon the final cost estimate. We look forward to those discussions.

Calculations of reclamation and closure costs have been prepared by SRK Consultants (SRK) using the Copper Flat reclamation designs and sequence submitted to MMD with the mine permit application package. Calculated costs assume the work is completed by a third-party contractor and other costs outlined in 19.10.12.1205 NMAC. SRK assumptions and calculations are documented in a technical memo, calculation spreadsheet, and appendices, all of which are provided with this letter.

The NMCC cost estimate conforms to requirements of 19.10.12 NMAC, including:

1. Reclamation and closure of the entire Copper Flat Mine Permit Area;
2. Contractor operating, maintenance, and management costs;
3. Equipment types, productivities, operating and maintenance costs expected to be attained by a third party contractor;

EXHIBIT
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4. Pricing for fuel and consumables specific to the Copper Flat region;
5. Demolition and disposal of buildings, unused materials, and debris;
6. Earthwork activities necessary to achieve reclamation and closure designs submitted to MMD while reflecting the existing and future topography, hydrology, geology, and approved post-mining land use;
7. Costs for contract administration; mobilization; demobilization; engineering redesign; profit and overhead; procurement costs; reclamation plan management; and contingencies; and
8. Post reclamation monitoring.

Included in this letter are two summary tables that outline our proposed cost estimate. The electronic medium (thumb drive) provided herewith contains details of the proposal, including the Basis of Estimate memorandum, the Copper Flat SRCE Financial Assurance Model, and documents needed to support model inputs.

The documents provided with this proposal provide full life-of-mine third-party reclamation costs. NMCC proposes that it will consider utilizing the option of providing incremental financial assurance as outlined in 19.10.12.1202.A.2 NMAC, taking into account the mining and reclamation sequence submitted previously with the mine permit application package. NMCC also proposes to consider a net present value calculation as outlined in 19.10.12.1202.C NMAC. If either option is determined by NMCC to be a viable alternative, NMCC will provide details of the calculation(s) to MMD for review and approval.

The form of financial assurance will conform to 19.10.12.1203 NMAC. The specific form will be determined after plan details are established.

The financial assurance plan will be designed to meet financial assurance requirements of MMD, NMED, and BLM and NMCC proposes that the determined financial assurance is held jointly by the three agencies.

Don't hesitate to contact me with questions or for more information.

Sincerely,

J Smith

Jeff Smith, COO
New Mexico Copper Corporation

Attachments:

1. Memo_Copper_Flat_LOM_Basis_of_Estimate_191000_060_FNL_20180801_ft.docxSRK
2. SRK SRCE Model, Copper_Flat_FA_SRCE_191000_060_FNL_20180801_ft.xlsm
3. SRCE Attachments

TABLE 1

Closure Cost Estimate
Property Information

STANDARDIZED RECLAMATION COST ESTIMATOR

Version 2.0
Build - Beta 01

COST DATA FILE INFORMATION

File Name:	Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm		
Cost Data File:	Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm		
Cost Data Date:	July 1, 2018		
Cost Data Basis:	User Data	Data Cost Units:	Imperial
Author/Source:			

PROJECT INFORMATION

Property/Mine Name:	Copper Flat	Property Code:	
Project Name:	Copper Flat Reclamation Bond Cost Estimate 2018		
Date of Submittal:	July 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

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TABLE 2

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	Acct Code	Total Cost
			$
1	Waste Rock Dumps		12,911,961
2	Tailings Storage Facility		17,728,017
3	Draindown Management		4,490,755
4	Buildings		1,911,273
5	Pits		1,937,882
6	Pit Rapid Fill		446,769
7	Roads		30,511
8	Ponds		298,257
9	Yards		1,486,311
10	Wells		134,488
11	Waste Disposal		82,463
12	Miscellaneous Linear Facilities		254,714
13	Monitoring		1,883,745
14	Reclamation Maintenance		686,791
15	Mob/demob		7,592
		TOTALS	44,291,529

	Engineering, Design and Construction Plan	1,771,661
	Contingency	2,657,492
	Contractor OH and Profit	4,429,153
	Contract Administration	2,657,492
	TOTAL COST	55,807,327

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Technical Memorandum

To:	Jeff Smith	**Date:**	August 2, 2018
Company:	New Mexico Copper Corporation	**From:**	Filiz Toprak
Copy to:	Jeff Parshley, SRK	**Reviewed by:**	Patric Lassiter
Subject:	Copper Flat Life-of-Mine Basis of Reclamation and Closure Cost Estimate	**Project #:**	191000.060

1. Introduction and Scope of Report

SRK Consulting (U.S.), Inc. (SRK) has been retained by New Mexico Copper Corporation (NMCC) to compile an estimate of life-of-mine (LOM) reclamation and closure cost estimate for the Copper Flat mine. This report accompanies the LOM reclamation and closure cost estimate spreadsheet prepared in the Standardized Reclamation Cost Estimator (SRCE) Version 2.0 together with supporting attachments.

2. Estimate Methodology

The below subheadings describe the estimate methodology. Section 3 expands on the use of the methodology used to reflect the reclamation and closure actions as costs.

2.1 General

This report describes the methodology in estimating third party costs of reclamation for the purpose of developing financial assurance for the Copper Flat Mine Operation and Reclamation Plan (MORP) (VEMS, 2017).

2.2 Regulatory Basis

This estimate is prepared in accordance with the requirements of NMAC 19.10.12. NMCC is required to file financial assurance for the new operations (NMAC 19.10.12.1201.A). Costs have been estimated for a third-party contractor to complete reclamation work (NMAC 19.10.12.1201.A and NMAC 19.10.12.1205.A).

The scope of the estimate covers the entire permit area (NMAC 19.10.12.1202.A.1) for the LOM plan and includes costs to reclaim and close facilities as well as mobilization and demobilization, contract administration, engineering redesign, profit and overhead, procurement costs, and contingencies. No credit is taken for salvage of any equipment or materials. (NMAC 19.10.12.1205.A)

The estimate is broken into annual increments that match the reclamation sequence and schedule presented in the Copper Flat MORP.

2.3 Cost Estimation Model

2.3.1 Standardized Reclamation Cost Estimator (SRCE)

Closure costs associated with the project were calculated using SRCE Version 2.0. The SRCE is spreadsheet software that was developed to facilitate accuracy, completeness and consistency in the calculation of costs for mine site reclamation. The model is available in the public domain and hosted on the web site: http://www.nvbond.com.

The costing has been carried out through use of the SRCE model for the following reasons:

- SRCE provides a standardized and systematic methodology for mine closure cost estimates. The routines provided in the model cover different operation units and aspects of mining projects.
- SRCE bases its estimates on accepted first principles basis. Facility dimensions are defined by the user. Equipment and personnel productivities for given tasks are established through widely accepted published statistics. In this regard equipment productivities are taken from Caterpillar Performance Handbook (Edition 47) (CAT, 2017). Personnel as well as other relevant productivities are established through the use of RSMeans Heavy Construction Cost Data (Gordian, 2006). For specific tasks such as well plugging, which are not directly available in any publication, realistic values derived from field experiences in Nevada mine closure studies are utilized in the model.
- SRCE is flexible in cost estimation, allowing utilization of local rates and unit costs.

Given SRCE bases estimates on first principles, it can be used and accepted as a means of estimating reclamation costs in a variety of geographies for different project types. SRCE is a platform suitable for use in any geography or jurisdiction.

As mentioned above, equipment and crew productivities obtained from public sources are used; these are used to estimate the time it takes to complete a task. This time is multiplied by equipment and labor rates and/or equipment, labor, and material unit costs with facility dimensions to estimate the cost of completing a task.

The flexibility of SRCE allows the user to adjust productivities where required, based on site experience and performance. SRCE allows the user to build in the adjustments for the estimate to be in compliance with NMAC 19.10.12.1205.A(1) (“reflect the probable difficulty of reclamation or closure, giving consideration to such factors as topography, geology, hydrology, revegetation potential and approved post-mining land use”) and customize it for any purpose including, but not limited to, accommodating third-party costs for a default scenario per NMAC 19.10.12.1205.B (“The amount of the financial assurance shall be sufficient to assure the completion of the reclamation plan or closeout plan if the work has to be performed by the state of New Mexico or a contractor with the state in the event of forfeiture”). See Attachment A for the model file. Attachment B provides the figures in support of the model.

2.3.2 Cost Data File (CDF)

Labor and equipment rates and unit costs for labor, equipment, and materials are compiled in a separate file called the cost data file (CDF) (see Attachment C). This file is then loaded into the SRCE file to populate the necessary cells to estimate costs. The types of costs are described in Section **Error! Reference source not found.**.

2.4 Site Layout and Facilities Inputs

SRCE utilizes lengths, areas, volumes, flow rates, quantities, etc., provided or estimated by the user (based on the reclamation or closure actions). Some actions require crews and fleets with productivities either provided by the SRCE by default or those provided by the user to estimate the time it takes to perform the work. These times are then multiplied by labor and equipment rates provided by the user.

In order to arrive at the result of this estimate, SRK has obtained the documents described below and used current knowledge of reclamation and closure activities and site layout based on the MORP (VEMS, 2017).

2.5 Productivities

SRCE uses several different sources and methods for calculating equipment productivities. The primary source is the CAT Performance Handbook Edition 47, followed by RSMeans Heavy Construction Costs (Gordian, 2006) published by Gordian Group Inc. Well and borehole abandonment, productivity data was compiled for use in SRCE using historical industry field experience.

3. Cost Basis

The labor and equipment rates and material unit costs used in this estimate consist of the following:

- Labor rates
    - Equipment operators
    - Laborers
    - Project management staff
- Equipment rates
- Material unit costs
- Miscellaneous unit costs

The below subheadings describe how these costs were compiled.

3.1 Labor Rates

The cost data file accounts for labor rates of operators' groups and other labor categories. SRK has used Davis Bacon labor rates for New Mexico's Sierra County to the extent possible. The WDOL (2018) website provides these as basic rates and fringes for different labor categories. These are documented in the SRCE file worksheet "User 07" and included in the CDF. See Attachment D for details on the labor rates.

3.1.1 Equipment Operator Rates

In the CDF, there are categories for the following operators:

- Bulldozers

- Wheeled dozers
- Motor graders
- Track excavators
- Scrapers
- Wheeled loaders
- Shovels/excavators
- Other equipment
- Truck drivers

The key equipment operator labor rates (base rate and fringes) in "User 07" as obtained from WDOL (2018) that were utilized include the following:

- Laborer: Common or General
- Operator: Backhoe
- Operator: Grader/Blade
- Operator: Loader (Front End)
- Operator: Scraper
- Truck Driver: Dump Truck
- Truck Driver: Water Truck

For the purposes of this estimate, the following assumptions have been made:

- Bulldozer operator labor rates are equivalent to motor grader operator labor rates.
- Track excavator operator labor rates are equivalent to those of wheeled loader operator labor rates.
- Crane operator labor rates are equivalent to those for wheeled loader operator labor rates.
- Haul truck operator labor rates are equivalent to those for water truck operator labor rates.

Relevant sheet(s)/file(s): CDF "Labor Rates" (Attachment C); Attachment D; SRCE "User 07" and "Labor Rates."

3.1.2 Other Labor Rates

Other labor rates (base rate and fringes) in the CDF that are relevant to this estimate include the following:

- General Laborer
- Skilled Laborer
- Foreman
- Field Geologist/Engineer

- Field Tech/Sampler
- Range Scientist

The rates for general laborer were obtained from WDOL (2018). The labor rate for skilled laborer was not available through the WDOL (2018). Therefore, SRK developed a skilled labor rate for this estimate by utilizing the proportion of a carpenter's labor rate provided in the WDOL (2018) rates and that of a typical carpenter's rate as found in standard cost data files in the mining context (see NDEP, 2017) and applied this proportion to input a rate for a skilled worker in the cost data file.

3.1.3 Labor Indirects

The labor rates described above are the sum of the base rates and fringes. In addition to these, the following indirects apply:

- Unemployment (%)
- Retirement/SS/Medicare (%)
- Workman's Compensation (%)

Retirement/SS/Medicare and workman's compensation were obtained from RSMeans data (R013113-60) (Gordian, 2018). Unemployment was obtained from DWS (2018).

3.2 Equipment Rates

Equipment rates have been compiled from a local equipment rental company (Wagner Equipment Co.) to the extent possible to reflect local market rates. This has been supplemented by Blue Book rates and/or RSMeans rates (Gordian, 2018) where equipment rates could not be obtained quickly. These are documented in Attachment E.

Relevant sheet(s)/file(s): CDF "Equipment Rates" (Attachment C); Attachment E.

3.3 Material Unit Costs

Material unit costs include the following:

- Fuel (Attachment F)
- Power (Attachment G)
- Seed mix (Attachment H)
- Analysis costs (Attachment I)

Fuel cost is for red dyed (Off-Road) diesel delivered to mine as of October 2017 (Attachment F). Power cost is as of November 2017 from the Sierra Electric Cooperative, Inc. (Attachment G).

The seed mix material costs for the seed mix described in the MORP (VEMS, 2017) are an average of costs obtained from two local suppliers (Attachment H).

Laboratory analysis costs were obtained from NMCC and are documented in Attachment I together with the proposed monitoring schedule.

Relevant sheet(s)/file(s): CDF "Reclamation Material Costs" and "Misc. Unit Costs"; SRCE "Material Costs"; Attachments F, G, H, and I.

3.4 Miscellaneous Unit Costs

Miscellaneous unit costs include the following:

- Revegetation labor and equipment unit costs per unit area
- Waste disposal costs
    - solid wastes
    - hazardous wastes
    - hydrocarbon-contaminated soils
- Miscellaneous linear projects:
    - fence installation material unit costs per unit length
    - pipe and drainpipe installation material costs per unit length
    - powerline removal costs per unit length
    - transformer removal costs per unit
- Liner installation material costs

Revegetation labor and equipment unit costs per unit area ($/acre) have been developed by using the set of labor and equipment costs used for the site in the "Labor Rates" and "Equipment Rates" worksheets of the CDF imported into the SRCE (to the extent applicable) based on productivities provided by Kelley Erosion Control (Attachment E). The calculations are documented in SRCE worksheet "User 03" and replicated in the CDF (see CDF worksheet "Misc. Unit Costs" section "Revegetation") and imported into the SRCE (see SRCE worksheet "Misc. Unit Costs" section "Revegetation" and worksheet "Material Costs" section "Revegetation Method").

The remaining activities are miscellaneous unit costs based on RSMeans (Gordian, 2018) (see Attachment J) and documented in SRCE worksheet "User 03":

- Rubbish and Waste Handling, Hazardous Material Handling – Solids, and Hazardous Material Handling
- Fence installation material unit costs per unit length
- Pipe and drainpipe installation material costs per unit length
- Powerline removal costs per unit length
- Liner installation material costs
- Construction management support

Relevant sheet(s)/file(s): CDF "Misc. Unit Costs"; SRCE "Misc. Unit Costs"; Attachment J.

4. SRCE Methodology

The below subheadings describe how costs for the major types of activities are developed. These include, but are not necessarily limited to, regrading, cover placement and backfilling, ripping, revegetation, building demolition, etc. SRCE uses user inputs to estimate quantities (lengths, areas, volumes, etc.) and public-domain data for productivities to estimate time to accomplish a task. All times estimated are multiplied by the equipment hourly operation costs and operator labor rates to obtain total cost to accomplish a task.

4.1 Regrading

Unless the quantities of earth regraded is calculated elsewhere, in the case of waste rock stockpile lifts, the cost of regrading is estimated by considering the original slope grade (typically angle of repose) and the slope to which the lift will have to be regraded for physical stability. Then, using the height and the mid-bench length of the lift, the volume of material moved to reduce the slope is estimated. SRCE uses public-domain productivities of equipment which are then used to estimate the time it takes to accomplish each task.

Relevant SRCE sheet(s): Fleets (Crews).

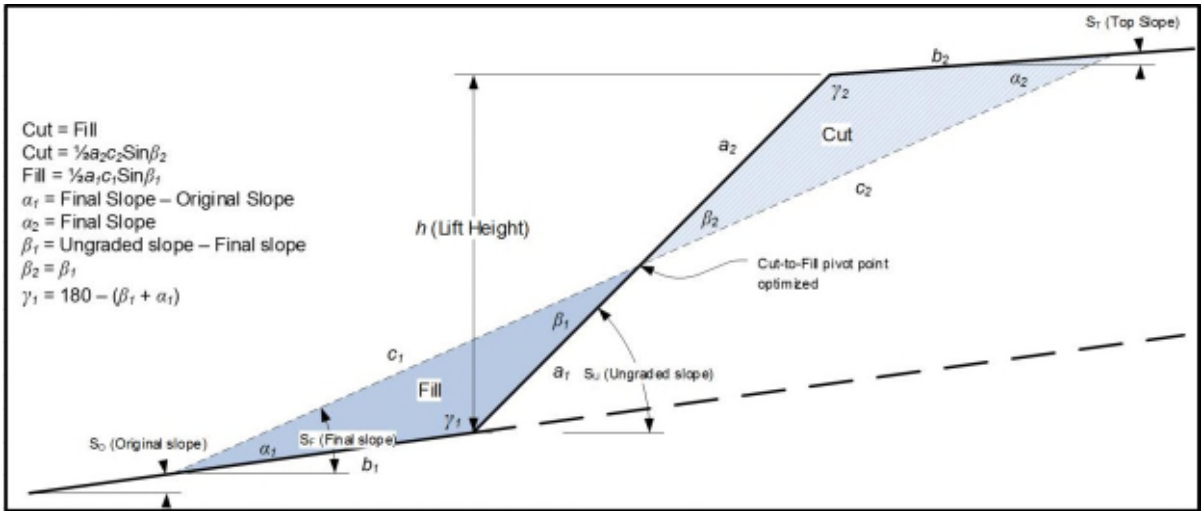

Illustration 1 Slope regrading parameters

4.2 Cover and/or Growth Media Placement

The volume of growth media and/or cover material to be placed is estimated through the input for final regraded area and the thickness of material. Over-rides on fleet components can be made in the "Fleets" and, for example, the "Waste Rock Stockpile" sheets. SRCE estimates the number of trucks required to accomplish a haulage task depending on the distance input with the aim of keeping the loader busy (unless there is a user over-ride for fewer trucks). The loader productivity is the driver in truck fleets and determines the number of hours required to accomplish the task.

Earthworks on tailings storage facilities are treated differently in that the embankment and tailings surface areas are input separately to allow flexibility in designating different reclamation activities for different parts of the facility. For example, there may be an engineered cover on the tailings surface that would not be required on the embankment area. SRCE allows the user to differentiate between the two.

Relevant SRCE sheet(s): Fleets (Crews).

4.3 Revegetation

Revegetation costs are estimated by including seed material and labor and equipment costs per unit area.

Relevant SRCE sheet(s): Reclamation Material Costs; Misc. Unit Costs.

4.4 Demolition

SRCE estimates time to demolish buildings through RSMeans productivities (Gordian, 2006) that focus on building volume, wall area, and slab volume. Fleet hours are estimated and multiplied by crew rates.

SRCE by default also includes two dump trucks to haul the debris for final disposal. This is considered the equivalent time for the trucks to travel 20 miles to final disposal destination while the rest of the demolition crew continues working.

Relevant SRCE sheet(s): Foundations & Buildings; Fleets (Crews).

4.5 Backfill

In the "Process Ponds" module of the SRCE, the primary activities consist of backfilling ponds and placing growth media. In some cases, the same fleets can be assumed used for excavation activities given similar productivities. For other types of backfilling or excavation activities, the user may have to build custom calculations.

Relevant SRCE sheet(s): Process Ponds.

4.6 Excavation

In the "Sediment & Drainage Control" module of the SRCE, the main activities consist of excavating diversion ditches and impacted stormwater impoundment construction or removal. The diversion ditches may also be equipped with liners or riprap.

Relevant SRCE sheet(s): Sediment & Drainage Control.

4.7 Solution Management

Solution management for the project consists of pumping (recirculating) water and active (forced) evaporation. SRCE estimates the cost to pump water from one location to another using Manning's Equation and standard hydraulic formulae which require the user to input pipeline diameter and material type, static head between locations, flow rate, etc., to estimate the energy required to accomplish the task. This quantity of energy is then multiplied by the electricity price for the site to estimate costs.

Solution management for this project also includes the cost of flushing buildings, which consists of rinsing the plant site.

Relevant SRCE sheet(s): Solution Mgmt.

5. Reclamation and Closure Actions by Facility

5.1 Waste Rock Stockpiles

Waste rock stockpiles on site consist of existing waste rock stockpiles and waste rock stockpiles that are proposed by NMCC. Attachment B provide the waste rock stockpile inputs required for estimating costs to reclaim the waste rock stockpiles. (Golder, 2017a)

5.1.1 Existing Waste Rock Stockpiles

Existing waste rock stockpiles consist of EWRSP-1, EWRSP-2A, EWRSP-2B, EWRSP-3, and EWRSP-4. Reclamation of the existing waste rock stockpiles will consist of regrading all slopes steeper

than 2.75H:1V, placement of suitable cover material where unsuitable growth media exists, and revegetation.

The north half of the EWRSP-2A will be hauled to EWRSP-2B to be reclaimed during the pre-production phase of mine development and the remainder will be incorporated into waste material deposited at the proposed WRSP-1 during operations, and reclaimed per the Reclamation Plan (VEMS 2017).

EWRSP-3 will be reclaimed as part of the Plant Area.

EWRSP-4 will be partially reclaimed during the pre-production phase. Slopes that drain to the Grayback Arroyo will be graded and covered per the reclamation plan. The top of the stockpile will be graded and used as a laydown yard during operations and reclaimed at the end of operations.

The reclamation strategy at the Copper Flat mine includes providing a minimum 18-in. root zone for revegetation using a combination of ripping and/or placement of growth media materials as described in the reclamation plan. For the waste rock stockpiles, this will be accomplished by placing growth media at 36-in. thickness and seeding.

Relevant SRCE sheet(s): Waste Rock Dumps; Haul Materials; Yards.

5.1.2 Proposed Waste Rock Stockpiles

Proposed waste rock stockpiles include WRSP-1, WRSP-2, and WRSP-3. Reclamation of WRSP-1 will include reclamation of EWRSP-2A located along northern perimeter of WRSP-1 will get consumed by this stockpile and reclaimed as part of WRSP-1.

Reclamation of the proposed waste rock stockpiles will consist of regrading all slopes steeper than 2.75H:1V, placement of 36 inches of cover material , and revegetation.

Relevant SRCE sheet(s): Waste Rock Dumps.

5.1.3 Slope Armoring

Slope armoring will be placed around specified parts of the facilities for long-term stability. These areas will be first prepared for placement of armoring, and then the locally-sourced riprap material will be placed.

Relevant SRCE sheet(s): Yards; Misc. Costs\Rip-Rap & Rock Lining

5.2 Pit

5.2.1 Pit Perimeter Berm

An earthen berm will be constructed around the perimeter of the open pit to limit public access and ensure that the pit area does not pose a current or future hazard to public health or safety. The berm will be constructed from local rock and soils and will be 15 to 20-foot wide at the base and 5- to 6-feet high with side slopes angled at 1.5H:1V. Disturbed areas around the pit perimeter will be seeded for revegetation.

Furthermore, a barbed wire fence will be installed around the outside perimeter of the pit safety berm to exclude livestock and other large mammals. Signs will be posted at 500-ft intervals along the security fence/earthen berm and at all access points. Costs to replace this fence over the course of the long-term monitoring period are also included.

Relevant SRCE sheet(s): Quarries & Borrow Pits; Yards; Misc. Costs; Other User; User 03.

5.2.2 Pit Rapid Fill

The open pit will remain a hydrologic sink capturing groundwater flowing from all directions during post-closure. NMCC will conduct rapid filling of the mine pit with fresh water provided from the off-site well field as the initial step in commencing reclamation/closure until it reaches an average steady-state condition.

The inputs for rapid filling consist of monthly rapid fill rates for six months. Pipeline length and the static head required to pump the water were estimated based on the topography of the site.

Relevant SRCE sheet(s): Solution Mgmt; User 08.

5.2.3 In-pit Reclamation

A water conveyance channel will be constructed along the existing pit haul road to direct surface water flows to the pit lake. Growth media at 18-in. thickness will be placed on the haul road and benches identified in the reclamation plan to provide a sufficient root zone for vegetation. The narrow catch benches left in pit walls and other areas that cannot be safely accessed will be allowed to revegetate themselves through natural processes. See Attachment K for details on in-pit reclamation. The crest slopes identified for reclamation will be dozed during excavation of the pit. Therefore, costs for this activity are not included here. There will be no additional dozing or reshaping activities during the reclamation and closure period.

Relevant SRCE sheet(s): Quarries & Borrow Pits.

5.3 Tailings Storage Facility

5.3.1 Embankment Reclamation

The TSF embankment will be allowed approximately 2 to 3 years to drain sufficiently to begin reclamation. It is also anticipated that some reclamation of the impoundment can begin within 5 years of cessation of operations as the impoundment continues to drain and dry, allowing covering of the embankment outslopes of the TSF with 36 inches of growth media and seeding. The TSF will be covered by placing growth media at 36-in. thickness and seeding.

Owing to the centerline construction method of the TSF, concurrent construction of diversion channels is not possible. Diversion channels on the TSF embankment will be built after the end of operations.

The underdrain systems will continue to operate after cessation of operations for the “active” underdrain water management program (discussed in Section 5.3.3). Utilization of active evaporation will allow the cover to begin to be placed on those areas of the top of the impoundment that become sufficiently “dry” to accept machinery. The goal of the active phase of evaporation is to dry the top of the impoundment as soon as possible to allow as much of the cover to be placed as possible, and eventually placing all of the cover on the impoundment.

Relevant SRCE sheet(s): Tailings; Sediment & Drainage Control.

5.3.2 Tailings Surface Reclamation

The tailings surface will be reclaimed as it dries (estimated to last up to five years). The top surface will be graded to a final grade of between 1 and 5% to direct storm water to the back side of the TSF.

Growth media will be placed at 36 inches thickness, sufficient to provide a root zone for revegetation. Diversion channels on the TSF surface will be built after the surface has dried sufficiently.

Relevant SRCE sheet(s): Tailings; Sediment & Drainage Control.

5.3.3 Draindown Management

The underdrain systems will continue to operate after cessation of mining and processing as drain-down of the TSF will continue to produce water for a number of years thereafter. This estimate assumes that draindown will continue for a total of 25 years, 5 years of active water management and 20 years of passive water management. The actual amount of time required to so is a function of porosity of tailings materials in the long-term and the volume of water remaining in the TSF. An “active” evaporative water management program (short-term AEWMS) will be implemented at the end of operations, followed by “passive” evaporative water management system (PEWMS). During active water management water captured in the TSF underdrain collection pond will be pumped back to the impoundment surface of the TSF where it would be force-evaporated through evaporators. Crews are assumed shared between the operation of the recirculation pumping and the forced evaporation for this phase. Evaporator costs are provided in Attachment E.

Upon completion of placement of the cover on the impoundment, active evaporation through the TSF evaporation pond will no longer be necessary and the passive evaporation water management will begin. The impoundment will continue to drain at an ever-decreasing rate, requiring that it continue to be collected for passive evaporation and not pumped to the tailings surface cover.

Prior to the start of the PEWMS, a new HDPE-lined evaporation pond will be constructed to provide sufficient surface area to passively evaporate the residual drain down waters from the TSF. For planning purposes, this estimate assumed that the passive evaporation phase will last 20 years after cessation of operations. (Golder, 2017b).

Relevant SRCE sheet(s): Solution Mgmt; User 02.

5.3.4 Slope Armoring

Slope armoring will be placed between the TSF and the reclaimed GMSP-1 footprint. This area will be first prepared for placement of armoring, and then the locally-sourced riprap material will be placed.

Relevant SRCE sheet(s): Yards; Misc. Costs\Rip-Rap & Rock Lining

5.4 Impoundments and Ponds

5.4.1 Impoundments

Impoundments built around the waste rock stockpiles and the tailings storage facility will have their HDPE liners be ripped, folded over and buried in place and backfilled with clean fill, surfaces graded to drain and blend into the natural topography. The surface area around the impoundments will be ripped and covered with 6-inches of suitable cover material where unsuitable growth media exists after grading. The productivity of the liner cutting crew is based on past experience of NMCC staff.

Relevant SRCE sheet(s): Process Ponds; User 06.

5.4.2 Expanded Underdrain Collection/Evaporation Pond Reclamation

The underdrain collection pond will be expanded during the transition from AEWMS to PEWMS to construct the the evaporation pond. This will consist of excavating the area around the existing collection pond and lining the excavated area. At reclamation, the liner will be ripped, folded over and buried in place with backfill. The surface will be regraded and covered with 6 inches of suitable cover material.

Relevant SRCE sheet(s): Process Ponds.

5.4.3 Pipeline Ditches Liner Removal

The tailings pipeline conveyance ditch will be lined during operations. At closure, the liner will be cut and the ditch backfilled after pipelines are removed.

Relevant SRCE sheet(s): Process Ponds.

5.5 Foundations and Buildings

5.5.1 Buildings

All fuel tanks, reagent storage facilities, and equipment will be removed from the site and disposed of in an approved manner according to applicable federal and state laws; concrete foundations will be broken, walls toppled, backfilled, and covered with 36" of growth media; remaining disturbed areas will be graded, ripped, and covered with 6" of growth media.

Relevant SRCE sheet(s): Foundations & Buildings.

5.5.2 Tanks

This estimate includes costs to cut steel tanks prior to demolition. The costs are calculated using the productivity and crew designation provided in RSMeans (Gordian, 2018) for steel cutting, using the labor and equipment rates input into the cost data file (to the extent applicable). Costs for the demolition of the tanks and hauling of debris are included in the Foundations & Buildings sheet.

Relevant SRCE sheet(s): User 03 Tank cutting; Foundations & Buildings.

5.5.3 Decommissioning

Residual sediments and fluids will be flushed from the pipelines and placed in the TSF prior to reclamation of this facility, or at an approved location. Above-ground pipelines will be disposed of in the TSF prior to reclamation of this facility, or at a nearby approved construction and debris landfill. Buried pipelines will be capped at both ends. Disturbed surfaces will be graded, and covered with 6-inches of suitable cover material where unsuitable growth media exists.

Relevant SRCE sheet(s): Solution Mgmt.

5.6 Roads

Roads not needed for closure and post-closure access will be reclaimed by ripping and revegetating the surfaces. Roads will be ripped and covered with 6-inches of suitable cover material where unsuitable growth media exists. Culverts will be removed if they are not needed for post-closure storm water management and disposed of in an approved manner. Closure and post-closure roads will be reduced to a width suitable for single vehicle access. Existing roads utilized for closure and post-

closure access that are wider than that required for single vehicle access will be narrowed during reclamation by ripping, grading and covering with 6-inches of suitable cover material where unsuitable growth media exists.

This cost estimate includes costs for reclaiming 5 miles of roads across the site.

Relevant SRCE sheet(s): Roads.

5.7 Yards

Surfaces aside from the major facilities such as the waste rock stockpiles, TSF, ponds, pit, roads, and buildings will be graded, ripped, and covered with 6 inches of suitable cover material where unsuitable growth media exists.

5.7.1 Plant Area Pipeline Corridors

Residual sediments and fluids will be flushed from the process pipelines and placed in the TSF prior to reclamation of this facility, or at an approved location. Above-ground pipelines will be placed in the TSF prior to reclamation of this facility (in compliance with applicable federal and state laws), or at a nearby approved construction and debris landfill. Buried pipelines will be capped at both ends. Disturbed surfaces will be graded, and covered with 6-inches of suitable cover material where unsuitable growth media exists. (Golder, 2017a) These areas are accounted for under “Plant area” or “Cyclone station pad.”

Relevant SRCE sheet(s): Yards.

5.7.2 Cyclone Plant Area

All structures and equipment at the cyclone plant will be removed from the site and disposed of in an approved manner according to applicable federal and state laws; concrete foundations will be broken and covered with 36" of growth media; remaining disturbed areas will be graded, ripped, and covered with 6" of growth media.

Relevant SRCE sheet(s): Yards.

5.7.3 Land Bridges

The two land bridges around the plant area will be excavated out. The culverts will be removed. The disturbance will be reclaimed to allow the Grayback Arroyo to flow freely after reclamation. The costs to remove these land bridges assumes excavators operating one to two passes, depending on the thickness of fill of the section. The excavator will be accompanied full-time by a dozer to spread the material around the plant site.

Relevant SRCE sheet(s): Yards; Other User; User 12; Misc. Costs.

5.7.4 Disturbance Around the Pit

It is assumed there will be an approximate 100-foot-wide disturbance area around the pit that will be ripped and revegetated. The 100-foot width is a generalized approximate average width of disturbance around the pit perimeter that occurs during mining operations. The actual width of disturbance will vary by location. In some areas there may be little or no disturbance.

Relevant SRCE sheet(s): Yards; Quarries and Borrow Areas.

5.7.1 Growth Media Stockpiles

Growth media stockpiles consist of GMSP-1, GMSP-2, and GMSP-3. The footprint areas of the growth media stockpiles will be graded to drain and recontoured to blend into the natural topography. It is anticipated that the only area that may require cover is GMSP-3 which is underlain by andesitic bedrock. The other two stockpile areas are underlain by alluvial materials (suitable growth media).

Relevant SRCE sheet(s): Yards.

5.7.2 Tailings Pipeline Corridor

The approximate 1,000-foot long tailings pipeline corridor that facilitates the tailings pipeline will be partially backfilled to allow for the construction of conveyance channel DCS-5 that will direct stormwater flows from the covered top surface and the northwest slopes of the TSF to Grayback Arroyo. The pipeline corridor will be backfilled with clean fill in lifts, and each lift will be compacted. The remaining exposed slopes of the pipeline corridor will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media. These areas are accounted for under “Plant area” or “Cyclone station pad.”

5.8 Conveyance Channels

Surface water conveyance channels will be constructed on and around the waste rock stockpiles, TSF, yards, and around the north, east, and south perimeter of the pit (immediately upstream of the perimeter berm/security fence) and along the existing haul road to direct surface water around and into the pit. Riprap material for these channels will be sourced on-site from areas including but not limited to the pit or the footprint area of WRD-3 following characterization for rock of sufficient quality. The riprap type selected is “Rip-Rap 450 mm min thick, no grout” and has “0” costs in the CDF because it will be sourced on the site. The average cost of hauling these from the source across the site to various facilities is included in the “Haul Material” sheet. Some of the channels are expected to have high flow velocity. For these sections, instead of riprap, articulated concrete blocks will be used. The costs for these are included in “Other User” and unit costs were obtained from a supplier.

Relevant SRCE sheet(s): Sediment & Drainage Control; Misc. Unit Costs; Other User; Haul Material.

5.9 Slope Armoring

Slope armoring will be necessary on slopes around certain facilities. The costs are calculated through the “Yards” and “Misc. Costs” worksheets as discussed in Sections 5.1.3 and 5.3.4.

5.10 Energy Dissipaters

Energy dissipaters will be constructed at channel outlets to reduce erosive velocities where necessary. The dimensions have been assumed to be such that the length of the basin would be twice the width of the channel and the width of the dissipater would be 1.5 times the width of the channel. The depth of the dissipater would be 1.5 times the depth of the channel.

Relevant SRCE sheet(s): Sediment & Drainage Control.

5.11 Waste Disposal

The estimate includes an allowance for disposal of waste including solid wastes, hazardous wastes, and hydrocarbon-contaminated soils. The quantities of solid and hazardous wastes were assumed

based on project size and experience with similar operations. The hydrocarbon-contaminated soil quantities are estimated based on the size of buildings (such as the mine shop).

Relevant SRCE sheet(s): Waste Disposal.

5.12 Miscellaneous Costs

5.12.1 Powerlines

On-site overhead lines and power poles (owned by Sierra Electric Cooperative, Inc.) will be disconnected from the 115kV line owned by Tri- State Generation and Transmission. The electrical substation and associated on-site transmission lines will be closed and removed once they are no longer needed. Power cables will be removed from the site and recycled and power poles will be disposed onsite in a permitted landfill or recycled offsite. Disturbed surfaces along corridor will be graded, ripped, and covered with 6-inches of suitable cover material where unsuitable growth media exists (included in various disturbances in the “Yards” sheet). This cost estimate includes costs to remove the on-site powerline and a transformer.

Relevant SRCE sheet(s): Misc. Costs.

5.13 Monitoring

A monitoring schedule for the closure and post-closure periods has been developed based on assumptions made with current operations-period monitoring requirements. The actual closure and post-closure monitoring schedule will be finalized in the years preceding closure based on monitoring results. The assumed schedule and costs are based on Attachment I.

Relevant SRCE sheet(s): Monitoring.

5.14 Well Abandonment

Production wells will be left once mine operations cease. The monitoring wells to be used during closure and post-closure will remain until end of the monitoring period and plugged and abandoned per regulatory requirements. The schedule of well abandonment is based on the schedule provided in Attachment I.

Relevant SRCE sheet(s): Well Abandonment.

5.15 Mobilization

This cost estimate includes mobilization and demobilization costs for equipment that will be required for reclamation activities.

Relevant SRCE sheet(s): Mobilization.

6. Results

The total direct costs for the project are $44M. With 26% indirect costs, the grand total cost for the Copper Flat LOM project is $56M. The costs are provided in current US dollars (no discounting) and do not take credit for any salvage of equipment or materials.

7. References

CAT (2017). CAT Performance Handbook Edition 47. Peoria, Illinois, U.S.A, January 2017.

DWS (2018) How UI Tax Rates Are Calculated. New Mexico Department of Workforce Solutions. https://www.dws.state.nm.us/Business/Unemployment-Insurance/Unemployment-Insurance-Tax-Information/How-UI-Tax-Rates-Are-Calculated. Last accessed: July 20, 2018.

Golder (2017a). Appendix E Mine Reclamation and Closure Plan Copper Flat Mine. 1 July 17, 2017.

Golder (2017b). Attachment E2 TSF Post-Operations Water Management Plan

Gordian (2006). RSMeans Heavy Construction Costs 2006. Gordian Group Inc.

Gordian (2018). RSMeans Heavy Construction Costs 2018. Gordian Group Inc.

NDEP (2017). Nevada Cost Data File for 2017. Nevada Division of Environmental Protection, August 1, 2017. https://ndep.nv.gov/uploads/documents/SRCE_Cost_Data_File_1_12_Std_2017.xlsm. Last accessed: August 1, 2017.

NVbond.org (2018). Standardized Reclamation Cost Estimator, Public Domain Version, Version 2.0 https://nvbond.org/srce_downloads/#SRCE_2.0_Beta01.zip. Last accessed: July 1, 2018.

VEMS (2017). (NEW MEXICO COPPER CORPORATION NEW MINE PERMIT No. SI027RN UPDATED MINING OPERATION AND RECLAMATION PLAN FOR ITS COPPER FLAT MINE SUBMITTED TO NEW MEXICO MINING & MINERALS DIVISION PURSUANT TO 19.10.6.602.D.(15) and 19.10.6.603 NMAC OCTOBER 2016 REVISION 1 JULY 2017 Velasquez Environmental Management Services Inc.

WDOL (2018). HEAVY CONSTRUCTION PROJECTS Davis Bacon Rates for the State of New Mexico, Counties De Baca, Eddy, Grant, Hidalgo, Lea, Lincoln, Luna, Roosevelt, Sierra and Socorro Counties in New Mexico. Wage Determinations Online. https://www.wdol.gov/wdol/scafiles/davisbacon/NM12.dvb?v=1. Last accessed: April 12, 2018.

Attachment A: SRCE File

Attachment B: Figures

Attachment C: Cost Data File

Attachment D: Labor Rates

Attachment E: Equipment Rates

Attachment F:Fuel Costs

Attachment G: Power Cost

Attachment H: Seed Cost

Attachment I: Analysis Costs

Attachment J: RSMeans

Attachment K: In-pit Reclamation

STANDARDIZED RECLAMATION COST ESTIMATOR

Version 2.0
Build - Beta 01

COST DATA FILE INFORMATION

File Name:	Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Cost Data File:	Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Data Date:	July 1, 2018
Cost Data Basis:	User Data
Data Cost Units:	Imperial
Author/Source:	

PROJECT INFORMATION

Property/Mine Name:	Copper Flat
Property Code:	
Project Name:	Copper Flat Reclamation Bond Cost Estimate 2018
Date of Submittal:	July 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

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Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

	Facility/Activity Type	Acct Code	Total Cost	FA Cost	Scheduled FA Cost
			$		$
1	Waste Rock Dumps		12,911,961	12,911,961	12,911,961
2	Tailings Storage Facility		17,728,017	17,728,017	17,728,017
3	Draindown Management		4,490,755	4,490,755	4,490,755
4	Buildings		1,911,273	1,911,273	1,911,273
5	Pits		1,937,882	1,937,882	1,937,882
6	Pit Rapid Fill		446,769	446,769	446,769
7	Roads		30,511	30,511	30,511
8	Ponds		298,257	298,257	298,257
9	Yards		1,486,311	1,486,311	1,486,311
10	Wells		134,488	134,488	134,488
11	Waste Disposal		82,463	82,463	82,463
12	Miscellaneous Linear Facilities		254,714	254,714	254,714
13	Monitoring		1,883,745	1,883,745	1,883,745
14	Reclamation Maintenance		686,791	686,791	686,791
15	Mob/demob		7,592	7,592	7,592
		TOTALS	**44,291,529**	**44,291,529**	**44,291,529**

Engineering, Design and Construction Plan		**1,771,661**	**1,771,661**	**1,771,661**
Contingency		**2,657,492**	**2,657,492**	**2,657,492**
Contractor OH and Profit		**4,429,153**	**4,429,153**	**4,429,153**
Contract Administration		**2,657,492**	**2,657,492**	**2,657,492**
	TOTAL COST	**55,807,327**	**55,807,327**	**55,807,327**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Esti
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2(
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
Cost Estimate Type: FA Cost Basis: Copper Flat FA

		1	2	3	4	5	6	7	8	9	10	11	12	13
		-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1
	Facility/Activity Type	1	2	3	4	5	6	7	8	9	10	11	12	13
		$	$	$	$	$	$	$	$	$	$	$	$	$
1	Waste Rock Dumps	0	1,760,368	0	0	0	0	0	0	0	49,248	49,248	49,248	88,745
2	Tailings Storage Facility	0	58,313	0	0	0	0	0	0	0	0	0	0	0
3	Draindown Management	0	0	0	0	0	0	0	0	0	0	0	0	936,942
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	0	446,769
7	Roads	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Ponds	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Yards	178,785	19,893	0	0	0	0	0	0	0	0	0	0	0
10	Wells	0	0	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	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	0	0	0	0	0	0	0	0	0	0	0	0
		178,785	**1,838,574**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**49,248**	**49,248**	**49,248**	**1,472,456**
	Engineering, Design and Construction Plan	**7,151**	**73,543**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,970**	**1,970**	**1,970**	**58,898**
	Contingency	**10,727**	**110,314**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,955**	**2,955**	**2,955**	**88,347**
	Contractor OH and Profit	**17,879**	**183,857**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,925**	**4,925**	**4,925**	**147,246**
	Contract Administration	**10,727**	**110,314**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,955**	**2,955**	**2,955**	**88,347**
		225,269	**2,316,602**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**62,053**	**62,053**	**62,053**	**1,855,294**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Esti
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2(
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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	Waste Rock Dumps	98,762	3,302,865	6,751,190	13,123	0	749,165	0	0	0	0	0	0
2	Tailings Storage Facility	496,410	0	0	6,422,936	2,477,223	5,491,320	2,781,815	0	0	0	0	0
3	Draindown Management	418,802	423,058	403,418	398,798	1,777,557	0	0	0	0	0	0	0
4	Buildings	0	1,845,856	0	0	0	0	0	0	0	0	0	0
5	Pits	634,823	619,602	0	0	0	665,137	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	15,256	15,256	0	0	0	0	0	0	0	0	0
8	Ponds	0	149,129	149,129	0	0	0	0	0	0	0	0	0
9	Yards	0	401,490	886,144	0	0	0	0	0	0	0	0	0
10	Wells	0	71,050	0	0	2,538	0	5,075	0	0	0	0	0
11	Waste Disposal	0	82,463	0	0	0	0	0	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	255,759	239,892	223,559	208,959	75,409	71,691	71,691	71,691	42,209	42,209	42,209	42,209
14	Reclamation Maintenance	0	0	0	0	0	0	686,791	0	0	0	0	0
15	Mob/demob	0	3,796	0	0	0	3,796	0	0	0	0	0	0
		1,904,557	**7,341,176**	**8,428,695**	**7,043,816**	**4,332,727**	**6,981,109**	**3,613,366**	**71,691**	**42,209**	**42,209**	**42,209**	**42,209**
	Engineering, Design and Construction Plan	**76,182**	**293,647**	**337,148**	**281,753**	**173,309**	**279,244**	**144,535**	**2,868**	**1,688**	**1,688**	**1,688**	**1,688**
	Contingency	**114,273**	**440,471**	**505,722**	**422,629**	**259,964**	**418,867**	**216,802**	**4,301**	**2,533**	**2,533**	**2,533**	**2,533**
	Contractor OH and Profit	**190,456**	**734,118**	**842,870**	**704,382**	**433,273**	**698,111**	**361,337**	**7,169**	**4,221**	**4,221**	**4,221**	**4,221**
	Contract Administration	**114,273**	**440,471**	**505,722**	**422,629**	**259,964**	**418,867**	**216,802**	**4,301**	**2,533**	**2,533**	**2,533**	**2,533**
		2,399,741	**9,249,883**	**10,620,157**	**8,875,209**	**5,459,237**	**8,796,198**	**4,552,842**	**90,330**	**53,184**	**53,184**	**53,184**	**53,184**

Closure Cost Estimate
Acct Codes

Project Name: Copper Flat Reclamation Bond Cost Esti
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2(
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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	Waste Rock Dumps	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	Draindown Management	0	0	0	0	0	0	0	0	0	0	0	0	66,089	66,089
4	Buildings	0	0	0	0	0	0	0	0	0	0	0	0	0	65,417
5	Pits	0	0	18,320	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	Ponds	0	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	0
10	Wells	0	0	0	0	0	5,075	0	0	0	0	0	0	0	50,750
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	42,209	42,209	42,209	64,431	39,106	39,106	39,106	39,106	39,106	26,379	26,379	26,379	26,379	4,157
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	0
		42,209	**42,209**	**60,529**	**64,431**	**39,106**	**44,181**	**39,106**	**39,106**	**39,106**	**26,379**	**26,379**	**26,379**	**92,468**	**186,413**
	Engineering, Design and Construction Plan	**1,688**	**1,688**	**2,421**	**2,577**	**1,564**	**1,767**	**1,564**	**1,564**	**1,564**	**1,055**	**1,055**	**1,055**	**3,699**	**7,457**
	Contingency	**2,533**	**2,533**	**3,632**	**3,866**	**2,346**	**2,651**	**2,346**	**2,346**	**2,346**	**1,583**	**1,583**	**1,583**	**5,548**	**11,185**
	Contractor OH and Profit	**4,221**	**4,221**	**6,053**	**6,443**	**3,911**	**4,418**	**3,911**	**3,911**	**3,911**	**2,638**	**2,638**	**2,638**	**9,247**	**18,641**
	Contract Administration	**2,533**	**2,533**	**3,632**	**3,866**	**2,346**	**2,651**	**2,346**	**2,346**	**2,346**	**1,583**	**1,583**	**1,583**	**5,548**	**11,185**
		53,184	**53,184**	**76,267**	**81,183**	**49,273**	**55,668**	**49,273**	**49,273**	**49,273**	**33,238**	**33,238**	**33,238**	**116,510**	**234,881**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	WRSP1-MB1	WRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	494	400	3.11
2	WRSP1-MB2	WRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	50	211	200	0.86
3	WRSP1-MB3	WRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	50	143	100	0.58
4	WRSP1-MB4	WRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	2,091	2,000	12.01
5	WRSP1-MB5	WRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	25	219	200	1.30
6	WRSP1-MB6	WRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	50	1,806	1,800	13.63
7	WRSP1-MB7	WRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	50	748	700	5.64
8	WRSP2-MB1	WRSP2		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	1,369	1,300	11.68
9	WRSP2-MB2	WRSP2		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	2,212	2,200	18.88
10	WRSP2-MB3	WRSP2		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	2,009	2,000	17.14
11	WRSP3-MB1	WRSP3		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	1,680	1,600	12.62
12	WRSP3-MB2	WRSP3		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	3,346	3,300	25.14
13	WRSP3-MB3	WRSP3		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	3,144	3,100	23.63
14	WRSP3-MB4	WRSP3		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	1,704	1,700	12.81
15	WRSP3-MB5	WRSP3		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	1,430	1,400	10.75
16	WRSP3-MB6	WRSP3		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	75	2,426	2,400	18.23
17	WRSP3-MB7	WRSP3		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	35	469	400	3.52
18	WRSP3-MB8	WRSP3		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	35	1,570	1,500	11.80
19	EWRSP1-MB1	EWRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	30	1,161	1,100	11.68
20	EWRSP1-MB2	EWRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	30	650	600	6.54
21	EWRSP1-MB3 (material will be pulled back)	EWRSP1		Waste Rock Dumps				FA	0.0	3.0	3.0	1.0	25	333	300	3.35
22	EWRSP1-MB4	EWRSP1		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	20	351	300	3.53
23	EWRSP2A-MB1	EWRSP2A		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	50	1,166	1,100	6.22
24	EWRSP2B-MB1	EWRSP2B		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	30	529	500	4.06
25	EWRSP2B-MB2	EWRSP2B		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	70	477	400	5.37
26	EWRSP2B-3 (see "Yards" sheet)	EWRSP2B		Yards				FA								
27	EWRSP3 and haul roads, misc. plant disturbance	EWRS3		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	130	1,605	1,600	33.25
28	EWRSP4-MB1	EWRSP4		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	10	148	100	3.31
29	EWRSP4-MB2	EWRSP4		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	50	319	300	2.89
30	EWRSP4-MB3	EWRSP4		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	30	223	200	1.83
31	EWRSP4-MB4	EWRSP4		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	20	331	300	1.50
32	EWRSP4-MB5	EWRSP4		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	30	591	500	5.07
33	EWRSP4-MB6	EWRSP4		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	10	499	400	2.39
34	EWRSP4-MB7	EWRSP4		Waste Rock Dumps				FA	0.0	1.4	3.0	1.0	10	1,000	1,000	4.27

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: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20
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	WRSP1-MB1										36.0	36.0	13,179	-3.0
2	WRSP1-MB2										36.0	36.0	13,179	-3.0
3	WRSP1-MB3										36.0	36.0	13,179	-3.0
4	WRSP1-MB4										36.0	36.0	13,179	-3.0
5	WRSP1-MB5										36.0	36.0	13,179	-3.0
6	WRSP1-MB6										36.0	36.0	13,179	-3.0
7	WRSP1-MB7										36.0	36.0	13,179	-3.0
8	WRSP2-MB1										36.0	36.0	9,309	-4.8
9	WRSP2-MB2										36.0	36.0	9,309	-4.8
10	WRSP2-MB3										36.0	36.0	9,309	-4.8
11	WRSP3-MB1										36.0	36.0	8,047	-3.4
12	WRSP3-MB2										36.0	36.0	8,047	-3.4
13	WRSP3-MB3										36.0	36.0	8,047	-3.4
14	WRSP3-MB4										36.0	36.0	8,047	-3.4
15	WRSP3-MB5										36.0	36.0	8,047	-3.4
16	WRSP3-MB6										36.0	36.0	8,047	-3.4
17	WRSP3-MB7										36.0	36.0	8,047	-3.4
18	WRSP3-MB8										36.0	36.0	8,047	-3.4
19	EWRSP1-MB1										36.0	36.0	13,044	-2.1
20	EWRSP1-MB2										36.0	36.0	13,044	-2.1
21	EWRSP1-MB3 (material will be pulled back)										36.0	36.0	13,044	-2.1
22	EWRSP1-MB4										36.0	36.0	13,044	-2.1
23	EWRSP2A-MB1										36.0	36.0	13,179	-2.5
24	EWRSP2B-MB1										36.0	36.0	13,179	-2.5
25	EWRSP2B-MB2										36.0	36.0	13,179	-2.5
26	EWRSP2B-3 (see "Yards" sheet)													
27	EWRSP3 and haul roads, misc. plant disturbance										36.0	36.0	13,179	-2.5
28	EWRSP4-MB1										36.0	36.0	12,000	-1.8
29	EWRSP4-MB2										36.0	36.0	12,000	-1.8
30	EWRSP4-MB3										36.0	36.0	12,000	-1.8
31	EWRSP4-MB4										36.0	36.0	12,000	-1.8
32	EWRSP4-MB5										36.0	36.0	12,000	-1.8
33	EWRSP4-MB6										36.0	36.0	12,000	-1.8
34	EWRSP4-MB7										36.0	36.0	12,000	-1.8

Notes:
1. All Physical parameters must be input even if manual overr
2. Input distance from crusher to placement location if materia

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	WRSP1-MB1	1	Granite - broken	Large	No								
2	WRSP1-MB2	1	Granite - broken	Large	No								
3	WRSP1-MB3	1	Granite - broken	Large	No								
4	WRSP1-MB4	1	Granite - broken	Large	No								
5	WRSP1-MB5	1	Granite - broken	Large	No								
6	WRSP1-MB6	1	Granite - broken	Large	No								
7	WRSP1-MB7	1	Granite - broken	Large	No								
8	WRSP2-MB1	1	Granite - broken	Large	No								
9	WRSP2-MB2	1	Granite - broken	Large	No								
10	WRSP2-MB3	1	Granite - broken	Large	No								
11	WRSP3-MB1	1	Granite - broken	Large	No								
12	WRSP3-MB2	1	Granite - broken	Large	No								
13	WRSP3-MB3	1	Granite - broken	Large	No								
14	WRSP3-MB4	1	Granite - broken	Large	No								
15	WRSP3-MB5	1	Granite - broken	Large	No								
16	WRSP3-MB6	1	Granite - broken	Large	No								
17	WRSP3-MB7	1	Granite - broken	Large	No								
18	WRSP3-MB8	1	Granite - broken	Large	No								
19	EWRSP1-MB1	1	Granite - broken	Large	No								
20	EWRSP1-MB2	1	Granite - broken	Large	No								
21	EWRSP1-MB3 (material will be pulled back)	1	Granite - broken	Large	No								
22	EWRSP1-MB4	1	Granite - broken	Large	No								
23	EWRSP2A-MB1	1	Granite - broken	Large	No								
24	EWRSP2B-MB1	1	Granite - broken	Large	No								
25	EWRSP2B-MB2	1	Granite - broken	Large	No								
26	EWRSP2B-3 (see "Yards" sheet)												
27	EWRSP3 and haul roads, misc, plant disturbance	1	Granite - broken	Large	No								
28	EWRSP4-MB1	1	Granite - broken	Large	No								
29	EWRSP4-MB2	1	Granite - broken	Large	No								
30	EWRSP4-MB3	1	Granite - broken	Large	No								
31	EWRSP4-MB4	1	Granite - broken	Large	No								
32	EWRSP4-MB5	1	Granite - broken	Large	No								
33	EWRSP4-MB6	1	Granite - broken	Large	No								
34	EWRSP4-MB7	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: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20
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	WRSP1-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1							
2	WRSP1-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1							
3	WRSP1-MB3	Alluvium	Large Truck			User Mix 1	User Mix 1							
4	WRSP1-MB4	Alluvium	Large Truck			User Mix 1	User Mix 1							
5	WRSP1-MB5	Alluvium	Large Truck			User Mix 1	User Mix 1							
6	WRSP1-MB6	Alluvium	Large Truck			User Mix 1	User Mix 1							
7	WRSP1-MB7	Alluvium	Large Truck			User Mix 1	User Mix 1							
8	WRSP2-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1							
9	WRSP2-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1							
10	WRSP2-MB3	Alluvium	Large Truck			User Mix 1	User Mix 1							
11	WRSP3-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1							
12	WRSP3-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1							
13	WRSP3-MB3	Alluvium	Large Truck			User Mix 1	User Mix 1							
14	WRSP3-MB4	Alluvium	Large Truck			User Mix 1	User Mix 1							
15	WRSP3-MB5	Alluvium	Large Truck			User Mix 1	User Mix 1							
16	WRSP3-MB6	Alluvium	Large Truck			User Mix 1	User Mix 1							
17	WRSP3-MB7	Alluvium	Large Truck			User Mix 1	User Mix 1							
18	WRSP3-MB8	Alluvium	Large Truck			User Mix 1	User Mix 1							
19	EWRSP1-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1							
20	EWRSP1-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1							
21	EWRSP1-MB3 (material will be pulled back)	Alluvium	Large Truck			User Mix 1	User Mix 1							
22	EWRSP1-MB4	Alluvium	Large Truck			User Mix 1	User Mix 1							
23	EWRSP2A-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1							
24	EWRSP2B-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1							
25	EWRSP2B-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1							
26	EWRSP2B-3 (see "Yards" sheet)													
27	EWRSP3 and haul roads, misc. plant disturbance	Alluvium	Large Truck			User Mix 1	User Mix 1							
28	EWRSP4-MB1	Alluvium	Large Truck			User Mix 1	User Mix 1							
29	EWRSP4-MB2	Alluvium	Large Truck			User Mix 1	User Mix 1							
30	EWRSP4-MB3	Alluvium	Large Truck			User Mix 1	User Mix 1							
31	EWRSP4-MB4	Alluvium	Large Truck			User Mix 1	User Mix 1							
32	EWRSP4-MB5	Alluvium	Large Truck			User Mix 1	User Mix 1							
33	EWRSP4-MB6	Alluvium	Large Truck			User Mix 1	User Mix 1							
34	EWRSP4-MB7	Alluvium	Large Truck			User Mix 1	User Mix 1							

Notes:

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	**WRSP1-MB1**	20,748	121	D9T	905	1.6	1.0	0.82	1.0	739	28	727	6,229	6,956
2	**WRSP1-MB2**	3,939	81	D9T	1264	1.6	1.0	0.82	1.0	1032	4	104	890	994
3	**WRSP1-MB3**	2,669	81	D9T	1264	1.6	1.0	0.82	1.0	1032	3	78	667	745
4	**WRSP1-MB4**	87,822	121	D9T	905	1.6	1.0	0.82	1.0	739	119	3,089	26,472	29,561
5	**WRSP1-MB5**	1,022	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	222	248
6	**WRSP1-MB6**	33,712	81	D9T	1264	1.6	1.0	0.82	1.0	1032	33	857	7,341	8,198
7	**WRSP1-MB7**	13,963	81	D9T	1264	1.6	1.0	0.82	1.0	1032	14	363	3,114	3,477
8	**WRSP2-MB1**	57,498	121	D9T	905	1.6	1.0	0.82	1.0	739	78	2,025	17,351	19,376
9	**WRSP2-MB2**	92,904	121	D9T	905	1.6	1.0	0.82	1.0	739	126	3,271	28,029	31,300
10	**WRSP2-MB3**	84,378	121	D9T	905	1.6	1.0	0.82	1.0	739	114	2,959	25,359	28,318
11	**WRSP3-MB1**	70,560	121	D9T	905	1.6	1.0	0.82	1.0	739	95	2,466	21,133	23,599
12	**WRSP3-MB2**	140,532	121	D9T	905	1.6	1.0	0.82	1.0	739	190	4,932	42,266	47,198
13	**WRSP3-MB3**	132,048	121	D9T	905	1.6	1.0	0.82	1.0	739	179	4,647	39,819	44,466
14	**WRSP3-MB4**	71,568	121	D9T	905	1.6	1.0	0.82	1.0	739	97	2,518	21,578	24,096
15	**WRSP3-MB5**	60,060	121	D9T	905	1.6	1.0	0.82	1.0	739	81	2,103	18,018	20,121
16	**WRSP3-MB6**	101,892	121	D9T	905	1.6	1.0	0.82	1.0	739	138	3,582	30,698	34,280
17	**WRSP3-MB7**	4,290	57	D9T	1694	1.6	1.0	0.82	1.0	1384	3	78	667	745
18	**WRSP3-MB8**	14,363	57	D9T	1694	1.6	1.0	0.82	1.0	1384	10	260	2,225	2,485
19	**EWRSP1-MB1**	7,783	50	D9T	1889	1.6	1.0	0.82	1.0	1543	5	130	1,112	1,242
20	**EWRSP1-MB2**	4,357	50	D9T	1889	1.6	1.0	0.82	1.0	1543	3	78	667	745
21	**EWRSP1-MB3 (material will be pulled back)**										0	0	0	0
22	**EWRSP1-MB4**	1,053	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	222	248
23	**EWRSP2A-MB1**	21,765	81	D9T	1264	1.6	1.0	0.82	1.0	1032	21	545	4,671	5,216
24	**EWRSP2B-MB1**	3,546	50	D9T	1889	1.6	1.0	0.82	1.0	1543	2	52	445	497
25	**EWRSP2B-MB2**	17,455	113	D9T	958	1.6	1.0	0.82	1.0	782	22	571	4,894	5,465
26	**EWRSP2B-3 (see "Yards" sheet)**										0	0	0	0
27	**EWRSP3 and haul roads, misc. plant disturbance**	202,587	211	D9T	569	1.6	1.0	0.82	1.0	465	436	11,319	96,988	108,307
28	**EWRSP4-MB1**	110	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	222	248
29	**EWRSP4-MB2**	5,955	81	D9T	1264	1.6	1.0	0.82	1.0	1032	6	156	1,335	1,491
30	**EWRSP4-MB3**	1,495	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	222	248
31	**EWRSP4-MB4**	993	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	222	248
32	**EWRSP4-MB5**	3,962	50	D9T	1889	1.6	1.0	0.82	1.0	1543	3	78	667	745
33	**EWRSP4-MB6**	370	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	222	248
34	**EWRSP4-MB7**	741	50	D9T	1889	1.6	1.0	0.82	1.0	1543	1	26	222	248
		1,266,140									1,817	**47,170**	**404,189**	**451,359**

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	**WRSP1-MB1**	17,956	777G/992K/D9T	19.51	6	1,021	18	3,582	70,136	73,718
2	**WRSP1-MB2**	3,727	777G/992K/D9T	19.51	6	1,021	4	796	15,586	16,382
3	**WRSP1-MB3**	2,517	777G/992K/D9T	19.51	6	1,021	2	398	7,793	8,191
4	**WRSP1-MB4**	60,355	777G/992K/D9T	19.51	6	1,021	59	11,741	229,891	241,632
5	**WRSP1-MB5**	6,776	777G/992K/D9T	19.51	6	1,021	7	1,393	27,275	28,668
6	**WRSP1-MB6**	65,776	777G/992K/D9T	19.51	6	1,021	64	12,736	249,373	262,109
7	**WRSP1-MB7**	27,733	777G/992K/D9T	19.51	6	1,021	27	5,373	105,204	110,577
8	**WRSP2-MB1**	60,548	777G/992K/D9T	17.77	6	1,121	54	10,746	210,408	221,154
9	**WRSP2-MB2**	92,638	777G/992K/D9T	17.77	6	1,121	82	16,318	319,509	335,827
10	**WRSP2-MB3**	87,217	777G/992K/D9T	17.77	6	1,121	78	15,522	303,923	319,445
11	**WRSP3-MB1**	63,985	777G/992K/D9T	13.73	4	966	66	10,060	187,801	197,861
12	**WRSP3-MB2**	127,582	777G/992K/D9T	13.73	4	966	132	20,119	375,602	395,721
13	**WRSP3-MB3**	117,370	777G/992K/D9T	13.73	4	966	121	18,443	344,302	362,745
14	**WRSP3-MB4**	64,614	777G/992K/D9T	13.73	4	966	67	10,212	190,646	200,858
15	**WRSP3-MB5**	52,514	777G/992K/D9T	13.73	4	966	54	8,231	153,655	161,886
16	**WRSP3-MB6**	93,460	777G/992K/D9T	13.73	4	966	97	14,785	276,011	290,796
17	**WRSP3-MB7**	15,536	777G/992K/D9T	13.73	4	966	16	2,439	45,528	47,967
18	**WRSP3-MB8**	58,274	777G/992K/D9T	13.73	4	966	60	9,145	170,728	179,873
19	**EWRSP1-MB1**	55,950	777G/992K/D9T	13.16	4	1,009	55	8,383	156,501	164,884
20	**EWRSP1-MB2**	31,121	777G/992K/D9T	13.16	4	1,009	31	4,725	88,210	92,935
21	**EWRSP1-MB3 (material will be pulled back)**	17,424	777G/992K/D9T	13.16	4	1,009	17	2,591	48,373	50,964
22	**EWRSP1-MB4**	17,037	777G/992K/D9T	13.16	4	1,009	16	2,439	45,528	47,967
23	**EWRSP2A-MB1**	30,298	777G/992K/D9T	19.51	6	1,021	29	5,771	112,997	118,768
24	**EWRSP2B-MB1**	20,183	777G/992K/D9T	19.51	6	1,021	20	3,980	77,929	81,909
25	**EWRSP2B-MB2**	26,330	777G/992K/D9T	19.51	6	1,021	26	5,174	101,308	106,482
26	**EWRSP2B-3 (see "Yards" sheet)**						0	0	0	0
27	**EWRSP3 and haul roads, misc. plant disturbance**	165,770	777G/992K/D9T	19.51	6	1,021	162	32,238	631,225	663,463
28	**EWRSP4-MB1**	15,052	777G/992K/D9T	12.48	4	1,062	15	2,286	42,682	44,968
29	**EWRSP4-MB2**	15,294	777G/992K/D9T	12.48	4	1,062	14	2,134	39,837	41,971
30	**EWRSP4-MB3**	7,212	777G/992K/D9T	12.48	4	1,062	7	1,067	19,918	20,985
31	**EWRSP4-MB4**	7,212	777G/992K/D9T	12.48	4	1,062	7	1,067	19,918	20,985
32	**EWRSP4-MB5**	25,652	777G/992K/D9T	12.48	4	1,062	24	3,658	68,291	71,949
33	**EWRSP4-MB6**	11,471	777G/992K/D9T	12.48	4	1,062	11	1,677	31,300	32,977
34	**EWRSP4-MB7**	22,893	777G/992K/D9T	12.48	4	1,062	21	3,201	59,755	62,956
		1,487,477					1,463	**252,430**	**4,827,143**	**5,079,573**

Closure Cost Estimate
Waste Rock Dumps

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	WRSP1-MB1	2.71	1.00	3.71	239			0	0	0	0	0	52	96	648	796
2	WRSP1-MB2	0.77	0.00	0.77	159			0	0	0	0	0	19	26	135	180
3	WRSP1-MB3	0.52	0.00	0.52	159			0	0	0	0	0	19	26	91	136
4	WRSP1-MB4	11.47	1.00	12.47	239			0	0	0	0	0	219	322	2,179	2,720
5	WRSP1-MB5	0.40	1.00	1.40	80			0	0	0	0	0	19	36	245	300
6	WRSP1-MB6	6.59	7.00	13.59	159			0	0	0	0	0	174	351	2,374	2,899
7	WRSP1-MB7	2.73	3.00	5.73	159			0	0	0	0	0	61	147	1,001	1,209
8	WRSP2-MB1	7.51	5.00	12.51	239			0	0	0	0	0	167	323	2,186	2,676
9	WRSP2-MB2	12.14	7.00	19.14	239			0	0	0	0	0	279	494	3,344	4,117
10	WRSP2-MB3	11.02	7.00	18.02	239			0	0	0	0	0	258	465	3,148	3,871
11	WRSP3-MB1	9.22	4.00	13.22	239			0	0	0	0	0	191	341	2,310	2,842
12	WRSP3-MB2	18.36	8.00	26.36	239			0	0	0	0	0	412	680	4,606	5,698
13	WRSP3-MB3	17.25	7.00	24.25	239			0	0	0	0	0	376	626	4,237	5,239
14	WRSP3-MB4	9.35	4.00	13.35	239			0	0	0	0	0	193	344	2,333	2,870
15	WRSP3-MB5	7.85	3.00	10.85	239			0	0	0	0	0	158	280	1,896	2,334
16	WRSP3-MB6	13.31	6.00	19.31	239			0	0	0	0	0	288	498	3,374	4,160
17	WRSP3-MB7	1.21	2.00	3.21	112			0	0	0	0	0	27	83	560	670
18	WRSP3-MB8	4.04	8.00	12.04	112			0	0	0	0	0	141	310	2,104	2,555
19	EWRSP1-MB1	2.56	9.00	11.56	96			0	0	0	0	0	130	298	2,019	2,447
20	EWRSP1-MB2	1.43	5.00	6.43	96			0	0	0	0	0	52	166	1,124	1,342
21	EWRSP1-MB3 (material will be pulled back)	0.60	3.00	3.60	79			0	0	0	0	0	20	92	629	741
22	EWRSP1-MB4	0.52	3.00	3.52	64			0	0	0	0	0	19	90	615	724
23	EWRSP2A-MB1	4.26	2.00	6.26	159			0	0	0	0	0	85	162	1,093	1,340
24	EWRSP2B-MB1	1.17	3.00	4.17	96			0	0	0	0	0	31	107	728	866
25	EWRSP2B-MB2	2.44	3.00	5.44	223			0	0	0	0	0	55	140	950	1,145
26	EWRSP2B-3 (see "Yards" sheet)	0.10	0.00	0.10				0	0	0	0	0	0	0	0	0
27	EWRSP3 and haul roads, misc. plant disturbance	15.25	19.00	34.25	414			0	0	0	0	0	650	883	5,984	7,517
28	EWRSP4-MB1	0.11	3.00	3.11	32			0	0	0	0	0	19	80	543	642
29	EWRSP4-MB2	1.16	2.00	3.16	159			0	0	0	0	0	26	82	552	660
30	EWRSP4-MB3	0.49	1.00	1.49	96			0	0	0	0	0	19	39	261	319
31	EWRSP4-MB4	0.49	1.00	1.49	64			0	0	0	0	0	19	39	261	319
32	EWRSP4-MB5	1.30	4.00	5.30	96			0	0	0	0	0	41	137	926	1,104
33	EWRSP4-MB6	0.37	2.00	2.37	32			0	0	0	0	0	19	62	414	495
34	EWRSP4-MB7	0.73	4.00	4.73	32			0	0	0	0	0	30	122	827	979
		169.43	138.00	307.43				0	0	**0**	**0**	**0**	**4,268**	**7,947**	**53,697**	**65,911**

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

Bond Calculation
Tailings

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				FA	0.0	4.0	4.0	154	244.99	17,289	2,000		305.39	492,696

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: 1
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.

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Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20
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
Embankment height is average across the perimeter of the

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	Med Truck		

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

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Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20
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							

Notes:

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	492,696	400	D9T	334	1.00	0.96	1.20	1.00	240	2,053	53,296	456,690	509,986
		492,696									2,053	**53,296**	**456,690**	**509,986**

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	740C/988K/D8T	11.04	4	485	5,568	848,675	6,437,276	7,285,951
		2,700,333					5,568	**848,675**	**6,437,276**	**7,285,951**

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Bond Calculation
Tailings

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

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 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	TSF	252.03	0.50	252.53	305.39	635			0	0	0	0	0	10,584	14,394	97,480	122,458
		252.03	0.50	252.53	305.39				0	0	**0**	**0**	**0**	**10,584**	**14,394**	**97,480**	**122,458**

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

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Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				FA	Pit Water	Active
2	Pit rapid fill - Month 2			Pit Rapid Fill				FA	Pit Water	Active
3	Pit rapid fill - Month 3			Pit Rapid Fill				FA	Pit Water	Active
4	Pit rapid fill - Month 4			Pit Rapid Fill				FA	Pit Water	Active
5	Pit rapid fill - Month 5			Pit Rapid Fill				FA	Pit Water	Active
6	Pit rapid fill - Month 6			Pit Rapid Fill				FA	Pit Water	Active
7	Pumping water from wellfields for pit refill - Month 1			Pit Rapid Fill				FA	Pit Water	Active
8	Pumping water from wellfields for pit refill - Month 1			Pit Rapid Fill				FA	Pit Water	Active
9	Pumping water from wellfields for pit refill - Month 1			Pit Rapid Fill				FA	Pit Water	Active
10	Pumping water from wellfields for pit refill - Month 1			Pit Rapid Fill				FA	Pit Water	Active
11	Pumping water from wellfields for pit refill - Month 1			Pit Rapid Fill				FA	Pit Water	Active
12	Pumping water from wellfields for pit refill - Month 1			Pit Rapid Fill				FA	Pit Water	Active
13	Year 1 - New Evaporation Pond to Spray Pond Area			Draindown Management				FA	Seepage	Active
14	Year 2 - New Evaporation Pond to Spray Pond Area			Draindown Management				FA	Seepage	Active
15	Year 3 - New Evaporation Pond to Spray Pond Area			Draindown Management				FA	Seepage	Active
16	Year 4 - New Evaporation Pond to Spray Pond Area			Draindown Management				FA	Seepage	Active
17	Year 5 - New Evaporation Pond to Spray Pond Area			Draindown Management				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: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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 1		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 1		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 1		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 1		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 1		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

Rapid refill rates per "Copper Flat Alt2-4900CB RF2200_
For pumping from New Evaporation Pond to Spray Pon

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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			Draindown Management				FA	Seepage	Active
2	Year 2 - Forced Evaporation			Draindown Management				FA	Seepage	Active
3	Year 3 - Forced Evaporation			Draindown Management				FA	Seepage	Active
4	Year 4 - Forced Evaporation			Draindown Management				FA	Seepage	Active
5	Year 5 - Forced Evaporation			Draindown Management				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.

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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	505,240	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
3. Assumes 1-1.5 ton truck for every 2 laborers

Crew assumed shared with pumping crew.

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				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: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost CostType Type: FA Cost Basis: Copper Flat FA

Solution Mgmt - Assumptions & Calculations

Manning's Roughness Coefficient

Pipe material	Manning n
HDPE	
ID < 4" (100 mm)	0.011
ID ≥ 4 in (100 mm) < 10 in (250 mm)	0.01
ID ≥ 10 in (250 mm)	0.009
PVC	
ID < 4" (100 mm)	0.011
ID ≥ 4 in (100 mm) < 10 in (250 mm)	0.01
ID ≥ 10 in (250 mm)	0.009
Brass	0.011
Cast Iron	0.013
Smooth Steel	0.012
Asbestos Cement	0.011

Water Treatment Costs

Water treatment cost = CapEx + Labor Cost + Equipment Cost (includes Operating Cost)

CapEx = User Entered Value
Consumable costs = cost of treatment chemicals or materials based quantity treated
Labor Cost = No. Months x Days/mo. x [(Supervisor Cost x 8 hrs) + (Laborer Cost x Crew Size x Hours/day)]
Operating Cost = Fuel, power, maintenance or other costs calculated based on quantity treated
Equipment Cost = No. Months x Days/mo. x [(Supervisor Truck Cost x 8 hrs) + (Labor Truck Cost x No. Crew Trucks x Hours/day)]
No. Crew Trucks = 1 per each two laborers per shift

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
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Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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 1**	3000.00	0.009	20	3.786	86	843	85	560.94	752.30	720
9	**Pumping water from wellfields for pit refill - Month 1**	3000.00	0.009	20	3.786	86	843	85	560.94	752.30	720
10	**Pumping water from wellfields for pit refill - Month 1**	3000.00	0.009	20	3.786	86	843	85	560.94	752.30	720
11	**Pumping water from wellfields for pit refill - Month 1**	3000.00	0.009	20	3.786	86	843	85	560.94	752.30	720
12	**Pumping water from wellfields for pit refill - Month 1**	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

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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	21,564	47,193	0.10
2	Pit rapid fill - Month 2	0	14,692	10,937	21,564	47,193	0.10
3	Pit rapid fill - Month 3	0	14,692	10,937	21,564	47,193	0.10
4	Pit rapid fill - Month 4	0	14,692	10,937	21,564	47,193	0.10
5	Pit rapid fill - Month 5	0	14,692	10,937	21,564	47,193	0.10
6	Pit rapid fill - Month 6	0	6,089	10,937	21,564	38,590	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 1	0	31,531	0	0	31,531	0.06
9	Pumping water from wellfields for pit refill - Month 1	0	31,531	0	0	31,531	0.06
10	Pumping water from wellfields for pit refill - Month 1	0	31,531	0	0	31,531	0.06
11	Pumping water from wellfields for pit refill - Month 1	0	31,531	0	0	31,531	0.06
12	Pumping water from wellfields for pit refill - Month 1	0	14,560	0	0	14,560	0.06
13	Year 1 - New Evaporation Pond to Spray Pond Area	0	16,476	196,862	194,076	407,414	0.62
14	Year 2 - New Evaporation Pond to Spray Pond Area	0	11,004	196,862	194,076	401,942	0.88
15	Year 3 - New Evaporation Pond to Spray Pond Area	0	8,172	196,862	194,076	399,110	1.29
16	Year 4 - New Evaporation Pond to Spray Pond Area	0	5,064	196,862	194,076	396,002	1.92
17	Year 5 - New Evaporation Pond to Spray Pond Area	0	3,144	196,862	194,076	394,082	2.97
		0	**295,624**	**1,049,933**	**1,099,764**	**2,445,321**	

Notes:
1. Assumes 2 man labor crew unless user overrides defa

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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, 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: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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**	505,240	0	0	24,288	529,528	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
		505,240	**0**	**0**	**64,068**	**569,308**	

Notes:
1. Assumes 2 man labor crew unless user overrides defa
2. Maintaining pipe flow velocity between 1.0 m/s (3.28 ft/noise, vibration, wear and transient overpressures in the pipeline.

Closure Cost Estimate
Solution Mgmt

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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, 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: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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	14,376	156,202
		100,000	**1,055**	**40,771**	**14,376**	**156,202**

Closure Cost Estimate
Quarries & Borrow Pits

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				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.

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Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20
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
2. Input distance from crusher to placement location if material
3. If Slope from facility to borrow source is >20°, downhill trave

Inputs for total pit cover are from "Cu Flat Pit Reclaim 2017
The areas around the pit crest which will be reclaimed will

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	Med									

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

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Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20
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	Med Dozer

Notes:

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	Med 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>

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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

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Closure Cost Estimate
Quarries & Borrow Pits

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	8.58	774	2	288	30,482	516,813	547,295
		223,221					288	**30,482**	**516,813**	**547,295**

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	D7E	98	0	2,544	12,808	15,352	1,750	2,380	16,116	20,246
		92.24	0.00	92.24				98	0	**2,544**	**12,808**	**15,352**	**1,750**	**2,380**	**16,116**	**20,246**

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	D8T			57	57	1,480	8,757	10,237
		22,616					57	**1,480**	**8,757**	**10,237**

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	484	658	4,454	5,596
		25.49	**484**	**658**	**4,454**	**5,596**

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Closure Cost Estimate
Roads

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				FA	5.0	2.0	25.0	25.0	26,000	100%			6.0	200	-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.

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	Med Excavator	2	Alluvium	Med Truck			User Mix 1			Yes	Med Dozer

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.

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Closure Cost Estimate
Roads

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	4,589	330F	2	369	12	1,111	3,650	4,761
		4,589				12	**1,111**	**3,650**	**4,761**

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	4.34	616	2	22	2,328	17,259	19,587
		13,443					22	**2,328**	**17,259**	**19,587**

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	D7E	16	415	2,091	2,506	316	430	2,911	3,657
		16.66			16	**415**	**2,091**	**2,506**	**316**	**430**	**2,911**	**3,657**

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Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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

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Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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")			Ponds				FA	359	258	12.5	3.0	2.90
2	Impacted Storm Water Impoundment B			Ponds				FA	474	392	4.9	3.0	2.69
3	Impacted Storm Water Impoundment C			Ponds				FA	1200	265	5.3	3.0	4.44
4	Process Water Reservoir (measured from "DS-PLANT-EOML.dwg")			Ponds				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			Ponds				FA	332.5	143	7.7	3.0	
6	TSF underdrain collection pond expansion (convert to TSF evaporation pond)			Draindown Management				FA	3800	140	4.5	2.5	0.00
7	Reclamation of TSF evaporation pond (minimum 10% of 25% Backfill 2 is growth media)			Draindown Management				FA	3800	140	4.5	2.5	22.30
8	Pipeline ditches liner removal (removal of liner and filling with local material)			Yards				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 6000 sq. ft./hr based on experience with similar projects.

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Project Name: Copper Flat Reclamation Bond Cost Es
Date of Submittal: July 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_20
Cost Estimate Type: FA Cost Basis: Copper Flat F

Process Ponds - User Input

ond

		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	Reclamation of TSF evaporation pond (minimum 10% of 25	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
4. If Slope from facility to borrow source is >20, downhill travel

Underdrain collection pond will be excavated out with new
See User 6 for Backfill 1 and Backfill 2 percentage calculati
Impacted Storm Water Impoundment depths estimated by

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	Reclamation of TSF evaporation pond (minimum 10% of 25	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

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Project Name: Copper Flat Reclamation Bond Cost Es
Date of Submittal: July 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_20
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	Reclamation of TSF evaporation pond (minimum 10% of 25	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

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	Med Truck			Stone - crushed	Med Truck		
2	Impacted Storm Water Impoundment B	61.0	Stone - crushed	Med Truck			Stone - crushed	Med Truck		
3	Impacted Storm Water Impoundment C	105.0	Stone - crushed	Med Truck			Stone - crushed	Med Truck		
4	Process Water Reservoir (measured from "DS-PLANT-EON	24.0	Stone - crushed	Med Truck			Stone - crushed	Med Truck		
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL	16.0	Stone - crushed	Med Truck			Stone - crushed	Med Truck		
6	TSF underdrain collection pond expansion (convert to TSF evaporation pond)		Stone - crushed	Med Truck			Stone - crushed	Med Truck		
7	Reclamation of TSF evaporation pond (minimum 10% of 25% Backfill 2 is growth		Stone - crushed	Med Truck			Stone - crushed	Med Truck		
8	Pipeline ditches liner removal (removal of liner and filling with local material)		Stone - crushed	Med Truck			Stone - crushed	Med 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

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Project Name: Copper Flat Reclamation Bond Cost Es
Date of Submittal: July 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_20
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	Med Truck			User Mix 1		
2	Impacted Storm Water Impoundment B	Alluvium	Med Truck			User Mix 1		
3	Impacted Storm Water Impoundment C	Alluvium	Med Truck			User Mix 1		
4	Process Water Reservoir (measured from "DS-PLANT-EON	Alluvium	Med Truck			User Mix 1		
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL	Alluvium	Med Truck			User Mix 1		
6	TSF underdrain collection pond expansion (convert to TSF	Alluvium	Med Truck			User Mix 1		
7	Reclamation of TSF evaporation pond (minimum 10% of 25	Alluvium	Med Truck			User Mix 1		
8	Pipeline ditches liner removal (removal of liner and filling v	Alluvium	Med Truck			User Mix 1		

Notes:
1. Material Types are used for density correction based on mate

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
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File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
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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	Reclamation of 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

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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	2,402	4,376
2	Impacted Storm Water Impoundment B	61	3,884	4,727	8,611
3	Impacted Storm Water Impoundment C	105	6,686	8,136	14,822
4	Process Water Reservoir (measured from "DS-PLANT-EON	24	1,528	1,860	3,388
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL	16	1,019	1,240	2,259
6	TSF underdrain collection pond expansion (convert to TSF	0	0	0	0
7	Reclamation of TSF evaporation pond (minimum 10% of 25	0	0	0	0
8	Pipeline ditches liner removal (removal of liner and filling v	0	0	0	0
		237	15,091	18,365	33,456

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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	740C/988K/D8T	4.43	2	603	41
2	Impacted Storm Water Impoundment B	0	23,313					0	740C/988K/D8T	4.43	2	603	39
3	Impacted Storm Water Impoundment C	0	43,557					0	740C/988K/D8T	4.43	2	603	72
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	25,493					0	740C/988K/D8T	4.43	2	603	42
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL	0	7,921					0	740C/988K/D8T	4.43	2	603	13
6	TSF underdrain collection pond expansion (convert to TSF	0	81,211					0	740C/988K/D8T	4.43	2	603	135
7	Reclamation of TSF evaporation pond (minimum 10% of 25	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	740C/988K/D8T	4.16	2	642	4
		0	269,342					0					447

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

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Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Es
Date of Submittal: July 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_20
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	4,339	32,164	36,503	36,503
2	Impacted Storm Water Impoundment B	0	0	0	0	0	0	0	4,128	30,595	34,723	34,723
3	Impacted Storm Water Impoundment C	0	0	0	0	0	0	0	7,620	56,483	64,103	64,103
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	0	0	0	0	0	0	4,445	32,948	37,393	37,393
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL-	0	0	0	0	0	0	0	1,376	10,198	11,574	11,574
6	TSF underdrain collection pond expansion (convert to TSF	0	0	0	0	0	0	0	14,288	105,905	120,193	120,193
7	Reclamation of TSF evaporation pond (minimum 10% of 25	0	0	0	0	0	0	0	10,690	79,232	89,922	89,922
8	Pipeline ditches liner removal (removal of liner and filling v	0	0	0	0	0	0	0	423	3,138	3,561	3,561
		0	**0**	**0**	**0**	**0**	**0**	**0**	**47,309**	**350,663**	**397,972**	**397,972**

Notes:

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	740C/988K/D8T	4.43	2	603	14
2	Impacted Storm Water Impoundment B	0	8,393					0	740C/988K/D8T	4.43	2	603	14
3	Impacted Storm Water Impoundment C	0	14,828					0	740C/988K/D8T	4.43	2	603	25
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	8,498					0	740C/988K/D8T	4.43	2	603	14
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL	0	2,640					0	740C/988K/D8T	4.43	2	603	4
6	TSF underdrain collection pond expansion (convert to TSF	0	0					0					0
7	Reclamation of TSF evaporation pond (minimum 10% of 25	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					105

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

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Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Es
Date of Submittal: July 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_20
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	4,339	10,983	15,322	15,322
2	Impacted Storm Water Impoundment B	0	0	0	0	0	0	0	4,128	10,983	15,111	15,111
3	Impacted Storm Water Impoundment C	0	0	0	0	0	0	0	7,620	19,612	27,232	27,232
4	Process Water Reservoir (measured from "DS-PLANT-EOM	0	0	0	0	0	0	0	4,445	10,983	15,428	15,428
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL	0	0	0	0	0	0	0	1,376	3,138	4,514	4,514
6	TSF underdrain collection pond expansion (convert to TSF	0	0	0	0	0	0	0	14,288	0	14,288	14,288
7	Reclamation of TSF evaporation pond (minimum 10% of 25	0	0	0	0	0	0	0	10,690	26,672	37,362	37,362
8	Pipeline ditches liner removal (removal of liner and filling v	0	0	0	0	0	0	0	423	0	423	423
		0	**0**	**0**	**0**	**0**	**0**	**0**	**47,309**	**82,371**	**129,680**	**129,680**

Notes:
1. If crushed or screened, Cover Volume = volume delivered to

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	55	75	507	637
2	Impacted Storm Water Impoundment B	2.70	51	70	472	593
3	Impacted Storm Water Impoundment C	4.40	83	114	769	966
4	Process Water Reservoir (measured from "DS-PLANT-EON	2.10	40	54	367	461
5	Surge Pond (L and W measured from "X-DS-PCHNL-CYCL	1.10	21	28	192	241
6	TSF underdrain collection pond expansion (convert to TSF	12.20	231	315	2,132	2,678
7	Reclamation of TSF evaporation pond (minimum 10% of 25	22.30	423	575	3,896	4,894
8	Pipeline ditches liner removal (removal of liner and filling v	1.40	27	36	245	308
		49.10	931	1,267	8,580	10,778

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Closure Cost Estimate
Process Ponds

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	Reclamation of TSF evaporation pond (minimum 10% of 25	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**

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	20,330	80,464	1,000	2,500	1,910	5,230	0
7	Reclamation of TSF evaporation pond (minimum 10% of 25	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**	**20,330**	**80,464**	1,000	**2,500**	**1,910**	**5,230**	**0**

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

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Project Name: Copper Flat Reclamation Bond Cost Es
Date of Submittal: July 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_20
Cost Estimate Type: FA Cost Basis: Copper Flat F

Process Ponds - Evaporation/Evapotranspirati

		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	5,230	10,850	91,314	0	91,314
7	Reclamation of TSF evaporation pond (minimum 10% of 25	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**	**5,230**	**10,850**	**91,314**	**0**	**91,314**

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

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Closure Cost Estimate
Yards, Etc.

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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			Yards				FA
2	Cyclone station pad			Yards				FA
3	Landbridge 1			Yards				FA
4	Landbridge 2			Yards				FA
5	EWRSP-2B-3			Yards				FA
6	EWRSP-4 drainage area			Waste Rock Dumps				FA
7	Disturbance around pit perimeter (approximated based on 100 ft around pit perimeter)			Yards				FA
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM per Rec Plan Table E-1)			Yards				FA
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM per Rec Plan Table E-1)			Yards				FA
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM per Rec Plan Table E-1)			Yards				FA
11	Prepare ground for EWRSP-1 slope armor 1			Waste Rock Dumps				FA
12	Prepare ground for EWRSP-2B slope armor 1			Waste Rock Dumps				FA
13	Prepare ground for EWRSP-2B slope armor 2			Waste Rock Dumps				FA
14	Prepare ground for EWRSP-4 slope armor 1			Waste Rock Dumps				FA
15	Prepare ground for WRSP-1 slope armor 1			Waste Rock Dumps				FA
16	Prepare ground for WRSP-1 slope armor 2			Waste Rock Dumps				FA
17	Prepare ground for WRSP-1 slope armor 3			Waste Rock Dumps				FA
18	Prepare ground for TSF slope armor 1			Tailings Storage Facility				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.

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Closure Cost Estimate
Yards, Etc.

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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	79.94	1,900	65,000							6	5,000	-5.0
2	Cyclone station pad	5.76	500	5,000							36	5,000	-5.0
3	Landbridge 1	2.42	300	2,000									
4	Landbridge 2	1.31	200	2,000									
5	EWRSP-2B-3	4.38	400	4,000							6	13,179	-2.5
6	EWRSP-4 drainage area	3.92	400	4,000							36	12,000	-1.8
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 p	29.33	1,100	24,000							0	5,000	-5.0
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM p	31.55	1,200	26,000							0	5,000	-5.0
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM p	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									

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

See User 05 for growth media stockpile inputs.
Regrade volume assumption of ___ ft depth of regrade:

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	1	Granite - broken	Med				
2	Cyclone station pad	1	Granite - broken	Med				
3	Landbridge 1	1	Granite - broken	Med				
4	Landbridge 2	1	Granite - broken	Med				
5	EWRSP-2B-3	1	Granite - broken	Med				
6	EWRSP-4 drainage area	1	Granite - broken	Med				
7	Disturbance around pit perimeter (approximated based on	1	Granite - broken	Med				
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM p	1	Topsoil	Med				
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM p	1	Topsoil	Med				
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM p	1	Topsoil	Med				
11	Prepare ground for EWRSP-1 slope armor 1	1	Granite - broken	Med				
12	Prepare ground for EWRSP-2B slope armor 1	1	Granite - broken	Med				
13	Prepare ground for EWRSP-2B slope armor 2	1	Granite - broken	Med				
14	Prepare ground for EWRSP-4 slope armor 1	1	Granite - broken	Med				
15	Prepare ground for WRSP-1 slope armor 1	1	Granite - broken	Med				
16	Prepare ground for WRSP-1 slope armor 2	1	Granite - broken	Med				
17	Prepare ground for WRSP-1 slope armor 3	1	Granite - broken	Med				
18	Prepare ground for TSF slope armor 1	1	Granite - broken	Med				

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

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Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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					Alluvium	Large Truck			User Mix 1			Yes	Med Dozer
2	Cyclone station pad					Alluvium	Large Truck			User Mix 1			No	
3	Landbridge 1					Alluvium	Large Truck			User Mix 1			Yes	Med Dozer
4	Landbridge 2					Alluvium	Large Truck			User Mix 1			Yes	Med Dozer
5	EWRSP-2B-3					Alluvium	Large Truck			User Mix 1			No	
6	EWRSP-4 drainage area					Alluvium	Large Truck			User Mix 1			No	
7	Disturbance around pit perimeter (approximated based on					Alluvium	Large Truck			User Mix 1			Yes	Med Dozer
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM p					Alluvium	Large Truck			User Mix 1			Yes	Med Dozer
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM p					Alluvium	Large Truck			User Mix 1			Yes	Med Dozer
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM p					Alluvium	Large Truck			User Mix 1			Yes	Med Dozer
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	

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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

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Closure Cost Estimate
Yards, Etc.

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	65,000	400	D8T	213	1.0	1.0	0.82	109	596	15,472	91,569	107,041
2	Cyclone station pad	5,000	400	D8T	213	1.0	1.0	0.82	109	46	1,194	7,067	8,261
3	Landbridge 1	2,000	400	D8T	213	1.0	1.0	0.82	109	18	467	2,766	3,233
4	Landbridge 2	2,000	400	D8T	213	1.0	1.0	0.82	109	18	467	2,766	3,233
5	EWRSP-2B-3	4,000	400	D8T	213	1.0	1.0	0.82	109	37	961	5,685	6,646
6	EWRSP-4 drainage area	4,000	400	D8T	213	1.0	1.0	0.82	109	37	961	5,685	6,646
7	Disturbance around pit perimeter (approximated based on	18,000	400	D8T	213	1.0	1.0	0.82	109	165	4,283	25,351	29,634
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM p	24,000	400	D8T	213	1.0	1.0	1.44	191	126	3,271	19,359	22,630
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM p	26,000	400	D8T	213	1.0	1.0	1.44	191	136	3,531	20,895	24,426
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM p	12,000	400	D8T	213	1.0	1.0	1.44	191	63	1,635	9,679	11,314
11	Prepare ground for EWRSP-1 slope armor 1	1,000	400	D8T	213	1.0	1.0	0.82	109	9	234	1,383	1,617
12	Prepare ground for EWRSP-2B slope armor 1	1,000	400	D8T	213	1.0	1.0	0.82	109	9	234	1,383	1,617
13	Prepare ground for EWRSP-2B slope armor 2	1,000	400	D8T	213	1.0	1.0	0.82	109	9	234	1,383	1,617
14	Prepare ground for EWRSP-4 slope armor 1	1,000	400	D8T	213	1.0	1.0	0.82	109	9	234	1,383	1,617
15	Prepare ground for WRSP-1 slope armor 1	1,000	400	D8T	213	1.0	1.0	0.82	109	9	234	1,383	1,617
16	Prepare ground for WRSP-1 slope armor 2	1,000	400	D8T	213	1.0	1.0	0.82	109	9	234	1,383	1,617
17	Prepare ground for WRSP-1 slope armor 3	1,000	400	D8T	213	1.0	1.0	0.82	109	9	234	1,383	1,617
18	Prepare ground for TSF slope armor 1	2,000	400	D8T	213	1.0	1.0	0.82	109	18	467	2,766	3,233
		171,000								1,323	**34,347**	**203,269**	**237,616**

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Closure Cost Estimate
Yards, Etc.

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	64,485	777G/992K/D9T	11.71	4	1,132	57	8,688	162,192	170,880
2	Cyclone station pad	27,878	777G/992K/D9T	11.71	4	1,132	25	3,811	71,137	74,948
3	Landbridge 1						0	0	0	0
4	Landbridge 2						0	0	0	0
5	EWRSP-2B-3	3,533	777G/992K/D9T	19.51	6	1,021	3	597	11,689	12,286
6	EWRSP-4 drainage area	18,973	777G/992K/D9T	12.48	4	1,062	18	2,744	51,218	53,962
7	Disturbance around pit perimeter (approximated based on	17,133	777G/992K/D9T	7.92	2	838	20	2,117	35,890	38,007
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM p	0			4		0	152	2,845	0
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM p	0			4		0	152	2,845	0
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM p	11,374	777G/992K/D9T	11.71	4	1,132	10	1,524	28,455	29,979
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
		143,376					133	**19,785**	**366,271**	**380,062**

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Closure Cost Estimate
Yards, Etc.

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	79.94	1,900	D7E	80	2,077	10,455	12,532	1,516	2,062	13,967	17,545
2	Cyclone station pad	5.76			0	0	0	0	109	149	1,006	1,264
3	Landbridge 1	2.42	300	D7E	3	78	392	470	46	62	423	531
4	Landbridge 2	1.31	200	D7E	2	52	261	313	25	34	229	288
5	EWRSP-2B-3	4.38			0	0	0	0	83	113	765	961
6	EWRSP-4 drainage area	3.92			0	0	0	0	74	101	685	860
7	Disturbance around pit perimeter (approximated based on	21.24	1,000	D7E	22	571	2,875	3,446	403	548	3,711	4,662
8	GM-01 ftprnt & assoc. disturb. (stockpile expended) (GM p	29.33	1,100	D7E	30	779	3,921	4,700	556	757	5,125	6,438
9	GM-02 ftprnt & assoc. disturb. (stockpile expended) (GM p	31.55	1,200	D7E	32	831	4,182	5,013	599	814	5,512	6,925
10	GM-03 ftprnt & assoc. disturb. (stockpile expended) (GM p	14.10	800	D7E	15	389	1,960	2,349	267	364	2,464	3,095
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
		197.44			184	**4,777**	**24,046**	**28,823**	**3,678**	**5,004**	**33,887**	**42,569**

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

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Closure Cost Estimate
Haul Material

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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			Waste Rock Dumps				FA			50,000		
2	Hauling material suitable for riprap from pit			Yards				FA			64,486		

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).

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Closure Cost Estimate
Haul Material

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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				10,000	0.0						

Notes:
1. Input distance to crusher if material to be crushed
2. Assumed to be 0% if material will be crushed and source is
3. If Slope is >20, downhill travel time may be underestimated

General plant area disturbance reclamation included under
Volume of material suitable for riprap hauled from pit is es

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	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

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Closure Cost Estimate
Haul Material

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	5.14	2	1,290	39
2	Hauling material suitable for riprap from pit		64,486					0	777G/992K/D9T	11.18	3	889	73
		0	114,486					0					112

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

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Closure Cost Estimate
Haul Material

Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_2
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201
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	4,128	69,985	74,113	74,113
2	Hauling material suitable for riprap from pit	0	0	0	0	0	0	0	9,426	169,359	178,785	178,785
		0	**0**	**0**	**0**	**0**	**0**	**0**	**13,554**	**239,344**	**252,898**	**252,898**

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Closure Cost Estimate
Foundations & Buildings

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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							
	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
1	Primary Crusher Control/Mechanical Building			Buildings				FA	20	15	25	8	0	0	20	0.01
2	Concentrator Building, Grinding Area			Buildings				FA	192	145	125	12	0	0	192	0.64
3	Concentrator Building, Flotation Area			Buildings				FA	216	96	80	12	0	0	216	0.48
4	Concentrator Building, Maintenance Area			Buildings				FA	70	50	30	10	0	0	70	0.09
5	Concentrate Handling & Storage Area, included in concentrator building			Buildings				FA	144	72	80	10	0	0	144	0.24
6	Concentrate Thickeners (1/2)			Buildings				FA	16	16	16	0	0	0	16	0.01
7	Concentrate Thickeners (2/2)			Buildings				FA	16	16	16	0	0	0	16	0.01
8	Ball Bins			Buildings				FA	109	51	0	12	0	0	109	0.13
9	Reagent Storage and Lime Handling			Buildings				FA	110	76	50	6	0	0	110	0.20
10	Flammable Material Storage Bldg.			Buildings				FA	25	17	9	8	0	0	25	0.01
11	Tailings Cyclone Station			Buildings				FA	75	50	40	0	0	0	75	0.09
12	Mine Shop/Warehouse			Buildings				FA	123	92	60	12	0	0	123	0.26
13	Wash Pad			Buildings				FA	90	90	0	10	0	0	90	0.19
14	Administration Building			Buildings				FA	96	60	24	12	0	0	96	0.14
15	Changehouse/Gatehouse			Buildings				FA	84	60	19	6	0	0	84	0.12
16	Assay & Metallurgical Laboratory			Buildings				FA	122	40	22	6	0	0	122	0.12
17	Copper Flat Electric Substation			Buildings				FA	115	70	0	0	0	0	115	0.19
18	Freshwater/Fire Tank (1)			Buildings				FA	40	40	36	0	0	0	40	0.04
19	Process water tank (1)			Buildings				FA	30	30	32	0	0	0	30	0.03
20	Fresh Water Pump Station Tanks (1/2)			Buildings				FA	40	40	36	0	0	0	40	0.04
21	Fresh Water Pump Station Tanks (2/2)			Buildings				FA	40	40	36	0	0	0	40	0.04
22	Potable Water Tank			Buildings				FA	12	12	7	0	0	0	12	0.01
23	Seal Water Tank			Buildings				FA	8	8	8	0	0	0	8	0.01
24	Reclaim Reservoir Fresh Water Surge Tank			Buildings				FA	16	16	0	0	0	0	16	0.01
25	Reclaim Reservoir Fresh Water Storage Tank			Buildings				FA	40	40	36	0	0	0	40	0.04
26	Off Road Diesel Fuel Storage Tank (1)			Buildings				FA	28	28	24	0	0	0	28	0.02
27	On Road Diesel Storage Tank			Buildings				FA	12	12	12	0	0	0	12	0.01
28	Gasoline Storage Tank			Buildings				FA	12	12	12	0	0	0	12	0.01
29	Recycle Water Tank - Truck Wash			Buildings				FA	12	12	12	0	0	0	12	0.01
30	Lime Silo			Buildings				FA	25	25	40	10	0	0	25	0.02
31	Lime Slurry Tank			Buildings				FA	12	12	25	0	0	0	12	0.01
32	Pax Mix Tank			Buildings				FA	8	8	11	0	0	0	8	0.01
33	Pax Distribution Tank			Buildings				FA	8	8	11	0	0	0	8	0.01
34	MIBC Storage Tank			Buildings				FA	8	8	6	0	0	0	8	0.01
35	No. 2 Diesel Storage Tank			Buildings				FA	8	8	6	0	0	0	8	0.01
36	NaHS Mix Tank			Buildings				FA	8	8	11	0	0	0	8	0.01
37	NaHS Distribution Tank			Buildings				FA	8	8	11	0	0	0	8	0.01
38	Moly Collector Mix Tank			Buildings				FA	8	8	6	0	0	0	8	0.01
39	Moly Collector Distribution Tank			Buildings				FA	8	8	6	0	0	0	8	0.01
40	AERO 238 Mix Tank			Buildings				FA	8	8	11	0	0	0	8	0.01
41	AERO 238 Distribution Tank			Buildings				FA	8	8	11	0	0	0	8	0.01
42	NaHS Stock Tank			Buildings				FA	8	8	11	0	0	0	8	0.01
43	Flocculant Tanks (1/2)			Buildings				FA	12	12	7	0	0	0	12	0.01
44	Flocculant Tanks (2/2)			Buildings				FA	12	12	7	0	0	0	12	0.01
45	Gravity Concentrator Concentrate Tank			Buildings				FA	12	12	10	0	0	0	12	0.01
46	Copper concentrate stock tank			Buildings				FA	17	17	25	0	0	0	17	0.01
47	Explosive Magazines (1/2)			Buildings				FA	8	8	8	0	0	0	8	0.01
48	Explosive Magazines (2/2)			Buildings				FA	8	8	8	0	0	0	8	0.01
49	Ammonium Nitrate Silo			Buildings				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.

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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 - broker	Large Truck		
2	Concentrator Building, Grinding Area	Lg. steel	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
3	Concentrator Building, Flotation Area	Lg. steel	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
4	Concentrator Building, Maintenance Area	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
5	Concentrate Handling & Storage Area, Included in concent	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
6	Concentrate Thickeners (1/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
7	Concentrate Thickeners (2/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
8	Ball Bins	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
9	Reagent Storage and Lime Handling	Lg. steel	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
10	Flammable Material Storage Bldg.	Lg. concrete	Conc 12 in (300 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
11	Tailings Cyclone Station	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
12	Mine Shop/Warehouse	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
13	Wash Pad	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
14	Administration Building	Sm. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
15	Changehouse/Gatehouse	Sm. steel	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
16	Assay & Metallurgical Laboratory	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
17	Copper Flat Electric Substation	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
18	Freshwater/Fire Tank (1)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Med Truck		
19	Process water tank (1)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Med Truck		
20	Fresh Water Pump Station Tanks (1/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Med Truck		
21	Fresh Water Pump Station Tanks (2/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Med Truck		
22	Potable Water Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
23	Seal Water Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
24	Reclaim Reservoir Fresh Water Surge Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
25	Reclaim Reservoir Fresh Water Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
26	Off Road Diesel Fuel Storage Tank (1)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
27	On Road Diesel Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
28	Gasoline Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
29	Recycle Water Tank - Truck Wash	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
30	Lime Silo	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
31	Lime Slurry Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
32	Pax Mix Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
33	Pax Distribution Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
34	MIBC Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
35	No. 2 Diesel Storage Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
36	NaHS Mix Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
37	NaHS Distribution Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
38	Moly Collector Mix Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
39	Moly Collector Distribution Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
40	AERO 238 Mix Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
41	AERO 238 Distribution Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
42	NaHS Stock Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
43	Flocculant Tanks (1/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
44	Flocculant Tanks (2/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
45	Gravity Concentrator Concentrate Tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
46	Copper concentrate stock tank	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		
47	Explosive Magazines (1/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Med Truck		
48	Explosive Magazines (2/2)	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Med Truck		
49	Ammonium Nitrate Silo	Lg. concrete	Conc 6 in (150 mm) thick	Break & bury	Med Excavator	Limestone - broker	Large Truck		

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

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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 CA

	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	3	70	0	0	7	349F	1
2	Concentrator Building, Grinding Area	27,840	3,480,000	930M/20 Ton Crane/Dump	1,295	674	0	0	1,031	349F	17
3	Concentrator Building, Flotation Area	20,736	1,658,880	930M/20 Ton Crane/Dump	617	624	0	0	768	349F	13
4	Concentrator Building, Maintenance Area	3,500	105,000	930M/Dump Truck (10-12 y	74	240	0	0	108	349F	2
5	Concentrate Handling & Storage Area, Included in concent	10,368	829,440	930M/20 Ton Crane/Dump	434	432	0	0	320	349F	5
6	Concentrate Thickeners (1/2)	256	4,096	930M/20 Ton Crane/Dump	2	64	0	0	0		0
7	Concentrate Thickeners (2/2)	256	4,096	930M/20 Ton Crane/Dump	2	64	0	0	0		0
8	Ball Bins	5,559	0	930M/20 Ton Crane/Dump	0	320	0	0	206	349F	3
9	Reagent Storage and Lime Handling	8,360	418,000	930M/20 Ton Crane/Dump	156	372	0	0	155	349F	3
10	Flammable Material Storage Bldg.	425	3,825	930M/20 Ton Crane/Dump	2	84	0	0	10	349F	1
11	Tailings Cyclone Station	3,750	150,000	930M/Dump Truck (10-12 y	106	250	0	0	0		0
12	Mine Shop/Warehouse	11,316	678,960	930M/Dump Truck (10-12 y	481	430	0	0	419	349F	7
13	Wash Pad	8,100	0	930M/Dump Truck (10-12 y	0	360	0	0	250	349F	4
14	Administration Building	5,760	138,240	930M/Dump Truck (10-12 y	98	312	0	0	213	349F	4
15	Changehouse/Gatehouse	5,040	95,760	930M/Dump Truck (10-12 y	52	288	0	0	93	349F	2
16	Assay & Metallurgical Laboratory	4,880	107,360	930M/20 Ton Crane/Dump	56	324	0	0	90	349F	2
17	Copper Flat Electric Substation	8,050	0	930M/20 Ton Crane/Dump	0	370	0	0	0		0
18	Freshwater/Fire Tank (1)	1,600	57,600	930M/20 Ton Crane/Dump	30	160	0	0	0		0
19	Process water tank (1)	900	26,800	930M/20 Ton Crane/Dump	15	120	0	0	0		0
20	Fresh Water Pump Station Tanks (1/2)	1,600	57,600	930M/20 Ton Crane/Dump	30	160	0	0	0		0
21	Fresh Water Pump Station Tanks (2/2)	1,600	57,600	930M/20 Ton Crane/Dump	30	160	0	0	0		0
22	Potable Water Tank	144	1,044	930M/20 Ton Crane/Dump	1	48	0	0	0		0
23	Seal Water Tank	64	512	930M/20 Ton Crane/Dump	0	32	0	0	0		0
24	Reclaim Reservoir Fresh Water Surge Tank	256	0	930M/20 Ton Crane/Dump	0	64	0	0	0		0
25	Reclaim Reservoir Fresh Water Storage Tank	1,600	57,600	930M/20 Ton Crane/Dump	30	160	0	0	0		0
26	Off Road Diesel Fuel Storage Tank (1)	784	18,816	930M/20 Ton Crane/Dump	10	112	0	0	0		0
27	On Road Diesel Storage Tank	144	1,728	930M/20 Ton Crane/Dump	1	48	0	0	0		0
28	Gasoline Storage Tank	144	1,728	930M/20 Ton Crane/Dump	1	48	0	0	0		0
29	Recycle Water Tank - Truck Wash	144	1,728	930M/20 Ton Crane/Dump	1	48	0	0	0		0
30	Lime Silo	625	25,000	930M/20 Ton Crane/Dump	13	100	0	0	19	349F	1
31	Lime Slurry Tank	144	3,600	930M/20 Ton Crane/Dump	2	48	0	0	0		0
32	Pax Mix Tank	64	683	930M/20 Ton Crane/Dump	0	32	0	0	0		0
33	Pax Distribution Tank	64	683	930M/20 Ton Crane/Dump	0	32	0	0	0		0
34	MIBC Storage Tank	64	384	930M/20 Ton Crane/Dump	0	32	0	0	0		0
35	No. 2 Diesel Storage Tank	64	384	930M/20 Ton Crane/Dump	0	32	0	0	0		0
36	NaHS Mix Tank	64	683	930M/20 Ton Crane/Dump	0	32	0	0	0		0
37	NaHS Distribution Tank	64	683	930M/20 Ton Crane/Dump	0	32	0	0	0		0
38	Moly Collector Mix Tank	64	384	930M/20 Ton Crane/Dump	0	32	0	0	0		0
39	Moly Collector Distribution Tank	64	384	930M/20 Ton Crane/Dump	0	32	0	0	0		0
40	AERO 238 Mix Tank	64	683	930M/20 Ton Crane/Dump	0	32	0	0	0		0
41	AERO 238 Distribution Tank	64	683	930M/20 Ton Crane/Dump	0	32	0	0	0		0
42	NaHS Stock Tank	64	683	930M/20 Ton Crane/Dump	0	32	0	0	0		0
43	Flocculant Tanks (1/2)	144	1,044	930M/20 Ton Crane/Dump	1	48	0	0	0		0
44	Flocculant Tanks (2/2)	144	1,044	930M/20 Ton Crane/Dump	1	48	0	0	0		0
45	Gravity Concentrator Concentrate Tank	144	1,368	930M/20 Ton Crane/Dump	1	48	0	0	0		0
46	Copper concentrate stock tank	289	7,109	930M/20 Ton Crane/Dump	4	68	0	0	0		0
47	Explosive Magazines (1/2)	64	512	930M/20 Ton Crane/Dump	0	32	0	0	0		0
48	Explosive Magazines (2/2)	64	512	930M/20 Ton Crane/Dump	0	32	0	0	0		0
49	Ammonium Nitrate Silo	225	13,500	930M/20 Ton Crane/Dump	7	60	0	0	0		0
			8,025,919						3,689		65

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Project Name: Copper Flat Reclamation Bond Cost Est
Date of Submittal: July 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_20
Cost Estimate Type: FA Cost Basis: Copper Flat F

Building & Foundation Demolition Costs

iT 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	0	0	0	59	415	474	659	1,165	1,824
2	Concentrator Building, Grinding Area	278,400	348,000	626,400	0	0	0	1,007	7,047	8,054	279,407	355,047	634,454
3	Concentrator Building, Flotation Area	132,710	165,888	298,598	0	0	0	770	5,389	6,159	133,480	171,277	304,757
4	Concentrator Building, Maintenance Area	12,600	13,650	26,250	0	0	0	119	829	948	12,719	14,479	27,198
5	Concentrate Handling & Storage Area, Included in concent	91,238	116,122	207,360	0	0	0	296	2,073	2,369	91,534	118,195	209,729
6	Concentrate Thickeners (1/2)	451	573	1,024	0	0	0	0	0	0	451	573	1,024
7	Concentrate Thickeners (2/2)	451	573	1,024	0	0	0	0	0	0	451	573	1,024
8	Ball Bins	0	0	0	0	0	0	178	1,244	1,422	178	1,244	1,422
9	Reagent Storage and Lime Handling	33,440	41,800	75,240	0	0	0	178	1,244	1,422	33,618	43,044	76,662
10	Flammable Material Storage Bldg.	421	536	957	0	0	0	59	415	474	480	951	1,431
11	Tailings Cyclone Station	18,000	19,500	37,500	0	0	0	0	0	0	18,000	19,500	37,500
12	Mine Shop/Warehouse	81,475	88,265	169,740	0	0	0	415	2,902	3,317	81,890	91,167	173,057
13	Wash Pad	0	0	0	0	0	0	237	1,658	1,895	237	1,658	1,895
14	Administration Building	16,589	17,971	34,560	0	0	0	237	1,658	1,895	16,826	19,629	36,455
15	Changehouse/Gatehouse	8,618	9,576	18,194	0	0	0	119	829	948	8,737	10,405	19,142
16	Assay & Metallurgical Laboratory	11,810	15,030	26,840	0	0	0	119	829	948	11,929	15,859	27,788
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	0	0	0	0	0	0	0	0	0	0	0	0
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	415	474	2,809	3,915	6,724
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
		724,724	**886,505**	**1,611,229**	**0**	**0**	**0**	**3,852**	**26,947**	**30,799**	**728,576**	**913,452**	**1,642,028**

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	Excavating Material Condition (select)	Excavating Equipment Fleet (select)
1	EWRSP-1 - Diversion Channel, DC-1			Waste Rock Dumps				FA	655	4.0	10.0	3.0		1	Small
2	EWRSP-1 - Diversion Swale, DS-1			Waste Rock Dumps				FA	512	3.0	10.0	3.0		1	Small
3	EWRSP-1 - Toe Channel, TC-1			Waste Rock Dumps				FA	1170	3.0	10.0	3.0		1	Small
4	EWRSP-1 - Toe Channel, TC-2			Waste Rock Dumps				FA	636	3.0	10.0	3.0		1	Small
5	EWRSP-1 - Haul Road Channel, HC-1			Waste Rock Dumps				FA	455	2.0	10.0	3.0		1	Small
6	EWRSP-2B - Top Surface Channel, TSC-1			Waste Rock Dumps				FA	1258	2.0	10.0	3.0		1	Small
7	EWRSP-2B - Toe Channel, TC-3			Waste Rock Dumps				FA	525	4.0	10.0	3.0		1	Small
8	EWRSP-2B - Diversion Swale, DS-2			Waste Rock Dumps				FA	455	3.0	10.0	3.0		1	Small
9	EWRSP-4 - Top Surface Channel, TSC-2+Haul Road Channel, HC-2			Waste Rock Dumps				FA	1461	3.0	10.0	3.0		1	Small
10	EWRSP-4 - Toe Channel, TC-4			Waste Rock Dumps				FA	1609	2.0	10.0	3.0		1	Small
11	WRSP-1 - Diversion Swale, DS-3 - built during operations			Waste Rock Dumps				FA	0	3.0	10.0	3.0		1	Small
12	WRSP-1 - Diversion Swale, DS-4 - built during operations			Waste Rock Dumps				FA	0	4.0	10.0	3.0		1	Small
13	WRSP-1 - Diversion Channel, DC-2			Waste Rock Dumps				FA	596	3.0	10.0	3.0		1	Small
14	WRSP-1 - Top Surface Channel-3			Waste Rock Dumps				FA	842	3.0	10.0	3.0		1	Small
15	WRSP-1 - Bench Channels, BC-1 through BC-4			Waste Rock Dumps				FA	4286	2.0	10.0	3.0		1	Small
16	WRSP-1 - Haul Road Channel, HC-3			Waste Rock Dumps				FA	1800	3.0	10.0	3.0		1	Small
17	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during operations			Waste Rock Dumps				FA	0	4.0	10.0	3.0		1	Small
18	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during operations			Waste Rock Dumps				FA	0	3.0	10.0	3.0		1	Small
19	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during operations			Waste Rock Dumps				FA	0	3.0	10.0	3.0		1	Small
20	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4			Waste Rock Dumps				FA	1847	3.0	10.0	3.0		1	Small
21	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4			Waste Rock Dumps				FA	741	3.0	10.0	3.0		1	Small
22	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5			Waste Rock Dumps				FA	958	4.0	10.0	3.0		1	Small
23	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built with ACB			Waste Rock Dumps				FA	634	2.0	20.0	3.0		1	Small
24	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built with ACB			Waste Rock Dumps				FA	1891	2.0	20.0	3.0		1	Small
25	WRSP-2 and WRSP-3 - Toe Channel, TC-5			Waste Rock Dumps				FA	1608	3.0	10.0	3.0		1	Small
26	WRSP-2 and WRSP-3 - Toe Channel, TC-6			Waste Rock Dumps				FA	325	4.0	10.0	3.0		1	Small
27	WRSP-2 and WRSP-3 - Bench Channels, BC-5 through BC-20			Waste Rock Dumps				FA	18458	3.0	10.0	3.0		1	Small
28	TSF - Downslope Channel, DSC-3 - built with ACB			Tailings Storage Facility				FA	950	2.0	20.0	3.0		1	Small
29	TSF - Downslope Channel, DSC-4 - built with ACB			Tailings Storage Facility				FA	932	2.0	20.0	3.0		1	Small
30	TSF - Downslope Channel, DSC-5 - built with ACB			Tailings Storage Facility				FA	2302	3.0	20.0	3.0		1	Small
31	TSF - Top Surface Channel, TSC-6			Tailings Storage Facility				FA	2914	5.0	10.0	3.0		1	Small
32	TSF - Top Surface Channel, TSC-7			Tailings Storage Facility				FA	3673	5.0	10.0	3.0		1	Small
33	TSF - Bench Channels, BC-21 through BC-42			Tailings Storage Facility				FA	33454	3.0	10.0	3.0		1	Small
34	TSF - Toe Channel, TC-7			Tailings Storage Facility				FA	1891	6.0	15.0	3.0		1	Small
35	TSF - Toe Channel, TC-8			Tailings Storage Facility				FA	1839	5.0	10.0	3.0		1	Small
36	TSF - Toe Channel, TC-9			Tailings Storage Facility				FA	1524	4.0	10.0	3.0		1	Small
37	PLANT - Perimeter Channel, PC-2			Yards				FA	2361	4.0	10.0	3.0		1	Small
38	PLANT - Toe Channel, TC-10			Yards				FA	606	3.0	10.0	3.0		1	Small
39	PIT - Perimeter Channel, PC-1			Pits				FA	2847	5.0	10.0	3.0		1	Small
40	PIT - Haul Road Channel, HC-5 - built with ACB			Pits				FA	2110	4.0	10.0	3.0		1	Small
41	Dissipaters - TSF - bottom of DSC-3			Tailings Storage Facility				FA	64	3.0	30.0	3.0		1	Small
42	Dissipaters - TSF - bottom of DSC-4			Tailings Storage Facility				FA	64	3.0	30.0	3.0		1	Small
43	Dissipaters - TSF - bottom of DSC-5			Tailings Storage Facility				FA	76	4.5	30.0	3.0		1	Small
44	Dissipaters - WRD1 - 1 - bottom of HC-3			Waste Rock Dumps				FA	56	4.5	15.0	3.0		1	Small
45	Dissipaters - WRD3 - 1 - bottom of DSC-1			Waste Rock Dumps				FA	64	3.0	30.0	3.0		1	Small
46	Dissipaters - WRD3 - 2 - bottom of DSC-2			Waste Rock Dumps				FA	64	3.0	30.0	3.0		1	Small

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.

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Project Name: Copper Flat Reclamation Bond Cost E
Date of Submittal: July 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_2
Cost Estimate Type: FA Cost Basis: Copper Flat

Diversion Ditches - User Input

		Revegetation			Liner and Rip-Rap Installation				
	Description (required)	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	User Mix 1					2,474	Rip-Rap 3/8 to 1/4 m	B-12G
2	EWRSP-1 - Diversion Swale, DS-1	User Mix 1					1,593	Rip-Rap 450 mm min	B-12G
3	EWRSP-1 - Toe Channel, TC-1	User Mix 1					3,640	Rip-Rap 450 mm min	B-12G
4	EWRSP-1 - Toe Channel, TC-2	User Mix 1					1,979	Rip-Rap 450 mm min	B-12G
5	EWRSP-1 - Haul Road Channel, HC-1	User Mix 1					1,112	Rip-Rap 450 mm min	B-12G
6	EWRSP-2B - Top Surface Channel, TSC-1	User Mix 1					3,075	Rip-Rap 450 mm min	B-12G
7	EWRSP-2B - Toe Channel, TC-3	User Mix 1					1,983	Rip-Rap 450 mm min	B-12G
8	EWRSP-2B - Diversion Swale, DS-2	User Mix 1					1,416	Rip-Rap 450 mm min	B-12G
9	EWRSP-4 - Top Surface Channel, TSC-2+Haul Road Chann	User Mix 1					4,545	Rip-Rap 450 mm min	B-12G
10	EWRSP-4 - Toe Channel, TC-4	User Mix 1					3,933	Rip-Rap 450 mm min	B-12G
11	WRSP-1 - Diversion Swale, DS-3 - built during operations	User Mix 1					0	Rip-Rap 450 mm min	B-12G
12	WRSP-1 - Diversion Swale, DS-4 - built during operations	User Mix 1					0	Rip-Rap 450 mm min	B-12G
13	WRSP-1 - Diversion Channel, DC-2	User Mix 1					1,854	Rip-Rap 450 mm min	B-12G
14	WRSP-1 - Top Surface Channel-3	User Mix 1					2,620	Rip-Rap 450 mm min	B-12G
15	WRSP-1 - Bench Channels, BC-1 through BC-4	User Mix 1					10,477	Rip-Rap 450 mm min	B-12G
16	WRSP-1 - Haul Road Channel, HC-3	User Mix 1					5,600	Rip-Rap 450 mm min	B-12G
17	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during	User Mix 1					0	Rip-Rap 450 mm min	B-12G
18	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during	User Mix 1					0	Rip-Rap 450 mm min	B-12G
19	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during	User Mix 1					0	Rip-Rap 450 mm min	B-12G
20	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4	User Mix 1					5,746	Rip-Rap 450 mm min	B-12G
21	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4	User Mix 1					2,305	Rip-Rap 450 mm min	B-12G
22	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5	User Mix 1					3,619	Rip-Rap 450 mm min	B-12G
23	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built v	User Mix 1					2,254		B-12G
24	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built v	User Mix 1					6,724		B-12G
25	WRSP-2 and WRSP-3 - Toe Channel, TC-5	User Mix 1					5,003	Rip-Rap 450 mm min	B-12G
26	WRSP-2 and WRSP-3 - Toe Channel, TC-6	User Mix 1					1,228	Rip-Rap 450 mm min	B-12G
27	WRSP-2 and WRSP-3 - Bench Channels, BC-5 through BC-	User Mix 1					57,425	Rip-Rap 450 mm min	B-12G
28	TSF - Downslope Channel, DSC-3 - built with ACB	User Mix 1					3,378		B-12G
29	TSF - Downslope Channel, DSC-4 - built with ACB	User Mix 1					3,314		B-12G
30	TSF - Downslope Channel, DSC-5 - built with ACB	User Mix 1					9,720		B-12G
31	TSF - Top Surface Channel, TSC-6	User Mix 1					12,951	Rip-Rap 450 mm min	B-12G
32	TSF - Top Surface Channel, TSC-7	User Mix 1					16,324	Rip-Rap 450 mm min	B-12G
33	TSF - Bench Channels, BC-21 through BC-42	User Mix 1					104,079	Rip-Rap 450 mm min	B-12G
34	TSF - Toe Channel, TC-7	User Mix 1					10,716	Rip-Rap 450 mm min	B-12G
35	TSF - Toe Channel, TC-8	User Mix 1					8,173	Rip-Rap 450 mm min	B-12G
36	TSF - Toe Channel, TC-9	User Mix 1					5,757	Rip-Rap 450 mm min	B-12G
37	PLANT - Perimeter Channel, PC-2	User Mix 1					8,919	Rip-Rap 450 mm min	B-12G
38	PLANT - Toe Channel, TC-10	User Mix 1					1,885	Rip-Rap 450 mm min	B-12G
39	PIT - Perimeter Channel, PC-1	User Mix 1					12,653	Rip-Rap 450 mm min	B-12G
40	PIT - Haul Road Channel, HC-5 - built with ACB	User Mix 1					7,971		B-12G
41	Dissipaters - TSF - bottom of DSC-3	User Mix 1					341	Rip-Rap 450 mm min	B-12G
42	Dissipaters - TSF - bottom of DSC-4	User Mix 1					341	Rip-Rap 450 mm min	B-12G
43	Dissipaters - TSF - bottom of DSC-5	User Mix 1					481	Rip-Rap 450 mm min	B-12G
44	Dissipaters - WRD1 - 1 - bottom of HC-3	User Mix 1					261	Rip-Rap 450 mm min	B-12G
45	Dissipaters - WRD3 - 1 - bottom of DSC-1	User Mix 1					341	Rip-Rap 450 mm min	B-12G
46	Dissipaters - WRD3 - 2 - bottom of DSC-2	User Mix 1					341	Rip-Rap 450 mm min	B-12G

Notes:
See User 10 for diversion lengths. ACB (articulated concre
This estimate accounts for construction of diversion ditche
Riprap material will be available from characterised materia

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	465	665
2	EWRSP-1 - Diversion Swale, DS-1	1,297	325F	398	3	100	232	332
3	EWRSP-1 - Toe Channel, TC-1	2,964	325F	398	7	233	542	775
4	EWRSP-1 - Toe Channel, TC-2	1,611	325F	398	4	133	310	443
5	EWRSP-1 - Haul Road Channel, HC-1	647	325F	398	2	67	155	222
6	EWRSP-2B - Top Surface Channel, TSC-1	1,789	325F	398	4	133	310	443
7	EWRSP-2B - Toe Channel, TC-3	2,053	325F	398	5	167	387	554
8	EWRSP-2B - Diversion Swale, DS-2	1,153	325F	398	3	100	232	332
9	EWRSP-4 - Top Surface Channel, TSC-2+Haul Road Chann	3,701	325F	398	9	300	697	997
10	EWRSP-4 - Toe Channel, TC-4	2,288	325F	398	6	200	465	665
11	WRSP-1 - Diversion Swale, DS-3 - built during operations				0	0	0	0
12	WRSP-1 - Diversion Swale, DS-4 - built during operations				0	0	0	0
13	WRSP-1 - Diversion Channel, DC-2	1,510	325F	398	4	133	310	443
14	WRSP-1 - Top Surface Channel-3	2,133	325F	398	5	167	387	554
15	WRSP-1 - Bench Channels, BC-1 through BC-4	6,096	325F	398	15	500	1,162	1,662
16	WRSP-1 - Haul Road Channel, HC-3	4,560	325F	398	11	366	852	1,218
17	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during				0	0	0	0
18	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during				0	0	0	0
19	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during				0	0	0	0
20	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4	4,679	325F	398	12	400	930	1,330
21	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4	1,877	325F	398	5	167	387	554
22	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5	3,747	325F	398	9	300	697	997
23	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built v	1,465	325F	398	4	133	310	443
24	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built v	4,370	325F	398	11	366	852	1,218
25	WRSP-2 and WRSP-3 - Toe Channel, TC-5	4,074	325F	398	10	333	775	1,108
26	WRSP-2 and WRSP-3 - Toe Channel, TC-6	1,271	325F	398	3	100	232	332
27	WRSP-2 and WRSP-3 - Bench Channels, BC-5 through BC-	46,760	325F	398	117	3,896	9,066	12,962
28	TSF - Downslope Channel, DSC-3 - built with ACB	2,196	325F	398	6	200	465	665
29	TSF - Downslope Channel, DSC-4 - built with ACB	2,154	325F	398	5	167	387	554
30	TSF - Downslope Channel, DSC-5 - built with ACB	8,901	325F	398	22	733	1,705	2,438
31	TSF - Top Surface Channel, TSC-6	16,189	325F	398	41	1,365	3,177	4,542
32	TSF - Top Surface Channel, TSC-7	20,406	325F	398	51	1,698	3,952	5,650
33	TSF - Bench Channels, BC-21 through BC-42	84,750	325F	398	213	7,093	16,505	23,598
34	TSF - Toe Channel, TC-7	16,641	325F	398	42	1,399	3,255	4,654
35	TSF - Toe Channel, TC-8	10,217	325F	398	26	866	2,015	2,881
36	TSF - Toe Channel, TC-9	5,961	325F	398	15	500	1,162	1,662
37	PLANT - Perimeter Channel, PC-2	9,234	325F	398	23	766	1,782	2,548
38	PLANT - Toe Channel, TC-10	1,535	325F	398	4	133	310	443
39	PIT - Perimeter Channel, PC-1	15,817	325F	398	40	1,332	3,100	4,432
40	PIT - Haul Road Channel, HC-5 - built with ACB	8,252	325F	398	21	699	1,627	2,326
41	Dissipaters - TSF - bottom of DSC-3	333	325F	398	1	33	77	110
42	Dissipaters - TSF - bottom of DSC-4	333	325F	398	1	33	77	110
43	Dissipaters - TSF - bottom of DSC-5	661	325F	398	2	67	155	222
44	Dissipaters - WRD1 - 1 - bottom of HC-3	319	325F	398	1	33	77	110
45	Dissipaters - WRD3 - 1 - bottom of DSC-1	333	325F	398	1	33	77	110
46	Dissipaters - WRD3 - 2 - bottom of DSC-2	333	325F	398	1	33	77	110
		307,172			771	**25,677**	**59,737**	**85,414**

Notes: LCM assumes 20% swell from ditch volume

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Project Name: Copper Flat Reclamation Bond Cost E
Date of Submittal: July 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_2
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	64,756	0	81,236
2	EWRSP-1 - Diversion Swale, DS-1	0	0	0	0	16,009	62,935	0	78,944
3	EWRSP-1 - Toe Channel, TC-1	0	0	0	0	36,582	143,816	0	180,398
4	EWRSP-1 - Toe Channel, TC-2	0	0	0	0	19,886	78,177	0	98,063
5	EWRSP-1 - Haul Road Channel, HC-1	0	0	0	0	11,178	43,944	0	55,122
6	EWRSP-2B - Top Surface Channel, TSC-1	0	0	0	0	30,905	121,498	0	152,403
7	EWRSP-2B - Toe Channel, TC-3	0	0	0	0	19,933	78,362	0	98,295
8	EWRSP-2B - Diversion Swale, DS-2	0	0	0	0	14,226	55,929	0	70,155
9	EWRSP-4 - Top Surface Channel, TSC-2+Haul Road Chann	0	0	0	0	45,681	179,586	0	225,267
10	EWRSP-4 - Toe Channel, TC-4	0	0	0	0	39,528	155,397	0	194,925
11	WRSP-1 - Diversion Swale, DS-3 - built during operations	0	0	0	0	0	0	0	0
12	WRSP-1 - Diversion Swale, DS-4 - built during operations	0	0	0	0	0	0	0	0
13	WRSP-1 - Diversion Channel, DC-2	0	0	0	0	18,635	73,260	0	91,895
14	WRSP-1 - Top Surface Channel-3	0	0	0	0	26,327	103,499	0	129,826
15	WRSP-1 - Bench Channels, BC-1 through BC-4	0	0	0	0	105,293	413,942	0	519,235
16	WRSP-1 - Haul Road Channel, HC-3	0	0	0	0	56,280	221,256	0	277,536
17	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during	0	0	0	0	0	0	0	0
18	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during	0	0	0	0	0	0	0	0
19	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during	0	0	0	0	0	0	0	0
20	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4	0	0	0	0	57,750	227,033	0	284,783
21	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4	0	0	0	0	23,169	91,084	0	114,253
22	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5	0	0	0	0	36,372	142,991	0	179,363
23	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built v	0	0	0	0	0	0	0	0
24	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built v	0	0	0	0	0	0	0	0
25	WRSP-2 and WRSP-3 - Toe Channel, TC-5	0	0	0	0	50,277	197,655	0	247,932
26	WRSP-2 and WRSP-3 - Toe Channel, TC-6	0	0	0	0	12,339	48,510	0	60,849
27	WRSP-2 and WRSP-3 - Bench Channels, BC-5 through BC-	0	0	0	0	577,120	2,268,857	0	2,845,977
28	TSF - Downslope Channel, DSC-3 - built with ACB	0	0	0	0	0	0	0	0
29	TSF - Downslope Channel, DSC-4 - built with ACB	0	0	0	0	0	0	0	0
30	TSF - Downslope Channel, DSC-5 - built with ACB	0	0	0	0	0	0	0	0
31	TSF - Top Surface Channel, TSC-6	0	0	0	0	130,159	511,698	0	641,857
32	TSF - Top Surface Channel, TSC-7	0	0	0	0	164,061	644,979	0	809,040
33	TSF - Bench Channels, BC-21 through BC-42	0	0	0	0	1,045,995	4,112,166	0	5,158,161
34	TSF - Toe Channel, TC-7	0	0	0	0	107,692	423,376	0	531,068
35	TSF - Toe Channel, TC-8	0	0	0	0	82,142	322,928	0	405,070
36	TSF - Toe Channel, TC-9	0	0	0	0	57,861	227,472	0	285,333
37	PLANT - Perimeter Channel, PC-2	0	0	0	0	89,639	352,403	0	442,042
38	PLANT - Toe Channel, TC-10	0	0	0	0	18,948	74,490	0	93,438
39	PIT - Perimeter Channel, PC-1	0	0	0	0	127,166	499,933	0	627,099
40	PIT - Haul Road Channel, HC-5 - built with ACB	0	0	0	0	0	0	0	0
41	Dissipaters - TSF - bottom of DSC-3	0	0	0	0	3,430	13,486	0	16,916
42	Dissipaters - TSF - bottom of DSC-4	0	0	0	0	3,430	13,486	0	16,916
43	Dissipaters - TSF - bottom of DSC-5	0	0	0	0	4,837	19,017	0	23,854
44	Dissipaters - WRD1 - 1 - bottom of HC-3	0	0	0	0	2,626	10,325	0	12,951
45	Dissipaters - WRD3 - 1 - bottom of DSC-1	0	0	0	0	3,430	13,486	0	16,916
46	Dissipaters - WRD3 - 2 - bottom of DSC-2	0	0	0	0	3,430	13,486	0	16,916
		0	**0**	**0**	**0**	**3,058,816**	**12,025,218**	**0**	**15,084,034**

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	19	26	87	132
2	EWRSP-1 - Diversion Swale, DS-1	0.30	19	26	52	97
3	EWRSP-1 - Toe Channel, TC-1	0.80	19	26	140	185
4	EWRSP-1 - Toe Channel, TC-2	0.40	19	26	70	115
5	EWRSP-1 - Haul Road Channel, HC-1	0.20	19	26	35	80
6	EWRSP-2B - Top Surface Channel, TSC-1	0.70	19	26	122	167
7	EWRSP-2B - Toe Channel, TC-3	0.40	19	26	70	115
8	EWRSP-2B - Diversion Swale, DS-2	0.30	19	26	52	97
9	EWRSP-4 - Top Surface Channel, TSC-2+Haul Road Chann	1.00	19	26	175	220
10	EWRSP-4 - Toe Channel, TC-4	0.80	19	26	140	185
11	WRSP-1 - Diversion Swale, DS-3 - built during operations		0	0	0	0
12	WRSP-1 - Diversion Swale, DS-4 - built during operations		0	0	0	0
13	WRSP-1 - Diversion Channel, DC-2	0.40	19	26	70	115
14	WRSP-1 - Top Surface Channel-3	0.60	19	26	105	150
15	WRSP-1 - Bench Channels, BC-1 through BC-4	2.20	42	57	384	483
16	WRSP-1 - Haul Road Channel, HC-3	1.20	23	31	210	264
17	WRSP-2 and WRSP-3 - Diversion Swale, DS-5 - built during		0	0	0	0
18	WRSP-2 and WRSP-3 - Diversion Swale, DS-6 - built during		0	0	0	0
19	WRSP-2 and WRSP-3 - Diversion Swale, DS-7 - built during		0	0	0	0
20	WRSP-2 and WRSP-3 - Haul Road Channel, HC-4	1.20	23	31	210	264
21	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-4	0.50	19	26	87	132
22	WRSP-2 and WRSP-3 - Top Surface Channel, TSC-5	0.80	19	26	140	185
23	WRSP-2 and WRSP-3 - Downslope Channel, DSC-1 - built v	0.50	19	26	87	132
24	WRSP-2 and WRSP-3 - Downslope Channel, DSC-2 - built v	1.40	27	36	245	308
25	WRSP-2 and WRSP-3 - Toe Channel, TC-5	1.10	21	28	192	241
26	WRSP-2 and WRSP-3 - Toe Channel, TC-6	0.30	19	26	52	97
27	WRSP-2 and WRSP-3 - Bench Channels, BC-5 through BC-	12.30	233	317	2,149	2,699
28	TSF - Downslope Channel, DSC-3 - built with ACB	0.70	19	26	122	167
29	TSF - Downslope Channel, DSC-4 - built with ACB	0.70	19	26	122	167
30	TSF - Downslope Channel, DSC-5 - built with ACB	2.10	40	54	367	461
31	TSF - Top Surface Channel, TSC-6	2.80	53	72	489	614
32	TSF - Top Surface Channel, TSC-7	3.50	66	90	612	768
33	TSF - Bench Channels, BC-21 through BC-42	22.30	423	575	3,896	4,894
34	TSF - Toe Channel, TC-7	2.30	44	59	402	505
35	TSF - Toe Channel, TC-8	1.80	34	46	314	394
36	TSF - Toe Channel, TC-9	1.20	23	31	210	264
37	PLANT - Perimeter Channel, PC-2	1.90	36	49	332	417
38	PLANT - Toe Channel, TC-10	0.40	19	26	70	115
39	PIT - Perimeter Channel, PC-1	2.70	51	70	472	593
40	PIT - Haul Road Channel, HC-5 - built with ACB	1.70	32	44	297	373
41	Dissipaters - TSF - bottom of DSC-3	0.10	19	26	17	62
42	Dissipaters - TSF - bottom of DSC-4	0.10	19	26	17	62
43	Dissipaters - TSF - bottom of DSC-5	0.10	19	26	17	62
44	Dissipaters - WRD1 - 1 - bottom of HC-3	0.10	19	26	17	62
45	Dissipaters - WRD3 - 1 - bottom of DSC-1	0.10	19	26	17	62
46	Dissipaters - WRD3 - 2 - bottom of DSC-2	0.10	19	26	17	62
		72.60	**1,645**	**2,235**	**12,681**	**16,561**

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Closure Cost Estimate
Well Abandonment

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Monitoring Well/Piezometer Closure

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Number of Holes	Casing Diam in	Average Depth ft bgs	Top of Screen[1] ft bgs	Hole Plug Method (select)	Casing Volume per ft ft3	Grout Volume/ Well[2,3] cy	Cement Volume per Hole[4] cy	Inert Backfill Volume per Hole[5] cy	Total Grouting Hours/ Hole hrs	Total Inert Media Hours/ Hole hrs	Grout + Cement Labor Cost[6] $	Grout + Cement Equip Cost[6] $	Grout + Cement Material Cost $	Inert Material Labor Cost[7] $	Inert Material Equip Cost[7] $	Total Cost $
1	Monitoring wells closed at end of operation			Wells				FA	28	4.0	405	300	Grout Only	0.090	1.67	0.02		3.8	0.0	4,658	64,446	1,946	0	0	71,050
2	Monitoring wells closed after Closure Year 3			Wells				FA	1	4.0	405	300	Grout Only	0.090	1.67	0.02		3.8	0.0	166	2,302	70	0	0	2,538
3	Monitoring wells closed after Closure Year 5			Wells				FA	2	4.0	405	300	Grout Only	0.090	1.67	0.02		3.8	0.0	333	4,603	139	0	0	5,075
4	Monitoring wells closed after Closure Year 16			Wells				FA	2	4.0	405	300	Grout Only	0.090	1.67	0.02		3.8	0.0	333	4,603	139	0	0	5,075
5	Monitoring wells abandoned at the end			Wells				FA	20	4.0	405	300	Grout Only	0.090	1.67	0.02		3.8	0.0	3,327	46,033	1,390	0	0	50,750
																				8,817	**121,987**	**3,684**	**0**	**0**	**134,488**

Wells abandoned per NAC 534.420 with bentonite grout placed to 50 feet above the top of the screen (see note 1).
(1) Assumes top of screen is at or above the static water level (in unconfined aquifers) or the depth of first water encountered (in confined aquifers).
(2) Assumes 25% loss to formation for grouting
(3) Grouting only required to 50' (15.24m) above the top of screen because monitor wells are constructed with a seal in the annular space.
(4) Assumes top 10' (3m) plugged with cement.
(5) Assumes hole plugged with inert material (cuttings or alluvium) above grout up to cement surface plug.
(6) See Productivity Sheet for hourly production. Minimum 1 hr per hole + fixed hours per hole for move and setup (see Productivty Sheet).
(7) See Productivity Sheet for hourly production. Minimum 1 hr per hole.

Notes:

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Closure Cost Estimate
Waste Disposal

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				FA	Process - Other	Landfill (bulk)	350	5000	-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)

Assumed cy/annum solid waste produced: 50

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	Solid Quantity cy	One Way Travel Distance to Disposal Site mi	One Way Travel Time to Disposal Site hr
1	Laboratory Wastes			Waste Disposal				FA	Process - Other	Liquid 55-gal drum	Small (2,200 ga	165		120	2.4
2	Reagent Wastes			Waste Disposal				FA	Process - Other	Solid Bulk	Small (2,200 gal)		100	120	2.4

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	Process - Other	Off site	100	75

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

Quantities at closure assumed.
Disposal of PCS in Las Cruces.

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
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Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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)

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Closure Cost Estimate
Waste Disposal

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
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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	350		730C2	105	1	3	0	272	1,321	1,593
		350					3	**0**	**272**	**1,321**	**1,593**

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		100	5	130	0	5,664	39,650	45,314
		165	100		131	**795**	**7,080**	**39,955**	**47,830**

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	2	0	3,540	29,500	0	0	33,040
		100	2	**0**	**3,540**	**29,500**	**0**	**0**	**33,040**

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Closure Cost Estimate
Misc. Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Fence Removal

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

Notes:

Fence Installation

	Description (required)	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Input: Length ft	Input: Type (select type)	Costs: Labor Cost $	Costs: Equipment Cost $	Costs: Material Cost $	Costs: Total Cost $
1	Pit perimeter fence			Pits				FA	9,252	Barbed 5-strand	7,402	4,904	6,014	18,320
2	Pit perimeter fence replacement			Pits				FA	9,252	Barbed 5-strand	7,402	4,904	6,014	18,320
											14,804	**9,808**	**12,028**	**36,640**

Notes:

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Closure Cost Estimate
Misc. Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
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Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				FA	100	36 in (1m) Diameter	On site	566	650	1,216
2	Landbridge 2 culvert			Yards				FA	100	36 in (1m) Diameter	On site	566	650	1,216
												1,132	1,300	2,432

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				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				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				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:

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Closure Cost Estimate
Misc. Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
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Cost Estimate Type: FA Cost Basis: Copper Flat FA

Power Line and Substation Removal

									Input				Costs			Cost Breakdown	
	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 $	Equipment Cost $
1	On-site powerline removal			Miscellaneous Linear Facilities				FA	2.0	Double Pole Powerlines	1	On site	38,744	29,250	67,994	13,599	54,395
													38,744	**29,250**	**67,994**	**13,599**	**54,395**

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			Waste Rock Dumps				FA	1,030	Rip-Rap 450 mm min thick, no	B-12G	10,356	40,713	0	51,069
2	EWRSP-2B slope armor 1			Waste Rock Dumps				FA	393	Rip-Rap 450 mm min thick, no	B-12G	3,946	15,514	0	19,460
3	EWRSP-2B slope armor 2			Waste Rock Dumps				FA	674	Rip-Rap 450 mm min thick, no	B-12G	6,776	26,639	0	33,415
4	EWRSP-4 slope armor 1			Waste Rock Dumps				FA	463	Rip-Rap 450 mm min thick, no	B-12G	4,657	18,306	0	22,963
5	WRSP-1 slope armor 1			Waste Rock Dumps				FA	1,389	Rip-Rap 450 mm min thick, no	B-12G	13,959	54,879	0	68,838
6	WRSP-1 slope armor 2			Waste Rock Dumps				FA	1,356	Rip-Rap 450 mm min thick, no	B-12G	13,623	53,558	0	67,181
7	WRSP-1 slope armor 3			Waste Rock Dumps				FA	1,623	Rip-Rap 450 mm min thick, no	B-12G	16,312	64,129	0	80,441
8	TSF slope armor 1			Tailings Storage Facility				FA	9,951	Rip-Rap 450 mm min thick, no	B-12G	100,009	393,168	0	493,177
												169,638	**666,906**	**0**	**836,544**

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Closure Cost Estimate
Monitoring

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				FA	1	1	8	4	12
2	Field work	Range Scientist			Monitoring				FA	1		8	4	12
3	Reporting	Field Geologist/Engineer			Monitoring				FA	1		8	4	12
4	Reporting	Range Scientist			Monitoring				FA	1		8	4	12
5	Tailings dam monitoring	Field Geologist/Engineer			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				FA	25	1	3	1	2	5	8	60	
2	Well Monitoring - Years 4 thru 4	GW Analysis Profile 1			Monitoring				FA	24	1	1	4	2	5	8	60	
3	Well Monitoring - Years 1 thru 3	GW Analysis Profile 2			Monitoring				FA	25	3	3	1	2	5	8	60	
4	Well Monitoring - Years 4 thru 4	GW Analysis Profile 2			Monitoring				FA	24	3	1	4	2	5	8	60	
5	Well Monitoring - Years 5 thru 5	GW Analysis Profile 3			Monitoring				FA	24	2	1	5	2	5	8	40	
6	Well Monitoring - Years 6 thru 8	GW Analysis Profile 3			Monitoring				FA	22	2	3	6	2	4	8	40	
7	Well Monitoring - Years 9 thru 16	GW Analysis Profile 3			Monitoring				FA	22	1	8	9	2	4	8	40	
8	Well Monitoring - Years 16 thru 25	GW Analysis Profile 3			Monitoring				FA	20	1	10	16	2	3	8	40	
9	SW Monitoring - Years 1 thru 1	SW Analysis Profile 4			Monitoring				FA	8	1	1	1	2	2	8	10	
10	SW Monitoring - Years 1 thru 3	SW Analysis Profile 4			Monitoring				FA	6	1	3	1	1	1	8	5	
11	SW Monitoring - Years 2 thru 2	SW Analysis Profile 4			Monitoring				FA	5	1	1	2	1	1	8	5	
12	SW Monitoring - Years 3 thru 4	SW Analysis Profile 4			Monitoring				FA	2	1	2	3	1	1	4	5	
13	SW Monitoring - Years 1 thru 1	SW Analysis Profile 5			Monitoring				FA	8	3	1	1	2	2	8	10	
14	SW Monitoring - Years 1 thru 4	SW Analysis Profile 5			Monitoring				FA	5	4	4	1	1	1	8	5	
15	SW Monitoring - Years 2 thru 2	SW Analysis Profile 5			Monitoring				FA	5	3	1	2	1	1	8	5	
16	SW Monitoring - Years 3 thru 4	SW Analysis Profile 5			Monitoring				FA	2	3	2	3	1	1	4	5	
17	SW Monitoring - Years 5 thru 5	SW Analysis Profile 6			Monitoring				FA	2	2	1	5	1	1	4	5	
18	SW Monitoring - Years 6 thru 8	SW Analysis Profile 6			Monitoring				FA	1	2	3	6	2	1	8	10	Sampling time short, but travel to site time consuming
19	SW Monitoring - Years 9 thru 26	SW Analysis Profile 6			Monitoring				FA	1	1	18	9	2	1	8	10	Sampling time short, but travel to site time consuming

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).

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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	12.14	49,509	4,662	54,171
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	12.14	49,509	2,331	51,840
				247,546	**6,993**	**254,538**

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	0.00	28,466	1,457	0	94,050	23,207	147,181
2	**Well Monitoring - Years 4 thru 4**	1,254.00	0.00	9,489	486	0	30,096	7,736	47,806
3	**Well Monitoring - Years 1 thru 3**	739.00	0.00	85,399	4,370	0	166,275	69,622	325,667
4	**Well Monitoring - Years 4 thru 4**	739.00	0.00	28,466	1,457	0	53,208	23,207	106,339
5	**Well Monitoring - Years 5 thru 5**	554.00	0.00	18,978	971	0	26,592	10,314	56,855
6	**Well Monitoring - Years 6 thru 8**	554.00	0.00	45,546	2,331	0	73,728	30,943	151,948
7	**Well Monitoring - Years 9 thru 15**	554.00	0.00	60,728	3,108	0	97,504	41,258	202,598
8	**Well Monitoring - Years 16 thru 25**	554.00	0.00	56,933	2,914	0	110,800	51,572	222,218
9	**SW Monitoring - Years 1 thru 1**	1,573.00	0.00	3,796	194	0	12,584	1,289	17,863
10	**SW Monitoring - Years 1 thru 3**	1,573.00	0.00	2,847	291	0	28,314	1,934	33,386
11	**SW Monitoring - Years 2 thru 2**	1,573.00	0.00	949	97	0	7,885	645	9,556
12	**SW Monitoring - Years 3 thru 4**	1,573.00	0.00	949	97	0	6,292	1,289	8,627
13	**SW Monitoring - Years 1 thru 1**	1,058.00	0.00	11,387	583	0	25,392	3,868	41,229
14	**SW Monitoring - Years 1 thru 4**	1,058.00	0.00	15,182	1,554	0	84,640	10,314	111,690
15	**SW Monitoring - Years 2 thru 2**	1,058.00	0.00	2,847	291	0	15,870	1,934	20,942
16	**SW Monitoring - Years 3 thru 4**	1,058.00	0.00	2,847	291	0	12,696	3,868	19,702
17	**SW Monitoring - Years 5 thru 5**	873.00	0.00	949	97	0	3,492	1,289	5,827
18	**SW Monitoring - Years 6 thru 8**	873.00	0.00	11,387	583	0	5,238	7,736	24,943
19	**SW Monitoring - Years 9 thru 26**	873.00	0.00	34,160	1,748	0	15,714	23,207	74,829
				421,303	**22,920**	**0**	**869,750**	**315,234**	**1,629,207**

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

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Closure Cost Estimate
Recl. Maint

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

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 $
1	Revegetation maintenance			Reclamation Maintenance				FA		10%	User Mix 1	101.0	174.72	18.97	25.80	1,916	2,606	17,645
															Total Revegetation Matinenance	1,916	2,606	17,645

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.

	Total Cover Volume cy	Average Placement Cost $/cy
Information from Reclamation Quantities Sheet:	0	0.00

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:	4,567,850	2.91

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				FA		5%		228,393	0.73	2.18	166,156	498,468	664,624
														Total Growth Media Maintenance	166,156	498,468	664,624

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

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Closure Cost Estimate
Recl. Maint

Total $
22,167
22,167

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Closure Cost Estimate
Other User

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				FA	20	each		41.00	32.04	8.19	1,625	
2	Pit perimeter signs (500-ft intervals) - Sign posts			Pits				FA	20	each		32.50	11.22	2.87	932	
3	Process area pullback			Yards				FA	200	hr			92.56	388.83	96,278	See User 12 for estimate of quantity, fleet, and productivity.
4	Landbridge 1 excavation (measured on Google Earth: 600*100*5ft)			Yards				FA	28	hr			92.56	388.83	13,479	See User 12 for estimate of quantity, fleet, and productivity.
5	Landbridge 2 excavation (measured on Google Earth: 400*100*22ft)			Yards				FA	81	hr			92.56	388.83	38,993	See User 12 for estimate of quantity, fleet, and productivity.
6	EWRSP-1 Setback			Waste Rock Dumps				FA	15	hr			92.56	388.83	7,221	See User 12 for estimate of quantity, fleet, and productivity.
7	Tank cutting			Buildings				FA	1	LS		27,847.83	10,815.28	8,962.52	47,626	See User 13.
8	TSF additional piping installation			Draindown Management				FA	1,000	ft		5.65	2.01	5.50	13,160	
9	Articulated concrete block installation - WRD			Waste Rock Dumps				FA	8,978	SY		81.00	2.04	0.40	749,165	See User 10 for crew.
10	Articulated concrete block installation - TSF			Tailings Storage Facility				FA	16,412	SY		81.00	2.04	0.40	1,369,492	See User 10 for crew.
11	Articulated concrete block installation - pit			Pits				FA	7,971	SY		81.00	2.04	0.40	665,137	See User 10 for crew.
											0	2,737,209	111,849	154,049	3,003,107	

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).

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Mobilization/Demobilization

	Equipment	ID Code	Construction Year	Facility/Activity Type	Phases	Locations	Properties	Cost Type	Total FA Hours hrs	Minimum hrs/yr	Maximum hrs/yr	Available Use hrs/yr
1	D7E			Mob/demob				FA	6,288	111	2,021	2,112
2	D8T			Mob/demob				FA	4,360	1,214	3,146	2,112
3	D9T			Mob/demob				FA	1,288	372	916	2,112
4	325F			Mob/demob				FA	1,242	1,242	1,242	2,112
5	330F			Mob/demob				FA	4,797	4,797	4,797	2,112
6	349F			Mob/demob				FA	65	31	34	2,112
7	930M			Mob/demob				FA	0	0	0	2,112
8	972M			Mob/demob				FA	3,106	5	3,060	2,112
9	730C2			Mob/demob				FA	3,106	5	3,060	2,112
10	740C			Mob/demob				FA	15,458	6,636	8,822	2,112
11	Dump Truck (10-12 yd3)			Mob/demob				FA	0	0	0	2,112
12	420F2			Mob/demob				FA	0	0	0	2,112
13	Light Truck - 1.5 Ton			Mob/demob				FA	0	0	0	2,112
14	Supervisor's Truck			Mob/demob				FA	0	0	0	2,112
15	20 Ton Crane			Mob/demob				FA	0	0	0	2,112

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.

Closure Cost Estimate
Mobilization

Mobilization/Demobilization

	Equipment	Actual Use (if less than available) hrs/yr	Minimum units/year	Maximum units/year	Units Mobilized #	Transport Method (select)	Total Load/ Secure Unload/ Secure Time hrs	Assembly/ Disassembly [1] Total $	Assembly/ Disassembly Override Total $	Equipment Weight tons	Road Distance (return trip) mi
1	D7E		1	1	1	Road only	4.00	0		28.3	155
2	D8T		1	2	2	Road only	4.00	0		42.9	155
3	D9T		1	1	1	Road only	4.00	0		52.5	155
4	325F		1	1	1	Road only	4.00	0		28.2	155
5	330F		3	3	3	Road only	4.00	0		32.3	155
6	349F		1	1	1	Road only	4.00	0		56.3	155
7	930M		0	0	1	Road only	4.00	0		15.3	155
8	972M		1	2	2	Road only	4.00	0		27.2	155
9	730C2		1	2	2	Road only	4.00	0		26.2	155
10	740C		4	5	5	Road only	4.00	0		39.2	155
11	Dump Truck (10-12 yd3)		0	0	2	Road only	4.00	0		35.0	155
12	420F2		0	0	1	Road only	4.00	0		12.0	155
13	Light Truck - 1.5 Ton		0	0	2	Road only	4.00	0		2.9	155
14	Supervisor's Truck		0	0	2	Road only	4.00	0		2.4	155
15	20 Ton Crane		0	0	1	Road only	4.00	0		25.0	155

Equipment Information Sources:

NOTES:

Closure Cost Estimate
Mobilization

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	**D7E**	hauler	1	1	0		0.97	78
2	**D8T**	hauler	2	1	0		0.97	78
3	**D9T**	hauler	1	1	0		0.97	78
4	**325F**	hauler	1	1	0		0.97	78
5	**330F**	hauler	3	1	0		0.97	78
6	**349F**	hauler	1	1	0		0.97	78
7	**930M**	hauler	1	1	0		0.97	78
8	**972M**	hauler	2	1	0		0.97	78
9	**730C2**	hauler	2	1	0		0.97	78
10	**740C**	hauler	5	1	0		0.97	78
11	**Dump Truck (10-12 yd3)**	self mobilized	2	1	0		0.97	78
12	**420F2**	hauler	1	1	0		0.97	78
13	**Light Truck - 1.5 Ton**	self mobilized	2	0	0		0.97	78
14	**Supervisor's Truck**	self mobilized	2	0	0		0.97	78
15	**20 Ton Crane**	self mobilized	1	0	0		0.97	78

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	D7E		104	0	0	131	0	98	104	229	0	333
2	D8T		208	0	0	307	0	196	208	503	0	711
3	D9T		104	0	0	222	0	196	104	418	0	522
4	325F		133	0	0	77	0	98	133	175	0	308
5	330F		400	0	0	260	0	294	400	554	0	954
6	349F		133	0	0	129	0	196	133	325	0	458
7	930M		133	0	0	73	0	59	133	132	0	265
8	972M		266	0	0	242	0	196	266	438	0	704
9	730C2		186	0	0	297	0	196	186	493	0	679
10	740C		466	0	0	929	0	490	466	1,419	0	1,885
11	Dump Truck (10-12 yd3)		117	0	0	109	0	196	117	305	0	422
12	420F2		69	0	0	45	0	59	69	104	0	173
13	Light Truck - 1.5 Ton		0	0	0	60	0	0	0	60	0	60
14	Supervisor's Truck		0	0	0	24	0	0	0	24	0	24
15	20 Ton Crane		0	0	0	94	0	0	0	94	0	94

NOTES:

Closure Cost Estimate
Mobilization

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	D7E	0	333	0	0	0	333
2	D8T	0	711	0	0	0	711
3	D9T	0	522	0	0	0	522
4	325F	0	308	0	0	0	308
5	330F	0	954	0	0	0	954
6	349F	0	458	0	0	0	458
7	930M	0	265	0	0	0	265
8	972M	0	704	0	0	0	704
9	730C2	0	679	0	0	0	679
10	740C	0	1,885	0	0	0	1,885
11	Dump Truck (10-12 yd3)	0	422	0	0	0	422
12	420F2	0	173	0	0	0	173
13	Light Truck - 1.5 Ton	0	60	0	0	0	60
14	Supervisor's Truck	0	24	0	0	0	24
15	20 Ton Crane	0	94	0	0	0	94
						TOTAL	7,592

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	%	$/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)													

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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												0	
Welding Equipment												0	
Heavy Duty Drill Rig												0	
Pump (plugging) Drill Rig												0	
Concrete Pump												0	
Gas Engine Vibrator												0	0,00
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:	Caterpillar 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) Technical 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	

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Project Name: Copper Flat Reclamation Report Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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	7,000.00	39.77	51.21	90.98
D6R w/ Winch	7,000.00	39.77	51.21	90.98
D7E	19,600.00	111.36	19.33	130.69
D8T	21,600.00	122.73	30.92	153.64
D9T	32,200.00	182.95	39.50	222.45
D10T2	47,600.00	270.45	52.59	323.04
D11T	56,200.00	319.32	234.25	553.57
Wheeled Dozers				
824K	19,800.00	112.50	113.98	226.48
834K	24,900.00	141.48	139.86	281.34
844K	33,700.00	191.48	183.76	375.24
854K	33,800.00	192.05	221.47	413.52
Motor Graders				
12M2	9,300.00	52.84	48.19	101.04
14M	15,800.00	89.77	91.55	181.32
16M3	18,800.00	106.82	126.76	233.58
24M	22,100.00	125.57	150.02	275.59
Track Excavators				
312F	6,000.00	34.09	7.92	42.01
320F	8,300.00	47.16	12.13	59.29
325F	11,500.00	65.34	12.15	77.49
330F	12,300.00	69.89	16.86	86.74
349F	17,900.00	101.70	27.37	129.07
374F	23,100.00	131.25	106.95	238.20
390F	28,500.00	161.93	121.92	283.85

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Scrapers				
631K	29,600.00	168.18	70.57	238.75
637K	36,800.00	209.09	201.22	410.31
Wheeled Loaders				
926M	6,000.00	34.09	17.67	51.76
930M	7,000.00	39.77	33.35	73.13
950M	10,200.00	57.95	30.42	88.37
966M	12,300.00	69.89	32.83	102.71
972M	14,400.00	81.82	39.18	120.99
980M	16,800.00	95.45	56.56	152.01
988K	19,600.00	111.36	147.84	259.20
990K	28,300.00	160.80	234.32	395.12
992K	41,100.00	233.52	287.54	521.06
994K	45,200.00	256.82	361.02	617.84
L2350	82,600.00	469.32	624.21	1,093.53

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Shovels				
PC2000	70,900.00	402.84	277.54	680.38
PC3000	72,500.00	411.93	344.19	756.12
PC4000	74,100.00	421.02	426.02	847.04
PC5500	81,500.00	463.07	559.76	1,022.83
PC8000	89,700.00	509.66	655.02	1,164.67
EX2500	87,900.00	499.43	412.69	912.12
Hydraulic Hammers				
H120Es (fits 325)	3,400.00	19.32	11.57	30.89
H160Es (fits 349)	7,000.00	39.77	23.24	63.01
H180Es (fits 374/390)	8,200.00	46.59	24.96	71.55
Demolition Shears				
S3050 (fits 320/325/330)	3,500.00	19.89	20.50	40.39
S3070 (fits 330/349)	4,100.00	23.30	25.23	48.53
S3090 (fits 374/390)	6,600.00	37.50	31.61	69.11
Demolition Grapples				
G315B (fits 320/325)				0.00
G320B (fits 325/330)				0.00
G330 (fits 349/374)				0.00

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Other Equipment				
420F2	3,500.00	19.89	24.86	44.75
430F2	4,100.00	23.30	26.22	49.51
CS54B	4,400.00	25.00	26.60	51.60
CS64B	4,300.00	24.43	27.92	52.35
CP54B	4,100.00	23.30	32.14	55.43
CP68B	6,600.00	37.50	37.59	75.09
Light Truck - 1.5 Ton	2,200.00	12.50	17.45	29.95
Supervisor's Truck	800.00	4.55	7.59	12.14
Flatbed Truck	600.00	3.41	21.53	24.94
Air Compressor + tools	600.00	3.41	5.55	8.96
Welding Equipment	400.00	2.27	6.26	8.53
Heavy Duty Drill Rig	52,000.00	295.45	314.59	610.04
Pump (plugging) Drill Rig	52,000.00	295.45	310.25	605.70
Concrete Pump	14,900.00	84.66	21.70	106.36
Gas Engine Vibrator	400.00	2.27	3.63	5.90
Generator 5KW	900.00	5.11	6.84	11.95
HDEP Welder (pipe or liner)	7,000.00	39.77	4.34	44.11
5 Ton Crane	7,200.00	40.91	42.08	82.99
20 Ton Crane	8,000.00	45.45	48.20	93.65
50 Ton Crane	15,200.00	86.36	88.73	175.09
120 Ton Crane	28,900.00	164.20	176.92	341.13

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Trucks				
725C2	10,800.00	61.36	80.34	141.70
730C2	15,700.00	89.20	59.42	148.62
735C	17,900.00	101.70	65.76	167.47
740C	20,100.00	114.20	71.62	185.82
770G	15,200.00	86.36	114.88	201.25
773G	18,300.00	103.98	148.98	252.96
777G	37,200.00	211.36	314.12	525.49
785D	40,900.00	232.39	367.66	600.05
789D	45,000.00	255.68	367.66	623.34
793F	49,500.00	281.25	476.07	757.32
797F	89,200.00	506.82	835.78	1,342.60
613E (5,000 gal)	8,700.00	49.43	78.11	127.54
621E (8,000 gal)	10,000.00	56.82	103.78	160.60
777G H2O Truck	37,200.00	211.36	314.12	525.49
785D H2O Truck	40,900.00	232.39	367.66	600.05
Dump Truck (10-12 yd3)	3,800.00	21.59	32.78	54.37
Tractor/Trailer (20 ton)	5,300.00	30.11	30.38	60.49
Tractor/Trailer (50 ton)	10,900.00	61.93	39.06	100.99
Tractor/Trailer (80 ton)	27,100.00	153.98	47.74	201.72

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

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 Closure Plan
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Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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

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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	102.33	130.76	4.54	23.00	49.91	287.54
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

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Model Version: Version 2.0
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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

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Model Version: Version 2.0
Cost Data: User Data
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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

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Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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			
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

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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			

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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

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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:	

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Closure Cost Estimate
Material Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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**		**$174.72**
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:			
	Seed mix in "NMCC_SeedMixQuote_20March2018.pdf"		

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Closure Cost Estimate
Material Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclama
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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.			

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Closure Cost Estimate
Material Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_201808(
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Monitoring Costs

Description	Units	Cost
		$/unit
Monitor Well Pump	ea.	0.00
Sampling Supplies	ea.	0.00
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

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Closure Cost Estimate
Material Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclama
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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			

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Closure Cost Estimate
Material Costs

Revegetation Method

Slopes

Disturbance Type	Seed Application Method	Labor $/acres	Equipment $/acres	Total $/acres
Waste Rock Dumps	**Mechanical Broadcast**	18.97	25.80	44.77
Heap Leach	**Mechanical Broadcast**	18.97	25.80	44.77
Tailings	**Mechanical Broadcast**	18.97	25.80	44.77
Quarries & Borrow Pits	**Mechanical Broadcast**	18.97	25.80	44.77

Flat Areas and Undifferentiated

Disturbance Type	Seed Application Method	Labor $/acres	Equipment $/acres	Total $/acres
Exploration Trenches	**Mechanical Broadcast**	18.97	25.80	44.77
Exploration Roads	**Mechanical Broadcast**	18.97	25.80	44.77
Waste Rock Dumps	**Mechanical Broadcast**	18.97	25.80	44.77
Heap Leach	**Mechanical Broadcast**	18.97	25.80	44.77
Tailings	**Mechanical Broadcast**	18.97	25.80	44.77
Quarries & Borrow Pits	**Mechanical Broadcast**	18.97	25.80	44.77
Roads	**Mechanical Broadcast**	18.97	25.80	44.77
Pits	**Mechanical Broadcast**	18.97	25.80	44.77
Haul Material	**Mechanical Broadcast**	18.97	25.80	44.77
Foundations & Buildings	**Mechanical Broadcast**	18.97	25.80	44.77
Sediment & Drainge Control	**Mechanical Broadcast**	18.97	25.80	44.77
Process Ponds	**Mechanical Broadcast**	18.97	25.80	44.77
Landfills	**Mechanical Broadcast**	18.97	25.80	44.77
Yards, Etc.	**Mechanical Broadcast**	18.97	25.80	44.77
Revegetation Maintenance	**Mechanical Broadcast**	18.97	25.80	44.77

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Closure Cost Estimate
Misc. Unit Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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					37.94	53.20	91.14	
Seeding - Broadcast Mechanical		acres					18.97	25.80	44.77	
Seeding - Drill		acres		365					0.00	
Seeding - Hydroseeding				365					0.00	
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	

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Closure Cost Estimate
Misc. Unit Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
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File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

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									

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Closure Cost Estimate
Misc. Unit Costs

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Cost Estimate Type: FA Cost Basis: Copper Flat FA

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		77.79	12.44		90.23	includes reinforcing
Grade walls - 15 in thick, 12 ft high	03310-240-4350	C.Y.	C-14D	26.2		237.59	37.98		275.57	includes reinforcing
Elevated conc, 1-way beam & slab - 15ft span	03310-240-2700	C.Y.	C-14B	20.59		301.70	48.33		350.03	includes reinforcing
Elevated conc, 1-way beam & slab - 25ft span	03310-240-2750	C.Y.	C-14B	28.36		219.04	35.09		254.13	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:										

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Closure Cost Estimate
Misc. Unit Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
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Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

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	0.32		1.19	
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	0.53		1.98	
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	1.60		17.18	
	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	0.86		1.73	
Chain link 8 ft -10 ft Removal	02220-220-1700	L.F.	B-6	445		1.14	1.31		2.45	
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	3.34		6.25	
18 in (450 mm) Diameter	02220-220-2930	L.F.	B-6	150		3.40	3.90		7.30	
24 in (600 mm) Diameter	02220-220-2960	L.F.	B-6	120		4.25	4.88		9.13	
36 in (1m) Diameter	02220-220-3000	L.F.	B-6	90		5.66	6.50		12.16	
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	1.20		5.84	
Pipe and Drainpipe Installation										
Water 4in (100mm) 40ft (12m) length, welded HDPE	02510-760-0100	L.F.	B-22A	400	2.50	1.91	5.23		9.64	
Water 6in (150mm) 40ft (12m) length, welded HDPE	02510-760-0200	L.F.	B-22A	380	5.65	2.01	5.50		13.16	
Water 12in (300mm) 40ft (12m) length, welded HDPE	02510-760-0500	L.F.	B-22A	260	13.00	2.94	8.04		23.98	
Drain 4in (100mm) perforated PVC	02620-630-2100	L.F.	B-14	315	1.64	3.98	1.90		7.52	
Drain 6in (150mm) perforated PVC	02620-630-2110	L.F.	B-14	300	3.49	4.18	1.99		9.66	
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										

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Closure Cost Estimate
Misc. Unit Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

Drain Rock Preparation										
Crushing		C.Y.								
Screening		C.Y.								
TOTAL									0.00	
Misc.										
Backhoe work	02210-700-0120	C.Y.	B-11M	28		4.92	12.79		17.71	
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	17.51		34.79	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	26.43		52.51	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	26.17		32.83	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	39.51		49.56	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	7.00		13.91	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	8.59		17.07	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	9.16		18.20	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	13.73		27.28	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	23.35		46.39	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	4.77		18.25	
40 mil VLDPE	user	S.F.	3 Skwk	150	$7.00	4.45	4.74		16.19	
	user	S.F.	3 Skwk						0.00	
	user	S.F.	3 Skwk						0.00	

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Closure Cost Estimate
Misc. Unit Costs

Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm
Cost Estimate Type: FA Cost Basis: Copper Flat FA

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										

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Model Version: Version 2.0
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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				90.98	25.96	116.94
Totals				90.98	25.96	116.94
Medium Dozer w/ multi-shank						
D7E				130.69	25.96	156.65
Totals				130.69	25.96	156.65
Large Dozer w/ multi-shank						
D8T				153.64	25.96	179.60
Totals				153.64	25.96	179.60
Grader w/ multi-shank						
14M				181.32	25.96	207.28
Totals				181.32	25.96	207.28
GRADING						
Grading storage and structure areas						
Grading waste rock dumps and heaps						
Grading landfills						
Constructing pit safety berms						
Small Dozer Fleet						
D7E				130.69	25.96	156.65
Totals				130.69	25.96	156.65
Medium Dozer Fleet						
D8T				153.64	25.96	179.60
Totals				153.64	25.96	179.60
Large Dozer Fleet						
D9T				222.45	25.96	248.41
Totals				222.45	25.96	248.41
EXPLORATION GRADING						
Backfilling and grading exploration trenches						
Grading flat exploration roads						
Small Dozer Fleet						
D7E				130.69	25.96	156.65
Totals				130.69	25.96	156.65
Medium Dozer Fleet						
D9T				222.45	25.96	248.41
Totals				222.45	25.96	248.41
Large Dozer Fleet						
D10T2				323.04	25.96	349.00
Totals				323.04	25.96	349.00

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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				77.49	33.30	110.79
Totals				77.49	33.30	110.79
Medium Excavator						
330F				86.74	33.30	120.04
Totals				86.74	33.30	120.04
Large Excavator						
349F				129.07	33.30	162.37
Totals				129.07	33.30	162.37
EXCAVATE AND RECONTOUR						
Recontour large roads (haul roads, access roads, etc.)						
Ponds - Excavate and pull liner and bury						
Small Excavator + Dozer						
325F				77.49	33.30	110.79
D6T				90.98	25.96	116.94
Total Equipment				168.47	59.26	227.73
Medium Excavator + Dozer						
330F				86.74	33.30	120.04
D7E				130.69	25.96	156.65
Totals				217.43	59.26	276.69
Large Excavator + Dozer						
349F				129.07	33.30	162.37
D8T				153.64	25.96	179.60
Totals				282.71	59.26	341.97
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				130.69	25.96	156.65
Totals				130.69	25.96	156.65
Large Dozer						
D10T2				323.04	25.96	349.00
Totals				323.04	25.96	349.00
Grader						
14M				181.32	25.96	207.28
Totals				181.32	25.96	207.28
Small Excavator						
320F				59.29	33.30	92.59
Totals				59.29	33.30	92.59
Medium Excavator						
349F				129.07	33.30	162.37
Totals				129.07	33.30	162.37

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Model Version: Version 2.0
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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		88.37	33.30	121.67
Totals				88.37	33.30	121.67
Medium Crusher Loader Fleet						
950M		1		88.37	33.30	121.67
Totals				88.37	33.30	121.67
Large Crusher Loader Fleet						
972M		1		120.99	33.30	154.29
Totals				120.99	33.30	154.29
Extra Large Crusher Loader Fleet						
980M		1		152.01	33.30	185.31
Totals				152.01	33.30	185.31
COMPACT COVER						
From Means Heavy Construction - Costs in Misc. Unit Costs. Assumes compaction-riding, vibrating roller - 12in (300mm) lifts						
Compactor						
CS54B		1		51.60	17.23	68.83
Totals				51.60	17.23	68.83
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				148.62	23.29	171.91
972M	Loader			120.99	33.30	154.29
D7E		1		130.69	25.96	156.65
Totals				400.30	82.55	482.85
Medium Truck/Loader Fleet						
740C				185.82	23.29	209.11
988K	Loader			259.20	33.30	292.50
D8T		1		153.64	25.96	179.60
Totals				598.66	82.55	681.21
Large Truck/Loader Fleet						
777G				525.49	23.29	548.78
992K	Loader			521.06	33.30	554.36
D9T		1		222.45	25.96	248.41
Totals				1,269.00	82.55	1,351.55
Extra Large Truck/Loader Fleet						
770G				201.25	23.29	224.54
988K	Loader			259.20	33.30	292.50
D11T		1		553.57	25.96	579.53
Totals				1,014.02	82.55	1,096.57
Scraper/Dozer Fleet						
631K				238.75	17.23	255.98
D10T2				323.04	25.96	349.00
D10T2		1		323.04	25.96	349.00
Totals				884.83	69.15	953.98
Tandem Scraper Fleet						
637K				410.31	17.23	427.54
D7E		1		130.69	25.96	156.65
Totals				541.00	43.19	584.19

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Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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				77.49	33.30	110.79
Dump Truck (10-12 yd3)				54.37	14.61	68.98
Totals				131.86	47.91	179.77
Misc. - Cat D9R Dozer/ Loader (5 yd3) / 10-12 yd3 Truck						
D9T				222.45	25.96	248.41
966M				102.71	33.30	136.01
Dump Truck (10-12 yd3)				54.37	14.61	68.98
Totals				379.53	73.87	453.40
Misc. - Cat D6 Dozer / Cat 966 Loader / 10-12 yd3 Truck						
D6T				90.98	25.96	116.94
966M				102.71	33.30	136.01
Dump Truck (10-12 yd3)				54.37	14.61	68.98
Totals				248.06	73.87	321.93
LINER REMOVAL						
Liner removal						
Small - Cat 325B Excavator w/ H140D s Hammer						
325F				77.49	33.30	110.79
General Laborer		2		0.00	30.38	30.38
Totals				77.49	63.68	141.17

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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				77.49	33.30	110.79
H120Es (fits 325)				30.89	0.00	30.89
D9T				222.45	25.96	248.41
Totals				330.83	59.26	390.09
Medium - Cat 349F Excavator w/ H160E s Hammer						
349F				129.07	33.30	162.37
H160Es (fits 349)				63.01	0.00	63.01
D9T				222.45	25.96	248.41
Totals				414.53	59.26	473.79
Large - Cat 374F Excavator w/ H180E s Hammer						
374F				238.20	33.30	271.50
H180Es (fits 374/390)				71.55	0.00	71.55
D9T				222.45	25.96	248.41
Totals				532.20	59.26	591.46
DRILL HOLE ABANDONMENT						
Drill Hole - Grout or Cement						
Pump (plugging) Drill Rig				605.70	0.00	605.70
Driller's Helper		2		0.00	43.78	43.78
Totals				605.70	43.78	649.48
Drill Hole - Inert Media (Means Crew B-11M+ 1 Laborer)						
420F2				44.75	17.23	61.98
General Laborer		1		0.00	15.19	15.19
Totals				44.75	32.42	77.17
Drill Hole - Casing Perforation or Removal						
Heavy Duty Drill Rig				610.04	0.00	610.04
Driller's Helper		2		0.00	43.78	43.78
Totals				610.04	43.78	653.82
MAINTENANCE FLEET						
Road Grading, Dust Suppression, Clean Up						
Maintenance - Small Water Truck and Cat 14G Grader						
613E (5,000 gal)				127.54	23.29	150.83
12M2				101.04	25.96	127.00
Totals				228.58	49.25	277.83
Maintenance - Medium Water Truck and Cat 16G Grader						
621E (8,000 gal)				160.60	23.29	183.89
14M				181.32	25.96	207.28
Totals				341.92	49.25	391.17
Maintenance - Large Water Truck and Cat 16G Grader						
777G H2O Truck				525.49	23.29	548.78
14M				181.32	25.96	207.28
Totals				706.81	49.25	756.06
PROJECT SUPERVISION						
Foreman		1		0.00	78.74	78.74
Supervisor's Truck		1		12.14	0.00	12.14
Totals				12.14	78.74	90.88

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Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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		29.95	0.00	29.95
Totals				29.95	30.38	60.33
2 Clab + Excavator - Pond Liner Cut and Fold						
General Laborer		2		0.00	30.38	30.38
325F				77.49	33.30	110.79
Totals				77.49	63.68	141.17
2 Clab + Welder - Bat Gates						
General Laborer		2		0.00	30.38	30.38
Welding Equipment				8.53	0.00	8.53
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
Totals				38.48	30.38	68.86
3 Clab - Foam Adit Plugs						
General Laborer		2		0.00	30.38	30.38
420F2				44.75	17.23	61.98
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
Totals				74.70	47.61	122.31
3 Clab + Welder - Culvert Bat Gate						
General Laborer		2		0.00	30.38	30.38
Welding Equipment				8.53	0.00	8.53
420F2				44.75	17.23	61.98
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
Totals				83.23	47.61	130.84
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		12.14	0.00	12.14
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
Totals				42.09	124.31	166.40
3 SKWK - Liner Installation						
Skilled Laborer		3		0.00	66.18	66.18
HDEP Welder (pipe or liner)		1		44.11	0.00	44.11
420F2		1		44.75	17.23	61.98
				0.00		0.00
				0.00		0.00
				0.00		0.00
Totals				88.86	83.41	172.27

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Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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 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		73.13	33.30	106.43
Dump Truck (10-12 yd3)		2		108.74	29.22	137.96
				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				181.87	171.64	353.51
B-6 - Chain Link Fence/Culvert Removal						
General Laborer		2		0.00	30.38	30.38
930M		1		73.13	33.30	106.43
Totals				73.13	63.68	136.81
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		73.13	33.30	106.43
20 Ton Crane		1		93.65	33.30	126.95
Dump Truck (10-12 yd3)		2		108.74	29.22	137.96
				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
				0.00		0.00
				0.00		0.00
Totals				275.52	204.94	480.46
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				8.96	0.00	8.96
Totals				8.96	139.50	148.46

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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		51.60	17.23	68.83
Totals				51.60	32.42	84.02
B-11L - Fine Grading for Evaporation Pond Liner Base						
General Laborer		1		0.00	15.19	15.19
14M		1		181.32	25.96	207.28
Totals				181.32	41.15	222.47
B-11M - Backhoe Work						
420F2		1		44.75	17.23	61.98
Totals				44.75	17.23	61.98
B-12G - Rip-Rap Machine Placed (Modified)						
General Laborer		2		0.00	30.38	30.38
966M		1		102.71	33.30	136.01
349F		1		129.07	33.30	162.37
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
Totals				261.73	66.60	328.33
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		175.09	33.30	208.39
Totals				175.09	172.80	347.89
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		44.75	17.23	61.98
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
Totals				74.70	156.73	231.43
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		29.95	0.00	29.95
Totals				29.95	115.99	145.94
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		130.69	25.96	156.65
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
420F2		1		44.75	17.23	61.98
Generator 5KW		1		11.95	0.00	11.95
HDEP Welder (pipe or liner)		1		44.11	0.00	44.11
Totals				261.45	95.63	357.08
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		130.69	25.96	156.65
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
420F2		1		44.75	17.23	61.98
Generator 5KW		1		11.95	0.00	11.95
HDEP Welder (pipe or liner)		1		44.11	0.00	44.11
Totals				261.45	95.63	357.08

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Project Name: Copper Flat Reclamation Bond Cost Estimate 2018 - Reclamation Plan
Date of Submittal: July 2018
File Name: Copper_Flat_FA_SRCE_191000_060_FNL_20180802_ft.xlsm
Model Version: Version 2.0
Cost Data: User Data
Cost Data File: Copper_Flat_CDF_191000_060_FNL_20180801_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		130.69	25.96	156.65
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
420F2		1		44.75	17.23	61.98
Generator 5KW		1		11.95	0.00	11.95
HDEP Welder (pipe or liner)		1		44.11	0.00	44.11
Totals				261.45	95.63	357.08
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		130.69	25.96	156.65
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
420F2		1		44.75	17.23	61.98
Generator 5KW		1		11.95	0.00	11.95
HDEP Welder (pipe or liner)		1		44.11	0.00	44.11
Totals				261.45	95.63	357.08
B-80A - Install Barbed Wire Fence						
General Laborer		3		0.00	45.57	45.57
Light Truck - 1.5 Ton		1		29.95	0.00	29.95
Totals				29.95	45.57	75.52
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		29.95	0.00	29.95
Totals				29.95	45.57	75.52
C-14B - Elevated Concrete Slabs (Reinforced Concrete Shaft Covers)						
Foreman		1		0.00	78.74	78.74
Supervisor's Truck		1		12.14	0.00	12.14
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		5.90	0.00	5.90
Concrete Pump		1		106.36	0.00	106.36
Totals				124.40	776.50	900.90
C-14D - Concrete Walls Formed in Place (Reinforced Concrete Adit Bulkheads)						
Foreman		1		0.00	78.74	78.74
Supervisor's Truck		1		12.14	0.00	12.14
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		5.90	0.00	5.90
Concrete Pump		1		106.36	0.00	106.36
Totals				124.40	778.11	902.51

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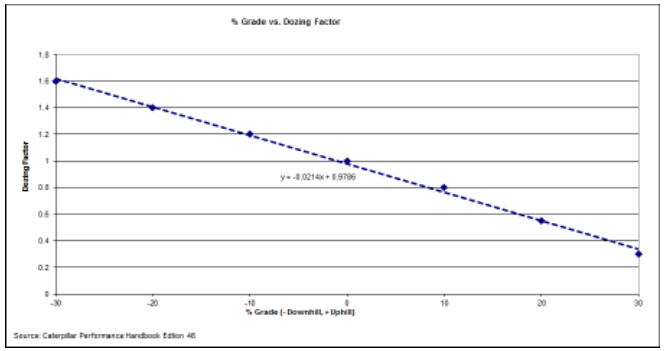
Productivity - Bulldozers (cont.)

% 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)	



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		

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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

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)																		
			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

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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	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	7.8	10.5	10.5	14.2	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

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Closure Cost Estimate
Productivity

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	306,750	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

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Closure Cost Estimate
Productivity

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

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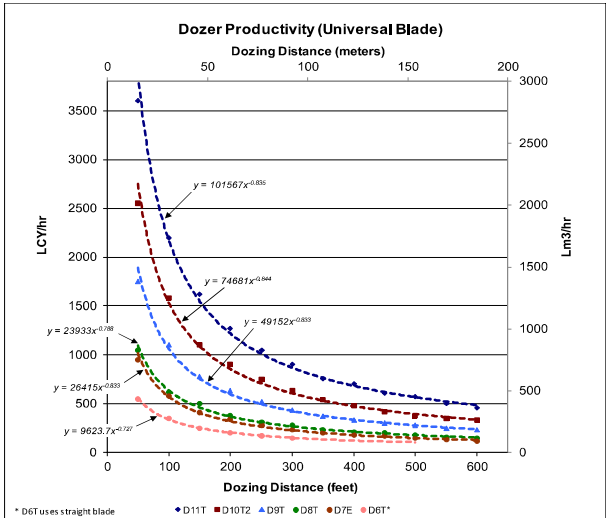
Productivity - Bulldozers

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



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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

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Closure Cost Estimate
Productivity

Weight of Materials				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	4,8	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

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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	7,82	7,82	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, tight 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)

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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

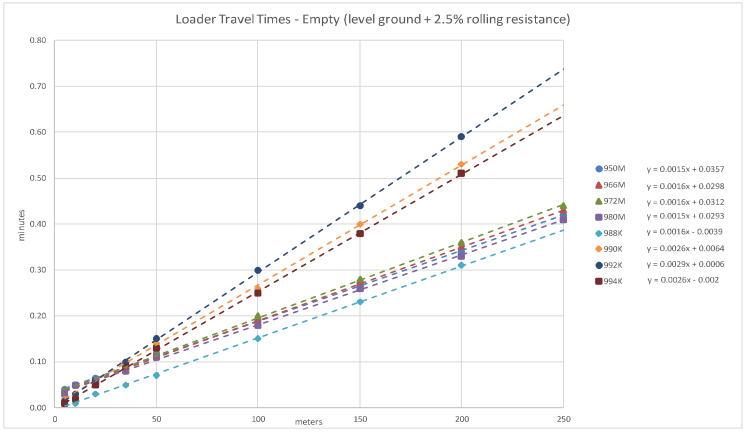
Shovel matched to small truck fleet
Shovel matched to medium truck fleet
Shovel matched to large truck fleet
Shovel matched to extra large truck fleet

**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											
	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	0,04	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



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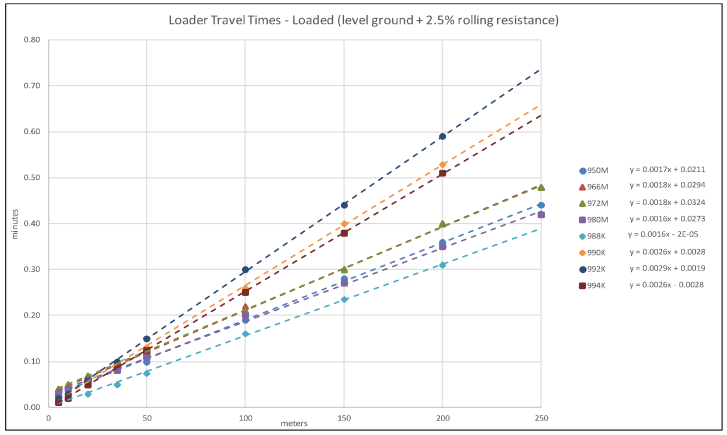
Loader Travel Times - Loaded											
	Distance (ft)										
Loader Model	16,4041995	32,808399	65,616798	114,8293965	164,041995	328,08399	492,125985	656,16798	820,209975	a	b
950M	0,03	0,04	0,06	0,08	0,10	0,19	0,28	0,36	0,44	0,0017	0,0211
966M	0,04	0,05	0,06	0,09	0,12	0,22	0,30	0,40	0,48	0,0018	0,0294
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



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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

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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)[2]	2.5 hrs	
Inert Material Placement (backfill)		
Grouting/Cement[3][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

Source: 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)

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Closure Cost Estimate
User 02 Solution Management

	gpm
Average TSF draindown rate - Year 1	445
Average TSF draindown rate - Year 2	310
Average TSF draindown rate - Year 3	210
Average TSF draindown rate - Year 4	140
Average TSF draindown rate - Year 5	90

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

Closure Cost Estimate
User 03 Miscellaneous Crews

Revegetation
Source: Nevada Division of Environmental Protection, Nevada standard cost data file cost sources, 2016_SRCE_Source_Data.pdf, page 24/44

Seeding - Broadcast Manual

Width (ft):	3.5
Speed (mph):	1.2
Speed (ft/hr):	6,336
Coverage (sf/hr):	22,176
Coverage (ac/hr):	0.5
Hours per acre:	2

Crew

	Labor ($/hr)	Equipment ($/hr)	#	Subtotal Labor ($/hr)	Subtotal Equipment ($/hr)	Subtotal ($/hr)
Pickup	23.29	29.95	1	23.29	29.95	53.24
				23.29	**29.95**	**53.24**

	Labor unit cost ($/ac)	Equipment unit cost ($/ac)	Total ($/ac)	
Cost per acre ($/ac):	**46.58**	**59.9**	**106.48**	<--CDF, Misc. Unit Costs

Seeding - Broadcast Mechanical

Width (ft):	6
Speed (mph):	2.8
Speed (ft/hr):	14,784
Coverage (sf/hr):	88,704
Coverage (ac/hr):	2
Hours per acre:	0.5

Crew

	Labor ($/hr)	Equipment ($/hr)	#	Subtotal Labor ($/hr)	Subtotal Equipment ($/hr)	Subtotal ($/hr)
Pickup	23.29	29.95	1	23.29	29.95	53.24
ATV	23.29	25	1	23.29	25	48.29
				46.58	**54.95**	**101.53**

	Labor unit cost ($/ac)	Equipment unit cost ($/ac)	Total ($/ac)	
Cost per acre ($/ac):	**23.29**	**27.475**	**50.765**	<--CDF, Misc. Unit Costs

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

Closure Cost Estimate
User 03 Miscellaneous Crews

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	82.99	0.5	16.65	41.50	**58.15**
Laborer *(added)*	15.19		1	15.19	0.00	**15.19**
Light truck *(added)*		29.95	1	0.00	29.95	**29.95**
				175.38	**71.45**	**246.83**

Utility Pole Demolition	Crew	Daily output	Labor-hrs	Unit	Materials	Labor	Equipment
	R-3	6	3.3	ea	0	233.84	95.26

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

Cost per mile:	Labor ($/mile)	Equipment ($/mile)	total ($/mile)	
	$ 16,369	$ 6,668	$ 23,037	<—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	141.70	24.94	1	141.70	24.94	**166.64**
Auger, truck-mounted	44.75	46.73	1	44.75	46.73	**91.48**
				280.38	**71.67**	**352.05**

Signate, Guide and directional	Crew	Daily output	Labor-hrs	Unit	Materials	Labor	Equipment
10 14 53.20 0600	B-80	70	0.457	ea	41	32.04	8.19
					^Other User	^Other User	^Other User

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	11.22	2.87
					^Other User	^Other User	^Other User

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		-			Centrally 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	-		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 Handling							
Acid Storage Building	Included with Reagent Storage and Lime Handling							
Reagent Building	Included with Reagent Storage and Lime Handling							
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

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 leng	Area (acre)	Other length (ft)
EWRSP-1	FIG_EWRSP1	EWRSP1-MB1	30	1161		
EWRSP-1	FIG_EWRSP1	EWRSP1-MB2	30	650		
EWRSP-1	FIG_EWRSP1	EWRSP1-MB3	25	333		
EWRSP-1	FIG_EWRSP1	EWRSP1-MB4	20	351		
EWRSP-1	FIG_EWRSP1	area			25.1	
EWRSP-2B	FIG_EWRSP2	EWRSP2B-MB1	30	529		
EWRSP-2B	FIG_EWRSP2	EWRSP2B-MB2	70	477		
					25	
EWRSP-4	FIG_EWRSP4	EWRSP4-MB1	10	148		
EWRSP-4	FIG_EWRSP4	EWRSP4-MB2	50	319		
EWRSP-4	FIG_EWRSP4	EWRSP4-MB3	30	223		
EWRSP-4	FIG_EWRSP4	EWRSP4-MB4	20	331		
EWRSP-4	FIG_EWRSP4	EWRSP4-MB5	30	591		
EWRSP-4	FIG_EWRSP4	EWRSP4-MB6	10	499		
EWRSP-4	FIG_EWRSP4	EWRSP4-MB7	10	1000		
EWRSP-4	FIG_EWRSP4	EWRSP4-MB1-Area			3.31	
EWRSP-4	FIG_EWRSP4	EWRSP4-MB2-Area			2.89	
EWRSP-4	FIG_EWRSP4	EWRSP4-MB3-Area			1.83	
EWRSP-4	FIG_EWRSP4	EWRSP4-MB4-Area			1.5	
EWRSP-4	FIG_EWRSP4	EWRSP4-MB5-Area			5.07	
EWRSP-4	FIG_EWRSP4	EWRSP4-MB6-Area			2.39	
EWRSP-4	FIG_EWRSP4	EWRSP4-MB7-Area			4.27	
WRSP-2	FIG_WRSP2_\	WRSP2-MB1	75	1369		
WRSP-2	FIG_WRSP2_\	WRSP2-MB2	75	2212		
WRSP-2	FIG_WRSP2_\	WRSP2-MB3	75	2009		
WRSP-3	FIG_WRSP2_\	WRSP3-MB1	75	1680		
WRSP-3	FIG_WRSP2_\	WRSP3-MB2	75	3346		
WRSP-3	FIG_WRSP2_\	WRSP3-MB3	75	3144		
WRSP-3	FIG_WRSP2_\	WRSP3-MB4	75	1704		
WRSP-3	FIG_WRSP2_\	WRSP3-MB5	75	1430		
WRSP-3	FIG_WRSP2_\	WRSP3-MB6	75	2426		
WRSP-3	FIG_WRSP2_\	WRSP3-MB7	35	469		
WRSP-3	FIG_WRSP2_\	WRSP3-MB8	35	1570		
WRSP-2	FIG_WRSP2_\	WRSP2-Area			47.7	
WRSP-3	FIG_WRSP2_\	WRSP3-Area			118.5	
WRSP-1	FIG_WRSP1_I	WRSP1-MB1	75	494		
WRSP-1	FIG_WRSP1_I	WRSP1-MB2	50	211		
WRSP-1	FIG_WRSP1_I	WRSP1-MB3	50	143		
WRSP-1	FIG_WRSP1_I	WRSP1-MB4	75	2091		
WRSP-1	FIG_WRSP1_I	WRSP1-MB5	25	219		
WRSP-1	FIG_WRSP1_I	WRSP1-MB6	50	1806		
WRSP-1	FIG_WRSP1_I	WRSP1-MB7	50	748		
EWRSP2-A	FIG_WRSP1_I	EWRSP2A-MB1	50	1166		
WRSP-1	FIG_WRSP1_I	WRSP1-MB1-Area			3.11	
WRSP-1	FIG_WRSP1_I	WRSP1-MB2-Area			1.44	
WRSP-1	FIG_WRSP1_I	WRSP1-MB3-Area			included above	
WRSP-1	FIG_WRSP1_I	WRSP1-MB4-Area			12.01	
WRSP-1	FIG_WRSP1_I	WRSP1-MB5-Area			1.3	
WRSP-1	FIG_WRSP1_I	WRSP1-MB6-Area			19.27	
WRSP-1	FIG_WRSP1_I	WRSP1-MB7-Area			included above	
EWRSP2-A	FIG_WRSP1_I	EWRSP2A-MB1-Area			6.22	
TSF	FIG_TSF_MID	TSF Surface Area			305.39	
TSF	FIG_TSF_MID	TSF Embankment Area			244.99	
TSF	FIG_TSF_MID	TSF-MB1		17289		
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV1				2456
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV2				2789
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV3				3438
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV4				9206
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV5				8640
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV6				8072
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV7				4098
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV8				1627
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV9				5217
TSF Diversion Channels	FIG_TSF_DIV	TSF-DIV10				3673
Pit Berm	FIG_PIT_BERI	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) Hei	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 (Regrade	Mid-Embankment Length	Final Tailings Surface Area
	acres	ft	acres
TSF	244.99	17,289	305.39

Table E4. Summary of Copper Flat Surface Impoundments

					Calculations for SRCE				
Impoundment	Size1 (Acres)	Storage Volume2 (Gallons)	Total Excavation Volume3 (cy)	Required Back	**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

577,500	3,000
577,500	3,000
577,500	3,000
577,500	3,000
577,500	3,000
288,800	1,500

Closure Cost Estimate
User 09 Haulage 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 Water Impoundment A	500	5375	5375	0	<--Process Ponds
locally	Impacted Storm Water Impoundment B	500	5500	5500	0	<--Process Ponds
locally	Impacted Storm Water Impoundment C	500	5300	5300	0	<--Process Ponds
locally	Process Water Reservoir	500	5450	5450	0	<--Process Ponds
locally	Surge Pond	500	5350	5350	0	<--Process Ponds
locally	New evaporation pond excavation	500	5150	5150	0	<--Process Ponds
locally	New evaporation pond conversion to E-cell	500	5150	5150	0	<--Process Ponds

Closure Cost Estimate
User 10 Diversion channels

Source File	OBJECTID *	SRCE ID	SRCE ID with info	LENGTH_ft	Constructed?	Input (ft)	DIVERSION_ID
TSF_Diversion_Channels_PLN.xlsx	1	TSF-DIV1	TSF-DIV1	2456		2456	TSF-DIV1
TSF_Diversion_Channels_PLN.xlsx	25	TSF-DIV10	TSF-DIV10	3673		3673	TSF-DIV10
TSF_Diversion_Channels_PLN.xlsx		TSF-DIV11	TSF-DIV11	991		991	TSF-DIV11
TSF_Diversion_Channels_PLN.xlsx	2	TSF-DIV2	TSF-DIV2	2789		2789	TSF-DIV2
TSF_Diversion_Channels_PLN.xlsx	3	TSF-DIV3	TSF-DIV3	3438		3438	TSF-DIV3
TSF_Diversion_Channels_PLN.xlsx	4	TSF-DIV4	TSF-DIV4	9206		9206	TSF-DIV4
TSF_Diversion_Channels_PLN.xlsx	5	TSF-DIV5	TSF-DIV5	8640		8640	TSF-DIV5
TSF_Diversion_Channels_PLN.xlsx	6	TSF-DIV6	TSF-DIV6	8072		8072	TSF-DIV6
TSF_Diversion_Channels_PLN.xlsx	7	TSF-DIV7	TSF-DIV7	4098		4098	TSF-DIV7
TSF_Diversion_Channels_PLN.xlsx	20	TSF-DIV8	TSF-DIV8	1627		1627	TSF-DIV8
TSF_Diversion_Channels_PLN.xlsx	23	TSF-DIV9	TSF-DIV9	5217		5217	TSF-DIV9
EWRSP1_Prop_Channel_Center_PLN.xlsx	2	EWRSP1 diversion channel 1	EWRSP1 diversion channel 1	655		655	
EWRSP1_Prop_Channel_Center_PLN.xlsx	3	EWRSP1 diversion channel 2	EWRSP1 diversion channel 2	1170		1170	
EWRSP1_Prop_Channel_Center_PLN.xlsx	4	EWRSP1 diversion channel 3	EWRSP1 diversion channel 3	512		512	
EWRSP1_Prop_Channel_Center_PLN.xlsx	5	EWRSP1 diversion channel 4	EWRSP1 diversion channel 4	636		636	
EWRSP1_Prop_Channel_Center_PLN.xlsx	6	EWRSP1 diversion channel 5	EWRSP1 diversion channel 5	455		455	
EWRSP1_Prop_Channel_Center_PLN.xlsx	7	EWRSP1 diversion channel 6	EWRSP1 diversion channel 6	525		525	
EWRSP2B_Prop_Channel_Center_PLN.xlsx	1	EWRSP2B diversion channel 1	EWRSP2B diversion channel 1	455		455	
EWRSP2B_Prop_Channel_Center_PLN.xlsx	2	EWRSP2B diversion channel 2	EWRSP2B diversion channel 2	1258		1258	
EWRSP3_Prop_Channel_Center_PLN.xlsx	1	Plant Area diversion channel 1	Plant Area diversion channel 1	1461		1461	
EWRSP3_Prop_Channel_Center_PLN.xlsx	2	Plant Area diversion channel 2	Plant Area diversion channel 2	705		705	
EWRSP3_Prop_Channel_Center_PLN.xlsx	4	Plant Area diversion channel 3	Plant Area diversion channel 3	606		606	
EWRSP3_Prop_Channel_Center_PLN.xlsx	5	Plant Area diversion channel 4	Plant Area diversion channel 4	619		619	
EWRSP3_Prop_Channel_Center_PLN.xlsx	6	Plant Area diversion channel 5	Plant Area diversion channel 5	1609		1609	
EWRSP3_Prop_Channel_Center_PLN.xlsx	7	Plant Area diversion channel 6	Plant Area diversion channel 6	1951		1951	
EWRSP3_Prop_Channel_Center_PLN.xlsx	8	Plant Area diversion channel 7	Plant Area diversion channel 7	1854		1854	
EWRSP3_Prop_Channel_Center_PLN.xlsx	9	Plant Area diversion channel 8	Plant Area diversion channel 8	2361		2361	
EWRSP3_Prop_Channel_Center_PLN.xlsx	10	Plant Area diversion channel 9	Plant Area diversion channel 9	4155		4155	
WRSP1_Prop_Channel_Center_PLN.xlsx	1	WRSP1 diversion channel 1	WRSP1 diversion channel 1 - built during operations	882	Yes	0	
WRSP1_Prop_Channel_Center_PLN.xlsx	2	WRSP1 diversion channel 2	WRSP1 diversion channel 2 - built during operations	2030	Yes	0	
WRSP1_Prop_Channel_Center_PLN.xlsx	3	WRSP1 diversion channel 3	WRSP1 diversion channel 3	909		909	
WRSP1_Prop_Channel_Center_PLN.xlsx	4	WRSP1 diversion channel 4	WRSP1 diversion channel 4	724		724	
WRSP1_Prop_Channel_Center_PLN.xlsx	5	WRSP1 diversion channel 5	WRSP1 diversion channel 5	2847		2847	
WRSP1_Prop_Channel_Center_PLN.xlsx	6	WRSP1 diversion channel 6	WRSP1 diversion channel 6	2110		2110	
WRSP1_Prop_Channel_Center_PLN.xlsx	7	WRSP1 diversion channel 7	WRSP1 diversion channel 7	596		596	
WRSP1_Prop_Channel_Center_PLN.xlsx	8	WRSP1 diversion channel 8	WRSP1 diversion channel 8	455		455	
WRSP1_Prop_Channel_Center_PLN.xlsx	9	WRSP1 diversion channel 9	WRSP1 diversion channel 9	1800		1800	
WRSP1_Prop_Channel_Center_PLN.xlsx	10	WRSP1 diversion channel 10	WRSP1 diversion channel 10	842		842	
WRSP1_Prop_Channel_Center_PLN.xlsx	11	WRSP1 diversion channel 11	WRSP1 diversion channel 11	1590		1590	
WRSP1_Prop_Channel_Center_PLN.xlsx	12	WRSP1 diversion channel 12	WRSP1 diversion channel 12	1063		1063	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	2	WRSP2+WRSP3 diversion channel 1	WRSP2+WRSP3 diversion channel 1 - built during opera	1068	Yes	0	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	3	WRSP2+WRSP3 diversion channel 2	WRSP2+WRSP3 diversion channel 2	1684		1684	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	4	WRSP2+WRSP3 diversion channel 3	WRSP2+WRSP3 diversion channel 3	1773		1773	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	5	WRSP2+WRSP3 diversion channel 4	WRSP2+WRSP3 diversion channel 4	1495		1495	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	6	WRSP2+WRSP3 diversion channel 5	WRSP2+WRSP3 diversion channel 5	1783		1783	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	7	WRSP2+WRSP3 diversion channel 6	WRSP2+WRSP3 diversion channel 6	1390		1390	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	8	WRSP2+WRSP3 diversion channel 7	WRSP2+WRSP3 diversion channel 7	1103		1103	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	9	WRSP2+WRSP3 diversion channel 8	WRSP2+WRSP3 diversion channel 8	829		829	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	10	WRSP2+WRSP3 diversion channel 9	WRSP2+WRSP3 diversion channel 9	1058		1058	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	11	WRSP2+WRSP3 diversion channel 10	WRSP2+WRSP3 diversion channel 10	1090		1090	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	12	WRSP2+WRSP3 diversion channel 11	WRSP2+WRSP3 diversion channel 11	1104		1104	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	13	WRSP2+WRSP3 diversion channel 12	WRSP2+WRSP3 diversion channel 12	611		611	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	14	WRSP2+WRSP3 diversion channel 13	WRSP2+WRSP3 diversion channel 13	1058		1058	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	15	WRSP2+WRSP3 diversion channel 14	WRSP2+WRSP3 diversion channel 14	538		538	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	16	WRSP2+WRSP3 diversion channel 15	WRSP2+WRSP3 diversion channel 15	579		579	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	17	WRSP2+WRSP3 diversion channel 16	WRSP2+WRSP3 diversion channel 16	1267		1267	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	18	WRSP2+WRSP3 diversion channel 17	WRSP2+WRSP3 diversion channel 17	1096		1096	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	19	WRSP2+WRSP3 diversion channel 18	WRSP2+WRSP3 diversion channel 18	212		212	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	20	WRSP2+WRSP3 diversion channel 19	WRSP2+WRSP3 diversion channel 19	1891		1891	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	21	WRSP2+WRSP3 diversion channel 20	WRSP2+WRSP3 diversion channel 20	959		959	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	22	WRSP2+WRSP3 diversion channel 21	WRSP2+WRSP3 diversion channel 21	958		958	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	23	WRSP2+WRSP3 diversion channel 22	WRSP2+WRSP3 diversion channel 22	741		741	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	24	WRSP2+WRSP3 diversion channel 23	WRSP2+WRSP3 diversion channel 23 - built during oper	830	Yes	0	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	25	WRSP2+WRSP3 diversion channel 24	WRSP2+WRSP3 diversion channel 24	2674		2674	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	26	WRSP2+WRSP3 diversion channel 25	WRSP2+WRSP3 diversion channel 25	606		606	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	27	WRSP2+WRSP3 diversion channel 26	WRSP2+WRSP3 diversion channel 26 - built during oper	679	Yes	0	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	28	WRSP2+WRSP3 diversion channel 27	WRSP2+WRSP3 diversion channel 27	1847		1847	
WRSP2_WRSP3_Prop_Channel_Center_PLN.xlsx	29	WRSP2+WRSP3 diversion channel 28	WRSP2+WRSP3 diversion channel 28	2361		2361	

Closure Cost Estimate
User 10 Diversion channels

CALCULATIONS

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	1.56	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	
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	1258	2	3,075	513	
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	
Diversion Swale, DS-2	DS-2	3.4	10	0.5	3	3	1.46	5.98	-		Pit Perimeter Channel to Pit	455	3	1,416		
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	1461	3	4,545	758	
Haul Road Channel, HC-2	HC-2	20	10	6.7	3	3	0.41	4.39	3		Pit					Included with TSC-2
Toe Channel, TC-4	TC-4	13	10	7.4	3	3	0.31	3.87	3		Grayback Arroyo	1609	2	3,933	656	
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-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 Channels, BC-1 through BC-4	BC-1 through BC-4	97	10	1	3	3	0.39	1.65	3		Pit Perimeter Channel to Pit	4286	2	10,477	1746	
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															0	
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	634	2	2,254		
Downslope Channel, DSC-2	DSC-2	240.1	20	30.2	3	3	0.4	28.36	ACB		Grayback Arroyo	1891	2	6,724		
Toe Channel, TC-5	TC-5	229.8	10	13	3	3	0.97	10.09	3		Grayback Arroyo	1608	3	5,003	834	
Toe Channel, TC-6	TC-6	242.9	10	8.6	3	3	1.55	10.67	18		Grayback Arroyo	326	4	1,228	1228	
Bench Channels, BC-5 through 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	18458	3	57,425	9571	
TSF																
Downslope Channel, DSC-3	DSC-3	181.8	20	27.6	3	3	0.35	24.85	ACB		Off Site	950	2	3,378		
Downslope Channel, DSC-4	DSC-4	165.6	20	27.8	3	3	0.33	24.03	ACB		Grayback Arroyo	932	2	3,314		
Downslope Channel, DSC-5	DSC-5	479	20	29	3	3	0.61	36.08	ACB		Grayback Arroyo	2302	3	9,726		
Top Surface Channel, TSC-6	TSC-6	243	10	0.5	3	3	2.79	3.72	3		DSC-5 to Grayback Arroyo	2914	5	12,951	2159	
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 through BC-42	BC-21 through BC-42	38	10	1	3	3	1.02	2.83	3		Off Site or Grayback Arroyo	33454	3	104,079	17347	
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	1839	5	8,173	1362	
Toe Channel, TC-9	TC-9	192.5	10	3.5	3	3	1.74	7.23	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	
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	2847	5	12,653	2109	
Haul Road Channel, HC-5	HC-5	984.4	10	10	3	3	1.76	36.7	ACB		Pit	2110	4	7,971		

Notes:
1 - See Mine Reclamation and Closure Plan drawing set for location of specific reach. Hydrology 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.

Total area of ACB: **33,361** **64,486** <-- Haul Material
Other User^

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

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)	
20 ton crane	1	93.65	33.30	$ 93.65	$ 33.30	126.95
laborers	5	15.19		$ 75.95	$ -	75.95
				$ 169.60	$ 33.30	202.9

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

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)
	a	b	c	d	s	A=ab+cd+(a+b+c+d)*s/2
Impacted Storm Water Impoundment A (mea	359	258	284	240	40	183,602
Impacted Storm Water Impoundment B	474	392	444	374	16	365,336
Impacted Storm Water Impoundment C	1200	265	1168	247	17	630,976
Process Water Reservoir (measured from "D	278	265	158	247	63	142,558
Surge Pond (L and W measured from "X-DS-	332.5	142.5	286	125	24	93,763

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.

Fleet:

Excavator selected:	349F
Productivity of excavator (LCY/hr):	480
Productivity adjusted for activity (LCY/hr):	400

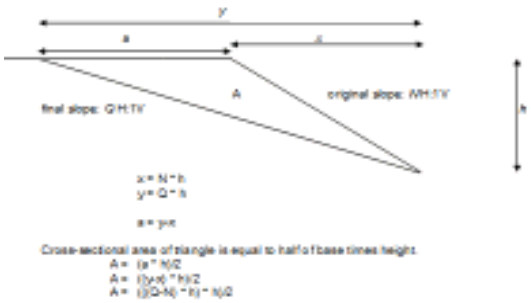
Number of excavators:	2

Dozer selected:	D7E
Number of dozers:	1

excavator labor rate ($/hr):	33.3
excavator equipment rate ($/hr):	129.07
excavator hourly labor cost ($/hr):	66.6
excavator hourly equipment cost ($/hr):	258.14

dozer labor rate ($/hr):	25.96
dozer equipment rate ($/hr):	130.69
dozer hourly labor cost ($/hr):	25.96
dozer hourly equipment cost ($/hr):	130.69

total hourly labor cost ($/hr):	92.56	<--Other User
total hourly equipment cost ($/hr):	388.83	<--Other User



Plant Area	
N (original slope)(_H:1V):	1.4
Q (final slope)(_H:1V):	3
h (height of slope)(ft):	60
A (cross-sectional area)(ft2):	2880
length of slope (ft):	750
bank volume of pullback material (ft3):	2,160,000
bank volume of pullback material (cy):	80,000
material expansion factor:	1.2

time required to pull material back (hr):	200	**<--Other User**

Landbridge 1
measured on Google Earth: 600*100*5ft

volume of material to be moved (ft3):	300,000
volume of material to be moved (cy):	11,111

time required to pull material back (hr):	28	**<--Other User**

Landbridge 2
measured on Google Earth: 400*100*22ft

volume of material to be moved (ft3):	880000
volume of material to be moved (cy):	32593

time required to pull material back (hr):	81	**<--Other User**

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**

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 (side) (vert)	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	0	8	Carbon steel, 5,500 gal	25.12	4	64	3	0	2	51	115	1	115
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, fi	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,	47.1	6	180	5	300	8	377	857	1	857
												subtotal	**32,009**

Closure Cost Estimate
User 13 Tank cutting

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 Cutting Cost	$ 27,847.83	$ 10,815.28	$ 8,962.52	$ 47,625.63
	^Other User	^Other User	^Other User	

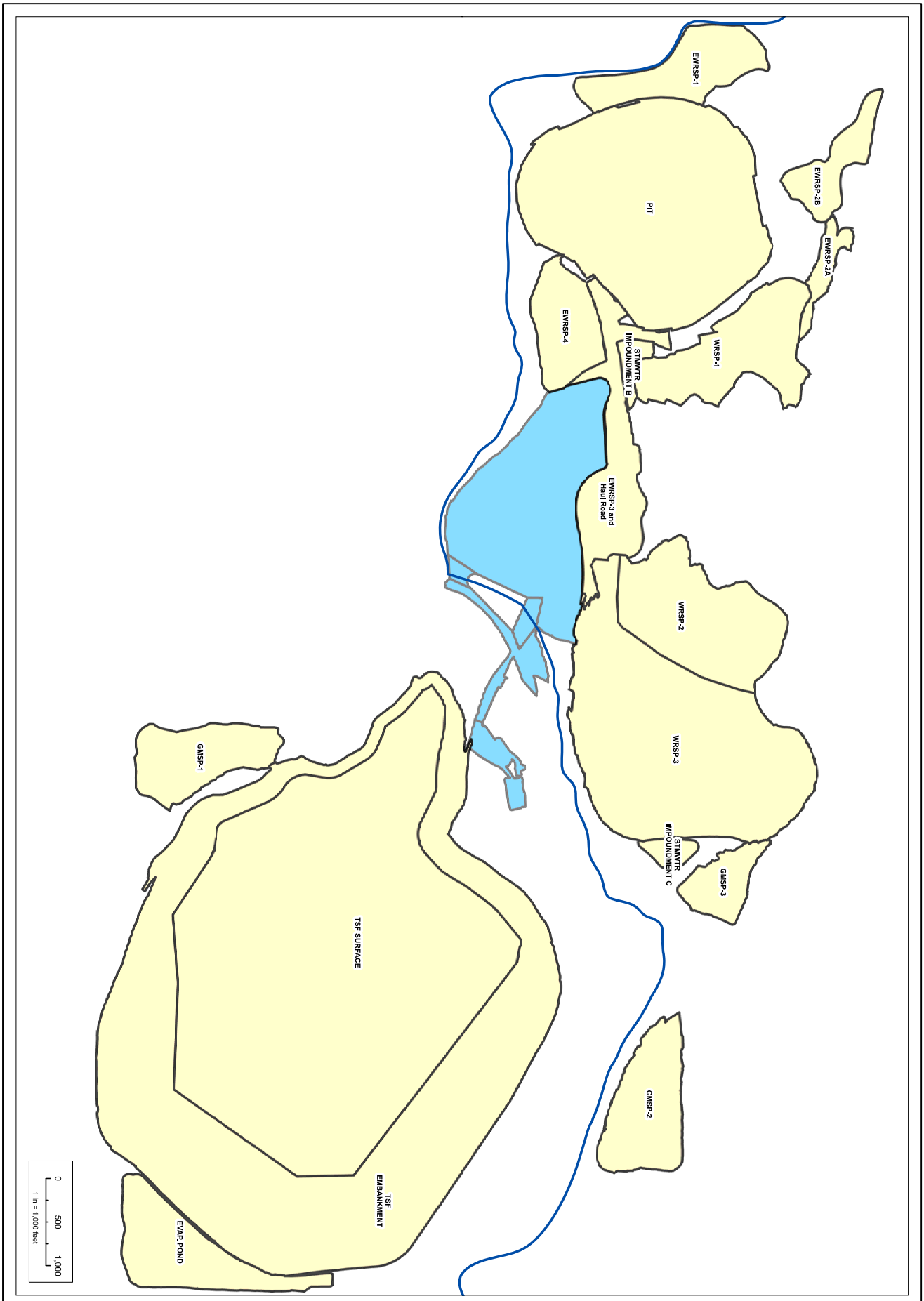
Steel Cutting hours

Daily Output (LF/day)	360
Total length to cut (ft):	32009
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	Equipment rate (USD)
Welder	56.65	
Torch		12.6
subtotal, USD	56.65	12.6



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PROJECT:

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SRK JOB #: 191000.060

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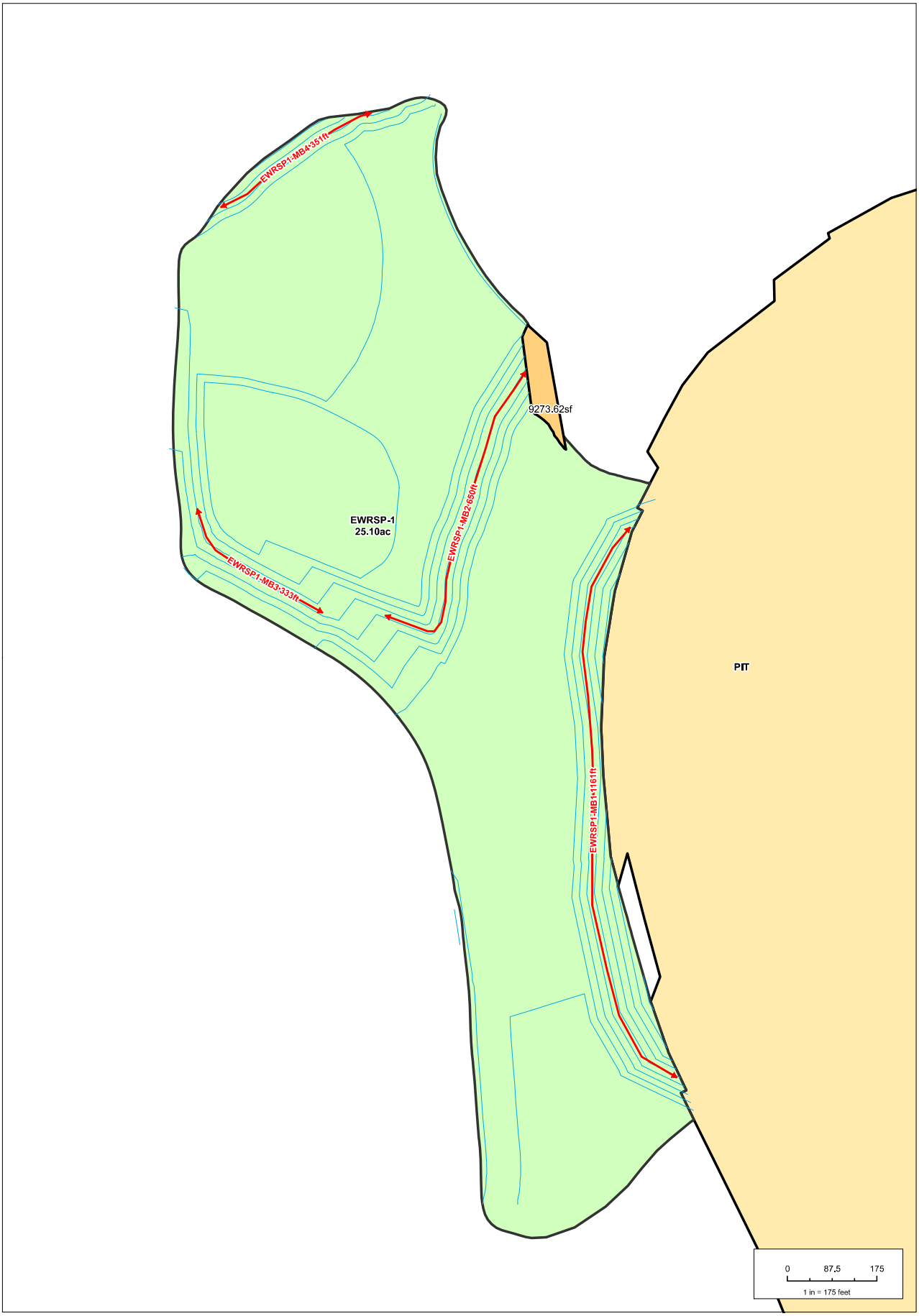

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EWRSP-1 MIDBENCHES
WITH REGRADE BOUNDARY

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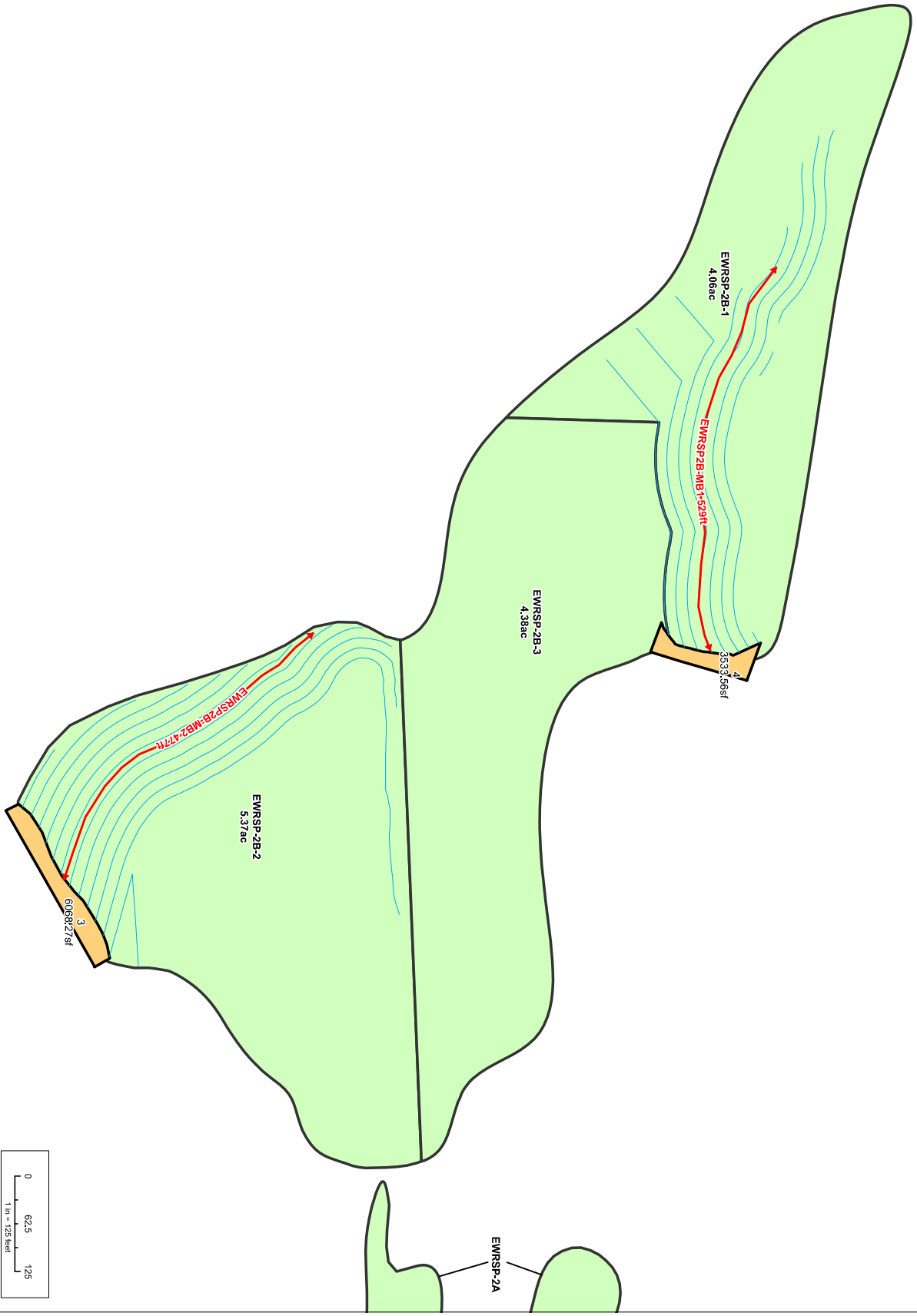

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EWRSP-2B MIDBENCHES
WITH REGRADE BOUNDARY

PROJECT:

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COORDINATE SYSTEM:
NAD 1983 UTM Zone 13N USFoot

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DATE: 7/19/2018	DRAWING NO.	REV. NO.
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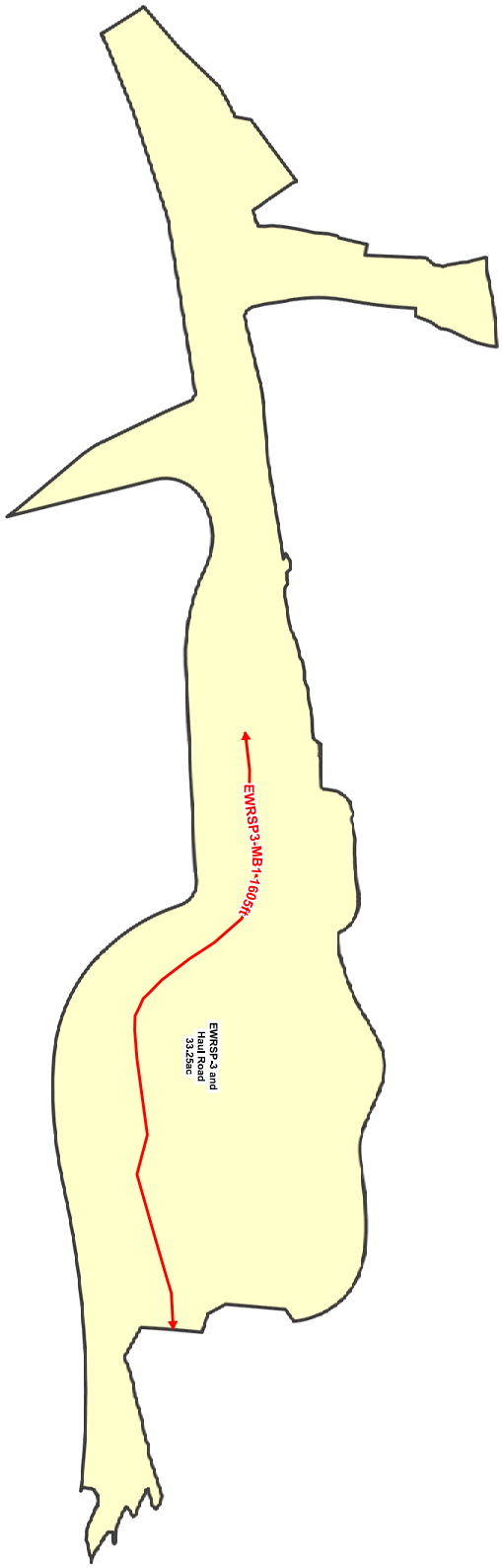

0 150 300
1 in = 300 feet

DRAWING TITLE: EWRSP3 MIDBENCHES

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COORDINATE SYSTEM: NAD 1983 UTM Zone 13N USFoot

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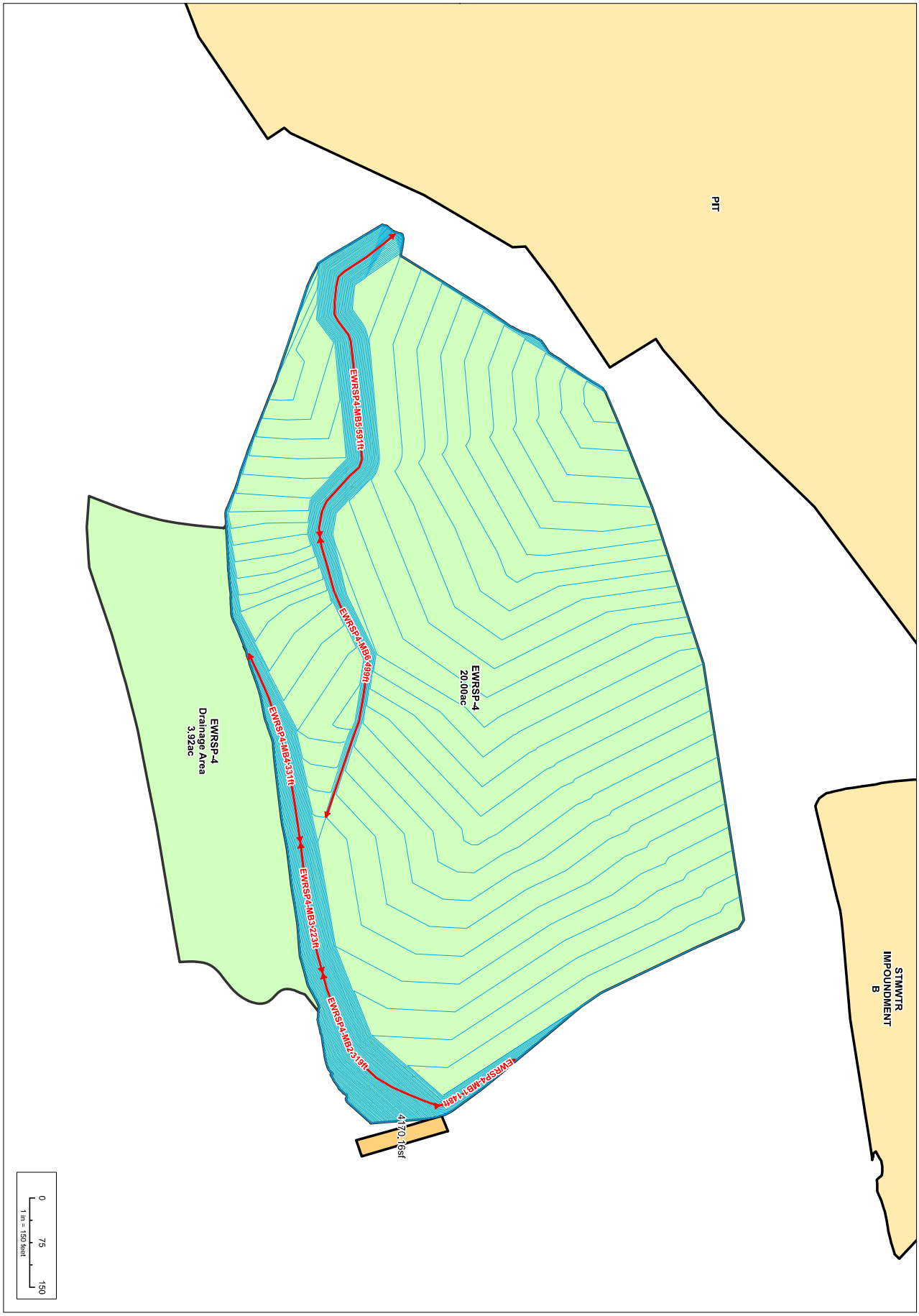

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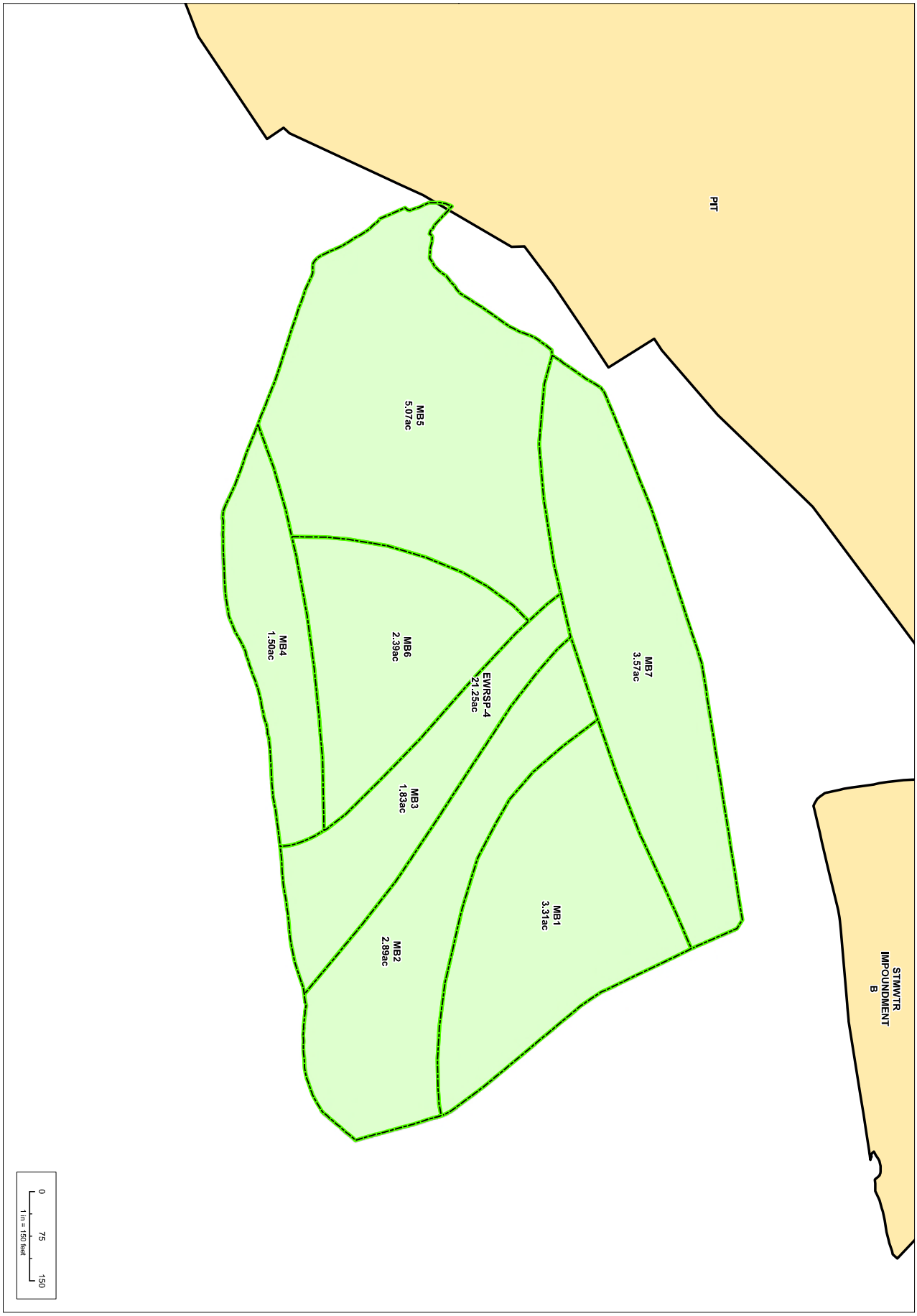

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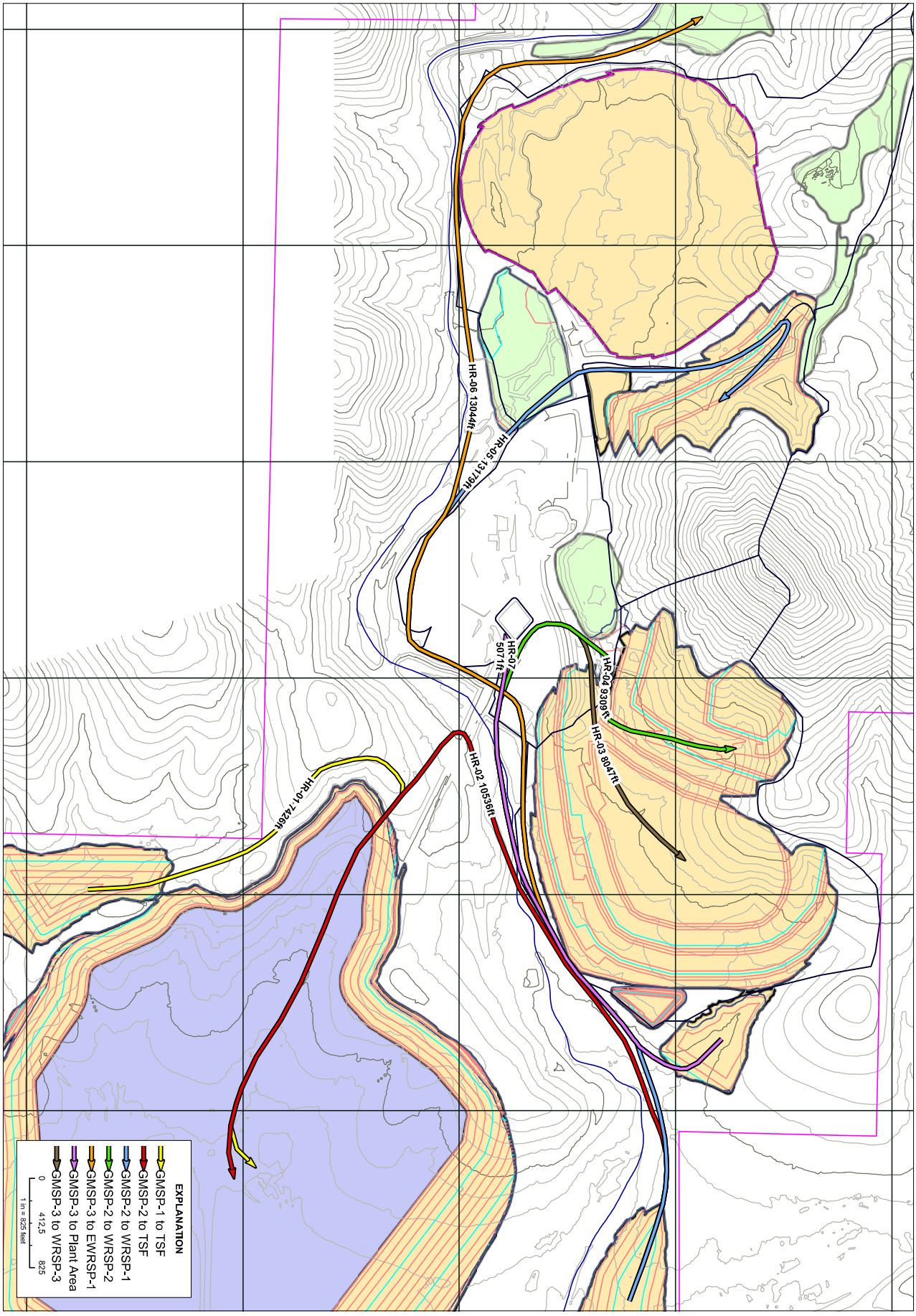

DRAWING TITLE: HAUL ROUTES

PROJECT:

DATE: 5/10/2018 | DRAWING NO. FIGURE | REV. NO. A

SRK JOB #: 191000.060

srk consulting

PREPARED FOR:

DESIGN: - | REVIEWED: FT
DRAWN: GK | CHECKED: -
APPROVED: -

COORDINATE SYSTEM: NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

N

REVISIONS

REV	DESCRIPTION	DATE

FILE NAME: FIG_HAULROUTES_20180503.mxd

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DRAWING TITLE: PIT WITH 50ft BUFFER

PROJECT:

DATE: 7/18/2018

SRK JOB #: 191000.060

DRAWING NO.: FIGURE

REV. NO.: A

srk consulting

PREPARED FOR:

DESIGN: - REVIEWED: FT

DRAWN: GK CHECKED: -

APPROVED: -

COORDINATE SYSTEM: NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

N

REVISIONS

REV	DESCRIPTION	DATE

FILE NAME: FIG_PIT_BERM_20180322.mxd

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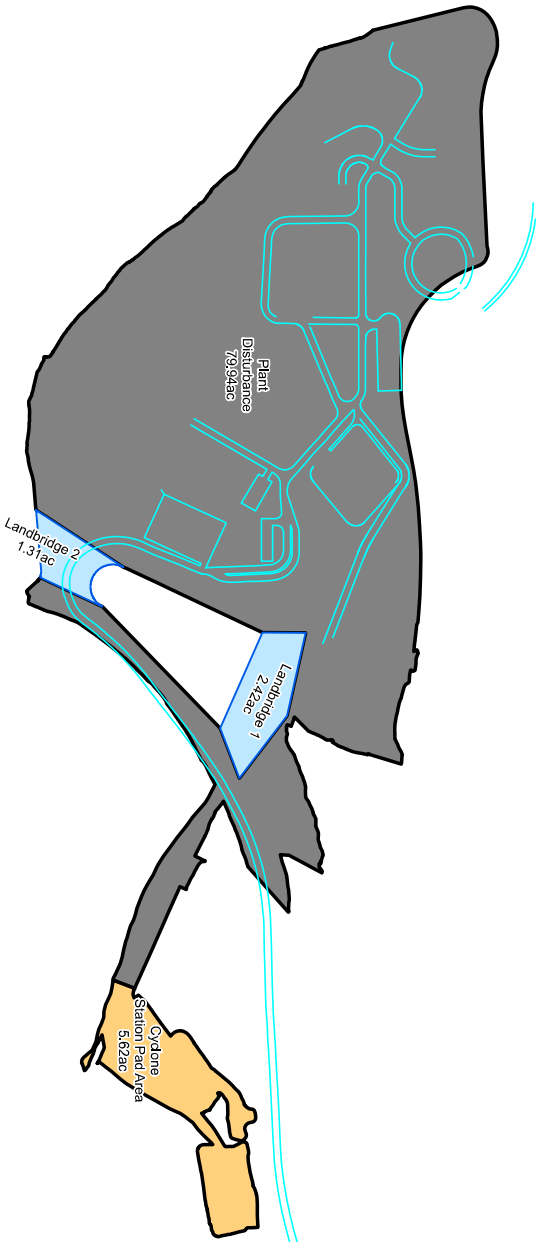

DRAWING TITLE: COMBINED PLANT DISTURBANCE

srk consulting

PROJECT:

PREPARED FOR:

DESIGN: CW | REVIEWED: FT
DRAWN: CW | CHECKED: FT
APPROVED: -
COORDINATE SYSTEM: NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

REVISIONS

REV	DESCRIPTION	DATE

DATE: 8/1/2018
SRK JOB #: 191000.060
DRAWING NO.: FIGURE
REV. NO.: A

FILE NAME: FIG_PLANT_DISTURBANCE_20180508.mxd

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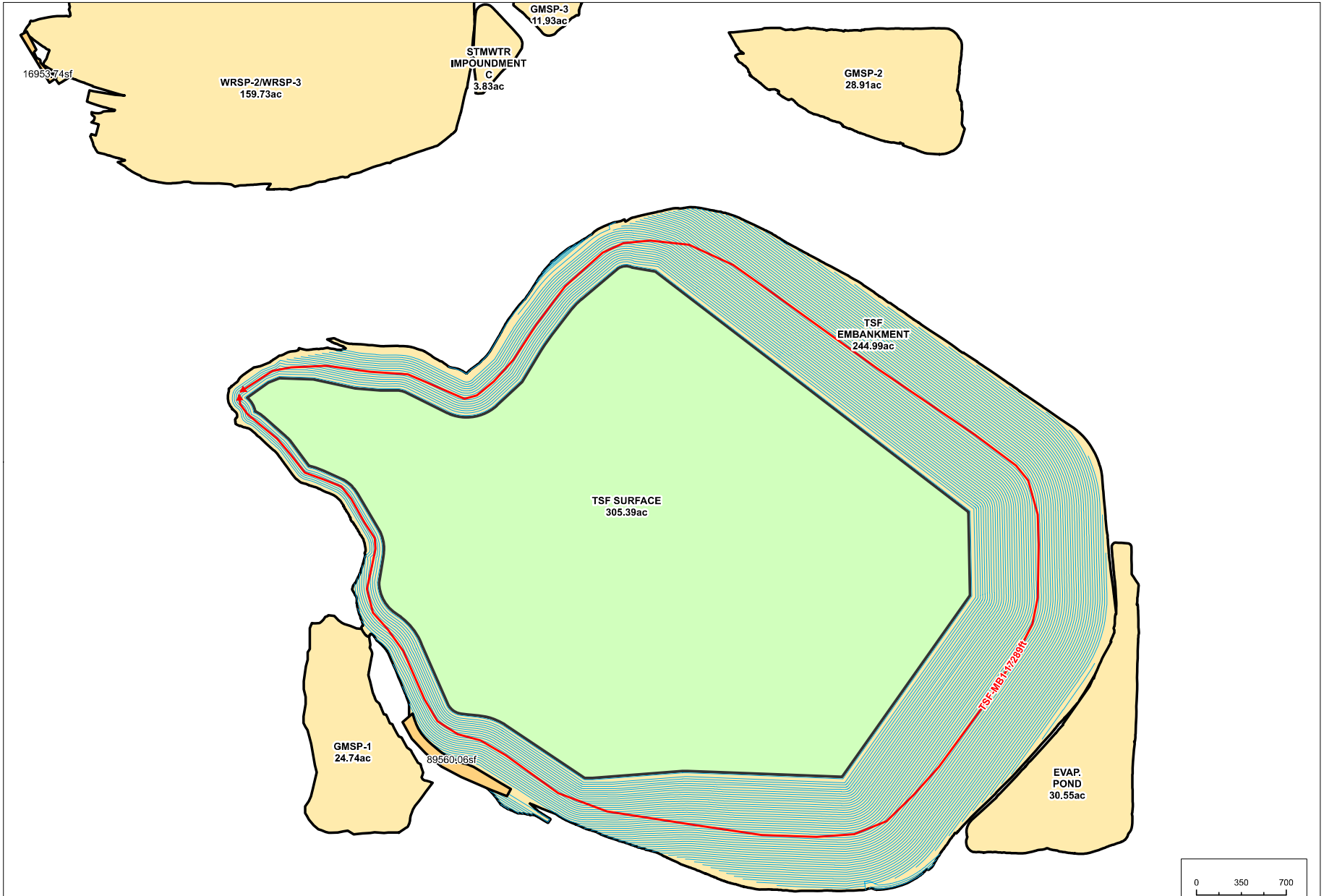


REVISIONS

REV	DESCRIPTION	DATE

FILE NAME: FIG_TSF_MIDBENCHES_20180322.mxd

DESIGN: - REVIEWED: FT
DRAWN: GK CHECKED: -
APPROVED: -
COORDINATE SYSTEM:
NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

srk consulting

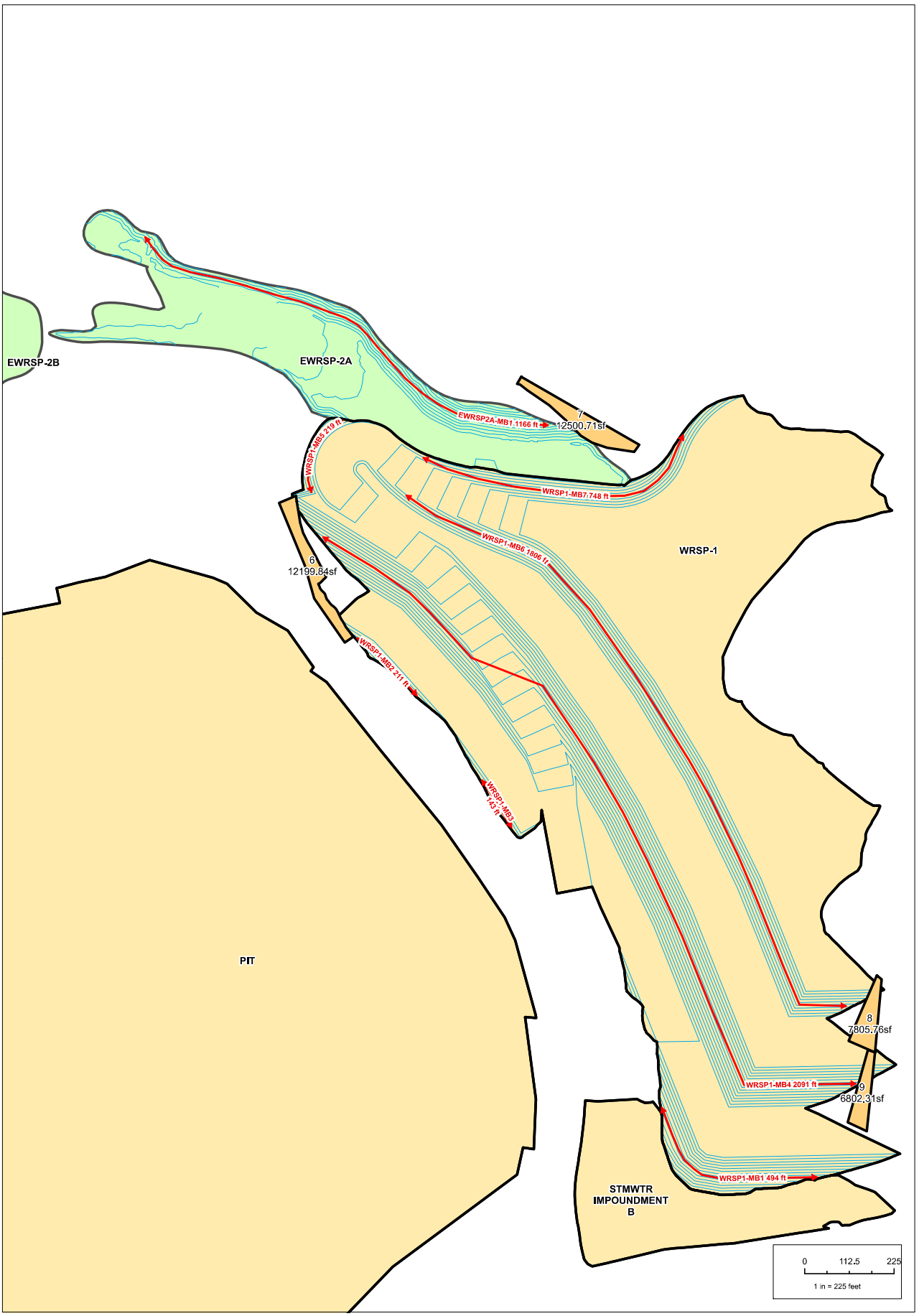
PREPARED FOR:

DRAWING TITLE:
TSF AREAS and MIDBENCHES

PROJECT:

DATE: 7/18/2018
SRK JOB #: 191000.060
DRAWING NO. FIGURE
REV. NO. A

H:\Copper_Flat\New Mexico Copper Corp\191000.060_Copper Flat Bond\040_Drafting\task_0004_Drawings and Figures\FIG_TSF_MIDBENCHES_20180322.mxd



REVISIONS		
REV	DESCRIPTION	DATE

FILE NAME: FIG_WRSP1_EWRSP2A_EOML_20180326.mxd

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DESIGN: - REVIEWED: FT
DRAWN: GK CHECKED: -
APPROVED: -
COORDINATE SYSTEM:
NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

srk consulting

PREPARED FOR:

DRAWING TITLE: WRSP-1 AND EWRSP-2A

PROJECT: EOML

DATE: 7/18/2018 | DRAWING NO. FIGURE | REV. NO. A

SRK JOB #: 191000.060

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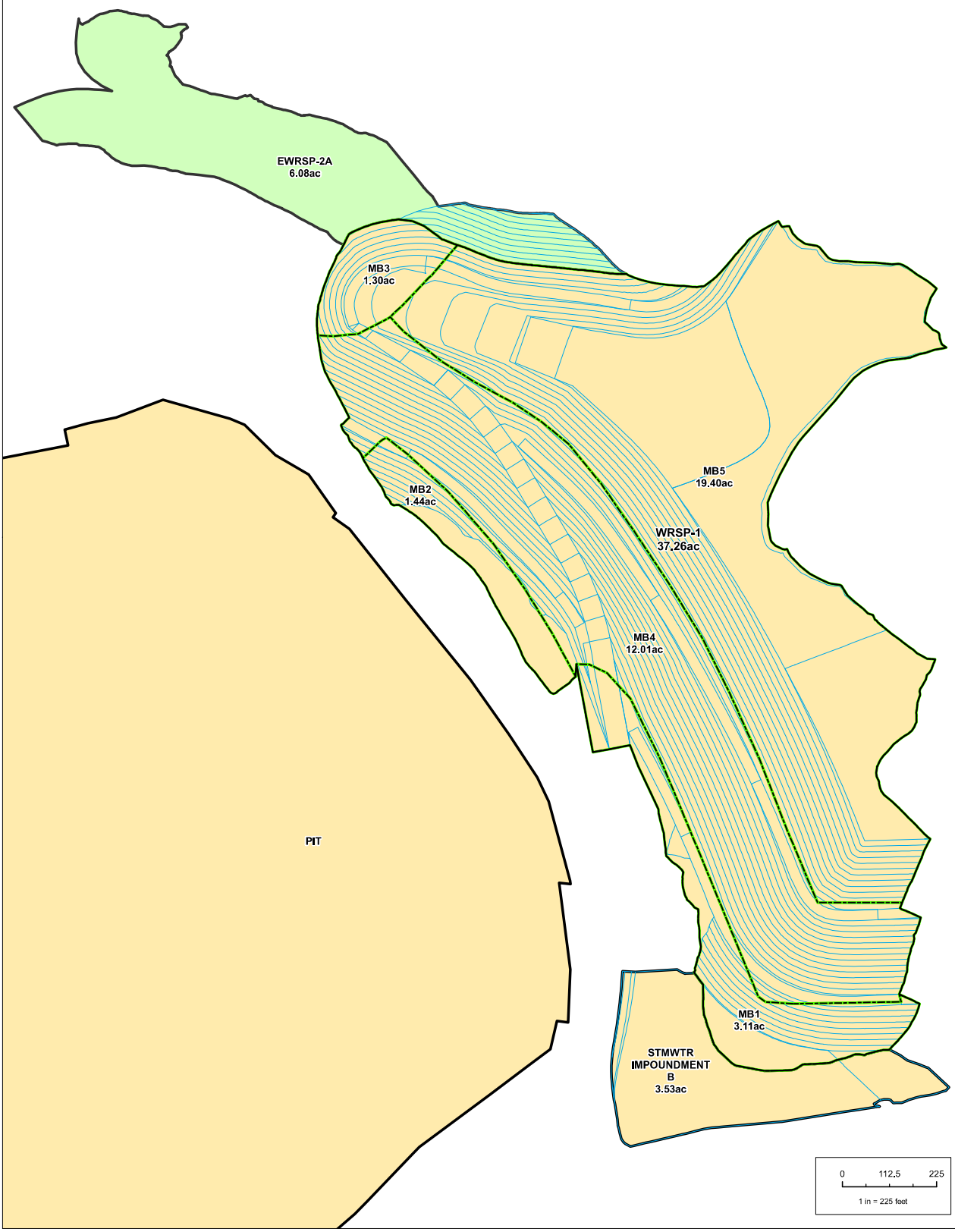

REVISIONS		
REV	DESCRIPTION	DATE

FILE NAME: FIG_WRSP1_EWRSP2A_RECLAIMED_20180328.mxd

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DESIGN: -	REVIEWED: FT
DRAWN: GK	CHECKED: -
APPROVED: -	
COORDINATE SYSTEM:	
NAD 1983 UTM Zone 13N USFoot	

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

srk consulting

PREPARED FOR:

DRAWING TITLE: WRSP-1 AND EWRSP-2A

PROJECT: RECLAIMED

DATE: 4/19/2018

DRAWING NO.: FIGURE

REV. NO.: A

SRK JOB #: 191000.060

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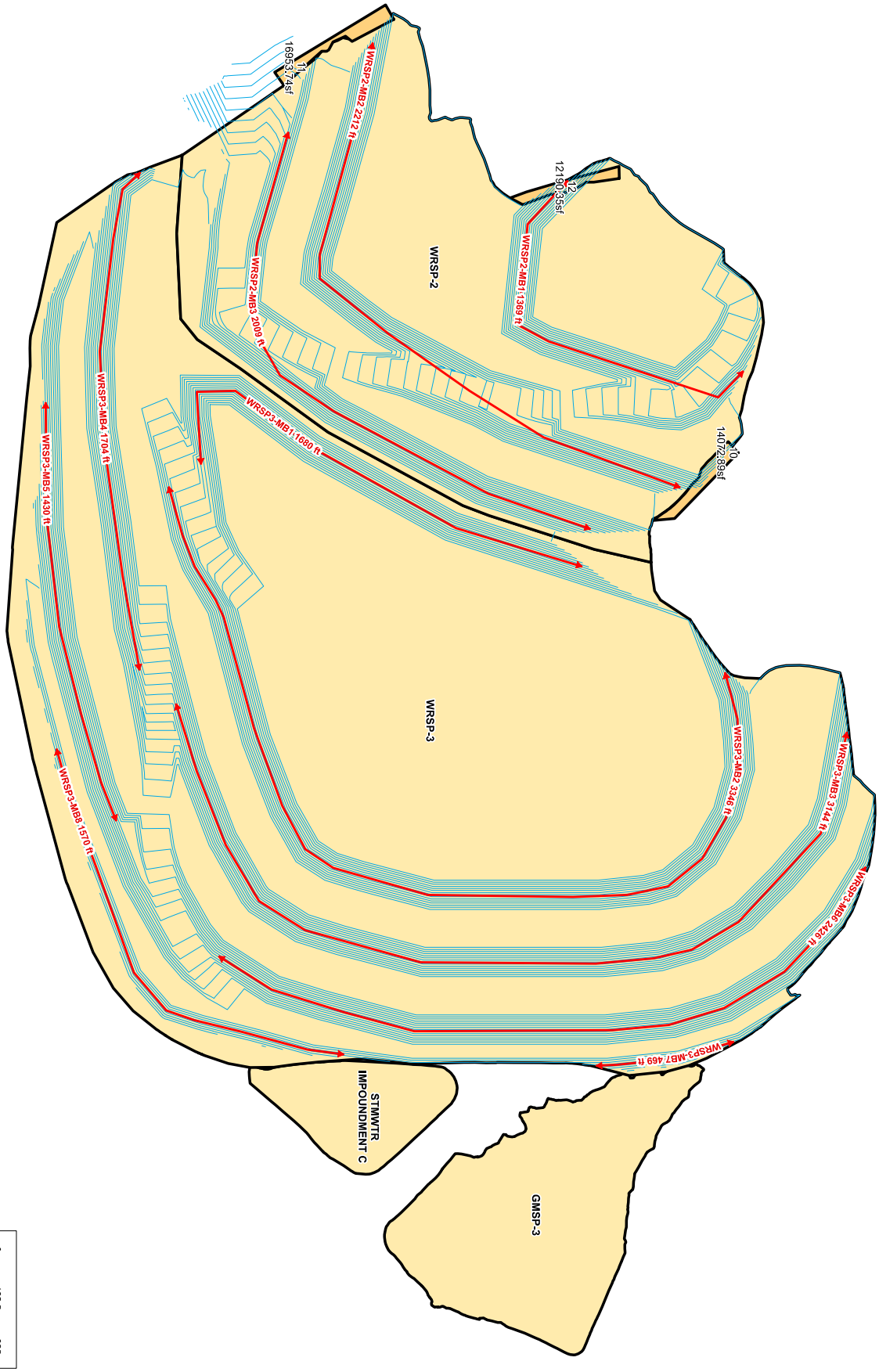

DRAWING TITLE:
WRSP-2 AND WRSP-3 MIDBENCHES WITH FINAL BUILDOUT BOUNDARY

PROJECT:

PREPARED FOR:

srk consulting

DESIGN: -	REVIEWED: FT
DRAWN: GK	CHECKED: -
APPROVED: -	

COORDINATE SYSTEM:
NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

N

REVISIONS

REV	DESCRIPTION	DATE

DATE: 7/18/2018	DRAWING NO.	REV. NO.
SRK JOB #: 191000.060	FIGURE	A

FILE NAME: FIG_WRSP2_WRSP3_FINALBUILDOUT_MIDBENCHES_20180322.mxd

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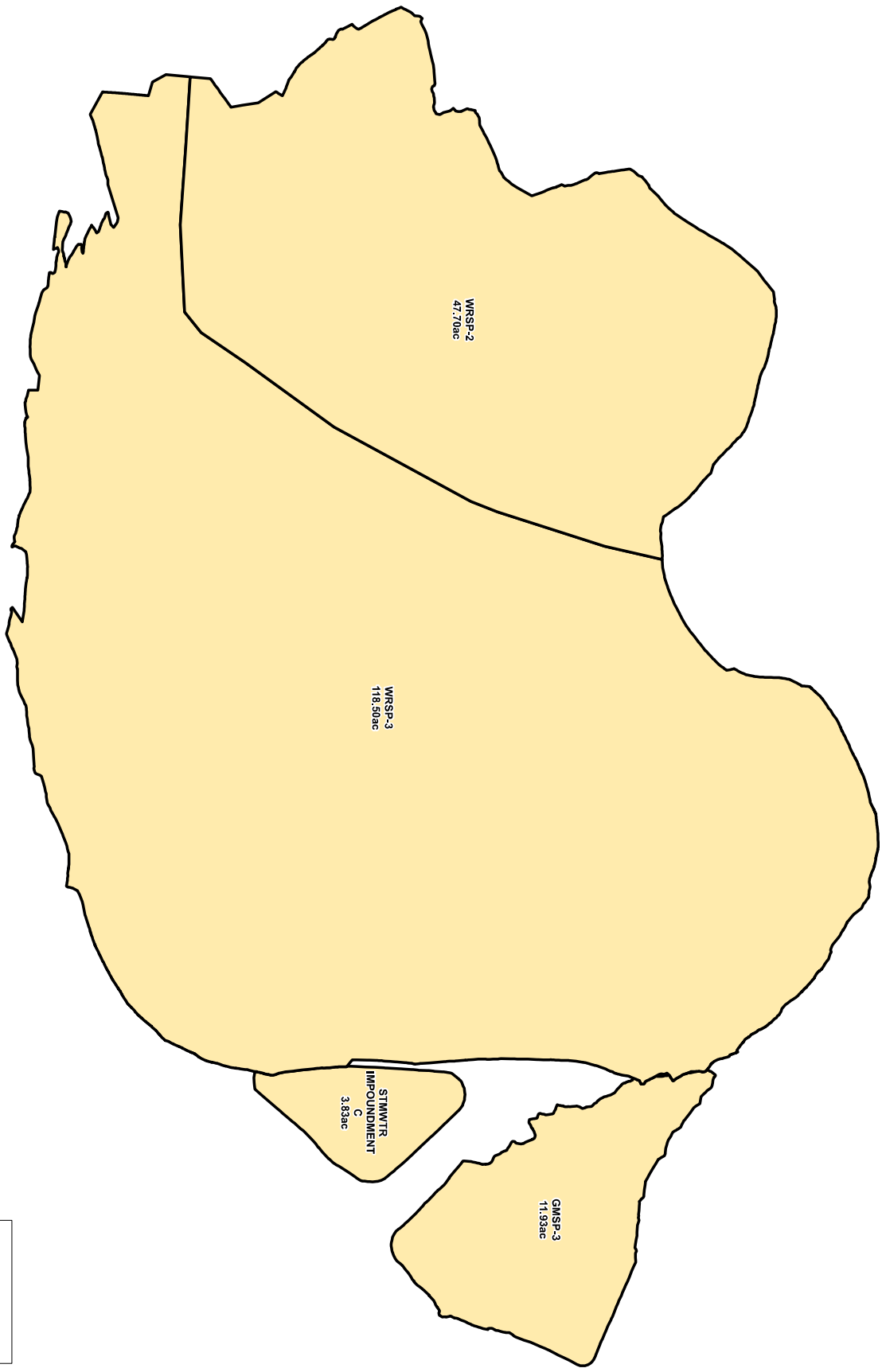

DRAWING TITLE:
WRSP-2 AND WRSP-3
WITH REGRADE BOUNDARY

PROJECT:

DATE: 4/2/2018
SRK JOB #: 191000.060
DRAWING NO.: FIGURE
REV. NO.: A

srk consulting

PREPARED FOR:

DESIGN: - REVIEWED: FT
DRAWN: GK CHECKED: -
APPROVED: -
COORDINATE SYSTEM:
NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

N

REVISIONS

REV	DESCRIPTION	DATE

FILE NAME: FIG_WRSP2_WRSP3_REGRADE_20180328.mxd

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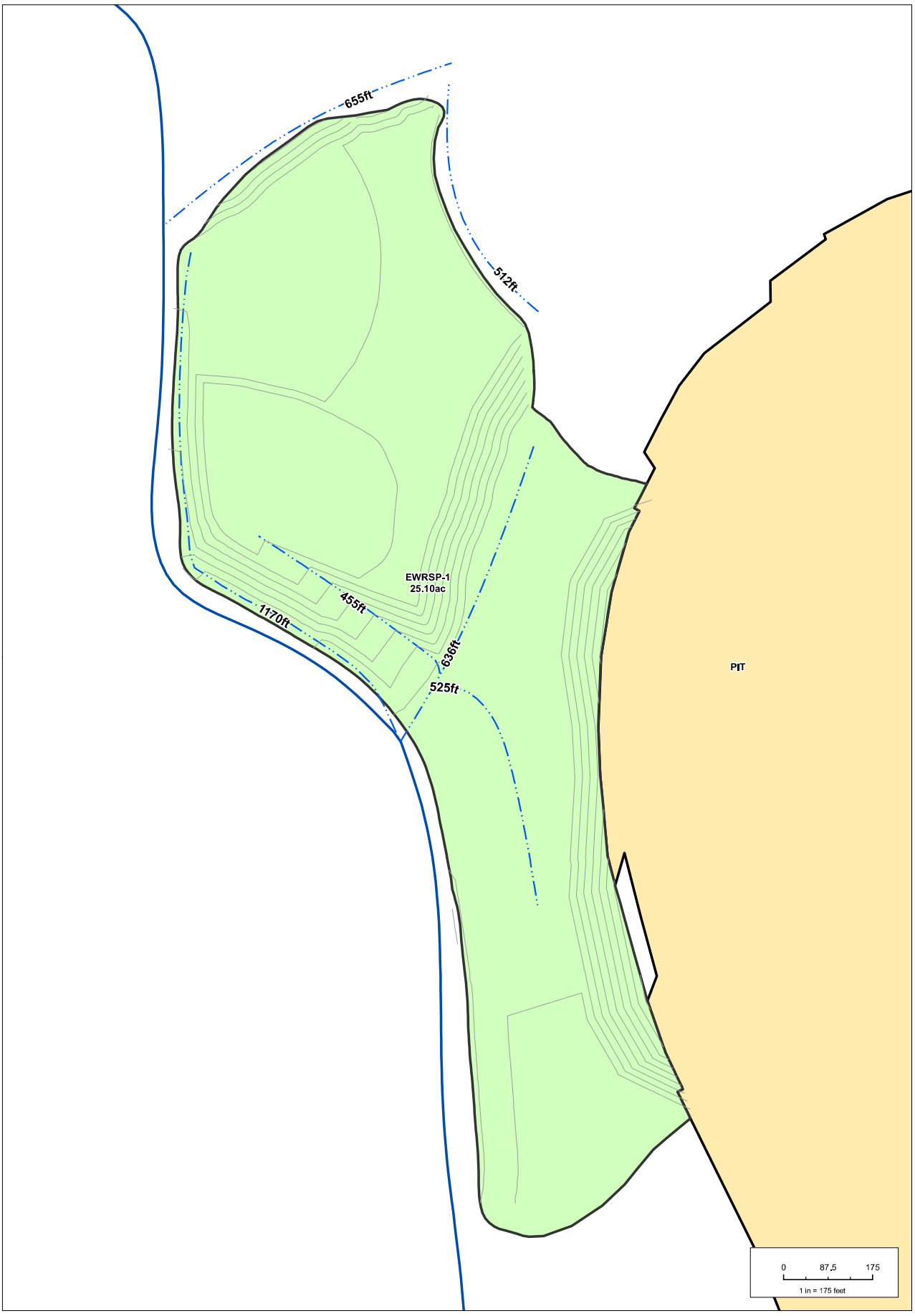

REVISIONS		
REV	DESCRIPTION	DATE

FILE NAME: FIG_EWRSP1_DIVERSION_CHANNELS_20180504.mxd

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DESIGN: -	REVIEWED: FT		
DRAWN: GK	CHECKED: -		
APPROVED: -			
COORDINATE SYSTEM:			
NAD 1983 UTM Zone 13N USFoot			

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

srk consulting

PREPARED FOR:

DRAWING TITLE: EWRSP-1 DIVERSION CHANNELS WITH REGRADE BOUNDARY

PROJECT:

DATE: 5/4/2018	DRAWING NO.	REV. NO.
SRK JOB #: 191000.060	FIGURE	A

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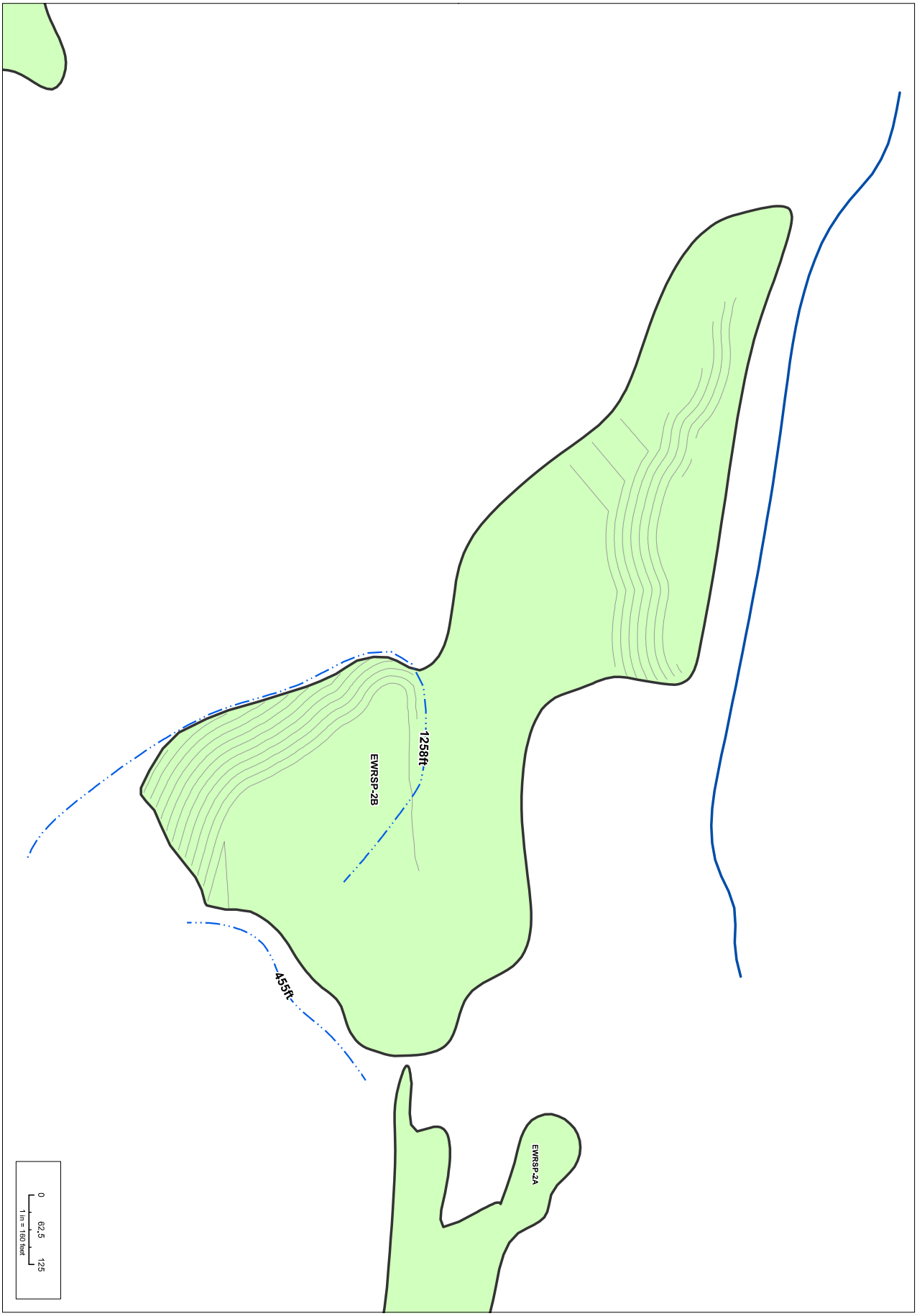

DRAWING TITLE:
EWRSP-2B MIDBENCHES
WITH REGRADE BOUNDARY

srk consulting

PROJECT:

PREPARED FOR:

DESIGN: - REVIEWED: FT
DRAWN: GK CHECKED: -
APPROVED: -

COORDINATE SYSTEM:
NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

N

REVISIONS

REV	DESCRIPTION	DATE

DATE: 5/4/2018
SRK JOB #: 191000.060
DRAWING NO.: FIGURE
REV. NO.: A

FILE NAME: FIG_EWRSP2B_DIVERSION_CHANNELS_20180504.mxd

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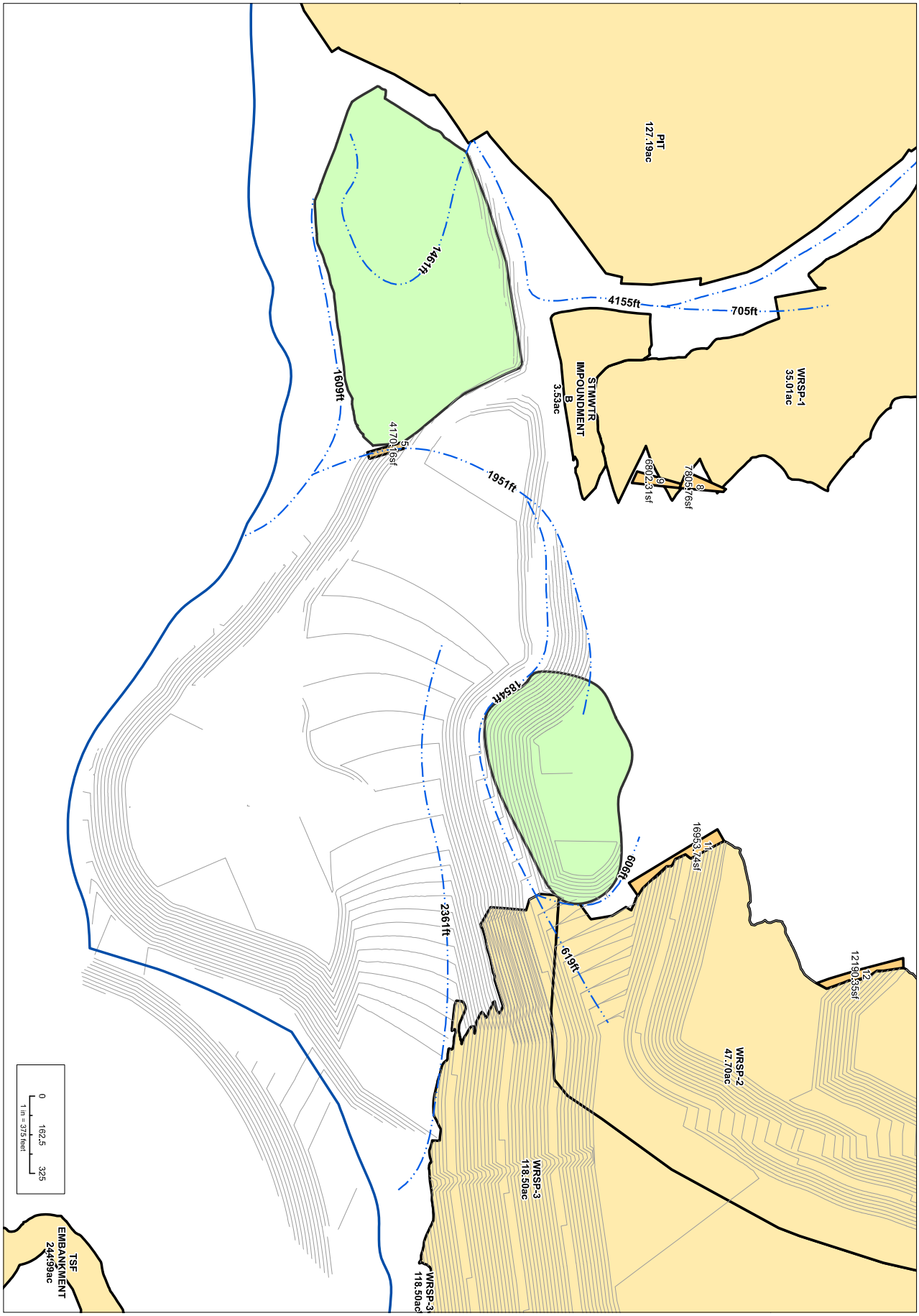

DRAWING TITLE:
EWRSP-3 DIVERSION CHANNELS WITH REGRADE BOUNDARY

PROJECT:

PREPARED FOR:

srk consulting

DESIGN: -	REVIEWED: FT
DRAWN: GK	CHECKED: -
APPROVED: -	

COORDINATE SYSTEM:
NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

N

REVISIONS

REV	DESCRIPTION	DATE

DATE	DRAWING NO.	REV. NO.
7/18/2018	FIGURE	A

SRK JOB #: 191000.060

FILE NAME: FIG_EWRSP3_DIVERSION_CHANNELS_20180507.mxd

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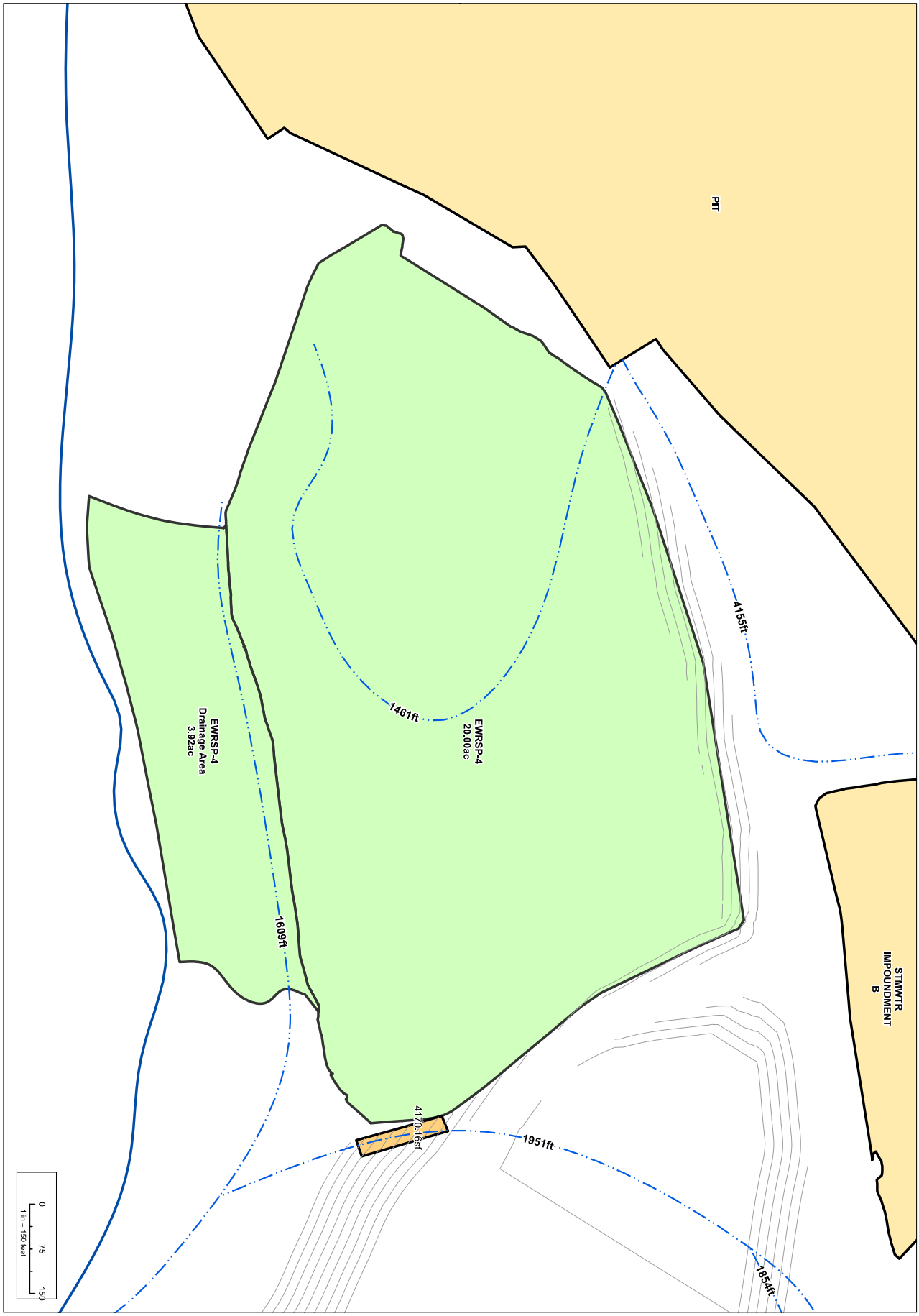


DRAWING TITLE:
EWRSP-4 DIVERSION CHANNELS WITH REGRADE BOUNDARY

srk consulting

PROJECT:
EOML

PREPARED FOR:

DESIGN: - | REVIEWED: FT
DRAWN: CW | CHECKED: -
APPROVED: -

COORDINATE SYSTEM:
NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

N

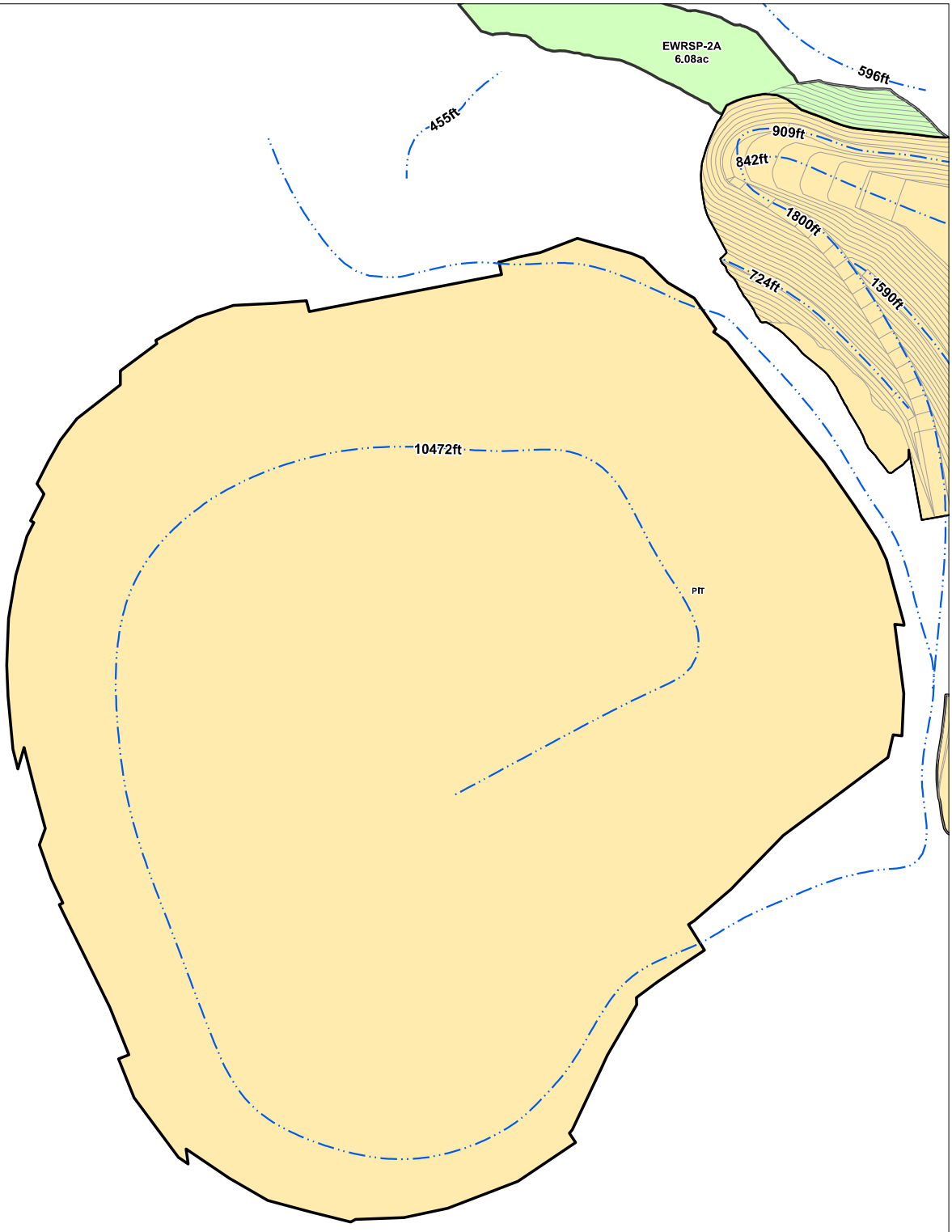
REVISIONS

REV	DESCRIPTION	DATE

DATE: 7/25/2018
SRK JOB #: 191000.060
DRAWING NO.: FIGURE
REV. NO.: A

FILE NAME: FIG_EWRSP4_EOML_20180330.mxd

\\srk.ad\dfs\na\mo\Documents\Copper_Flat\New Mexico Copper Corp\191000.060_Copper Flat Bond\040_Drafting\Task_0004_Drawings and Figures\FIG_EWRSP4_EOML_20180330.mxd



REVISIONS		
REV	DESCRIPTION	DATE

FILE NAME: FIG_PITS_DIVERSION_CHANNELS_20180719.mxd

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DESIGN: -	REVIEWED: FT
DRAWN: CW	CHECKED: -
APPROVED: -	
COORDINATE SYSTEM:	
NAD 1983 UTM Zone 13N USFoot	

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

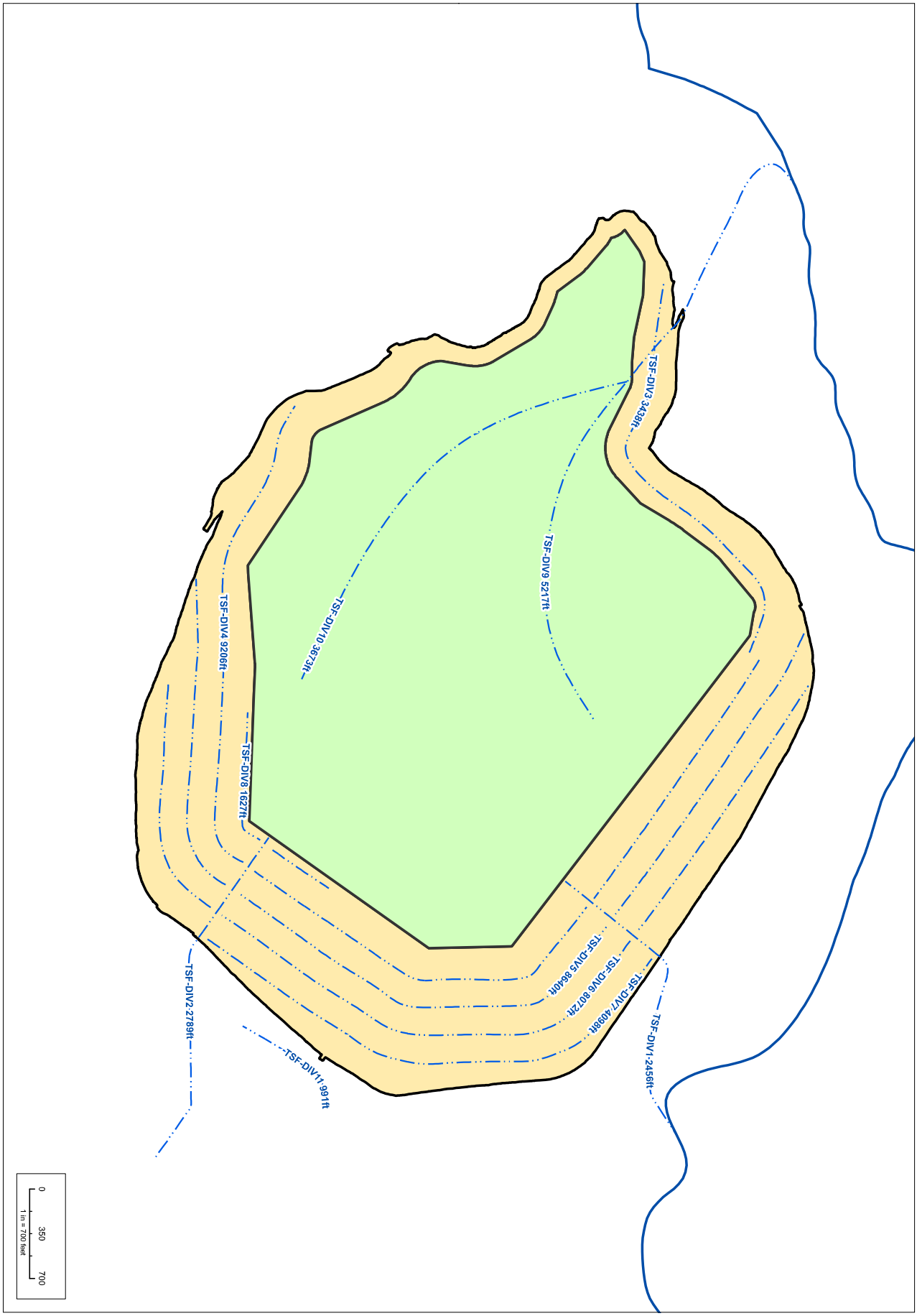
srk consulting

PREPARED FOR:

DRAWING TITLE:
PITS
DIVERSION CHANNELS

PROJECT:
RECLAIMED

DATE: 7/19/2018	DRAWING NO.	REV. NO.
SRK JOB #: 191000.060	FIGURE	A



DRAWING TITLE: TSF DIVERSION CHANNELS

srk consulting

PROJECT:

PREPARED FOR:

DESIGN: - REVIEWED: FT
DRAWN: GK CHECKED: -
APPROVED: -

COORDINATE SYSTEM: NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

N

REVISIONS

REV	DESCRIPTION	DATE

DATE: 5/17/2018 | DRAWING NO. FIGURE | REV. NO. A

SRK JOB #: 191000.060

FILE NAME: FIG_TSF_DIVERSION_CHANNELS_20180322.mxd

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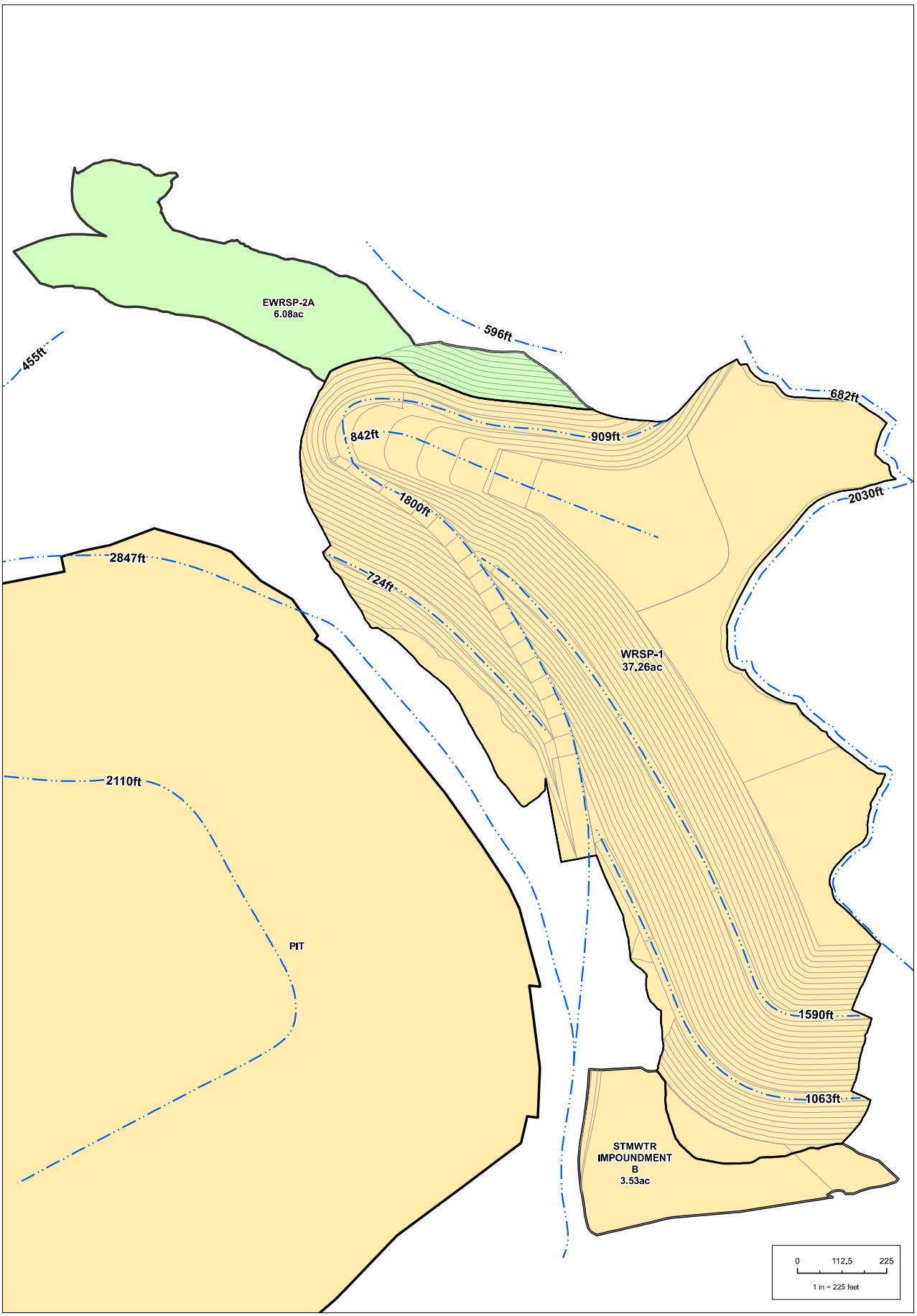

REVISIONS		
REV	DESCRIPTION	DATE

FILE NAME: FIG_WRSP1_EWRSP2A_DIVERSION_CHANNELS_20180507.mxd

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DESIGN: -	REVIEWED: FT
DRAWN: GK	CHECKED: -
APPROVED: -	
COORDINATE SYSTEM:	
NAD 1983 UTM Zone 13N USFoot	

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

srk consulting

PREPARED FOR:

DRAWING TITLE:
WRSP-1 AND EWRSP-2A
DIVERSION CHANNELS

PROJECT:
RECLAIMED

DATE: 5/7/2018	DRAWING NO.	REV. NO.
SRK JOB #: 191000.060	FIGURE	A

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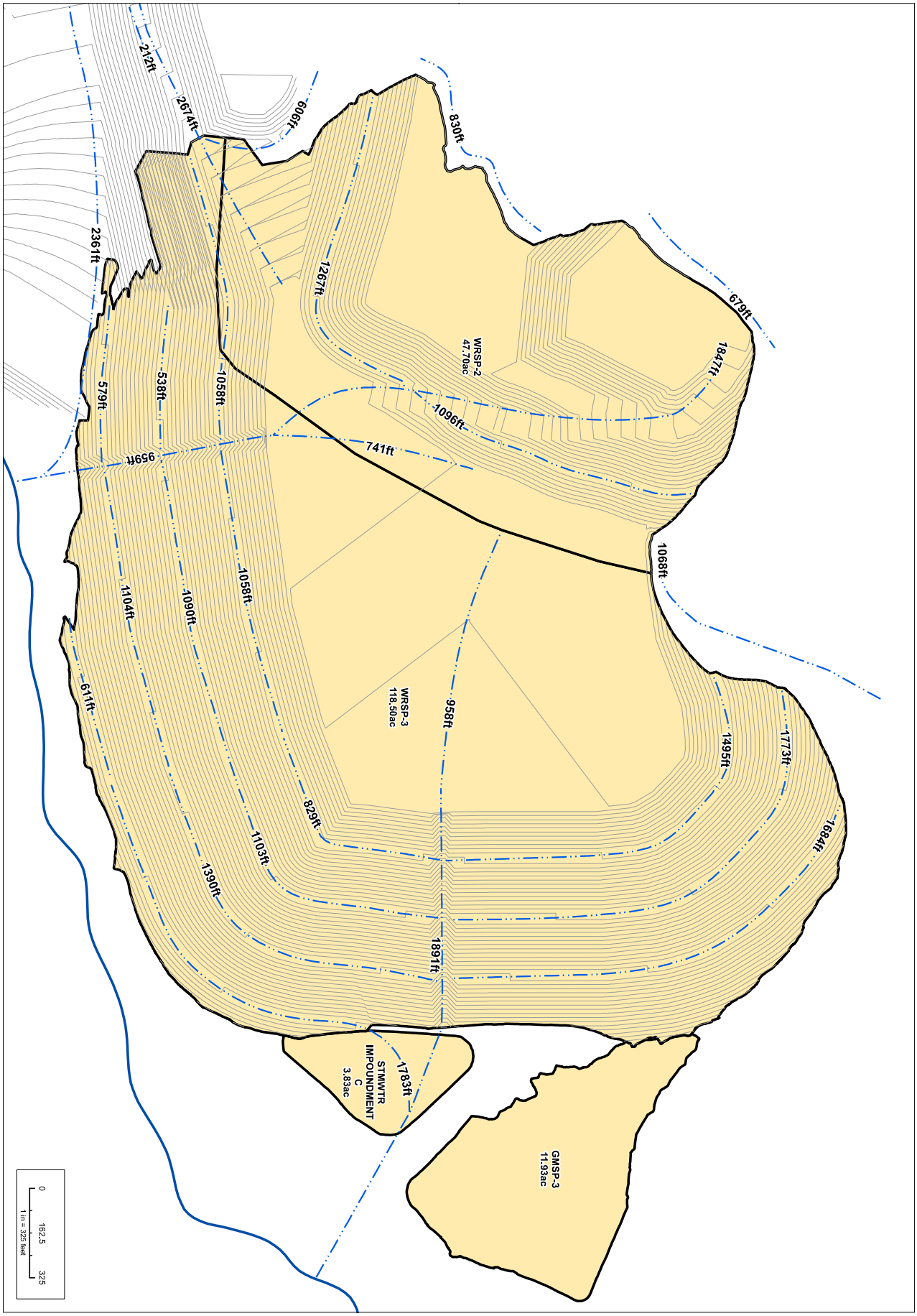

DRAWING TITLE:
WRSP-2 AND WRSP-3 DIVERSION CHANNELS WITH REGRADE BOUNDARY

PROJECT:

DATE: 5/7/2018 | DRAWING NO. FIGURE | REV. NO. A

SRK JOB #: 191000.060

PREPARED FOR:

srk consulting

DESIGN: - | REVIEWED: FT
DRAWN: GK | CHECKED: -
APPROVED: -

COORDINATE SYSTEM:
NAD 1983 UTM Zone 13N USFoot

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

N

REVISIONS

REV	DESCRIPTION	DATE

FILE NAME: FIG_WRSP2_WRSP3_DIVERSION_CHANNELS_20180507.mxd

H:\Copper_Flat\New Mexico Copper Corp\191000.060_Copper Flat Bond\040_Drafting\Task_0004_Drawings and Figures\FIG_WRSP2_WRSP3_DIVERSION_CHANNELS_20180507.mxd

Equipment Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
Monthly Rental Basis (operating hrs/ period)	*176*				
Wet Rate?	No				

MONTHLY EQUIPMENT RATE TABLE [Cost Per Month] (1)

EQUIPMENT TYPE (2)	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
	Copper Flat FA				
Bulldozers					
D6T	7,000	Cat D6K2XL Dozer; SRK Consulting Equipm		6,570	Added 6.94%
D6R w/ Winch	7,000	Assume same as D6T		6,570	sales tax and
D7E	19,600	D7; SRK.TH.05.04.18.xlsx		18,300	rounded to the
D8T	21,600	D8; SRK.TH.05.04.18.xlsx		20,180	nearest $100.
D9T	32,200	D9; SRK.TH.05.04.18.xlsx		30,100	"
D10T2	47,600	D10; SRK.TH.05.04.18.xlsx		44,500	"
D11T	56,200	Copper Flats - Blue Book Equipment Rates.x		56,234	
Wheeled Dozers					
824K	19,800	Copper Flats - Blue Bo	Cat 824H	19,849	
834K	24,900	Copper Flats - Blue Book Equipment Rates.x		24,929	
844K	33,700	Copper Flats - Blue Bo	Cat 844H	33,734	
854K	33,800	Copper Flats - Blue Bo	Cat 854G	33,802	
Motor Graders					
12M2	9,300	Cat 120M2 Motor Grader; SRK Consulting E		8,670	Added 6.94%
14M	15,800	14M; SRK.TH.05.04.18.xlsx		14,790	sales tax and
16M3	18,800	Copper Flats - Blue Book Equipment Rates.x		18,806	rounded to the
24M	22,100	x1.1 neighbor		20,686	nearest $100.
Track Excavators					
312F	6,000	Cat 312EL Excavator; SRK Consulting Equip		5,610	Added 6.94%
320F	8,300	Cat 320EL Excavator; SRK Consulting Equip		7,750	sales tax and
325F	11,500	329; SRK.TH.05.04.18.xlsx		10,750	rounded to the
330F	12,300	336; SRK.TH.05.04.18.xlsx		11,500	nearest $100.
349F	17,900	349; SRK.TH.05.04.18.xlsx		16,730	
374F	23,100	Copper Flats - Blue Bo	Cat 374D L	23,119	
390F	28,500	Copper Flats - Blue Bo	Cat 390D L	28,472	
Scrapers					
631K	29,600	631; SRK.TH.05.04.18.xlsx		27,700	Added 6.94%
637K	36,800	Copper Flats - Blue Bo	Cat 637G	36,819	sales tax.
Wheeled Loaders					
926M	6,000	Cat 924K Loader; SRK Consulting Equipmer		5,610	Added 6.94%
930M	7,000	Cat 930M Loader; SRK Consulting Equipmer		6,530	sales tax and
950M	10,200	950; SRK.TH.05.04.18.xlsx		9,520	rounded to the
966M	12,300	average		11,500	nearest $100.
972M	14,400	972; SRK.TH.05.04.18.xlsx		13,480	"
980M	16,800	980; SRK.TH.05.04.18.xlsx		15,690	"
988K	19,600	Copper Flats - Blue Book Equipment Rates.x		19,589	
990K	28,300	Copper Flats - Blue Book Equipment Rates.x		28,299	
992K	41,100	Copper Flats - Blue Book Equipment Rates.x		41,068	
994K	45,200	x1.1 neighbor		45,175	
L2350	82,600	Copper Flats - Blue Book Equipment Rates.x		82,607	
Shovels/Excavators					
PC2000	70,900	Copper Flats - Blue Bo	EX1900	70,917	
PC3000	72,500	average		72,526	
PC4000	74,100	Copper Flats - Blue Bo	EX3600	74,135	
PC5500	81,500	x1.1 neighbor		81,548	
PC8000	89,700	x1.1 neighbor		89,703	
EX2500	87,900	Copper Flats - Blue Bo	EX2500-6	87,877	
Hydraulic Hammers					
H120Es (fits 325)	3,400	Copper Flats - Blue Book Equipment Rates.x		3,420	
H160Es (fits 349)	7,000	Copper Flats - Blue Book Equipment Rates.x		7,028	
H180Es (fits 374/390)	8,200	Copper Flats - Blue Book Equipment Rates.x		8,168	
Demolition Shears					
S3050 (fits 320/325/330)	3,500	Copper Flats - Blue Bo	BTI SH310R	3,524	
S3070 (fits 330/349)	4,100	Copper Flats - Blue Bo	BTI SH410R	4,131	
S3090 (fits 374/390)	6,600	Copper Flats - Blue Bo	BTI SH700R	6,593	
Demolition Grapples					
G315B (fits 320/325)					
G320B (fits 325/330)					
G330 (fits 349/374)					

Equipment Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
Monthly Rental Basis (operating hrs/ period)	*176*				
Wet Rate?	No				

Other Equipment					
420F2	3,500	Cat 420F 4WD Backhoe; SRK Consulting Ec		3,240	Added 6.94%
430F2	4,100	Cat 430F 4WD Ext Backhoe; SRK Consultin		3,870	sales tax.
CS54B	4,400	Copper Flats - Blue Book Equipment Rates.x		4,402	
CS64B	4,300	Copper Flats - Blue Bo	Amann AC110	4,291	
CP54B	4,100	Copper Flats - Blue Bo	Bomag BW211 PD-5	4,085	
CP68B	6,600	Copper Flats - Blue Bo	Bomag BW213 PDH-4	6,588	
Light Truck - 1.5 Ton	2,200	Copper Flats - Blue Bo	Single Axle Lube Truc	2,184	
Supervisor's Truck	800	Copper Flats - Blue Bo	3/4 Ton 4x4	834	
Flatbed Truck	600	Copper Flats - Blue Bo	On-Highway Flatbed T	621	
Air Compressor + tools	600	Copper Flats - Blue Bo	185 CFM Diesel Air C	597	
Welding Equipment	400	Copper Flats - Blue Bo	4 Pack Welding Syste	405	
Heavy Duty Drill Rig	52,000	Copper Flats - Blue Bo	IR DMM3	52,018	
Pump (plugging) Drill Rig	52,000	assume same as heavy duty drill rig		52,018	
Concrete Pump	14,900	p. 540 of RSMeans 2018 - 01 54 33 10 2120		14,864	
Gas Engine Vibrator	400	Copper Flats - Blue Bo	Hand Held Vibratory F	357	
Generator 5KW	900	Copper Flats - Blue Bo	Small Generator Set (	938	
HDEP Welder (pipe or liner)	7,000	p. 544 of RSMeans 2018 - 01 54 33 40 1690		7,023	
5 Ton Crane	7,200	x0.9 neighbor		7,160	
20 Ton Crane	8,000	Copper Flats - Blue Bo	Tadan GR-150XL-1 (1	7,955	
50 Ton Crane	15,200	Copper Flats - Blue Bo	Grove TMS700E	15,154	
120 Ton Crane	28,900	Copper Flats - Blue Bo	Grove GMK5120B	28,943	
Trucks					
725C	10,800	Copper Flats - Blue Bo	Cat 725, model not sp	10,824	
730C	15,700	SRK CONSULT QUOTE.pdf		14,640	Added 6.94%
735C	17,900	average		16,730	sales tax.
740C	20,100	SRK CONSULT QUOTE.pdf		18,820	"
770G	15,200	Copper Flats - Blue Book Equipment Rates.x		15,155	
773G	18,300	Copper Flats - Blue Book Equipment Rates.x		18,267	
777G	37,200	Copper Flats - Blue Book Equipment Rates.x		37,226	
785D	40,900	x1.1 neighbor		40,948	
789D	45,000	x1.1 neighbor		45,043	
793F	49,500	x1.1 neighbor		49,547	
797F	89,200	Copper Flats - Blue Book Equipment Rates.x		89,160	
613E (5,000 gal)	8,700	Copper Flats - Blue Bo	Used Cat 613E scrape	8,726	
621E (8,000 gal)	10,000	Copper Flats - Blue Bo	Used Cat 621E scrape	10,006	
777D H2O Truck	37,200	Copper Flats - Blue Bo	Used Cat 777 haul tru	37,226	
785C H2O Truck	40,900	x1.1 neighbor	Blue Book not availab	40,948	
Dump Truck (10-12 yd3)	3,800	Copper Flats - Blue Bo	10 CY Dump Truck	3,752	
Tractor/Trailer (20 ton)	5,300	Copper Flats - Blue Bo	25 ton tractor & trailer	5,259.00	
Tractor/Trailer (50 ton)	10,900	Copper Flats - Blue Bo	45 ton tractor & trailer	10,863.00	
Tractor/Trailer (80 ton)	27,100	Copper Flats - Blue Bo	75 ton trailer & Cat 77	27,097.00	
NOTES:					
(1) Power Equipment Source:					
(2) Power Equipment Type:	equivalent, LeTourneau	equivalent, LeTourneau	equivalent, LeTourneau	equivalent, LeTourneau	equivalent, LeTourneau
(3) Drilliing Equipment Source:					
(4) Other Equipment Source:					

Equipment Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
Monthly Rental Basis (operating hrs/ period)	*176*				
Wet Rate?	No				

PREVENTATIVE MAINTENANCE COST [Cost Per Hour] (1)

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
	Copper Flat FA				
Bulldozers					
D6T	34.60	Copper Flats - Blue Book Equipment Rates.xlsx			
D6R w/ Winch	34.60	Copper Flats - Blue Book Equipment Rates.xlsx			
D7E	2.69	D7; SRK.TH.05.04.18	473.00		
D8T	3.49	D8; SRK.TH.05.04.18	614.00		
D9T	3.61	D9; SRK.TH.05.04.18	636.00		
D10T2	3.79	D10; SRK.TH.05.04.1	667.00		
D11T	160.74	Copper Flats - Blue Book Equipment Rates.xlsx			
Wheeled Dozers					
824K	49.58	Copper Flats - Blue Book Equipment Rates.xlsx			
834K	59.69	Copper Flats - Blue Book Equipment Rates.xlsx			
844K	77.91	Copper Flats - Blue Book Equipment Rates.xlsx			
854K	90.20	Copper Flats - Blue Book Equipment Rates.xlsx			
Motor Graders					
12M2	20.32	Cat 120M2 Motor Grader; SRK Consulting Equipment Quote Copper Flat Mine.xls			
14M	37.21	14M; SRK.TH.05.04.1	425.00		
16M3	50.42	160M3; SRK.TH.05.04	458.00		
24M	55.46	x1.1 neighbor			
Track Excavators					
312F	2.14	x0.9 neighbor			
320F	2.38	x0.9 neighbor			
325F	2.64	329; SRK.TH.05.04.18	464.00		
330F	3.01	336; SRK.TH.05.04.18	530.00		
349F	3.36	349; SRK.TH.05.04.18	591.00		
374F	80.63	Copper Flats - Blue Book Equipment Rates.xlsx			
390F	91.31	Copper Flats - Blue Book Equipment Rates.xlsx			
Scrapers					
631K	3.22	631; SRK.TH.05.04.18	567.00		
637K	116.00	Copper Flats - Blue Book Equipment Rates.xlsx			
Wheeled Loaders					
926M	9.33	Copper Flats - Blue Book Equipment Rates.xlsx			
930M	16.35	Copper Flats - Blue Book Equipment Rates.xlsx			
950M	2.30	950; SRK.TH.05.04.18	405.00		
966M	2.42	average			
972M	2.53	972; SRK.TH.05.04.18	446.00		
980M	2.57	980; SRK.TH.05.04.18	452.00		
988K	57.81	Copper Flats - Blue Book Equipment Rates.xlsx			
990K	85.58	Copper Flats - Blue Book Equipment Rates.xlsx			
992K	102.33	Copper Flats - Blue Book Equipment Rates.xlsx			
994K	122.36	proportioned			
L2350	203.53	Copper Flats - Blue Book Equipment Rates.xlsx			
Shovels/Excavators					
PC2000	183.38	Copper Flats - Blue Book Equipment Rates.xlsx			
PC3000	218.80	average			
PC4000	254.21	Copper Flats - Blue Book Equipment Rates.xlsx			
PC5500	279.63	x1.1 neighbor			
PC8000	307.59	x1.1 neighbor			
EX2500	277.02	Copper Flats - Blue Book Equipment Rates.xlsx			

Equipment Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
Monthly Rental Basis (operating hrs/ period)	*176*				
Wet Rate?	No				

Hydraulic Hammers					
H120Es (fits 325)	N/A	N/A	N/A	N/A	N/A
H160Es (fits 349)	N/A	N/A	N/A	N/A	N/A
H180Es (fits 374/390)	N/A	N/A	N/A	N/A	N/A
Demolition Shears					
S3050 (fits 320/325/330)	N/A	N/A	N/A	N/A	N/A
S3070 (fits 330/349)	N/A	N/A	N/A	N/A	N/A
S3090 (fits 374/390)	N/A	N/A	N/A	N/A	N/A
Demolition Grapples					
G315B (fits 320/325)	N/A	N/A	N/A	N/A	N/A
G320B (fits 325/330)	N/A	N/A	N/A	N/A	N/A
G330 (fits 349/374)	N/A	N/A	N/A	N/A	N/A
Other Equipment					
420F2	11.81	Copper Flats - Blue Book Equipment Rates.xlsx			
430F2	12.20	Copper Flats - Blue Book Equipment Rates.xlsx			
CS54B	19.33	Copper Flats - Blue Book Equipment Rates.xlsx			
CS64B	20.65	Copper Flats - Blue Book Equipment Rates.xlsx			
CP54B	24.87	Copper Flats - Blue Book Equipment Rates.xlsx			
CP68B	29.78	Copper Flats - Blue Book Equipment Rates.xlsx			
Light Truck - 1.5 Ton	8.67	Copper Flats - Blue Book Equipment Rates.xlsx			
Supervisor's Truck	3.62	Copper Flats - Blue Book Equipment Rates.xlsx			
Flatbed Truck	3.85	Copper Flats - Blue Book Equipment Rates.xlsx			
Air Compressor + tools	3.38	Copper Flats - Blue Book Equipment Rates.xlsx			
Welding Equipment	1.92	Copper Flats - Blue Book Equipment Rates.xlsx			
Heavy Duty Drill Rig	278.95	Copper Flats - Blue Book Equipment Rates.xlsx			
Pump (plugging) Drill Rig	278.95	assume same as heavy duty drill rig			
Concrete Pump					
Gas Engine Vibrator	1.46	Copper Flats - Blue Book Equipment Rates.xlsx			
Generator 5KW	3.58	Copper Flats - Blue Book Equipment Rates.xlsx			
HDEP Welder (pipe or liner)					
5 Ton Crane	23.22	x0.9 neighbor			
20 Ton Crane	25.80	Copper Flats - Blue Book Equipment Rates.xlsx			
50 Ton Crane	45.47	Copper Flats - Blue Book Equipment Rates.xlsx			
120 Ton Crane	80.14	Copper Flats - Blue Book Equipment Rates.xlsx			
Trucks					
725C	28.22	Copper Flats - Blue Book Equipment Rates.xlsx			
730C	2.76	SRK CONSULT QUO	485.00		
735C	2.86	average			
740C	2.97	SRK CONSULT QUO	522.00		
770G	39.70	Copper Flats - Blue Book Equipment Rates.xlsx			
773G	47.92	Copper Flats - Blue Book Equipment Rates.xlsx			
777G	95.60	Copper Flats - Blue Book Equipment Rates.xlsx			
785D	105.16	x1.1 neighbor			
789D	115.68	x1.1 neighbor			
793F	127.24	x1.1 neighbor			
797F	204.78	Copper Flats - Blue Book Equipment Rates.xlsx			
613E (5,000 gal)	45.31	Copper Flats - Blue Book Equipment Rates.xlsx			
621E (8,000 gal)	50.66	Copper Flats - Blue Book Equipment Rates.xlsx			
777D H2O Truck	95.60	same as 777G			
785C H2O Truck	105.16	same as 785D			
Dump Truck (10-12 yd3)	15.58	Copper Flats - Blue Book Equipment Rates.xlsx			
Tractor/Trailer (20 ton)	N/A	N/A	N/A	N/A	N/A
Tractor/Trailer (50 ton)	N/A	N/A	N/A	N/A	N/A
Tractor/Trailer (80 ton)	N/A	N/A	N/A	N/A	N/A
NOTES:					
(1) PM Source:					

Equipment Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
Monthly Rental Basis (operating hrs/ period)	*176*				
Wet Rate?	No				

G.E.T CONSUMPTION [Cost Per Hour] (1) (Wear Items)

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
	Copper Flat FA				
Bulldozers					
D6T	2.61	Copper Flats - Blue Book Equipment Rates.xlsx			
D6R w/ Winch	2.61	Copper Flats - Blue Book Equipment Rates.xlsx			
D7E	3.84	Copper Flats - Blue Book Equipment Rates.xlsx			
D8T	4.86	Copper Flats - Blue Book Equipment Rates.xlsx			
D9T	6.59	Copper Flats - Blue Book Equipment Rates.xlsx			
D10T2	8.22	Copper Flats - Blue Book Equipment Rates.xlsx			
D11T	16.66	Copper Flats - Blue Book Equipment Rates.xlsx			
Wheeled Dozers					
824K	1.32	Copper Flats - Blue Book Equipment Rates.xlsx			
834K	1.70	Copper Flats - Blue Book Equipment Rates.xlsx			
844K	2.42	Copper Flats - Blue Book Equipment Rates.xlsx			
854K	2.40	Copper Flats - Blue Book Equipment Rates.xlsx			
Motor Graders					
12M2	0.62	Copper Flats - Blue Book Equipment Rates.xlsx			
14M	1.38	Copper Flats - Blue Book Equipment Rates.xlsx			
16M3	2.00	Copper Flats - Blue Book Equipment Rates.xlsx			
24M	2.20	x1.1 neighbor			
Track Excavators					
312F	1.33	Copper Flats - Blue Book Equipment Rates.xlsx			
320F	1.94	Copper Flats - Blue Book Equipment Rates.xlsx			
325F	1.48	Copper Flats - Blue Book Equipment Rates.xlsx			
330F	2.67	Copper Flats - Blue Book Equipment Rates.xlsx			
349F	2.85	Copper Flats - Blue Book Equipment Rates.xlsx			
374F	3.97	Copper Flats - Blue Book Equipment Rates.xlsx			
390F	5.11	Copper Flats - Blue Book Equipment Rates.xlsx			
Scrapers					
631K	1.86	Copper Flats - Blue Book Equipment Rates.xlsx			
637K	2.11	Copper Flats - Blue Book Equipment Rates.xlsx			
Wheeled Loaders					
926M	0.19	Copper Flats - Blue Book Equipment Rates.xlsx			
930M	0.60	Copper Flats - Blue Book Equipment Rates.xlsx			
950M	0.87	Copper Flats - Blue Book Equipment Rates.xlsx			
966M	0.87	Copper Flats - Blue Book Equipment Rates.xlsx			
972M	1.08	Copper Flats - Blue Book Equipment Rates.xlsx			
980M	1.41	Copper Flats - Blue Book Equipment Rates.xlsx			
988K	2.26	Copper Flats - Blue Book Equipment Rates.xlsx			
990K	3.71	Copper Flats - Blue Book Equipment Rates.xlsx			
992K	4.54	Copper Flats - Blue Book Equipment Rates.xlsx			
994K	4.99	x1.1 neighbor			
L2350	9.30	Copper Flats - Blue Book Equipment Rates.xlsx			
Shovels/Excavators					
PC2000	13.87	Copper Flats - Blue Book Equipment Rates.xlsx			
PC3000	16.89	average			
PC4000	19.91	Copper Flats - Blue Book Equipment Rates.xlsx			
PC5500	21.90	x1.1 neighbor			
PC8000	24.09	x1.1 neighbor			
EX2500	25.00	Copper Flats - Blue Book Equipment Rates.xlsx			

Equipment Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
Monthly Rental Basis (operating hrs/ period)	*176*				
Wet Rate?	No				

Hydraulic Hammers					
H120Es (fits 325)	11.57	Copper Flats - Blue Book Equipment Rates.xlsx			
H160Es (fits 349)	23.24	Copper Flats - Blue Book Equipment Rates.xlsx			
H180Es (fits 374/390)	24.96	Copper Flats - Blue Book Equipment Rates.xlsx			
Demolition Shears					
S3050 (fits 320/325/330)	20.50	Copper Flats - Blue Book Equipment Rates.xlsx			
S3070 (fits 330/349)	25.23	Copper Flats - Blue Book Equipment Rates.xlsx			
S3090 (fits 374/390)	31.61	Copper Flats - Blue Book Equipment Rates.xlsx			
Demolition Grapples					
G315B (fits 320/325)					
G320B (fits 325/330)					
G330 (fits 349/374)					
Other Equipment					
420F2	0.54	Copper Flats - Blue Book Equipment Rates.xlsx			
430F2	0.60	Copper Flats - Blue Book Equipment Rates.xlsx			
CS54B					
CS64B					
CP54B					
CP68B					
Light Truck - 1.5 Ton					
Supervisor's Truck					
Flatbed Truck					
Air Compressor + tools	N/A	N/A	N/A	N/A	N/A
Welding Equipment	N/A	N/A	N/A	N/A	N/A
Heavy Duty Drill Rig	9.60	Copper Flats - Blue Book Equipment Rates.xlsx			
Pump (plugging) Drill Rig	9.60	assume same as heavy duty drill rig			
Concrete Pump	N/A	N/A	N/A	N/A	N/A
Gas Engine Vibrator	N/A	N/A	N/A	N/A	N/A
Generator 5KW	N/A	N/A	N/A	N/A	N/A
HDEP Welder (pipe or liner)	N/A	N/A	N/A	N/A	N/A
5 Ton Crane					
20 Ton Crane					
50 Ton Crane					
120 Ton Crane					
Trucks					
725C					
730C					
735C					
740C					
770G					
773G					
777G					
785D					
789D					
793F					
797F					
613E (5,000 gal)	0.94	Copper Flats - Blue Book Equipment Rates.xlsx			
621E (8,000 gal)	0.57	Copper Flats - Blue Book Equipment Rates.xlsx			
777D H2O Truck					
785C H2O Truck					
Dump Truck (10-12 yd3)					
Tractor/Trailer (20 ton)	N/A	N/A	N/A	N/A	N/A
Tractor/Trailer (50 ton)	N/A	N/A	N/A	N/A	N/A
Tractor/Trailer (80 ton)	N/A	N/A	N/A	N/A	N/A
Notes:					
(1) G.E.T. Source:					

Equipment Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
Monthly Rental Basis (operating hrs/ period)	*176*				
Wet Rate?	No				

TIRE COST TABLE [Cost Per Tire(1,2,3)]

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
	Copper Flat FA				
Bulldozers					
D6T	N/A	N/A	N/A	N/A	N/A
D6R w/ Winch	N/A	N/A	N/A	N/A	N/A
D7E	N/A	N/A	N/A	N/A	N/A
D8T	N/A	N/A	N/A	N/A	N/A
D9T	N/A	N/A	N/A	N/A	N/A
D10T2	N/A	N/A	N/A	N/A	N/A
D11T	N/A	N/A	N/A	N/A	N/A
Wheeled Dozers					
824K	33,740.00	3,500.00	Cat 824H	9.64	
834K	43,505.00	3,500.00		12.43	
844K	62,020.00	3,500.00	Cat 844H	17.72	
854K	76,685.00	3,500.00	Cat 854G	21.91	
Motor Graders					
12M2	11,025.00	3,500.00		3.15	
14M	24,500.00	3,500.00		7.00	
16M3	35,455.00	3,500.00	Cat 16M	10.13	
24M	39,000.50	3,500.00	x1.1 neighbor	11.14	
Track Excavators					
312F	N/A	N/A	N/A	N/A	N/A
320F	N/A	N/A	N/A	N/A	N/A
325F	N/A	N/A	N/A	N/A	N/A
330F	N/A	N/A	N/A	N/A	N/A
349F	N/A	N/A	N/A	N/A	N/A
374F	N/A	N/A	N/A	N/A	N/A
390F	N/A	N/A	N/A	N/A	N/A
Scrapers					
631K	32,680.00	4,000.00	Cat 631G	8.17	
637K	30,280.00	4,000.00	Cat 637G	7.57	
Wheeled Loaders					
926M	4,770.00	4,500.00		1.06	
930M	13,815.00	4,500.00	930K	3.07	
950M	23,085.00	4,500.00	950K	5.13	
966M	24,075.00	4,500.00	966K	5.35	
972M	29,880.00	4,500.00	972K	6.64	
980M	45,720.00	4,500.00	980K	10.16	
988K	73,350.00	4,500.00	988H	16.30	
990K	120,195.00	4,500.00	990H	26.71	
992K	147,105.00	4,500.00	992K	32.69	
994K	161,815.50	4,500.00	x1.1 neighbor	35.96	
L2350	301,680.00	4,500.00		67.04	
Shovels/Excavators					
PC2000	N/A	N/A	N/A	N/A	N/A
PC3000	N/A	N/A	N/A	N/A	N/A
PC4000	N/A	N/A	N/A	N/A	N/A
PC5500	N/A	N/A	N/A	N/A	N/A
PC8000	N/A	N/A	N/A	N/A	N/A
EX2500	N/A	N/A	N/A	N/A	N/A
Hydraulic Hammers					
H120Es (fits 325)	N/A	N/A	N/A	N/A	N/A
H160Es (fits 349)	N/A	N/A	N/A	N/A	N/A
H180Es (fits 374/390)	N/A	N/A	N/A	N/A	N/A
Demolition Shears					
S3050 (fits 320/325/330)	N/A	N/A	N/A	N/A	N/A
S3070 (fits 330/349)	N/A	N/A	N/A	N/A	N/A
S3090 (fits 374/390)	N/A	N/A	N/A	N/A	N/A
Demolition Grapples					
G315B (fits 320/325)	N/A	N/A	N/A	N/A	N/A
G320B (fits 325/330)	N/A	N/A	N/A	N/A	N/A
G330 (fits 349/374)	N/A	N/A	N/A	N/A	N/A

Equipment Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
Monthly Rental Basis (operating hrs/ period)	*176*				
Wet Rate?	No				

Other Equipment					
420F2	4,770.00	3,000.00	Cat 420F Tractor-Loa	1.59	
430F2	4,830.00	3,000.00	Cat 430E Tractor-Loa	1.61	
CS54B	N/A	N/A	N/A	N/A	N/A
CS64B	N/A	N/A	N/A	N/A	N/A
CP54B	N/A	N/A	N/A	N/A	N/A
CP68B	N/A	N/A	N/A	N/A	N/A
Light Truck - 1.5 Ton	4,140.00	3,000.00	Single Axle Lube Truc	1.38	
Supervisor's Truck	1,350.00	3,000.00	3/4 Ton 4x4	0.45	
Flatbed Truck	1,020.00	3,000.00	On-Highway Flatbed T	0.34	
Air Compressor + tools	N/A	N/A	N/A	N/A	N/A
Welding Equipment	N/A	N/A	N/A	N/A	N/A
Heavy Duty Drill Rig					
Pump (plugging) Drill Rig					
Concrete Pump	N/A	N/A	N/A	N/A	N/A
Gas Engine Vibrator	N/A	N/A	N/A	N/A	N/A
Generator 5KW	N/A	N/A	N/A	N/A	N/A
HDEP Welder (pipe or liner)	N/A	N/A	N/A	N/A	N/A
5 Ton Crane	9,261.00	3,000.00	x0.9 neighbor	3.09	
20 Ton Crane	10,290.00	3,000.00	Tadan GR-150XL-1 (1	3.43	
50 Ton Crane	16,530.00	3,000.00	Grove TMS700E	5.51	
120 Ton Crane	42,750.00	3,000.00	Grove GMK5120B	14.25	
Trucks					
725C	13,720.00	2,000.00	Cat 725, model not sp	6.86	
730C	14,980.00	2,000.00		7.49	
735C	15,940.00	2,000.00	Cat 735B	7.97	
740C	17,240.00	2,000.00		8.62	
770G	64,440.00	6,000.00		10.74	
773G	69,300.00	5,000.00		13.86	
777G	157,600.00	5,000.00		31.52	
785D	138,688.00	4,000.00	x1.1 neighbor	34.67	
789D	152,556.80	4,000.00	x1.1 neighbor	38.14	
793F	167,812.48	4,000.00	x1.1 neighbor	41.95	
797F	322,800.00	4,000.00		80.70	
613E (5,000 gal)	18,840.00	6,000.00	Used Cat 613E scrape	3.14	
621E (8,000 gal)	38,960.00	8,000.00	Used Cat 621E scrape	4.87	
777D H2O Truck	157,600.00	5,000.00	Used Cat 777 haul tru	31.52	
785C H2O Truck	138,688.00	4,000.00	x1.1 neighbor	34.67	
Dump Truck (10-12 yd3)	12,900.00	6,000.00	10 CY Dump Truck	2.15	
Tractor/Trailer (20 ton)					
Tractor/Trailer (50 ton)					
Tractor/Trailer (80 ton)					

Notes:					
(1) Unit Cost Basis:					
(2) Cost Basis:					
(3) Tire Cost Source:					
(4) Tire Wear Source (defined in model):					

Labor Rates

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE [1] OR JOB DESCRIPTION	Basis 1		Basis 2		Basis 3		Basis 4	
	Copper Flat FA							
EQUIPMENT OPERATORS - Labor Groups and Base Pay Rate ($/hr) [2]								
Bulldozers								
D6T		21.14	Assume same as motor grader operators					
D6R w/ Winch		21.14	Assume same as motor grader operators					
D7E		21.14	Assume same as motor grader operators					
D8T		21.14	Assume same as motor grader operators					
D9T		21.14	Assume same as motor grader operators					
D10T2		21.14	Assume same as motor grader operators					
D11T		21.14	Assume same as motor grader operators					
Wheeled Dozers								
824K								
834K								
844K								
854K								
Motor Graders								
12M2		21.14	From SRCE User 7					
14M		21.14	From SRCE User 7					
16M3		21.14	From SRCE User 7					
24M		21.14	From SRCE User 7					
Track Excavators								
312F		27.12	Assume same as wheeled loader operators					
320F		27.12	Assume same as wheeled loader operators					
325F		27.12	Assume same as wheeled loader operators					
330F		27.12	Assume same as wheeled loader operators					
349F		27.12	Assume same as wheeled loader operators					
374F		27.12	Assume same as wheeled loader operators					
390F		27.12	Assume same as wheeled loader operators					
Scrapers								
631K		14.03	From SRCE User 7					
637K		14.03	From SRCE User 7					
Wheeled Loaders								
926M		27.12	From SRCE User 7					
930M		27.12	From SRCE User 7					
950M		27.12	From SRCE User 7					
966M		27.12	From SRCE User 7					
972M		27.12	From SRCE User 7					
980M		27.12	From SRCE User 7					
988K		27.12	From SRCE User 7					
990K		27.12	From SRCE User 7					
992K		27.12	From SRCE User 7					
994K		27.12	From SRCE User 7					
L2350		27.12	From SRCE User 7					
Shovels/Excavators								
PC2000								
PC3000								
PC4000								
PC5500								
PC8000								
EX2500								
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)								

Labor Rates

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE [1] OR JOB DESCRIPTION	Basis 1		Basis 2		Basis 3		Basis 4	
	Copper Flat FA							
Other Equipment								
420F2		14.03	From SRCE User 7					
430F2		14.03	From SRCE User 7					
CS54B		14.03	Assume same as backhoe operators					
CS64B		14.03	Assume same as backhoe operators					
CP54B		14.03	Assume same as backhoe operators					
CP68B		14.03	Assume same as backhoe operators					
Light Truck - 1.5 Ton		0.00	none - for supervisors only					
Supervisor's Truck		0.00	none - for supervisors only					
Flatbed Truck								
Air Compressor + tools								
Welding Equipment								
Heavy Duty Drill Rig								
Pump (plugging) Drill Rig								
Concrete Pump								
Gas Engine Vibrator								
Generator 5KW								
HDEP Welder (pipe or liner)								
5 Ton Crane		27.12	Assume same as wheeled loader operators					
20 Ton Crane		27.12	Assume same as wheeled loader operators					
50 Ton Crane		27.12	Assume same as wheeled loader operators					
120 Ton Crane		27.12	Assume same as wheeled loader operators					
Fringe Benefits								
Equip Op Fringe Benefits ($/hr)								
Zone and Area Adjustments - Miles and Rates ($hr) [3]								
Equipment Zone 1	none	0.00						
Equipment Zone 2								
Equipment Zone 3								
Equipment Zone 4								
Equipment Zone 5								
Equipment Zone 6								
Equipment Zone 7								
NOTES:								
(1) Equipment Type:	Catepillar model or equivalent		Catepillar model or equivalent		Catepillar model or equivalent		Catepillar model or equivalent	
(2) Equipment Operator Source:								
(3) Zone Basis:								
TRUCK DRIVERS - Labor Groups and Base Pay Rate ($/hr) [4]								
725C		18.97	Assume same as water truck operator					
730C		18.97	Assume same as water truck operator					
735C		18.97	Assume same as water truck operator					
740C		18.97	Assume same as water truck operator					
770G		18.97	Assume same as water truck operator					
773G		18.97	Assume same as water truck operator					
777G		18.97	Assume same as water truck operator					
785D		18.97	Assume same as water truck operator					
789D		18.97	Assume same as water truck operator					
793F		18.97	Assume same as water truck operator					
797F		18.97	Assume same as water truck operator					
613E (5,000 gal)		18.97	Assume same as water truck operator					
621E (8,000 gal)		18.97	Assume same as water truck operator					
777D H2O Truck		18.97	From SRCE User 7					
785C H2O Truck		18.97	From SRCE User 7					
Dump Truck (10-12 yd3)		11.90	From SRCE User 7					
Tractor/Trailer (20 ton)								
Tractor/Trailer (50 ton)								
Tractor/Trailer (80 ton)								
Fringe Benefits								
Truck Driver Fringe Benefits (cost/hr)								
Zone and Area Adjustments [5]								
Truck Zone 1	none	0.00						
Truck Zone 2								
Truck Zone 3								
Truck Zone 4								
Truck Zone 5								
Truck Zone 6								
Truck Zone 7								

Labor Rates

File Name:	*Copper_Flat_CDF_191000_060_FNL_2018*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Basis 1		Basis 2		Basis 3		Basis 4	
	Copper Flat FA							
NOTES:								
(4) Truck Driver Source:								
(5) Zone Basis:								
LABORERS - Labor Groups and Base Pay Rate ($/hr) (6,7)								
General Laborer		12.37	From SRCE User 7					
Skilled Laborer		17.97	proportioned against Carpenter with NV costs					
Driller's Helper		17.83	proportioned against Carpenter with NV costs					
Rodmen (reinforcing concrete)		17.74	proportioned against Carpenter with NV costs					
Cement finisher		17.83	proportioned against Carpenter with NV costs					
Carpenter		22.26	From SRCE User 7					
Fringe Benefits								
Laborer Fringe Benefits (cost/hr)		0.00						
Carpenter Fringe Benefits (cost/hr)		6.20						
Zone and Area Adjustments (8)								
Laborer Zone 1	none	0.00						
Laborer Zone 2								
Laborer Zone 3								
Laborer Zone 4								
Laborer Zone 5								
Laborer Zone 6								
Laborer Zone 7								
NOTES:								
(6) Laborer Source:	From SRCE User 7							
(7) Carpenter Source:	From SRCE User 7							
(8) Zone Basis:								
PROJECT MANAGEMENT AND TECHNICAL LABOR - Base Pay Rate ($/hr) (9)								
Project Manager		69.19	NV 2017					
Foreman		64.13	NV 2017					
Field Geologist/Engineer		105.00	NV 2017					
Field Tech/Sampler		96.60	NV 2017					
Range Scientist		105.00	NV 2017					
Electrical foreman (R-3; 2018)		58.70						
Electrician (R-3; 2018)		58.20						
NOTES:								
(9) Project Manager:								
(9) Foreman Source:								
(9) Techical Labor Source:								
INDIRECT COSTS								
SOCIAL SECURITY, WORKMAN'S COMP, INSURANCE, ETC.								
Unemployment (%)		1.84%						
Retirement/SS/Medicare (%)		7.65%						
Workman's Compensation (%)		13.30%						
NOTES:								
(10) Workman's Comp Source:	RS Means R013113-60							
Unemployment (%)	Business/Unemployment-							

Reclamation Material Costs

File Name:	*Copper_Flat_CDF_191000_060_*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

RECLAMATION MATERIAL COST TABLE

MATERIAL TYPE		Basis 1	Basis 2	Basis 3
		Copper Flat FA		
Revegetation Materials				
Seed Mixes				
Seed Mix	Units			
None				
Mix 1	Cost/Acre			
Mix 2	Cost/Acre			
Mix 3	Cost/Acre			
Mix 4	Cost/Acre			
User Mix 1	Cost/Acre			
User Mix 2	Cost/Acre			
User Mix 3	Cost/Acre			
User Mix 4	Cost/Acre			
User Mix 5 (see Seed Mix sheet)	Cost/Acre			
	Notes:			
Mulch				
Item	Units			
None				
Straw Mulch	Cost/lb			
Hydro Mulch	Cost/lb			
	Cost/lb			
	Cost/lb			
	Cost/lb			
	Notes:			
Amendments				
Item	Units			
None				
Organic Matter	Cost/lb			
Treated Sludge	Cost/lb			
Chemical	Cost/lb			
	Cost/lb			
	Cost/lb			
	Cost/lb			
	Notes:			
Well Abandonment Materials				
Description	Units			
Cement	50lb bag	7.57		
Grout (Low Grade Bentonite)	50lb bag	8.65		
Inert Material/Cuttings	cy			
	Notes:			
Monitoring Costs				
Description	Units	Cost/unit	Cost/unit	Cost/unit
Monitor Well Pump	ea.	0.00		
Sampling Supplies	ea.	0.00		
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.			
	ea.			
	ea.			
	ea.			
	ea.			
	ea.			
	ea.			
	ea.			
	Notes:			

Reclamation Material Costs

Fuel, Etc.				
Description	Units	Cost/unit	Cost/unit	Cost/unit
Off-road Diesel - delivered [1]	Cost/gal	2.17		
Pickup Truck Travel	Cost/mi	0.55		
Electical Power	Cost/kWh	0.08		
	Notes:	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		

Misc. Unit Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

MISCELLANEOUS COST TABLE

JOB DESCRIPTION		Basis 1		Basis 2		Basis 3	
		Copper Flat FA					
REVEGETATION							
Item	**Units**	**Labor**	**Equip**	**Labor**	**Equip**	**Labor**	**Equip**
Seeding - Broadcast Manual [1]	$/acres	37.94	53.20				
Seeding - Broadcast Mechanical [1]	$/acres	18.97	25.80				
Seeding - Drill [1]	$/acres						
Seeding - Hydroseeding [1]	$/acres						
Item	**Units**	**Materials**		**Materials**		**Materials**	
Shrub Planting - bare root 6-10 in (150- 250mm) [2]	ea.						
Tree Planting - bare root 11-16 in (270- 400mm) [3]	ea.						
Cactus Planting [4]	ea.						
NOTES:							
(1) Seeding Source:		SRCE User 03					
(2) Shrub Source:							
(3) Tree Source:							
(4) Cactus Source:							
BUILDING and WALL DEMOLITION							
Item	**Units**		**Premium**		**Premium**		**Premium**
Building Demolition							
Lg. steel	C.F.						
Lg. concrete	C.F.						
Lg. masonry	C.F.						
Lg. mixed	C.F.						
Sm. steel	C.F.						
Sm. concrete	C.F.						
Sm. masonry	C.F.						
Sm. wood	C.F.						
Wall Demolition							
Block 4 in thick	S.F.		20%		20%		20%
Block 6 in thick	S.F.		20%		20%		20%
Block 8 in thick	S.F.		20%		20%		20%
Block 12 in thick	S.F.		20%		20%		20%
Conc 6 in thick	S.F.		10%		10%		10%
Conc 8 in thick	S.F.		10%		10%		10%
Conc 10 in thick	S.F.		10%		10%		10%
Conc 12 in thick	S.F.		10%		10%		10%
WASTE DISPOSAL							
Item	**Units**	**Materials**		**Materials**		**Materials**	
Rubbish and Waste Handling							
Dumpster delivery (average for all sizes)	ea.	82.50					
Haul (average for all sizes)	ea.	259.00					
Rent per month (average for all sizes)	ea.	88.00					
Disposal fee per ton (tonne) (average for all sizes)	ton	97.00					
NOTES:							
Dumpster Cost Source		SRCE User 03					
Disposal Fee Source:		SRCE User 03					
Hazardous Material Handling - Solids							
Pickup fees 55 gal. drums	ea.	265.00					
Bulk material (average)	ton	432.50					
Transport - truck load (80 drums, 25 cy (m3), 18 tons)	mile	5.90					
Dump site disposal fee	ton	305.00					
NOTES:							
Solid Handling Cost Source							
Solid Disposal Fee Source:							
Hazardous Material Handling - Liquids							
Vacuum Truck Pickup (2200 gal or 9,700 litres)	hr.	155.00					
Vacuum Truck Pickup (5000 gal or 2,000 litres)	hr.	225.00					
Dump site disposal fee	ton	305.00					

Misc. Unit Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

MISCELLANEOUS COST TABLE

JOB DESCRIPTION		Basis 1		Basis 2		Basis 3	
		Copper Flat FA					
NOTES:							
Liquid Handling Cost Source		SRCE User 03					
Liquid Disposal Fee Source:		SRCE User 03					
Hydrocarbon Contaminated Soils (HCS)							
Insitu Biotreatment	C.Y	24.25					
HCS disposal fee	C.Y	295.00					
NOTES:							
Insitu Treatement Cost Source		SRCE User 03					
HCS Disposal Fee Source:		SRCE User 03					

Misc. Unit Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

MISCELLANEOUS COST TABLE

JOB DESCRIPTION		Basis 1		Basis 2		Basis 3	
		Copper Flat FA					
UNDERGROUND OPENING CLOSURE							
Item	**Units**	**Materials**	**Premium**	**Materials**	**Premium**	**Materials**	**Premium**
Reinforced Concrete Bulkheads and Shaft Covers							
Grade walls - 15 in thick, 8 ft high	C.Y						
Grade walls - 15 in thick, 12 ft high	C.Y						
Elevated conc, 1-way beam & slab - 15ft span	C.Y						
Elevated conc, 1-way beam & slab - 25ft span	C.Y						
Item	**Units**	**Materials**		**Materials**		**Materials**	
Small Adit Plugging							
Bat Gate [5]	ea.						
Culvert Gate [5]	C.Y						
Adit Foam Plug [6]	C.Y						
Production Opening Foam Plug [6]	C.Y						
NOTES:							
(5) Bat Gate Source:							
(6) Foam Plug Source:							
MISC. LINEAR PROJECTS							
Item	**Units**	**Materials**	**Premium**	**Materials**	**Premium**	**Materials**	**Premium**
Fencing Installation							
Barbed 3-strand	ft	0.39					
Barbed 4-strand	ft	0.52					
Barbed 5-strand	ft	0.65					
Chain link 8 ft -10 ft Install	ft	32.00					
Wood stockade fence 6 ft high - Install	ft	13.15					
	ft						
	ft						
Fencing Removal							
Barbed 3-strand Removal	ft						
Barbed 4-strand Removal	ft						
Barbed 5-strand Removal	ft						
Chain link 8 ft -10 ft Removal	ft						
Wood, all types 4 ft -6 ft high Removal	ft						
	ft						
	ft						
Culvert Removal							
12 in (300 mm) Diameter	ft						
18 in (450 mm) Diameter	ft						
24 in (600 mm) Diameter	ft						
36 in (1m) Diameter	ft						
Pipeline Removal							
Plastic Pipe 3/4 in (mm) - 4 in (100 mm) diameter	ft						
6 in (150 mm) - 8 in (200 mm)	ft						
10 in (250 mm) - 18 in (450 mm)	ft						
20 in (500 mm) - 36 in (1 m)	ft						
Pipe and Drainpipe Installation							
Water 4in (100mm) 40ft (12m) length, welded HDPE	ft	2.50					
Water 6in (150mm) 40ft (12m) length, welded HDPE	ft	5.65					
Water 12in (300mm) 40ft (12m) length, welded HDPE	ft	13.00					
Drain 4in (100mm) perforated PVC	ft	1.64					
Drain 6in (150mm) perforated PVC	ft	3.49					
Drain 4in (100mm) corrugated, perf or plain	ft	0.74					
Drain 6in (150mm) corrugated., perf or plain	ft	1.88					
Drain Rock Preparation							
Item	**Units**		**Total**		**Total**		**Total**
Crushing	C.Y						
Screening	C.Y						
Misc.							
Item	**Units**		**Premium**		**Premium**		**Premium**

Misc. Unit Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

MISCELLANEOUS COST TABLE

JOB DESCRIPTION		Basis 1		Basis 2		Basis 3	
		Copper Flat FA					
Backhoe work	C.Y						
Powerline and Transformer Removal			**Total**		**Total**		**Total**
Single Pole Powerlines [7]	mile		19,372				
Double Pole Powerlines [8]	mile		19,372				
Substation [9]	unit		29,250				
NOTES:							
(7) Single Pole Source:							
(8) Double Pole Source:							
(9) Transformer Source:							

Misc. Unit Costs

File Name:	*Copper_Flat_CDF_191000_060_FNL_20180801_ft.xlsm*
Date:	*July 1, 2018*
Cost Basis:	*User Data*
Author/Source:	*0*

MISCELLANEOUS COST TABLE

JOB DESCRIPTION		Basis 1		Basis 2		Basis 3	
		Copper Flat FA					
EROSION, EVAPORATION and SEDIMENTATION CONTROL							
Item	**Units**	**Materials**	**Premium**	**Materials**	**Premium**	**Materials**	**Premium**
Rip-Rap & Rock Lining							
Rip-Rap 3/8 to 1/4 CY (m3) pieces, grouted	S.Y.	0.00					
Rip-Rap 18 in (450 mm) min thick, no grout	S.Y.	0.00					
Gabions, 6 in (150 mm) deep	S.Y.	0.00					
Gabions, 9 in (250 mm) deep	S.Y.	0.00					
Gabions, 12 in (300 mm) deep	S.Y.	0.00					
Gabions, 18 in (450 mm) deep	S.Y.	0.00					
Gabions, 36 in (1m) deep	S.Y.	0.00					
Liner Installation							
Item	**Units**	**Materials**	**Premium**	**Materials**	**Premium**	**Materials**	**Premium**
Finish grading large area	S.F.						
Compaction-riding, vibrating roller - 12in (300mm) lifts	S.F.						
Geotextile	S.F.						
Geonet	S.F.						
Geogrid	S.F.						
60 mil HDPE	S.F.	0.58					
Transport Costs							
Item	**Units**		**Total**		**Total**		**Total**
Ship/Barge Transport Cost	Cost/ton						
Rail Transport Cost	Cost/ton						
Air Transport Cost	Cost/ton						
Escort Vehicle Deadhead Rate	Cost/mi						
Construction Management Support							
Item	**Units**		**Materials**		**Materials**		**Materials**
Office Trailer, Furnished, no hook-ups	month		198.00				
Toilet Portable, chemical	month		198.00				
PRODUCTION OR DEWATERING WELL PUMP REMOVAL							
Item	**Units**	**Labor**	**Equip**	**Labor**	**Equip**	**Labor**	**Equip**
Pump Type							
Submersible (10)	ft to pump	2.57	5.58				
Line Shaft (10)	ft to pump	5.99	13.02				
NOTES:							
(10) Pump Removal Source:		NV costs					

General Decision Number: NM180012 02/23/2018 NM12

Superseded General Decision Number: NM20170012

State: New Mexico

Construction Type: Heavy

Counties: De Baca, Eddy, Grant, Hidalgo, Lea, Lincoln, Luna, Roosevelt, Sierra and Socorro Counties in New Mexico.

HEAVY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	02/23/2018

ELEC0583-006 12/01/2016

HIDALGO AND LUNA COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 29.30	5.25% + $6.97

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* ELEC0611-002 01/01/2018

DE BACA, GRANT, LINCOLN, ROOSEVELT, SIERRA & SOCORRO COUNTIES

	Rates	Fringes
ELECTRICIAN		
ZONE 1	$ 30.40	10.82

ZONE 1: Mileage calculated from the main post office in the following towns: Albuquerque-40 miles, Belen-12 miles, Carrizozo-12 miles, Clovis-12 miles, Espanola-14 miles, Farmington-6 miles, Gallup-10 miles, Las Vegas-8 miles, Los Lunas-12 miles, Portales-12 miles, Ratan-6 miles, Roswell-12 miles, Ruidoso-12 miles, Santa Fe-10 miles, Tucumcari-6 miles.

ZONE 2: Extending up to 20 miles beyond Zone 1, EXCEPT ALBURQUERQUE, shall receive 9% above Zone 1 rate.

ZONE 3: Extending up to 30 miles beyond Zone 1, EXCEPT ALBURQUERQUE, shall receive 15% above Zone 1 rate.

ZONE 4: Extending more than 30 miles beyond Zone 1, EXCEPT ALBURQUERQUE, shall receive 26% above Zone 1 rate.

ELEC0611-006 01/01/2017

EDDY & LEA COUNTIES

	Rates	Fringes
ELECTRICIAN		
Zone A	$ 28.45	10.53

Zone A shall be designated 12 miles from the Main Post Office of Artesia, Carlsbad, Hobbs and Lovington, New Mexico.

Zone B extending up to 10 miles beyond Zone A, shall receive $0.45 above Zone A wage rate.

Zone C extending up to 28 miles beyond Zone A, shall receive $0.60 above Zone A wage rate.

Zone D extending more than 28 miles beyond Zone A, shall receive $0.85 above Zone A wage rate.

IRON0495-004 06/01/2017

	Rates	Fringes
IRONWORKER		
Structural	$ 26.50	15.05

SUNM2009-006 09/14/2010

	Rates	Fringes
CARPENTER	$ 22.26	6.20
IRONWORKER, REINFORCING	$ 22.75	9.60
LABORER: Common or General	$ 12.37	0.00
LABORER: Flagger	$ 10.90	0.00
OPERATOR: Backhoe	$ 14.03	0.00
OPERATOR: Grader/Blade	$ 18.79	2.35
OPERATOR: Loader (Front End)	$ 22.07	5.05
OPERATOR: Scraper	$ 14.03	0.00
PIPEFITTER	$ 25.64	11.31
PLUMBER	$ 26.27	7.69
TRUCK DRIVER: Dump Truck	$ 11.90	0.00
TRUCK DRIVER: Water Truck	$ 13.72	5.25

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that

no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.

Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Wagner Equipment Co. - Rental Quote

Customer:	SRK Consulting	**Date:**	5/14/2018	Quote good for 30 days from date.	
		Prepared by:	HENRY VARGAS		
Contact:	Filiz Toprak	**Phone:**	915-771-6000	**Fax:**	915-779-7599
Phone:	775-742-7299	**Email:**	vargas_henry@wagnerequipment.com		
Email:		**Salesman:**			
Jobsite:	FLAT COPPER MINES	**Phone:**			

Prices do not include sales tax / To Re-fuel is $6.75 per gallon

		Transportation costs may vary depending upon machine location. Freight may be more or less than the quoted amount.				Rental Rates			PMC
# of Units	**CAT Model** Subject to availability	**Deliver From**	**Delivery Cost**	**Return To**	**Return Cost**	**Day**	**Week**	**4-Week**	Monthly Charge
1	730					$1,870.00	$5,230.00	$14,640.00	$485.00
1	740					$2,400.00	$6,720.00	$18,820.00	$522.00

- Customer must select a Preventative Maintenance Option.

Option 1: *Customer performs basic maintenance using Cat Care Filter Kits delivered to them directly at required intervals at no additional fee.*

* ***Option 2:*** *A Wagner Maintenance Technician performs scheduled maintenance when appropriate for an additional fee. Fee listed as PM Charge above.*

- Assembly/Disassembly costs associated with the transport of machines are the customers responsibility.

- Estimated transport rates do not include extra or special permits, pilot escort fees, or other unseen incidental costs.

- Overtime Rate is 100% of the regular rental rate.

- 4-Week/Monthly billing cycle.

Wagner Equipment / Wagner Rents Certificate of Insurance Requirements:

- ***General Liability*** *must show at least $1,000,000 for each occurrence*
- ***Auto Liability*** *must show at least $1,000,000 for Any Auto or Hired Auto if the customer is looking to rent a water or dump truck or transport Wagner equipment.*
- *Wagner must be listed as Additional Insured*
- *Show Workers Compensation limits*
- *Certificate Holder must read: Wagner Equipment Co. / Wagner Rents Inc.*
- ***Physical Damage*** *is optional but must cover at least the replacement cost of machine or a 16% damage waiver will be charged when renting from Wagner Equipment Co. and a 14% damage waiver will be charged when renting from Wagner Rents. The damage waiver is a fee for not having physical damage coverage; it is not a substitute for physical damage coverage.*

WAGNER RENTS
2501 W. Amador Avenue
Las Cruces, N.M. 88005
Tel: 575-647-9700 Fax: 575-647-9381
thamilton@wagnerequipment.com

RENTAL EQUIPMENT QUOTE

DATE:	May 3, 2018
TIME:	
JOB:	Copper Flat Mine

QUOTED BY:	**Todd Hamilton**
QUOTED TO:	**SRK Consulting**
PRICES VALID THROUGH:	**8/3/2018**

CONTACT NAME:	Filiz Toprak
	SRK Consulting
COMPANY / ADDRESS:	Copper Flat Mine Hillsboro, NM 88042
CUSTOMER PHONE #:	775-742-7299
CUSTOMER FAX #:	

EQUIPMENT DESCRIPTION	Day	Week	MONTH
Cat 420F 4WD Backhoe			$3,240.00
Cat 420F 4WD IT Backhoe			$3,370.00
Cat 430F 4WD Ext Backhoe			$3,870.00
Cat 312EL Excavator			$5,610.00
Cat 320EL Excavator			$7,750.00
Cat 924K Loader			$5,610.00
Cat 930M Loader			$6,530.00
Cat 120M2 Motor Grader			$8,670.00
Cat D6K2XL Dozer			$6,570.00
Delivery and Pickup (per machine)			$1,000.00
Refill Fuel charge: $6.75 per gallon			

1. RENTAL RATES REFLECT 8 HOURS OF USE ON MACHINES PER 24 HOUR PERIOD, 40 HOURS IN A 7 DAY PERIOD, OR 160 HOURS IN A 4 WEEK PERIOD.
2. RATES **DO NOT** INCLUDE DAMAGE WAIVER, TAXES, ENVIRONMENTAL CHARGE, DIESEL SURCHARGE , or S.M.M.
3. DISCOUNTS **DO NOT** APPLY ON RE-RENTED EQUIPMENT Rev. April 2005

Wagner Equipment Co. - Rental Quote

Date: 5/4/2018
Quote good for 30 days from date.

Customer: SRK CONSULTING

Contact: FILIZ TOPRAK
Phone: 775.742.7299
Email: FTOPRAK@SRK.COM
Jobsite: COPPER FLAT MINE/HILLSBORO NM 88042

Prepared by: NATALIE SMITH
Phone: 575.393.2148 **Fax:** 575.393.3665
Email: nsmith@wagnerequipment.com

Salesman: TODD HAMILTON
Phone: 575.343.2455

Prices do not include sales tax

		Transportation costs may vary depending upon machine location. Freight may be more or less than the quoted amount.				Rental Rates			
# of Units	CAT Model Subject to availability	Deliver From	Delivery Cost	Return To	Return Cost	Daily (8 hrs.)	Weekly (40 hrs.)	Monthly (176 hrs.)	PM Charge
1	329	LCS	$815.00	LCS	$815.00	$1,370.00	$3,840.00	$10,750.00	$464.00
1	336	LCS	$815.00	LCS	$815.00	$1,460.00	$4,100.00	$11,500.00	$530.00
1	349	LCS	$1,253.00	LCS	$1,253.00	$2,140.00	$5,980.00	$16,730.00	$591.00
1	14M	LCS	$678.00	LCS	$678.00	$1,890.00	$5,280.00	$14,790.00	$425.00
1	160M3	LCS	$678.00	LCS	$678.00	$1,500.00	$4,190.00	$11,730.00	$458.00
1	950	LCS	$678.00	LCS	$678.00	$1,210.00	$3,400.00	$9,520.00	$405.00
1	972	LCS	$678.00	LCS	$678.00	$1,720.00	$4,810.00	$13,480.00	$446.00
1	980	LCS	$678.00	LCS	$678.00	$2,000.00	$5,600.00	$15,690.00	$452.00
1	D7	LCS	$678.00	LCS	$678.00	$2,340.00	$6,540.00	$18,300.00	$473.00
1	D8	LCS	$815.00	LCS	$815.00	$2,570.00	$7,200.00	$20,180.00	$614.00
1	D9	LCS	$678.00	LCS	$678.00	$3,840.00	$10,750.00	$30,100.00	$636.00
1	D10	TBD	TBD	TBD	TBD	$5,675.00	$15,890.00	$44,500.00	$667.00
1	631	LCS	$678.00	LCS	$678.00	$3,530.00	$9,890.00	$27,700.00	$567.00

Please note the following information:

- *Standard Wagner Rental Terms and Conditions apply.*
- *Customer must select a Preventative Maintenance Option.*
  - ***Option 1:*** *Customer performs basic maintenance using Cat Care Filter Kits delivered to them directly at required intervals at no additional fee.*
  - ***Option 2:*** *A Wagner Maintenance Technician performs scheduled maintenance when appropriate for an additional fee. Fee listed as PM Charge above.*
- *Assembly/Disassembly costs associated with the transport of machines are the customers responsibility.*
- *Estimated transport rates do not include extra or special permits, pilot escort fees, or other unseen incidental costs.*
- *Overtime Rate is 100% of the regular rental rate.*
- *4-Week/Monthly billing cycle.*

Wagner Equipment / Wagner Rents Certificate of Insurance Requirements:

- ***General Liability*** *must show at least $1,000,000 for each occurrence*
- ***Auto Liability*** *must show at least $1,000,000 for Any Auto or Hired Auto if the customer is looking to rent a water or dump truck or transport Wagner equipment.*
- *Wagner must be listed as Additional Insured*
- *Show Workers Compensation limits*
- *Certificate Holder must read: Wagner Equipment Co. / Wagner Rents Inc.*
- ***Physical Damage*** *is not optional and must cover at least the replacement cost of machine or a 16% damage waiver will be charged when renting from Wagner Equipment Co.*
- ***Quote for equipment does not guarantee availability***

Operations hours per month: 176

EQUIPMENT RATE TABLE

Item	Monthly Owner/Rental Rate w/o Fuel	PREVENTATIVE MAINTENANCE COST [Cost Per Hour]	GROUND ENGAGING TOOLS CONSUMPTION [Cost Per Hour] (Wear Items)	TIRE COST TABLE [Cost Per Hour]	Notes
Bulldozers					
D6T	$ 12,033.12	$ 34.60	$ 2.61	$ -	
D6R w/ Winch	$ 6,717.92	$ 25.57	$ 1.47	$ -	Standard D6R, winch not included
D7E	$ 16,202.56	$ 44.89	$ 3.84	$ -	
D8T	$ 22,211.20	$ 58.30	$ 4.86	$ -	
D9T	$ 27,084.64	$ 76.32	$ 6.59	$ -	
D10T2	$ 28,698.56	$ 92.18	$ 8.22	$ -	D10T2 Blue Book not available, D10T shown
D11T	$ 56,233.76	$ 160.74	$ 16.66	$ -	
Wheeled Dozers					
824K	$ 19,849.28	$ 49.58	$ 1.32	$ 9.64	Cat 824H
834K	$ 24,928.64	$ 59.69	$ 1.70	$ 12.43	
844K	$ 33,733.92	$ 77.91	$ 2.42	$ 17.72	Cat 844H
854K	$ 33,802.56	$ 90.20	$ 2.40	$ 21.91	Cat 854G
Motor Graders					
12M2	$ 7,555.68	$ 20.32	$ 0.62	$ 3.15	
14M	$ 14,199.68	$ 37.21	$ 1.38	$ 7.00	
16M3	$ 18,805.60	$ 50.42	$ 2.00	$ 10.13	Cat 16M
24M	$ -				Blue Book not available
Track Excavators					
312F	$ 7,978.08	$ 26.33	$ 1.33	$ -	
320F	$ 10,215.04	$ 32.66	$ 1.94	$ -	320C
325F	$ 8,986.56	$ 31.63	$ 1.48	$ -	
330F	$ 14,388.00	$ 46.52	$ 2.67	$ -	
349F	$ 17,353.60	$ 60.12	$ 2.85	$ -	
374F	$ 23,119.36	$ 80.63	$ 3.97	$ -	Cat 374D L
390F	$ 28,471.52	$ 91.31	$ 5.11	$ -	Cat 390D L
Scrapers					
631K	$ 28,022.72	$ 93.46	$ 1.86	$ 8.17	Cat 631G
637K	$ 36,819.20	$ 116.00	$ 2.11	$ 7.57	Cat 637G
Wheeled Loaders					
926M	$ 2,383.04	$ 9.33	$ 0.19	$ 1.06	
930M	$ 5,712.96	$ 16.35	$ 0.60	$ 3.07	930K
950M	$ 8,272.00	$ 21.84	$ 0.87	$ 5.13	950K
966M	$ 8,976.00	$ 29.61	$ 0.87	$ 5.35	966K
972M	$ 10,135.84	$ 33.43	$ 1.08	$ 6.64	972K
980M	$ 13,036.32	$ 41.28	$ 1.41	$ 10.16	980K
988K	$ 19,588.80	$ 57.81	$ 2.26	$ 16.30	988H
990K	$ 28,299.04	$ 85.58	$ 3.71	$ 26.71	990H
992K	$ 41,067.84	$ 102.33	$ 4.54	$ 32.69	992K
993K	$ -				Blue Book not available
994K	$ -				Blue Book not available
L2350	$ 82,607.36	$ 203.53	$ 9.30	$ 67.04	
Shovels					
PC2000	$ 70,917.44	$ 183.38	$ 13.87	$ -	EX1900
PC3000	$ -				**See EX2500 below
PC4000	$ 74,134.72	$ 254.21	$ 19.91	$ -	EX3600
PC5500	$ -				EX5600 - Blue Book not available
PC8000	$ -				EX8000 - Blue Book not available
EX2500	$ 87,876.80	$ 277.02	$ 25.00	$ -	EX2500-6
Hydraulic Hammers					
H120Es (fits 325)	$ 3,419.68	$ 11.57	$ -	$ -	
H160Es (fits 349)	$ 7,027.68	$ 23.24	$ -	$ -	
H180Es (fits 374/390)	$ 8,168.16	$ 24.96	$ -	$ -	
Demolition Shears					
S3050 (fits 320/325/330)	$ 3,523.52	$ 20.50	$ -	$ -	BTI SH310R
S3070 (fits 330/349)	$ 4,130.72	$ 25.23	$ -	$ -	BTI SH410R
S3090 (fits 374/390)	$ 6,592.96	$ 31.61	$ -	$ -	BTI SH700R
Demolition Grapples					
G315B (fits 320/325)	$ -				Blue Book not available
G320B (fits 325/330)	$ -				Blue Book not available
G330 (fits 349/374)	$ -				Blue Book not available
Other Equipment					
420F2	$ 4,083.20	$ 11.81	$ 0.54	$ 1.59	Cat 420F Tractor-Loader-Backhoe
430F2	$ 4,042.72	$ 12.20	$ 0.60	$ 1.61	Cat 430E Tractor-Loader-Backhoe
CS54B	$ 4,401.76	$ 19.33	$ -	$ 0.79	
CS64B	$ 4,290.88	$ 20.65	$ -	$ 0.81	Amann AC110
CP54B	$ 4,084.96	$ 24.87	$ -	$ 1.12	Bomag BW211 PD-5
CP68B	$ 6,587.68	$ 29.78	$ -	$ 1.28	Bomag BW213 PDH-4
Light Truck - 1.5 Ton	$ 2,184.16	$ 8.67	$ -	$ 1.38	Single Axle Lube Truck
Supervisor's Truck	$ 834.24	$ 3.62	$ -	$ 0.45	3/4 Ton 4x4
Flatbed Truck	$ 621.28	$ 3.85	$ -	$ 0.34	On-Highway Flatbed Trucks
Air Compressor + tools	$ 596.64	$ 3.38	$ -	$ 0.13	185 CFM Diesel Air Compressor (not adjusted for tools)
Welding Equipment	$ 404.80	$ 1.92	$ -	$ -	4 Pack Welding System
Heavy Duty Drill Rig	$ 52,018.56	$ 278.95	$ 9.60	$ -	IR DMM3
Pump (plugging) Drill Rig	$ -				Blue Book not available
Concrete Pump	$ -				Blue Book not available
Gas Engine Vibrator	$ 357.28	$ 1.46	$ -	$ -	Hand Held Vibratory Plate Compactor
Generator 5KW	$ 938.08	$ 3.58	$ -	$ 0.17	Small Generator Set (0-22 kw)
HDEP Welder (pipe or liner)	$ -				Blue Book not available
5 Ton Crane	$ -				Blue Book not available
20 Ton Crane	$ 7,955.20	$ 25.80	$ -	$ 3.43	Tadan GR-150XL-1 (15 ton crane)
50 Ton Crane	$ 15,153.60	$ 45.47	$ -	$ 5.51	Grove TMS700E
120 Ton Crane	$ 28,943.20	$ 80.14	$ -	$ 14.25	Grove GMK5120B
Trucks					
725C	$ 10,824.00	$ 28.22	$ -	$ 6.86	Cat 725, model not specified, Only BB rate supplied
730C	$ 11,300.96	$ 31.45	$ -	$ 7.49	
735C	$ 11,753.28	$ 33.18	$ -	$ 7.97	Cat 735B
740C	$ 12,473.12	$ 34.76	$ -	$ 8.62	
770G	$ 15,155.36	$ 39.70	$ -	$ 10.74	
773G	$ 18,267.04	$ 47.92	$ -	$ 13.86	
777G	$ 37,225.76	$ 95.60	$ -	$ 31.52	
785D	$ -				Blue Book not available
789D	$ -				Blue Book not available
793F	$ -				Blue Book not available
797F	$ 89,159.84	$ 204.78	$ -	$ 80.70	
613E (5,000 gal)	$ 8,726.08	$ 45.31	$ 0.94	$ 3.14	Used Cat 613E scraper rate, water wagon not available
621E (8,000 gal)	$ 10,005.60	$ 50.66	$ 0.57	$ 4.87	Used Cat 621E scraper rate, water wagon not available
773G Water Truck	$ 18,267.04		$ -	$ 13.86	Used Cat 773 haul truck rate, water truck not available
777D H2O Truck	$ 37,225.76		$ -	$ 31.52	Used Cat 777 haul truck rate, water truck not available
785C H2O Truck	$ -				Blue Book not available
Dump Truck (10-12 m3)	$ 3,752.32	$ 15.58	$ -	$ 2.15	10 CY Dump Truck
Tractor/Trailer (18 ton)	$ 5,258.88	$ 22.04	$ -	$ 3.84	25 ton tractor & trailer
Tractor/Trailer (45 ton)	$ 10,862.72	$ 25.70	$ -	$ 5.17	45 ton tractor & trailer
Tractor/Trailer (75 ton)	$ 27,096.96	$ 50.69	$ -	$ 14.44	75 ton trailer & Cat 770 haul truck

Notes

-Location Setting: New Mexico DOT with focus on Las Cruces, NM area
-Costs in Column E (Preventative Maintenance) are already inclusive of columns F and G (GET & Tires)
-Fuel costs have been omitted in ownership and preventative maintenance costs
-Tire costs originally requested on a cost per hour basis, tires costs have been changed to report on a cost per hour basis

Kelley Erosion Control Quote July 28, 2015

		Labor	Equipment	Total
Hand				
Width 3.5	ft	$ 67.50 /hr	$ 25 /hr	
Speed 1.2	mph			
Speed 6223	ft/hr			
Coverage 21780	sf/hr			
Coverage 0.50	**ac/hr**	**$ 135.00 /ac**	**$ 50 /ac**	**$ 185.00 /ac**
Broadcast				
Width 6	ft	$ 140.00 /hr	$ 40 /hr	
Speed 2.8	mph			
Speed 14520	ft/hr			
Coverage 65340	sf/hr			
Coverage **1.50**	**ac/hr**	**$ 93.33 /ac**	**$ 27 /ac**	**$ 120.00 /ac**
Drill				
Width 6	ft	$ 140.00 /hr	$ 100 /hr	
Speed 1.4	mph			
Speed 7260	ft/hr			
Coverage 43560	sf/hr			
Coverage 1.00	**ac/hr**	**$ 140.00 /ac**	**$ 100 /ac**	**$ 240.00 /ac**
Hydro				
Width 25	ft	$ 250.00 /hr	$ 125 /hr	
Speed 0.3	mph			
Speed 1742.4	ft/hr			
Coverage 43560	sf/hr			
Coverage 1.00	**ac/hr**	**$ 250.00 /ac**	**$ 125 /ac**	**$ 375.00 /ac**

Provided Values			
Labor	Equipment		Production
67.50/hr	pick up	25.00/hr	0.5 ac/hr
	atv	15.00/hr	
140.00/hr	pick up	25.00/hr	1.5 ac/hr
140.00/hr	tractor	100.00/hr	1 ac/hr
250.00/hr	hydroseeder	125.00/hr	1 ac/hr

New Mexico Copper Corp, Copper Flat Mine Solution Evaporator Preliminary Quote

Evaporator Estimate

Evaporator	$92,000
Setup – 30%	26,000
Freight – 2.5%	$2,120
NM Compensating Tax - 5.5%	$5,000
Total Cost per Unit	$125,120

Note

Per discussion with Jeff Smith (NMCC technical representative), special coating not needed and all components needed for the turnkey system (pump, piping, skid, electrical, etc) will be available in mine inventory with assembly, setup and operation coming from the on-site contractor. Limit estimate to the evaporator assembly, freight and NM compensating taxes; individual rates for cost components provided by Jeff Smith.

Filiz Toprak

From: Duane Thompson <duane.thompson@minetek.com>
Sent: Friday, August 3, 2018 10:31 PM
To: Filiz Toprak
Cc: 'jsmith@themacresourcesgroup.com'
Subject: RE: Request for quote for evaporators

Hello Feliz,

Based on your requirement of each evaporator to be able to handle a flow of 380 GPM please see below details.

Is it only 1 unit that you require for your application?

The model 400/200 evaporator has a water flow of 400 GPM, this unit I would assume is the most suitable for your needs.

400/200 Specifications:

Minetek model 400/200 Evaporator
• 75kw (100 HP)electric motor • 25 Ltrs/sec (400 GPM) water flow • 10 bar (145 PSI) pressure requirement • Mobile skid mounted unit • Galvanised steel construction • Stainless steel wetted parts • Globally patented technology • USD $92,000.00 *HDG Steel*

Cost per unit for the epoxy coating for moderate corrosion protection is USD $112,500.00

Please see below turnkey system package cost for a 1 x 400/200 unit system.

System includes:

- 1 x 400/200 evaporator (100 HP motor, 400 GPM flow) – special epoxy coating
- 1 x land based booster pump (400 GPM @ 145 PSI)
- 1 x skid mounted electrical control board
- 1 x HDPE poly pipe
- 1 x Electrical cable
- 1 x design & engineering
- 1 x Freight to Copper Flat Mine

USD $290,000.00 (+/- 15%)

Option items include:

- Commissioning
- Automation control system & weather station
- Spares and other options

I trust that this will assist you.

What further details can I provide?

I look forward to hearing from you and working with you further on this project.

Many thanks,

Kind regards,

Duane Thompson
Regional Sales Manager – Water Division | North America

Tel: +1 213 330 3343
Mobile: +61 427 567 725
Web: www.minetek.com

601 South Figueroa Street, Suite 4050
Los Angeles, CA

MINETEK

SYDNEY | BRISBANE | SINGLETON | JOHANNESBURG | BUENOS AIRES | LOS ANGELES | GLASGOW

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From: Filiz Toprak <ftoprak@srk.com>
Sent: Saturday, 14 July 2018 3:40 AM
To: Duane Thompson <duane.thompson@minetek.com>
Cc: 'jsmith@themacresourcesgroup.com' <jsmith@themacresourcesgroup.com>
Subject: RE: Request for quote for evaporators

Duane,
Upon discussion, we decided we would like an option for including coating for moderate corrosion.
Regards,
Filiz

From: Filiz Toprak
Sent: Friday, July 13, 2018 7:59 AM
To: Duane Thompson <duane.thompson@minetek.com>
Cc: 'jsmith@themacresourcesgroup.com' <jsmith@themacresourcesgroup.com>
Subject: RE: Request for quote for evaporators

Duane,
Per your question about water chemistry during our chat yesterday, we expect draindown pH to be around 9-10. Please advise if you need anything else.
Regards,
Filiz

From: Duane Thompson [mailto:duane.thompson@minetek.com]
Sent: Thursday, July 12, 2018 2:22 PM
To: Filiz Toprak <ftoprak@srk.com>

Cc: 'jsmith@themacresourcesgroup.com' <jsmith@themacresourcesgroup.com>
Subject: RE: Request for quote for evaporators

Hello Feliz,

Many thanks for your email.

Please see below my contact details.

Kind regards,

Duane Thompson
Regional Sales Manager – Water Division | North America

Tel: +1 213 330 3343
Mobile: +61 427 567 725
Web: www.minetek.com

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601 South Figueroa Street, Suite 4050
Los Angeles, CA

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From: Filiz Toprak [mailto:ftoprak@srk.com]
Sent: Friday, 13 July 2018 4:14 AM
To: Sales USA | MINETEK <sales.usa@minetek.com>
Cc: 'jsmith@themacresourcesgroup.com' <jsmith@themacresourcesgroup.com>
Subject: Request for quote for evaporators

To whom it may concern,
I am contacting you on behalf of our client, THEMAC Resources (CC'ed), to request a quote for Model 1210 evaporator systems or equivalent that can handle flows up to 380 gpm per unit.
Could you please provide a quote for delivery to the Copper Flat Mine?
For any additional information required, please feel free to contact me at (775)742-7299.

Regards,

Filiz Toprak
Mining Consultant
srk consulting

SRK Consulting (U.S.), Inc.
Suite 300, 5250 Neil Road, Reno, NV, 89502, USA
Tel: +1-775-828-6800; **Fax**: +1-775-828-6820
Email: ftoprak@srk.com

www.srk.com

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Copper Flat Fuel Cost
Update Oct 2017

Fuel	Kiewit RACK Price $ per gal	RACK Delivered	Delivered to Mine	IMC Quote Check
Diesel Dyed	$2.05	$2.10	$2.17	$2.17
Diesel Clear	$2.52	$2.57	$2.57	
Gasoline Unleaded	$2.22	$2.27	$2.27	
Rack Delivery	$0.05			
Assume add to RACK for mine delivered cost			3.5%	

Jeffrey Smith

From: Sean.White <Sean.White@ticus.com>
Sent: Friday, September 29, 2017 1:12 PM
To: Jeffrey Smith
Subject: RE: Copper Flat >> Econ Update Fuel Prices Rack at Sep 2017

Jeff,

Here is the information we obtained from our corporate team who tracks RACK Pricing:

Dyed: $2.05
Clear: $2.52
Unleaded: $2.22
Delivery: $0.05/Gal.

Sean

From: Jeffrey Smith [mailto:jsmith@themacresourcesgroup.com]
Sent: Friday, September 29, 2017 12:12 PM
To: Sean.White <Sean.White@ticus.com>
Subject: [EXTERNAL] Copper Flat

Request for diversion ditch calculation sent to M3.

Reminder to send over the fuel pricing. IMC obtained quote for $2.17 off road; want to factor in your data points & set common price for all groups working on the current study. Thanks.

Regards,
Jeff

Jeffrey Smith

From: Jeffrey Smith
Sent: Thursday, November 02, 2017 6:32 PM
To: 'Ofelia Melendez'
Subject: RE: cost of power - 2013 >> Update to 2017

Thank you for this.

Best Regards,
Jeff

Jeffrey Smith, P.E. | Chief Operating Officer

T: +1 505.382.5770 | **F:** +1 505.881.4616 | **M:** +1 520.991.4588
A: 4253 Montgomery Blvd. NE, Suite 130, Albuquerque, NM 87109
W: themacresourcesgroup.com | **E:** jsmith@themacresourcesgroup.com

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From: Ofelia Melendez [mailto:ofie@secpower.com]
Sent: Thursday, November 02, 2017 5:36 PM
To: Jeffrey Smith
Cc: Emery Owen
Subject: RE: cost of power - 2013 >> Update to 2017

Good Morning Mr. Smith,

As per our conversation and further discussion with the Operations Manager, I will need to wait for the Tri-State information to provide you with a rate forecast for 2019 and beyond. Tri-State stated that they would have their Long Term Financial Forecast updated by the mid to late November to release the 2019 and beyond. For 2018, I would use a .07807cost of power, be advised that it is only an estimate. Please be advised that since NMCC is a large dedicated load, Sierra will need to negotiate a contract and the rate will be developed at the time of the contract development. Thank you for your time.

Sincerely,

Ofelia Melendez
Interim General Mangaer/Finance Manager
Sierra Electric Cooperative, Inc.
610 Hwy 195, P O Box 290
Elephant Butte, New Mexico 87935
Phone: (575) 744-5231 Fax: (575)744-5819

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From: Jeffrey Smith [mailto:jsmith@themacresourcesgroup.com]
Sent: Wednesday, October 18, 2017 4:53 PM
To: Ofelia Melendez <ofie@secpower.com>
Cc: Emery Owen <emery@secpower.com>
Subject: FW: cost of power - 2013 >> Update to 2017

Ofelia, I am following up on our call today. We are updating our cost estimates for the new mine we are planning for Copper Flat and need input on current power rates from Sierra Electric. I am forwarding an SEC email that answered this same question when we were going through this process about 4 years ago. Assume the same load factors, etc. that were used at the time of our last study. Also, note that the power rate we are looking for is the rate that would be in effect today if we were operating now, there is no need to forecast a rate in the future. You indicated in our call you were searching for files on New Mexico Copper, I may be able to assist with information from my files. Don't hesitate to contact me.

Best Regards,
Jeff

Jeffrey Smith, P.E. | **Chief Operating Officer**

T: +1 505.382.5770 | **F:** +1 505.881.4616 | **M:** +1 520.991.4588
A: 4253 Montgomery Blvd. NE, Suite 130, Albuquerque, NM 87109
W: themacresourcesgroup.com | **E:** jsmith@themacresourcesgroup.com

THEMAC RESOURCES

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From: Jimmy W. Capps [mailto:jcapps@secpower.com]
Sent: Wednesday, September 25, 2013 2:57 PM
To: Jeffrey Smith
Cc: Jimmy W. Capps
Subject: cost of power - 2013

Jeff,

As per our conversation, I am updating the estimated cost of power for the Copper Flats project AS IF it was operational in 2013. I have used the assumption of a 33 MW load operating at 90% load factor (basically 24/7) and the resulting power cost for 2013 would be **$.07444 per kWh**. I had provided Ed Fidler with an estimate (in 12/2011) of $.075 per kWh (based on a 24 MW load @90% load factor) so it appears we were close with our estimate.

As to the possible "Facility Charge" I mentioned in our phone conversation. There will not be one as Tri-State (99% sure) will own the required substation that will be interconnected with El Paso Electric. I spoke to Tri-State and they are saying that EPE will want Tri-State to own, operate, and maintain the substation and these costs are built into the above reference cost of power from Tri-State/Sierra. This is good news.

Hope this helps you with your feasibility study. Please let me know if you require further information.

Jimmy Capps
General Manager
Sierra Electric Cooperative, Inc.
jcapps@secpower.com
575-744-5231 Office
575-430-1268 Cell
575-744-5819 Fax

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Version: 2014.0.4117 / Virus Database: 3604/6696 - Release Date: 09/24/13

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TO: Feliz Toprak, Mining Consultant, SRK Consulting, Inc.
CC: Jeff Smith, Chief Operating Officer, NMCC
FROM: Katie Emmer, Permitting & Environmental Compliance Manager, NMCC
DATE: 20 March 2018
SUBJECT: Seed Mix Quotes – Average cost $175.00/acre PLS

The purpose of this memorandum is to summarize research into seed mix costs for seed mixes identified in the Copper Flat Mine Operation & Reclamation Plan (MORP) and to present the estimated cost of pure live seed (PLS) per acre.

The MORP calls for a specific seed mix and rate of application for interim and final reclamation:

Table E7: Interim and Final Reclamation Seed Mixes

Scientific Name	Common Name	PLS/ac[1]	
		Interim	Final
Grasses – Warm Season			
Bothriochloa barbinodis	Cane bluestem	0.15	0.20
Bouteloua curtipendula	Sideoats grama	1.00	1.10
Bouteloua gracilis	Blue grama	0.20	0.25
Pleuraphis jamesii	Galleta	0.75	1.10
Leptochloa dubia	Green sprangletop	0.15	0.20
Seteria vulpiseta	Plains bristlegrass	0.20	0.30
Sporobolus cryptandrus	Sand dropseed	0.03	0.04
Grasses – Cool, Intermediate Season			
Achnatherum hymenoides	Indian ricegrass	0.60	1.30
Eragrostis intermedia	Plains lovegrass	0.05	0.04
Hesperostipa newmexicana	NM feathergrass	0.70	0.50
Shrubs			
Atriplex canescens	Four-wing saltbush	0.30	1.75
Ericamerica nauseosus	Rubber rabbitbrush	0.10	0.35
Fallugia paradoxa	Apache plume	--	0.10
Krascheninnikovia lanata	Winterfat	0.15	0.70
Forbs			
Dalea candida	White prairie clover	0.10	0.40
Linum lewisii	Blue flax	0.15	0.35
Ratibida colomnifera	Prairie coneflower	--	0.10
Sphaeralcea ambigua	Desert globemallow	0.10	0.40
	Total	**4.73**	**9.18**

Notes:
1 - Rate is in pounds of pure live seed (PLS) per acre; Substitutions may change seeding rates.

In the week of 12 March 2018, I requested recommendations for seed mix suppliers from knowledgeable personnel at the Bureau of Land Management (BLM) Las Cruces office and Golder & Associates.

Emily Clark, Soil Scientist at Golder, indicated that they commonly work with Granite Seed. Shannon Gentry, Rangeland Management Specialist, suggested Bamert Seed, Granite Seed, and Curtis & Curtis Seed companies. Based on these recommendations, I contacted all three companies and provided MORP Table E7 and requested quotes on PLS/acre that would be certified weed free at the final reclamation rate. I instructed each company that comparable seed substitutions could be made based on availability. Quotes for PLS/acre were received from each company and are presented in the table below.

Seed Mix Quotes for MORP Table E7, Final Rate, March 2018

Company	**Date**	**Price quote PLS/acre**	**Notes**
Curtis & Curtis, Inc.	15 March 2018	$174.72	Low acreage Quote attached
Curtis & Curtis, Inc.	15 March 2018	$163.79	100 acres+ Quote attached
Granite Seed	15 March 2018	$186.50	Quote attached
Bamert Seed	16 March 2018	$750.00	Quote via email, attached.

In further correspondence with Bamert, the supplier speculated the quote could be decreased "as much as 2/3rds" if strategic substitutions of similar seeds were made based on availability. If the Bamert quote was decreased by 67%, it would be about $247.50/acre. Based on the difference in price from the other two suppliers, I conclude this quote is an outlier that is based on differing assumptions from those communicated in the quote request and have not included it in our estimated average seed mix cost.

Based on these quotes, attached, I conclude the average cost of PLS that would meet MORP requirements for final seed rates shown in Table E7 would be $175.00 per acre.

Attachements:
Curtis & Curtis, Inc. Quote
Granite Seed Quote
Bamert Seed Quote (via email)

CURTIS & CURTIS, INC.

4500 North Prince, Clovis, New Mexico 88101
PH: 575-762-4759 FAX: 575-763-4213

Irrigated Pasture Grasses
Mountain Pasture Grasses
Native Pasture Grasses

Yard and Playground Grasses
Golf Course Grasses
Alfalfa/Clovers

PRICE QUOTATION

TO:	Themac Resources	DATE:	March 15, 2018
ATTENTION:	Katie Emmer	SALESPERSON:	Tyler Stuemky
PHONE:	505-400-7925	SHIPPING DATE:	As Directed
EMAIL:	kemmer@themacresourcesgroup.com	FOB:	Clovis
PROJECT:	Sierra County Mine Reclamation	TERMS:	30 Days Net

DESCRIPTION	PRICE	AMOUNT
Custom Seed Mix:	$174.72/Acre (Low Acreage) $163.79/Acre (100 Acres+)	

COMMON NAME	BOTANICAL NAME	PLS/ACRE
~~Cane Bluestem~~ Sub. Buffalograss	*Bouteloua dactyloides*	0.20
Sideoats Grama	*Bouteloua curtipendula*	1.10
Blue Grama	*Bouteloua gracilis*	0.25
Galleta Grass	*Pleuraphis jamesii*	1.10
Green Sprangletop	*Leptochloa dubia*	0.20
Plains Bristlegrass	*Setaria vulpiseta*	0.30
Sand Dropseed	*Sporobolus cryptandrus*	0.04
Indian Ricegrass	*Oryzopsis hymenoides*	1.30
~~Plains Lovegrass~~ Sand Lovegrass	*Eragrostis trichodes*	0.04
~~NM Feathergrass~~ Needle and Thread	*Hesperostipa comata*	0.50
Four-Wing Saltbush	*Atriplex canescens*	1.75
Rubber Rabbitbrush	*Ericameria nauseosa*	0.35
~~Apache Plume~~ Sub. Three-Leaf Sumac	*Rhus trilobata*	0.10
Winterfat	*Krascheninnikovia lanata*	0.70
~~White Prairie Clover~~ Sub. Purple Prairie Clover	*Dalea purpurea*	0.40
Blue Flax	*Linum lewisii*	0.35
Prairie Coneflower	*Ratibida columnifera*	0.10
Desert Globemallow	*Sphaeralcea ambigua*	0.40

*****THIS QUOTE IS GOOD FOR 10 DAYS*****

*****ALL PRICES SUBJECT TO AVAILABILITY**SUBJECT TO BEING UNSOLD*****

Here is our quotation on the goods named, subject to the conditions noted:

The prices and terms on this quotation are not subject to verbal changes or other agreements unless approved in writing by the Home Office of the Seller. All quotations and agreements are contingent upon strikes, accidents, fires, availability of materials and all other causes beyond our control. Prices are based on costs and conditions existing on date of quotation and are subject to change by the Seller before final acceptance.

Typographical and stenographic errors are subject to correction. Purchaser agrees to accept either overage or shortage not in excess of ten percent to be charged for pro-rata. Purchaser assumes liability for patent and copyright infringement when goods are made to Purchaser's specifications. When quotation specifies material to be furnished by the purchaser, ample allowance must be made for reasonable spoilage and material must be of suitable quality to facilitate efficient production. Conditions not specifically stated herein shall be governed by established trade customs. Terms inconsistent with those stated herein, which may appear on Purchaser's formal order will not be binding on the Seller.

QUOTE

granite SEED
and erosion control

Tren Hagman
1697 West 2100 North
Lehi, UT 84043

tren@graniteseed.com
Phone: (801) 768-4422
Fax: (801) 701-9413

Date: March 15, 2018

To: Katie Emmer

Company: Themac Resources

From: Tren Hagman

Re: Seed Quote

Katie,

We can provide the mix below for $186.50/acre

Species	**PLS lbs./acre**
Cane beardgrass (Bothriochloa barbinodis)	0.20
Sideoats grama (Bouteloua curtipendula)	1.10
Blue grama (Bouteloua gracilis)	0.25
Galleta grass (Pleuraphis jamesii)	1.10
Green sprangletop (Leptochloa dubia)	0.20
Plains bristlegrass (Setaria vulpiseta)	0.30
Sand dropseed (Sporobolus cryptandrus)	0.04
Indian ricegrass (Achnatherum hymenoides)	1.30
Fourwing saltbush (Atriplex canescens)	1.75
Rubber rabbitbrush (Ericameria nauseosa)	0.35
Apache plume (Fallugia paradoxa)	0.10
Winterfat (Krascheninnikovia lanata)	0.70
White prairie clover (Dalea candida)	0.40
Blue flax (Linum perenne)	0.35
Prairie coneflower (Ratibida columnifera)	0.10
Desert globemallow (Sphaeralcea ambigua)	0.40
Toal:	**8.64**

If you have any questions, please contact me at the number above or by email tren@graniteseed.com .

Thanks

Katie Emmer

From: Colby Scroggins <cscroggins@bamertseed.com>
Sent: Friday, March 16, 2018 12:18 PM
To: Katie Emmer
Subject: RE: Seed mix quote

Katie,

I would estimate that the attached blend may be near $750 per acre.

Please let me know if I may be of help in the future!

Have a great day,

Colby F. Scroggins

Reclamation Specialist
cscroggins@BamertSeed.com
Office | 800.262.9892
Fax | 888.378.0419
www.BamertSeed.com

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From: Katie Emmer [mailto:kemmer@themacresourcesgroup.com]
Sent: Wednesday, March 14, 2018 4:25 PM
To: Colby Scroggins <cscroggins@bamertseed.com>
Subject: Seed mix quote

Here's the seed mix I'm looking at, see attached.

Katie Emmer | Permitting & Environmental Compliance Manager

M: +1 505.400.7925| **F:** +1 505.881.4616
A: 4253 Montgomery Blvd. NE, Suite 130, Albuquerque, NM 87109
W: themacresourcesgroup.com | **E:** kemmer@themacresourcesgroup.com

TO:	Feliz Toprak, Mining Consultant, SRK Consulting, Inc.
CC:	Jeff Smith, Chief Operating Officer, NMCC
FROM:	Katie Emmer, Permitting & Environmental Compliance Manager, NMCC
DATE:	20 April 2018
SUBJECT:	Estimated analytical costs for groundwater & surface water sampling during reclamation and monitoring at Copper Flat

The purpose of this memorandum is to summarize research and assumptions made to estimate costs for monitoring groundwater and surface water at Copper Flat Mine during reclamation.

The New Mexico Environment Department (NMED) Groundwater Quality Bureau will regulate groundwater and surface water monitoring at the mine site during and after operations. In their Draft Discharge Permit, NMED presents in Table 2 the groundwater and surface water sampling that will be required during operations, including the suites of analytes that must be analyzed annually and the suites of analytes that must be analyzed the remaining three quarters of the year, for a total of 4 sampling events annually. Table 2 from the Draft Discharge Permit, issued for public review on February 2, 2018, is attached. Note that in NMED's Table 2, there are requirements for analysis of Suites A and W, however both of these are parameters that can be obtained in the field and thus laboratory costs were obtained for only Suites B, C, D, E, and F. Further, NMED will require that most samples be analyzed for dissolved concentrations only, and will require total concentrations only in those cases specified. These requirements are reflected in the Profile lists.

New Mexico Copper Corporation (NMCC) contacted Hall Environmental Laboratory in Albuquerque to obtain price quotes on the lab analyses required by NMED. Hall's quotes are attached and summarized in the tables below. Profiles 1-3 are suites of analyses that will be used for groundwater sampling and Profiles 4-6 are suites that will be used for surface water sampling.

NMED's sampling requirements presented in Table 2 will be followed during operation. Changes to NMED's requirements will require that NMCC successfully request and obtain permission from NMED for modifications to requirements for sampling locations, laboratory analyses requirements, and sample frequency. For the purposes of the Financial Assurance estimate, NMCC has assumed that once operations cease and the majority of major reclamation work is completed at the end of year 18, the number of sample locations, sampling event frequency, and laboratory analyses required will decrease with NMED's permission over time. Profile 3 for groundwater and Profile 6 for surface water reflect NMCC's assumed reduced laboratory requirements lists that may be allowed during later reclamation years.

Profile 1

Groundwater samples B-F		Cost
Suite B	Alkalinity	$ 25.00
Suite B	Total Dissolved Solids	$ 25.00
Suite B	Total Cyanide	$ 45.00
Suite B&D	Anions- F, Cl, NO3, SO4	$ 70.00
Suite C	Mercury	$ 35.00
Suite C	Metals dissolved	$ 239.00
Suite C	Metals dissolved (As, Pb, Se, U)	$ 80.00
Suite D	TKN	$ 35.00
Suite E	Ra 226	$ 185.00
Suite F	Diesel Range	$ 50.00
Suite F	Gasoline Range	$ 50.00
Suite F	PCBs	$ 90.00
Suite F	Volatiles	$ 120.00
Suite F	EDB	$ 55.00
Suite F	PAHs	$ 150.00
Total		**$1,254.00**

Profile 2

Groundwater samples B-E		Cost
Suite B	Alkalinity	$ 25.00
Suite B	Total Dissolved Solids	$ 25.00
Suite B	Total Cyanide	$ 45.00
Suite B&D	Anions- F, Cl, NO3, SO4	$ 70.00
Suite C	Mercury	$ 35.00
Suite C	Metals dissolved	$ 239.00
Suite C	Metals dissolved (As, Pb, Se, U)	$ 80.00
Suite D	TKN	$ 35.00
Suite E	Ra 226	$ 185.00
Total		**$ 739.00**

Profile 3

Groundwater samples B-D		**Cost**
Suite B	Alkalinity	$ 25.00
Suite B	Total Dissolved Solids	$ 25.00
Suite B	Total Cyanide	$ 45.00
Suite B&D	Anions- F, Cl, NO3, SO4	$ 70.00
Suite C	Mercury	$ 35.00
Suite C	Metals dissolved	$ 239.00
Suite C	Metals dissolved (As, Pb, Se, U)	$ 80.00
Suite D	TKN	$ 35.00
Total		**$ 554.00**

Profile 4		
Surface Water samples B-F		**Cost**
Suite B	Alkalinity	$ 25.00
Suite B	Total Dissolved Solids	$ 25.00
Suite B	Total Cyanide	$ 45.00
Suite B&D	Anions- F, Cl, NO3, SO4	$ 70.00
Suite C	Mercury	$ 35.00
Suite C	Metals dissolved	$ 239.00
Suite C	Metals dissolved (As, Pb, Se, U)	$ 80.00
Suite C	*Metals total*	*$ 239.00*
Suite C	*Metals total (As, Pb, Se, U)*	*$ 80.00*
Suite D	TKN	$ 35.00
Suite E	Ra 226	$ 185.00
Suite F	Diesel Range	$ 50.00
Suite F	Gasoline Range	$ 50.00
Suite F	PCBs	$ 90.00
Suite F	Volatiles	$ 120.00
Suite F	EDB	$ 55.00
Suite F	PAHs	$ 150.00
Total		**$ 1,573.00**
Italicized Analyses extra for SW		

Profile 5		
Surface Water samples B-E		**Cost**
Suite B	Alkalinity	$ 25.00
Suite B	Total Dissolved Solids	$ 25.00
Suite B	Total Cyanide	$ 45.00
Suite B&D	Anions- F, Cl, NO3, SO4	$ 70.00
Suite C	Mercury	$ 35.00
Suite C	Metals dissolved	$ 239.00
Suite C	Metals dissolved (As, Pb, Se, U)	$ 80.00
Suite C	*Metals total*	*$ 239.00*
Suite C	*Metals total (As, Pb, Se, U)*	*$ 80.00*
Suite D	TKN	$ 35.00
Suite E	Ra 226	$ 185.00
Total		**$ 1,058.00**
Italicized Analyses extra for SW		

Profile 6		
Surface Water samples B-D		**Cost**
Suite B	Alkalinity	$ 25.00
Suite B	Total Dissolved Solids	$ 25.00
Suite B	Total Cyanide	$ 45.00
Suite B&D	Anions- F, Cl, NO3, SO4	$ 70.00
Suite C	Mercury	$ 35.00
Suite C	Metals dissolved	$ 239.00
Suite C	Metals dissolved (As, Pb, Se, U)	$ 80.00
Suite C	*Metals total*	*$ 239.00*
Suite C	*Metals total (As, Pb, Se, U)*	*$ 80.00*
Suite D	TKN	$ 35.00
Total		**$ 873.00**
Italicized Analyses extra for SW		

NMCC has provided SRK with a lab costs table that presents the number of sample points and sample events estimated to be required at Copper Flat during reclamation efforts, from years 15-40, attached. For the purposes of this exercise, NMCC assumes that Copper Flat construction would take place in Mine Years 1 and 2, Operation would occur in Mine Years 3-14 (roughly 12 years of operation are planned), and Reclamation and Monitoring efforts would occur from Mine Year 15-40.

While estimating groundwater and surface water sampling point numbers, NMCC has taken into account projected years that wells will go dry due to mine pit dewatering, and years certain monitoring wells will be properly plugged and abandoned due to the planned expansion of the Tailings Storage Facility (TSF) during mine operation. In the case of surface water sampling of mine impoundments, these are assumed to cease need for sampling following anticipated closure of these impoundments. To be conservative, sampling is assumed to take place for the entire course of the calendar year in which a sample point is anticipated to be dewatered or removed. The first year removed sample points are taken from estimated sampling costs is the year following anticipated removal.

The table below summarizes the reclamation work, assumed sample lists and numbers of groundwater and surface water sample points from year 15-40.

Summary of Reclamation Work and Sampling Schedule Post Mine Operation

Year	15	16	17	18	19	20	22	23-30	31-40
Reclamation Work	Bulk Reclamation		Contouring at TSF			Passive/Minimal			
Number of GW wells	25			24		22			20
GW Sampling List	Full List of Constituents				Reclamation List of Constituents				
GW Sampling Frequency	Quarterly				Bi-Annually			Annually	
Number of SW samplers	5				0				
Number of Springs (Assumed)	1				0				
Number of Impoundments	8	5	2			1			

Attachments:

New Mexico Environment Department Groundwater Quality Bureau draft Discharge Permit for Copper Flat, Table 2

Hall Environmental Analysis Laboratory price quotes dated March 15, 2018

NMCC Financial Assurance Table- Reclamation Analyses – GW & SW

Table 2 - Monitoring and Reporting Summary for DP-1840

Monitoring Report Schedule of Submittal (Subsection A of 20.6.7.29 NMAC)	
1	January 1 - June 30 (Q1 and Q2 sampling quarters) – Semi-annual report due by August 31 of each year
2	July 1 - December 31 (Q3 and Q4 sampling quarters) – Semi-annual report due by February 28 of each year
3	Annual reports due by February 28 of each year

Reporting Summary		
Annual Reporting Frequency	**Number of Sites**	**Description**
2	Not Applicable	Monitoring reports – All applicable requirements of Subsections A through H of 20.6.7.29 NMAC.
2	Not Applicable	Additional Discharge Volume reporting listed in C111.L
2	1	Mine facility ground water elevation contour map
1	1	OPSDA Map

Monitoring Schedule

Area	Identification Number	Sampling					Notes
		type	Q1	Q2	Q3	Q4	
Open Pit	GWQ96-22A	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ96-22B	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ11-26	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ96-23A	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ96-23B	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ11-24A	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ11-24A	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-1	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-2	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-21	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-22	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
TSF	GWQ-1	mw & p	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ-8	mw & p	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ-10	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ-12	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	NP-1	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	NP-4	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ94-14	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ94-15	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ94-21A	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ94-21B	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	GWQ13-28	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-14	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-15	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-16	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-18	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-19	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
TSF/UCP	PGWQ-17	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
TSF/WRSP-2 &-3	PGWQ-13	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
Surge Pond	GWQ-5R	mw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-9	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
WRSP-2 &-3	PGWQ-3	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-4	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-5	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-8	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	

	PGWQ-20	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
SW-C/ WRSP-2 & WRSP-3	PGWQ-6	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
	PGWQ-7	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
SW-A	PGWQ-10	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
PWR	PGWQ-11	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
SW-A/PWR	PGWQ-12	Pmw	A-F,W	A-E,W	A-E,W	A-E,W	
Grayback Arroyo^	SWQ-1	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	SWQ-2	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	SWQ-3	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	SWQ-4	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	SWQ-5	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
Impoundments	SW-A(M/S-9)	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	SW-B (M/S-10)	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	SW-C (M/S-11)	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	PWR (M/S-8)	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	Surge Pond (M/S-14)	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	UCP (M/S-6)	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
	TSF (M/S-4)	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
Mine Pit Water	Dewatering Sump	sw	A-F,W	A-E,W	A-E,W	A-E,W	Tot. + Diss
Seeps/Springs	If encountered	spg/ sp	A-F,W	A-E,W	A-E,W	A-E,W	Outside OPSDA only
Flow Meters/Discharge Volume Reporting	M/S-1 through M/S-17		C.111.L &M	C.111.L &M	C.111.L &M	C.111.L &M	See Figure 3

Sampling Analytical Suites (mg/L, unless noted otherwise):

A = Field parameters: Temperature (°C), pH, specific conductance (µS/cm)

B = General Chemistry and Inorganic Parameters: alkalinity-bicarbonate (alk-HCO_3), alkalinity-carbonate (alk-CO_3), alkalinity-total (alk-Tot), calcium (Ca), chloride (Cl^-), fluoride (F^-), magnesium (Mg), potassium (K), sodium (Na), sulfate (SO_4), cyanide (CN^-), and total dissolved solids (TDS)

C = Metal Paramters: aluminum (Al), arsenic (As), barium (Ba), beryllium (Be), boron (B), cadmiun (Cd), chromiun (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), molybdenum (Mo), nickel (Ni), selenium (Se), silver (Ag), total mercury (Hg), uranium (U) and zinc (Zn).

D = Nutrients: Total Kjeldahl nitrogen (TKN), and Nitrate-Nitrogen (NO_3-N)

E = Radioactivity: Combined Radium-226 and Radium-228 (pCi/L)

F = Organic Parameters: Total Petroleum Hydrocarbons (TPH), benzene, polychlorinated biphenyls (PCBs), toluene, carbon tetrachloride, 1,2-dichloroethane (EDC), 1,1-dichloroethlyene (1,1-DCE), 1,1,2,2-tetrachloroethylene (PCE), 1,1,2-trichloroethylene (TCE), ethylbenzene, total xylenes , methylene chloride, chloroform, 1,1-dichloroethane, ethylene dibromide (EDB), 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1,2,2-tetrachloroethane, vinyl chloride, PAHs: total naphthalene plus monomethylnaphthalenes, benzo-a-pyrene

Measurements

W = Depth-to-water measurement to the nearest 0.01 foot

^ = See C111.H

Explanation to Abbreviations and Symbols

mw = monitoring well Pmw = proposed monitoring well sw = surface water p = production well spg = spring sp = seep	ts = tailing slurry (solids) Tnk = tank WRP = Waste Rock Stockpile PWR = Process Water Reservoir UCP = Underdrain Collection Pond SW = Impacted Stormwater Impoundment Tot. + Diss = Total and Dissolved Concentrations M/S-# = Measuring/Sampling Point	Sampling Quarter: Q1 = Jan-Mar Q2 = Apr-Jun Q3 = Jul-Sep Q4 = Oct-Dec

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

QUOTATION

Quote#: **1365**
Date: **3/15/2018**

Company:	The Mac Resources Group	Project:	NM Copper
Contact:	Katie Emmer	TAT:	15 working days
Address:	2424 Louisiana Blvd NE Ste 301	QC Level:	LEVEL II
		Project Manager:	Andy Freeman
	Albuquerque, NM 87110	Sales Rep:	Andy Freeman
Phone:	(505) 400-7925	Quote Expires:	9/11/2019
Fax:			

Item Description	Test	Matrix	Remarks	Qty	Unit Price	Total
SM2320B: Alkalinity	SM2320B	Aqueous	Suite B	1	25.00	25.00
SM2540C MOD: Total Dissolved S	M2540C	Aqueous	Suite B	1	25.00	25.00
EPA 335.4: Total Cyanide Subbed	E335.4	Aqueous	Suite B	1	45.00	45.00
EPA Method 245.1: Mercury	E245.1	Aqueous	Suite C	1	35.00	35.00
SM 4500 Norg C: TKN	M4500-Norg	Aqueous	Suite D	1	35.00	35.00
EPA 903.1: Ra 226 and EPA 904.0:	E901.1	Aqueous	Suite E	1	185.00	185.00
EPA Method 8015M/D: Diesel Ran	SW8015	Aqueous	Suite F	1	50.00	50.00
EPA Method 8015D: Gasoline Rang	SW8015	Aqueous	Suite F	1	50.00	50.00
EPA Method 8082A: PCB's	SW8082	Aqueous	Suite F	1	90.00	90.00
EPA Method 8260B: VOLATILES	SW8260B	Aqueous	Suite F	1	120.00	120.00
EPA Method 8011/504.1: EDB	E504.1	Aqueous	Suite F	1	55.00	55.00
EPA Method 8310: PAHs	SW8310	Aqueous	Suite F	1	150.00	150.00
EPA Method 200.7: Metals	E200.7	Aqueous	Suite C Ca,Mg,K,Na, Al,Ba,Be,B,Cd,Cr,Co,Cu, Fe,Mn,Mo,Ni,Ag,Zn	1	239.00	239.00
EPA 200.8: Metals	E200.8	Aqueous	Suite C As,Pb,Se,U	1	80.00	80.00
EPA Method 300.0: Anions	E300	Aqueous	Sute B and D - F,Cl,NO3,SO4	1	70.00	70.00
EPA Method 200.7: Dissolved Meta	E200.7	Aqueous	Suite C Ca,Mg,K,Na, Al,Ba,Be,B,Cd,Cr,Co,Cu, Fe,Mn,Mo,Ni,Ag,Zn	1	239.00	239.00
EPA 200.8: Dissolved Metals	E200.8	Aqueous	Suite C As,Pb,Se,U	1	80.00	80.00

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

QUOTATION

Quote#: **1365**
Date: **3/15/2018**

Company:	The Mac Resources Group	Project:	NM Copper
Contact:	Katie Emmer	TAT:	15 working days
Address:	2424 Louisiana Blvd NE Ste 301	QC Level:	LEVEL II
		Project Manager:	Andy Freeman
	Albuquerque, NM 87110	Sales Rep:	Andy Freeman
Phone:	(505) 400-7925	Quote Expires:	9/11/2019
Fax:			

Item Description	Test	Matrix	Remarks	Qty	Unit Price	Total

Sub Total:	$1,573.00
Misc:	$0.00
Surcharge:	0%
TOTAL:	**$1,573.00**

Sincerely,

Andy Freeman
Laboratory Manager
Phone: 505-345-3975
Email: andy@hallenvironmental.com

Terms and Conditions:

Hall Environmental Analysis Laboratory (HEAL) will provide all sampling containers, coolers, chains of custody and labels. A standard data deliverables package and QC package will be provided with this report, including lab spikes and lab spike duplicates. NM State tax has not been included in this quotation. Thank you, for the opportunity to bid on this project. Please feel free to call with any questions (505) 345-3975.. Invoices can be paid via Visa, Master Card, American Express, Company Check or Cash.

Reclamation Analyses - GW & SW

					Analyses				Labor			
ID	Description	Analysis Type	Facility/Activity Type	Cost Type	Samples	Events/Year	No. Years	First Sample Year	No. Samplers	Days/Event	Hrs/Day	Reporting Hrs/Event
					#	#	#	Mine year				
1	Well Monitoring	GW Analysis Profile 1	Monitoring	FA	25	1	3	15	2	5	8	60
2	Well Monitoring	GW Analysis Profile 1	Monitoring	FA	24	1	1	18	2	5	8	60
3	Well Monitoring	GW Analysis Profile 2	Monitoring	FA	25	3	3	15	2	5	8	60
4	Well Monitoring	GW Analysis Profile 2	Monitoring	FA	24	3	1	18	2	5	8	60
5	Well Monitoring	GW Analysis Profile 3	Monitoring	FA	24	2	1	19	2	5	8	40
6	Well Monitoring	GW Analysis Profile 3	Monitoring	FA	22	2	3	20	2	4	8	40
7	Well Monitoring	GW Analysis Profile 3	Monitoring	FA	22	1	8	23	2	4	8	40
8	Well Monitoring	GW Analysis Profile 3	Monitoring	FA	20	1	10	30	2	3	8	40
9	SW Monitoring	SW Analysis Profile 4	Monitoring	FA	8	1	1	15	2	2	8	10
10	SW Monitoring	SW Analysis Profile 4	Monitoring	FA	6	1	3	15	1	1	8	5
11	SW Monitoring	SW Analysis Profile 4	Monitoring	FA	5	1	1	16	1	1	8	5
12	SW Monitoring	SW Analysis Profile 4	Monitoring	FA	2	1	2	17	1	1	4	5
13	SW Monitoring	SW Analysis Profile 5	Monitoring	FA	8	3	1	15	2	2	8	10
14	SW Monitoring	SW Analysis Profile 5	Monitoring	FA	5	4	4	15	1	1	8	5
15	SW Monitoring	SW Analysis Profile 5	Monitoring	FA	5	3	1	16	1	1	8	5
16	SW Monitoring	SW Analysis Profile 5	Monitoring	FA	2	3	2	17	1	1	4	5
17	SW Monitoring	SW Analysis Profile 6	Monitoring	FA	2	2	1	19	1	1	4	5
18	SW Monitoring	SW Analysis Profile 6	Monitoring	FA	1	2	3	20	1	1	8	10
19	SW Monitoring	SW Analysis Profile 6	Monitoring	FA	1	1	18	23	1	1	8	10

Costs

GW Analysis Profile 1	$	1,254.00	Groundwater samples B-F
GW Analysis Profile 2	$	739.00	Groundwater samples B-E
GW Analysis Profile 3	$	554.00	Groundwater samples B-D
SW Analysis Profile 4	$	1,573.00	Surface Water samples B-F
SW Analysis Profile 5	$	1,058.00	Surface Water samples B-E
SW Analysis Profile 6	$	873.00	Surface Water samples B-D

01 51 Temporary Utilities

01 51 13 – Temporary Electricity

	01 51 13.50 Temporary Power Equip (Pro-Rated Per Job)	Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0630	Tap cord, 100 Amp	1 Elec	6	1.333	Ea.	600	77.50		677.50	775
0700	Connections									
0710	Compressor or pump									
0720	30 Amp	1 Elec	7	1.143	Ea.	15.65	66.50		82.15	117
0730	60 Amp		5.30	1.509		28.50	88		116.50	162
0740	100 Amp		4	2		64	116		180	245
0750	Tower crane									
0760	60 Amp	1 Elec	4.50	1.778	Ea.	28.50	103		131.50	186
0770	100 Amp	"	3	2.667	"	64	155		219	305
0780	Manlift									
0790	Single	1 Elec	3	2.667	Ea.	33	155		188	268
0800	Double	"	2	4	"	68	233		301	425
0810	Welder with disconnect									
0820	50 Amp	1 Elec	5	1.600	Ea.	180	93		273	335
0830	100 Amp		3.80	2.105		315	123		438	530
0840	200 Amp		2.50	3.200		570	186		756	910
0850	400 Amp		1	8		1,325	465		1,790	2,150

01 51 13.80 Temporary Utilities

0010	**TEMPORARY UTILITIES**									
0350	Lighting, lamps, wiring, outlets, 40,000 S.F. building, 8 strings	1 Elec	34	.235	CSF Flr	5.60	13.70		19.30	26.50
0360	16 strings	"	17	.471		11.20	27.50		38.70	53.50
0400	Power for temp lighting only, 6.6 KWH, per month								.92	1.01
0430	11.8 KWH, per month								1.65	1.82
0450	23.6 KWH, per month								3.30	3.63
0600	Power for job duration incl. elevator, etc., minimum								47	51.50
0650	Maximum								110	121
0700	Temporary construction water bill per month, average				Month	69			69	76
1000	Toilet, portable, see Equip. Rental 01 54 33 in Reference Section									

01 52 Construction Facilities

01 52 13 – Field Offices and Sheds

01 52 13.20 Office and Storage Space

0010	**OFFICE AND STORAGE SPACE**									
0020	Office trailer, furnished, no hookups, 20' x 8', buy	2 Skwk	1	16	Ea.	8,900	840		9,740	11,100
0250	Rent per month					198			198	218
0300	32' x 8', buy	2 Skwk	.70	22.857		14,200	1,200		15,400	17,400
0350	Rent per month					247			247	272
0400	50' x 10', buy	2 Skwk	.60	26.667		29,300	1,400		30,700	34,400
0450	Rent per month					355			355	395
0500	50' x 12', buy	2 Skwk	.50	32		25,900	1,675		27,575	31,100
0550	Rent per month					450			450	495
0700	For air conditioning, rent per month, add					50			50	55
0800	For delivery, add per mile				Mile	12			12	13.20
0890	Delivery each way				Ea.	2,725			2,725	3,000
0900	Bunk house trailer, 8' x 40' duplex dorm with kitchen, no hookups, buy	2 Carp	1	16		87,000	810		87,810	96,500
0910	9 man with kitchen and bath, no hookups, buy		1	16		89,000	810		89,810	99,000
0920	18 man sleeper with bath, no hookups, buy		1	16		96,000	810		96,810	106,500
1000	Portable buildings, prefab, on skids, economy, 8' x 8'		265	.060	S.F.	25	3.06		28.06	32
1100	Deluxe, 8' x 12'		150	.107	"	28	5.40		33.40	39.50
1200	Storage boxes, 20' x 8', buy	2 Skwk	1.80	8.889	Ea.	3,325	465		3,790	4,375
1250	Rent per month					84.50			84.50	93

For customer support on your Heavy Construction Costs with RSMeans data, call 800.448.8182.

2 41 Demolition

41 19 – Selective Demolition

	41 19.19 Selective Demolition	Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0	Delivery, average for all sizes				Ea.	75			75	82.50
0	Haul, average for all sizes					235			235	259
0	Rent per day, average for all sizes					20			20	22
0	Rent per month, average for all sizes					80			80	88
0	Disposal fee per ton, average for all sizes				Ton	88			88	97
0	Load, haul, dump and return, 0'-50' haul, hand carried	2 Clab	24	.667	C.Y.		26.50		26.50	40.50
5	Wheeled		37	.432			17.25		17.25	26.50
0	0'-100' haul, hand carried		16.50	.970			38.50		38.50	59
5	Wheeled		25	.640			25.50		25.50	39
0	Forklift	A-3R	25	.320			16.40	5.95	22.35	31.50
0	Haul and return, add per each extra 100' haul, hand carried	2 Clab	35.50	.451			17.95		17.95	27.50
5	Wheeled		54	.296			11.80		11.80	18
0	For travel in elevators, up to 10 floors, add		140	.114			4.55		4.55	6.95
0	0'-50' haul, incl. up to 5 riser stairs, hand carried		23	.696			27.50		27.50	42
5	Wheeled		35	.457			18.20		18.20	28
0	6-10 riser stairs, hand carried		22	.727			29		29	44
5	Wheeled		34	.471			18.75		18.75	28.50
0	11-20 riser stairs, hand carried		20	.800			32		32	48.50
5	Wheeled		31	.516			20.50		20.50	31.50
0	21-40 riser stairs, hand carried		16	1			40		40	60.50
5	Wheeled		24	.667			26.50		26.50	40.50
0	0-100' haul, incl. 5 riser stairs, hand carried		15	1.067			42.50		42.50	65
5	Wheeled		23	.696			27.50		27.50	42
0	6-10 riser stairs, hand carried		14	1.143			45.50		45.50	69.50
5	Wheeled		21	.762			30.50		30.50	46.50
0	11-20 riser stairs, hand carried		12	1.333			53		53	81
5	Wheeled		18	.889			35.50		35.50	54
0	21-40 riser stairs, hand carried		8	2			79.50		79.50	121
5	Wheeled		12	1.333			53		53	81
0	Haul and return, add per each extra 100' haul, hand carried		35.50	.451			17.95		17.95	27.50
5	Wheeled		54	.296			11.80		11.80	18
0	For each additional flight of stairs, up to 5 risers, add		550	.029	Flight		1.16		1.16	1.77
5	6-10 risers, add		275	.058			2.32		2.32	3.53
0	11-20 risers, add		138	.116			4.62		4.62	7.05
5	21-40 risers, add		69	.232			9.25		9.25	14.10
0	Loading & trucking, including 2 mile haul, chute loaded	B-16	45	.711	C.Y.		30	12.05	42.05	58.50
0	Hand loading truck, 50' haul	"	48	.667			28	11.30	39.30	55
0	Machine loading truck	B-17	120	.267			11.80	5.40	17.20	24
0	Haul, per mile, up to 8 C.Y. truck	B-34B	1165	.007			.32	.47	.79	.99
0	Over 8 C.Y. truck	"	1550	.005			.24	.35	.59	.75

2 41 19.20 Selective Demolition, Dump Charges

010	**SELECTIVE DEMOLITION, DUMP CHARGES** R024119-10									
020	Dump charges, typical urban city, tipping fees only									
100	Building construction materials				Ton	74			74	81
200	Trees, brush, lumber					63			63	69.50
300	Rubbish only					63			63	69.50
500	Reclamation station, usual charge					74			74	81

02 65 Underground Storage Tank Removal

02 65 10 – Underground Tank and Contaminated Soil Removal

02 65 10.30 Removal of Underground Storage Tanks		Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010 **REMOVAL OF UNDERGROUND STORAGE TANKS**										
0011 Petroleum storage tanks, non-leaking										
0100 Excavate & load onto trailer										
0110 3,000 gal. to 5,000 gal. tank	G	B-14	4	12	Ea.		505	78	583	855
0120 6,000 gal. to 8,000 gal. tank	G	B-3A	3	13.333	↓		570	298	868	1,200
0130 9,000 gal. to 12,000 gal. tank	G	"	2	20	↓		855	445	1,300	1,800
0190 Known leaking tank, add					%				100%	100%
0200 Remove sludge, water and remaining product from bottom										
0201 of tank with vacuum truck										
0300 3,000 gal. to 5,000 gal. tank	G	A-13	5	1.600	Ea.		82	144	226	282
0310 6,000 gal. to 8,000 gal. tank	G	↓	4	2	↓		103	180	283	355
0320 9,000 gal. to 12,000 gal. tank	G	↓	3	2.667	↓		137	240	377	470
0390 Dispose of sludge off-site, average					Gal.				6.25	6.80
0400 Insert inert solid CO_2 "dry ice" into tank										
0401 For cleaning/transporting tanks (1.5 lb./100 gal. cap)	G	1 Clab	500	.016	Lb.	1.19	.64		1.83	2.28
0403 Insert solid carbon dioxide, 1.5 lb./100 gal.	G	"	400	.020	"	1.19	.80		1.99	2.52
0503 Disconnect and remove piping	G	1 Plum	160	.050	L.F.		3.11		3.11	4.68
0603 Transfer liquids, 10% of volume	G	"	1600	.005	Gal.		.31		.31	.47
0703 Cut accessway into underground storage tank	G	1 Clab	5.33	1.501	Ea.		60		60	91
0813 Remove sludge, wash and wipe tank, 500 gal.	G	1 Plum	8	1	↓		62		62	93.50
0823 3,000 gal.	G	↓	6.67	1.199	↓		74.50		74.50	112
0833 5,000 gal.	G	↓	6.15	1.301	↓		81		81	122
0843 8,000 gal.	G	↓	5.33	1.501	↓		93.50		93.50	140
0853 10,000 gal.	G	↓	4.57	1.751	↓		109		109	164
0863 12,000 gal.	G	↓	4.21	1.900	↓		118		118	178
1020 Haul tank to certified salvage dump, 100 miles round trip										
1023 3,000 gal. to 5,000 gal. tank					Ea.				760	830
1026 6,000 gal. to 8,000 gal. tank					↓				880	960
1029 9,000 gal. to 12,000 gal. tank					↓				1,050	1,150
1100 Disposal of contaminated soil to landfill										
1110 Minimum					C.Y.				145	160
1111 Maximum					"				400	440
1120 Disposal of contaminated soil to										
1121 bituminous concrete batch plant										
1130 Minimum					C.Y.				80	88
1131 Maximum					"				115	125
1203 Excavate, pull, & load tank, backfill hole, 8,000 gal. +	G	B-12C	.50	32	Ea.		1,525	2,100	3,625	4,650
1213 Haul tank to certified dump, 100 miles rt, 8,000 gal. +	G	B-34K	1	8	↓		370	835	1,205	1,475
1223 Excavate, pull, & load tank, backfill hole, 500 gal.	G	B-11C	1	16	↓		750	310	1,060	1,475
1233 Excavate, pull, & load tank, backfill hole, 3,000-5,000 gal.	G	B-11M	.50	32	↓		1,500	770	2,270	3,125
1243 Haul tank to certified dump, 100 miles rt, 500 gal.	G	B-34L	1	8	↓		410	188	598	825
1253 Haul tank to certified dump, 100 miles rt, 3,000-5,000 gal.	G	B-34M	1	8	↓		410	238	648	880
2010 Decontamination of soil on site incl poly tarp on top/bottom										
2011 Soil containment berm and chemical treatment										
2020 Minimum	G	B-11C	100	.160	C.Y.	7.45	7.50	3.12	18.07	23
2021 Maximum	G	"	100	.160	↓	9.65	7.50	3.12	20.27	25.50
2050 Disposal of decontaminated soil, minimum									135	150
2055 Maximum					↓				400	440

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02 81 Transportation and Disposal of Hazardous Materials

02 81 20 – Hazardous Waste Handling

02 81 20.10 Hazardous Waste Cleanup/Pickup/Disposal	Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010 **HAZARDOUS WASTE CLEANUP/PICKUP/DISPOSAL**									
0100 For contractor rental equipment, i.e., dozer,									
0110 front end loader, dump truck, etc., see 01 54 33 Reference Section									
1000 Solid pickup									
1100 55 gal. drums				Ea.				240	265
1120 Bulk material, minimum				Ton				190	210
1130 Maximum				"				595	655
1200 Transportation to disposal site									
1220 Truckload = 80 drums or 25 C.Y. or 18 tons									
1260 Minimum				Mile				3.95	4.4
1270 Maximum				"				7.25	7.3
3000 Liquid pickup, vacuum truck, stainless steel tank									
3100 Minimum charge, 4 hours									
3110 1 compartment, 2200 gallon				Hr.				140	155
3120 2 compartment, 5000 gallon				"				200	225
3400 Transportation in 6900 gallon bulk truck				Mile				7.95	8.7
3410 In teflon lined truck				"				10.20	11.2
5000 Heavy sludge or dry vacuum type material				Hr.				140	160
6000 Dump site disposal charge, minimum				Ton				140	155
6020 Maximum				"				415	455

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31 05 Common Work Results for Earthwork

31 05 19 – Geosynthetics for Earthwork

31 05 19.53 Reservoir Liners HDPE		Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	**RESERVOIR LINERS HDPE**									
0011	Membrane lining									
1100	30 mil thick	3 Skwk	1850	.013	S.F.	.41	.68		1.09	1.47
1200	60 mil thick		1600	.015		.58	.79		1.37	1.84
1300	120 mil thick		1440	.017		.67	.87		1.54	2.08

31 05 23 – Cement and Concrete for Earthwork

31 05 23.30 Plant Mixed Bituminous Concrete

0010	**PLANT MIXED BITUMINOUS CONCRETE**									
0020	Asphaltic concrete plant mix (145 lb./C.F.)				Ton	65			65	71.50
0040	Asphaltic concrete less than 300 tons add trucking costs									
0050	See Section 31 23 23.20 for hauling costs									
0200	All weather patching mix, hot				Ton	65.50			65.50	72
0250	Cold patch					73.50			73.50	80.50
0300	Berm mix					64			64	70
0400	Base mix					65			65	71.50
0500	Binder mix					65			65	71.50
0600	Sand or sheet mix					65			65	71.50

31 05 23.40 Recycled Plant Mixed Bituminous Concrete

0010	**RECYCLED PLANT MIXED BITUMINOUS CONCRETE**									
0200	Reclaimed pavement in stockpile	G			Ton	22			22	24
0400	Recycled pavement, at plant, ratio old:new, 70:30	G				35			35	38.50
0600	Ratio old:new, 30:70	G				52.50			52.50	57.50

31 06 Schedules for Earthwork

31 06 60 – Schedules for Special Foundations and Load Bearing Elements

31 06 60.14 Piling Special Costs

0010	**PILING SPECIAL COSTS**									
0011	Piling special costs, pile caps, see Section 03 30 53.40									
0500	Cutoffs, concrete piles, plain	1 Pile	5.50	1.455	Ea.		74.50		74.50	118
0600	With steel thin shell, add		38	.211			10.80		10.80	17.05
0700	Steel pile or "H" piles		19	.421			21.50		21.50	34
0800	Wood piles		38	.211			10.80		10.80	17.05
0900	Pre-augering up to 30' deep, average soil, 24" diameter	B-43	180	.267	L.F.		11.85	13.60	25.45	33
0920	36" diameter		115	.417			18.50	21.50	40	51.50
0960	48" diameter		70	.686			30.50	35	65.50	84.50
0980	60" diameter		50	.960			42.50	49	91.50	119
1000	Testing, any type piles, test load is twice the design load									
1050	50 ton design load, 100 ton test				Ea.				14,000	15,500
1100	100 ton design load, 200 ton test								20,000	22,000
1150	150 ton design load, 300 ton test								26,000	28,500
1200	200 ton design load, 400 ton test								28,000	31,000
1250	400 ton design load, 800 ton test								32,000	35,000
1500	Wet conditions, soft damp ground									
1600	Requiring mats for crane, add								40%	40%
1700	Barge mounted driving rig, add								30%	30%

31 06 60.15 Mobilization

0010	**MOBILIZATION**									
0020	Set up & remove, air compressor, 600 CFM	A-5	3.30	5.455	Ea.		220	14.30	234.30	350
0100	1,200 CFM	"	2.20	8.182			330	21.50	351.50	525
0200	Crane, with pile leads and pile hammer, 75 ton	B-19	.60	107			5,600	3,225	8,825	12,200

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31 06 Schedules for Earthwork

31 06 60 – Schedules for Special Foundations and Load Bearing Elements

31 06 60.15 Mobilization

		Crew	Daily Output	Labor-Hours	Unit	Material	2018 Bare Costs Labor	Equipment	Total	Total Incl O&P
0300	150 ton	B-19	.36	178	Ea.		9,325	5,350	14,675	20,300
0500	Drill rig, for caissons, to 36", minimum	B-43	2	24			1,075	1,225	2,300	2,975
0520	Maximum		.50	96			4,250	4,900	9,150	11,800
0600	Up to 84"		1	48			2,125	2,450	4,575	5,925
0800	Auxiliary boiler, for steam small	A-5	1.66	10.843			440	28.50	468.50	695
0900	Large	"	.83	21.687			875	57	932	1,400
1100	Rule of thumb: complete pile driving set up, small	B-19	.45	142			7,450	4,275	11,725	16,300
1200	Large	"	.27	237			12,400	7,150	19,550	27,200
2300	Mobilization by water for barge driving rig									
2310	Minimum				Ea.				7,000	7,700
2320	Maximum				"				45,000	49,500
2500	Mobilization, barge, by tug boat	B-83	25	.640	Mile		30	27	57	75.50
2600	Standby time for shore pile driving crew				Hr.				715	890
2700	Standby time for barge driving rig				"				1,000	1,250

31 11 Clearing and Grubbing

31 11 10 – Clearing and Grubbing Land

31 11 10.10 Clear and Grub Site

1010	**CLEAR AND GRUB SITE**									
1020	Cut & chip light trees to 6" diam.	B-7	1	48	Acre		2,050	1,700	3,750	4,950
1150	Grub stumps and remove	B-30	2	12			585	990	1,575	1,975
1200	Cut & chip medium trees to 12" diam.	B-7	.70	68.571			2,925	2,425	5,350	7,075
1250	Grub stumps and remove	B-30	1	24			1,175	1,975	3,150	3,925
1300	Cut & chip heavy trees to 24" diam.	B-7	.30	160			6,800	5,625	12,425	16,500
1350	Grub stumps and remove	B-30	.50	48			2,325	3,950	6,275	7,875
1400	If burning is allowed, deduct cut & chip								40%	40%
3000	Chipping stumps, to 18" deep, 12" diam.	B-86	20	.400	Ea.		21.50	9.20	30.70	42.50
3040	18" diameter		16	.500			27	11.50	38.50	53
3080	24" diameter		14	.571			30.50	13.15	43.65	61
3100	30" diameter		12	.667			36	15.35	51.35	71
3120	36" diameter		10	.800			43	18.40	61.40	85.50
3160	48" diameter		8	1			54	23	77	107
5000	Tree thinning, feller buncher, conifer									
5080	Up to 8" diameter	B-93	240	.033	Ea.		1.79	3.38	5.17	6.40
5120	12" diameter		160	.050			2.69	5.05	7.74	9.60
5240	Hardwood, up to 4" diameter		240	.033			1.79	3.38	5.17	6.40
5280	8" diameter		180	.044			2.39	4.50	6.89	8.55
5320	12" diameter		120	.067			3.58	6.75	10.33	12.85
7000	Tree removal, congested area, aerial lift truck									
7040	8" diameter	B-85	7	5.714	Ea.		251	135	386	530
7080	12" diameter		6	6.667			292	158	450	620
7120	18" diameter		5	8			350	190	540	740
7160	24" diameter		4	10			440	237	677	925
7240	36" diameter		3	13.333			585	315	900	1,225
7280	48" diameter		2	20			875	475	1,350	1,850
9000	Site clearing with 335 HP dozer, trees to 6" diameter	B-10M	280	.043			2.11	6.55	8.66	10.40
9010	To 12" diameter		150	.080			3.93	12.20	16.13	19.35
9020	To 24" diameter		100	.120			5.90	18.30	24.20	29
9030	To 36" diameter		50	.240			11.80	36.50	48.30	58
9100	Grub stumps, trees to 6" diameter		400	.030			1.47	4.57	6.04	7.30
9103	To 36" diameter		195	.062			3.02	9.40	12.42	14.85

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31 32 Soil Stabilization

31 32 36 – Soil Nailing

31 32 36.16 Grouted Soil Nailing

		Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
4680	60' depth severe	B-47G	7.60	4.211	Ea.	700	182	239	1,121	1,300
4690	65' depth severe		7.30	4.384		755	189	249	1,193	1,400
4700	70' depth severe		7.10	4.507		810	195	256	1,261	1,475
4710	75' depth severe		6.80	4.706		865	203	267	1,335	1,550
4790	Severe soil nailing, grade 75, 30 min. setup per hole & 120'/hr. drilling									
4800	Soil nailing, drill hole, install #8 nail, grout 20' depth severe	B-47G	12	2.667	Ea.	150	115	151	416	505
4810	25' depth severe		11.20	2.857		187	123	162	472	575
4820	30' depth severe		10.70	2.991		340	129	170	639	760
4830	35' depth severe		10	3.200		400	138	182	720	845
4840	40' depth severe		9.60	3.333		455	144	189	788	925
4850	45' depth severe		9.10	3.516		510	152	200	862	1,000
4860	50' depth severe		8.70	3.678		585	159	209	953	1,125
4870	55' depth severe		8.30	3.855		640	167	219	1,026	1,200
4880	60' depth severe		8	4		700	173	227	1,100	1,275
4890	65' depth severe		7.60	4.211		755	182	239	1,176	1,375
4900	70' depth severe		7.40	4.324		810	187	246	1,243	1,450
4910	75' depth severe		7.10	4.507		865	195	256	1,316	1,525

31 33 Rock Stabilization

31 33 13 – Rock Bolting and Grouting

31 33 13.10 Rock Bolting

0010	**ROCK BOLTING**									
2020	Hollow core, prestressable anchor, 1" diameter, 5' long	2 Skwk	32	.500	Ea.	180	26		206	238
2025	10' long		24	.667		305	35		340	390
2060	2" diameter, 5' long		32	.500		685	26		711	790
2065	10' long		24	.667		1,225	35		1,260	1,400
2100	Super high-tensile, 3/4" diameter, 5' long		32	.500		48.50	26		74.50	93.50
2105	10' long		24	.667		130	35		165	196
2160	2" diameter, 5' long		32	.500		405	26		431	485
2165	10' long		24	.667		690	35		725	815
4400	Drill hole for rock bolt, 1-3/4" diam., 5' long (for 3/4" bolt)	B-56	17	.941			43	85.50	128.50	159
4405	10' long		9	1.778			81	162	243	300
4420	2" diameter, 5' long (for 1" bolt)		13	1.231			56	112	168	208
4425	10' long		7	2.286			104	208	312	385
4460	3-1/2" diameter, 5' long (for 2" bolt)		10	1.600			73	145	218	270
4465	10' long		5	3.200			146	291	437	540

31 36 Gabions

31 36 13 – Gabion Boxes

31 36 13.10 Gabion Box Systems

0010	**GABION BOX SYSTEMS**									
0400	Gabions, galvanized steel mesh mats or boxes, stone filled, 6" deep	B-13	200	.280	S.Y.	19	12.25	2.95	34.20	43
0500	9" deep		163	.344		23.50	15	3.62	42.12	53
0600	12" deep		153	.366		31.50	16	3.86	51.36	64
0700	18" deep		102	.549		44.50	24	5.80	74.30	92
0800	36" deep		60	.933		75.50	41	9.85	126.35	156

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31 37 Riprap

31 37 13 – Machined Riprap

	31 37 13.10 Riprap and Rock Lining	Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	**RIPRAP AND ROCK LINING**									
0011	Random, broken stone									
0100	Machine placed for slope protection	B-12G	62	.258	L.C.Y.	30.50	12.40	14.05	56.95	67.50
0110	3/8 to 1/4 C.Y. pieces, grouted	B-13	80	.700	S.Y.	63	30.50	7.40	100.90	124
0200	18" minimum thickness, not grouted	"	53	1.057	"	19.15	46	11.15	76.30	103
0300	Dumped, 50 lb. average	B-11A	800	.020	Ton	25.50	.94	1.59	28.03	31
0350	100 lb. average		700	.023		25.50	1.07	1.82	28.39	31.50
0370	300 lb. average		600	.027		25.50	1.25	2.12	28.87	32

31 41 Shoring

31 41 13 – Timber Shoring

31 41 13.10 Building Shoring

0010	**BUILDING SHORING**									
0020	Shoring, existing building, with timber, no salvage allowance	B-51	2.20	21.818	M.B.F.	890	895	86	1,871	2,425
1000	On cribbing with 35 ton screw jacks, per box and jack	"	3.60	13.333	Jack	65	545	52.50	662.50	960
1100	Masonry openings in walls, see Section 02 41 19.16									

31 41 16 – Sheet Piling

31 41 16.10 Sheet Piling Systems

0010	**SHEET PILING SYSTEMS**									
0020	Sheet piling, 50,000 psi steel, not incl. wales, 22 psf, left in place	B-40	10.81	5.920	Ton	1,575	310	330	2,215	2,600
0100	Drive, extract & salvage		6	10.667		515	560	595	1,670	2,100
0300	20' deep excavation, 27 psf, left in place		12.95	4.942		1,575	259	275	2,109	2,450
0400	Drive, extract & salvage		6.55	9.771		515	510	545	1,570	1,975
0600	25' deep excavation, 38 psf, left in place		19	3.368		1,575	177	187	1,939	2,225
0700	Drive, extract & salvage		10.50	6.095		515	320	340	1,175	1,450
0900	40' deep excavation, 38 psf, left in place		21.20	3.019		1,575	158	168	1,901	2,175
1000	Drive, extract & salvage		12.25	5.224		515	274	291	1,080	1,325
1200	15' deep excavation, 22 psf, left in place		983	.065	S.F.	18.40	3.41	3.62	25.43	29.50
1300	Drive, extract & salvage		545	.117		5.80	6.15	6.55	18.50	23
1500	20' deep excavation, 27 psf, left in place		960	.067		23	3.49	3.71	30.20	35
1600	Drive, extract & salvage		485	.132		7.55	6.90	7.35	21.80	27
1800	25' deep excavation, 38 psf, left in place		1000	.064		34	3.35	3.56	40.91	46.50
1900	Drive, extract & salvage		553	.116		10.30	6.05	6.45	22.80	28
2100	Rent steel sheet piling and wales, first month				Ton	310			310	340
2200	Per added month					31			31	34
2300	Rental piling left in place, add to rental					1,150			1,150	1,275
2500	Wales, connections & struts, 2/3 salvage					480			480	525
2700	High strength piling, 60,000 psi, add					158			158	174
2800	65,000 psi, add					237			237	261
3000	Tie rod, not upset, 1-1/2" to 4" diameter with turnbuckle					2,075			2,075	2,275
3100	No turnbuckle					1,650			1,650	1,800
3300	Upset, 1-3/4" to 4" diameter with turnbuckle					2,375			2,375	2,625
3400	No turnbuckle					2,100			2,100	2,300
3600	Lightweight, 18" to 28" wide, 7 ga., 9.22 psf, and									
3610	9 ga., 8.6 psf, minimum				Lb.	.82			.82	.90
3700	Average					.88			.88	.97
3750	Maximum					1.05			1.05	1.16
3900	Wood; solid sheeting, incl. wales, braces and spacers,									
3910	drive, extract & salvage, 8' deep excavation	B-31	330	.121	S.F.	1.84	5.15	.67	7.66	10.60
4000	10' deep, 50 S.F./hr. in & 150 S.F./hr. out		300	.133		1.89	5.65	.73	8.27	11.50

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32 18 Athletic and Recreational Surfacing

32 18 23 – Athletic Surfacing

32 18 23.33 Running Track Surfacing	Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010 **RUNNING TRACK SURFACING**									
0020 Running track, asphalt concrete pavement, 2-1/2"	B-37	300	.160	S.Y.	14.90	6.75	.50	22.15	27
0102 Surface, latex rubber system, 1/2" thick, black	B-20	115	.209		47.50	9.30		56.80	66.50
0152 Colors		115	.209		58	9.30		67.30	78
0302 Urethane rubber system, 1/2" thick, black		110	.218		35.50	9.75		45.25	54
0402 Color coating		110	.218		43.50	9.75		53.25	63

32 31 Fences and Gates

32 31 11 – Gate Operators

32 31 11.10 Gate Operators

0010 **GATE OPERATORS**									
7810 Motor operators for gates (no elec wiring), 3' wide swing	2 Skwk	.50	32	Ea.	1,175	1,675		2,850	3,850
7815 Up to 20' wide swing		.50	32		1,525	1,675		3,200	4,250
7820 Up to 45' sliding		.50	32		2,750	1,675		4,425	5,600
7825 Overhead gate, 6' to 18' wide, sliding/cantilever		45	.356	L.F.	320	18.60		338.60	380
7830 Gate operators, digital receiver		7	2.286	Ea.	74.50	120		194.50	265
7835 Two button transmitter		24	.667		23	35		58	79
7840 3 button station		14	1.143		39.50	60		99.50	135
7845 Master slave system		4	4		173	209		382	510

32 31 13 – Chain Link Fences and Gates

32 31 13.20 Fence, Chain Link Industrial

0010 **FENCE, CHAIN LINK INDUSTRIAL**									
0011 Schedule 40, including concrete									
0020 3 strands barb wire, 2" post @ 10' OC, set in concrete, 6' H									
0200 9 ga. wire, galv. steel, in concrete	B-80C	240	.100	L.F.	19.80	4.14	.82	24.76	29
0248 Fence, add for vinyl coated fabric				S.F.	.68			.68	.75
0300 Aluminized steel	B-80C	240	.100	L.F.	22	4.14	.82	26.96	31
0301 Fence, wrought iron		240	.100		30	4.14	.82	34.96	40
0500 6 ga. wire, galv. steel		240	.100		25	4.14	.82	29.96	34.50
0600 Aluminized steel		240	.100		30.50	4.14	.82	35.46	40.50
0800 6 ga. wire, 6' high but omit barbed wire, galv. steel		250	.096		20	3.97	.78	24.75	29
0900 Aluminized steel, in concrete		250	.096		24	3.97	.78	28.75	33.50
0920 8' H, 6 ga. wire, 2-1/2" line post, galv. steel, in concrete		180	.133		32	5.50	1.09	38.59	44.50
0940 Aluminized steel, in concrete		180	.133		39	5.50	1.09	45.59	52.50
1400 Gate for 6' high fence, 1-5/8" frame, 3' wide, galv. steel		10	2.400	Ea.	208	99.50	19.60	327.10	400
1500 Aluminized steel, in concrete		10	2.400	"	209	99.50	19.60	328.10	405
2000 5'-0" high fence, 9 ga., no barbed wire, 2" line post, in concrete									
2010 10' OC, 1-5/8" top rail, in concrete									
2100 Galvanized steel, in concrete	B-80C	300	.080	L.F.	21	3.31	.65	24.96	28.50
2200 Aluminized steel, in concrete		300	.080	"	19.05	3.31	.65	23.01	26.50
2400 Gate, 4' wide, 5' high, 2" frame, galv. steel, in concrete		10	2.400	Ea.	219	99.50	19.60	338.10	415
2500 Aluminized steel, in concrete		10	2.400	"	197	99.50	19.60	316.10	390
3100 Overhead slide gate, chain link, 6' high, to 18' wide, in concrete		38	.632	L.F.	97	26	5.15	128.15	152
3105 8' high, in concrete	B-80	30	1.067		100	47.50	20.50	168	204
3108 10' high, in concrete		24	1.333		169	59	25.50	253.50	305
3110 Cantilever type, in concrete		48	.667		142	29.50	12.75	184.25	215
3120 8' high, in concrete		24	1.333		168	59	25.50	252.50	300
3130 10' high, in concrete		18	1.778		206	79	34	319	385
5000 Double swing gates, incl. posts & hardware, in concrete									
5010 5' high, 12' opening, in concrete	B-80C	3.40	7.059	Opng.	540	292	57.50	889.50	1,100

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32 31 Fences and Gates

32 31 13 – Chain Link Fences and Gates

	32 31 13.20 Fence, Chain Link Industrial	Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
5020	20' opening, in concrete	B-80C	2.80	8.571	Opng.	605	355	70	1,030	1,275
5060	6' high, 12' opening, in concrete		3.20	7.500		470	310	61	841	1,050
5070	20' opening, in concrete		2.60	9.231		655	380	75.50	1,110.50	1,375
5080	8' high, 12' opening, in concrete	B-80	2.13	15.002		485	665	287	1,437	1,850
5090	20' opening, in concrete		1.45	22.069		785	980	420	2,185	2,800
5100	10' high, 12' opening, in concrete		1.31	24.427		840	1,075	465	2,380	3,100
5110	20' opening, in concrete		1.03	31.068		885	1,375	595	2,855	3,725
5120	12' high, 12' opening, in concrete		1.05	30.476		1,175	1,350	585	3,110	4,000
5130	20' opening, in concrete		.85	37.647		1,250	1,675	720	3,645	4,700
5190	For aluminized steel, add					20%				
7055	Braces, galv. steel	B-80A	960	.025	L.F.	2.78	1	.25	4.03	4.85
7056	Aluminized steel	"	960	.025	"	3.33	1	.25	4.58	5.45

32 31 13.25 Fence, Chain Link Residential

0010	**FENCE, CHAIN LINK RESIDENTIAL**									
0011	Schedule 20, 11 ga. wire, 1-5/8" post									
0020	10' OC, 1-3/8" top rail, 2" corner post, galv. stl. 3' high	B-80C	500	.048	L.F.	2	1.99	.39	4.38	5.65
0050	4' high		400	.060		7.05	2.48	.49	10.02	12.05
0100	6' high		200	.120		8.95	4.97	.98	14.90	18.50
0150	Add for gate 3' wide, 1-3/8" frame, 3' high		12	2	Ea.	76.50	83	16.30	175.80	228
0170	4' high		10	2.400		82.50	99.50	19.60	201.60	263
0190	6' high		10	2.400		103	99.50	19.60	222.10	286
0200	Add for gate 4' wide, 1-3/8" frame, 3' high		9	2.667		86	110	22	218	286
0220	4' high		9	2.667		92	110	22	224	292
0240	6' high		8	3		116	124	24.50	264.50	345
0350	Aluminized steel, 11 ga. wire, 3' high		500	.048	L.F.	8.30	1.99	.39	10.68	12.60
0380	4' high		400	.060		7.75	2.48	.49	10.72	12.85
0400	6' high		200	.120		10.65	4.97	.98	16.60	20.50
0450	Add for gate 3' wide, 1-3/8" frame, 3' high		12	2	Ea.	95.50	83	16.30	194.80	249
0470	4' high		10	2.400		95.50	99.50	19.60	214.60	278
0490	6' high		10	2.400		118	99.50	19.60	237.10	305
0500	Add for gate 4' wide, 1-3/8" frame, 3' high		10	2.400		99.50	99.50	19.60	218.60	282
0520	4' high		9	2.667		114	110	22	246	315
0540	6' high		8	3		123	124	24.50	271.50	350
0620	Vinyl covered, 9 ga. wire, 3' high		500	.048	L.F.	7.40	1.99	.39	9.78	11.55
0640	4' high		400	.060		7.70	2.48	.49	10.67	12.75
0660	6' high		200	.120		9.55	4.97	.98	15.50	19.15
0720	Add for gate 3' wide, 1-3/8" frame, 3' high		12	2	Ea.	89	83	16.30	188.30	242
0740	4' high		10	2.400		95	99.50	19.60	214.10	278
0760	6' high		10	2.400		113	99.50	19.60	232.10	298
0780	Add for gate 4' wide, 1-3/8" frame, 3' high		10	2.400		93.50	99.50	19.60	212.60	276
0800	4' high		9	2.667		97	110	22	229	298
0820	6' high		8	3		121	124	24.50	269.50	350
7076	Fence, for small jobs 100 L.F. fence or less w/or w/o gate, add				L.F.	20%				

32 31 13.26 Tennis Court Fences and Gates

0010	**TENNIS COURT FENCES AND GATES**									
0860	Tennis courts, 11 ga. wire, 2-1/2" post set									
0870	in concrete, 10' OC, 1-5/8" top rail									
0900	10' high	B-80	190	.168	L.F.	21.50	7.45	3.22	32.17	38.50
0920	12' high		170	.188	"	21.50	8.35	3.60	33.45	40
1000	Add for gate 4' wide, 1-5/8" frame 7' high		10	3.200	Ea.	229	142	61	432	535
1040	Aluminized steel, 11 ga. wire 10' high		190	.168	L.F.	20	7.45	3.22	30.67	37
1100	12' high		170	.188	"	22.50	8.35	3.60	34.45	41

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	32 31 13.26 Tennis Court Fences and Gates	Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
1140	Add for gate 4' wide, 1-5/8" frame, 7' high	B-80	10	3.200	Ea.	240	142	61	443	545
1250	Vinyl covered, 9 ga. wire, 10' high		190	.168	L.F.	20.50	7.45	3.22	31.17	38
1300	12' high		170	.188	"	24	8.35	3.60	35.95	42.50
1310	Fence, CL, tennis court, transom gate, single, galv., 4' x 7'	B-80A	8.72	2.752	Ea.	279	110	27.50	416.50	500
1400	Add for gate 4' wide, 1-5/8" frame, 7' high	B-80	10	3.200	"	296	142	61	499	610

	32 31 13.30 Fence, Chain Link, Gates and Posts									
0010	**FENCE, CHAIN LINK, GATES & POSTS**									
0011	(1/3 post length in ground)									
0013	For Concrete, See Section 03 31									
6580	Line posts, galvanized, 2-1/2" OD, set in conc., 4'	B-80	80	.400	Ea.	28.50	17.75	7.65	53.90	67
6585	5'		76	.421		35.50	18.70	8.05	62.25	76.50
6590	6'		74	.432		37	19.20	8.25	64.45	79
6595	7'		72	.444		42.50	19.70	8.50	70.70	86.50
6600	8'		69	.464		49	20.50	8.85	78.35	94.50
6635	Vinyl coated, 2-1/2" OD, set in conc., 4'		79	.405		40.50	18	7.75	66.25	80
6640	5'		77	.416		42.50	18.45	7.95	68.90	83.50
6645	6'		74	.432		44	19.20	8.25	71.45	86.50
6650	7'		72	.444		51.50	19.70	8.50	79.70	96
6655	8'		69	.464		68	20.50	8.85	97.35	115
6660	End gate post, steel, 3" OD, set in conc., 4'		68	.471		47	21	9	77	93.50
6665	5'		65	.492		50.50	22	9.40	81.90	99
6670	6'		63	.508		52	22.50	9.70	84.20	102
6675	7'		61	.525		62.50	23.50	10.05	96.05	116
6680	8'		59	.542		72.50	24	10.35	106.85	127
6685	Vinyl, 4'		68	.471		33	21	9	63	78
6690	5'		65	.492		41.50	22	9.40	72.90	89
6695	6'		63	.508		49.50	22.50	9.70	81.70	99
6700	7'		61	.525		47	23.50	10.05	80.55	98
6705	8'		59	.542		53.50	24	10.35	87.85	107
6710	Corner post, galv. steel, 4" OD, set in conc., 4'		65	.492		61	22	9.40	92.40	110
6715	6'		63	.508		91.50	22.50	9.70	123.70	145
6720	7'		61	.525		108	23.50	10.05	141.55	165
6725	8'		65	.492		122	22	9.40	153.40	177
6730	Vinyl, 5'		65	.492		37.50	22	9.40	68.90	85
6735	6'		63	.508		75	22.50	9.70	107.20	127
6740	7'		61	.525		68.50	23.50	10.05	102.05	122
6745	8'		59	.542		83.50	24	10.35	117.85	140
7031	For corner, end, & pull post bracing, add					20%	15%			
7795	Cantilever, manual, exp. roller (pr), 40' wide x 8' high	B-22	1	30	Ea.	5,675	1,400	194	7,269	8,600
7800	30' wide x 8' high		1	30		4,225	1,400	194	5,819	7,025
7805	24' wide x 8' high		1	30		3,050	1,400	194	4,644	5,725
7900	Auger fence post hole, 3' deep, medium soil, by hand	1 Clab	30	.267			10.65		10.65	16.20
7925	By machine	B-80	175	.183			8.10	3.50	11.60	16.15
7950	Rock, with jackhammer	B-9	32	1.250			50.50	7.30	57.80	84.50
7975	With rock drill	B-47C	65	.246			11.20	23	34.20	42.50

	32 31 13.33 Chain Link Backstops									
0010	**CHAIN LINK BACKSTOPS**									
0015	Backstops, baseball, prefabricated, 30' wide, 12' high & 1 overhang	B-1	1	24	Ea.	2,625	970		3,595	4,350
0100	40' wide, 12' high & 2 overhangs	"	.75	32		6,925	1,300		8,225	9,575
0300	Basketball, steel, single goal	B-13	3.04	18.421		1,725	805	194	2,724	3,350
0400	Double goal	"	1.92	29.167		2,125	1,275	310	3,710	4,600
0600	Tennis, wire mesh with pair of ends	B-1	2.48	9.677	Set	2,700	390		3,090	3,550

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	32 31 13.33 Chain Link Backstops	Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
7700	Enclosed court	B-1	1.30	18.462	Ea.	9,150	750		9,900	11,300
	32 31 13.40 Fence, Fabric and Accessories									
0010	**FENCE, FABRIC & ACCESSORIES**									
0100	Fabric, 9 ga., galv., 1.2 oz. coat, 2" chain link, 4'	B-80A	304	.079	L.F.	3.55	3.15	.78	7.48	9.55
0150	5'		285	.084		4.27	3.36	.84	8.47	10.70
0200	6'		266	.090		8.30	3.60	.90	12.80	15.60
0250	7'		247	.097		10	3.87	.96	14.83	17.95
0300	8'		228	.105		12.80	4.19	1.04	18.03	21.50
0400	9 ga., fused, 4'		304	.079		4.16	3.15	.78	8.09	10.25
0450	5'		285	.084		4.74	3.36	.84	8.94	11.20
0500	6'		266	.090		4.77	3.60	.90	9.27	11.75
0550	7'		247	.097		6.15	3.87	.96	10.98	13.70
0600	8'		228	.105		9.50	4.19	1.04	14.73	18
0650	Barbed wire, galv., cost per strand		2280	.011		.13	.42	.10	.65	.89
0700	Vinyl coated		2280	.011		.17	.42	.10	.69	.94
0750	Extension arms, 3 strands		143	.168	Ea.	4.03	6.70	1.66	12.39	16.45
0800	6 strands, 2-3/8"		119	.202		10.45	8.05	2	20.50	26
0850	Eye tops, 2-3/8"		143	.168		1.77	6.70	1.66	10.13	14
0900	Top rail, incl. tie wires, 1-5/8", galv.		912	.026	L.F.	4.79	1.05	.26	6.10	7.15
0950	Vinyl coated		912	.026		5.40	1.05	.26	6.71	7.85
2100	Rail, middle/bottom, w/tie wire, 1-5/8", galv.		912	.026		4.79	1.05	.26	6.10	7.15
2150	Vinyl coated		912	.026		5.40	1.05	.26	6.71	7.85
2200	Reinforcing wire, coiled spring, 7 ga. galv.		2279	.011		.10	.42	.10	.62	.86
2250	9 ga., vinyl coated		2282	.011		.54	.42	.10	1.06	1.34
2300	Steel T-post, galvanized with clips, 5', common earth, flat		200	.120	Ea.	9.45	4.78	1.19	15.42	19
2310	Clay		176	.136		9.45	5.45	1.35	16.25	20
2320	Soil & rock		144	.167		9.45	6.65	1.65	17.75	22.50
2330	5-1/2', common earth, flat		200	.120		9.80	4.78	1.19	15.77	19.40
2340	Clay		176	.136		9.80	5.45	1.35	16.60	20.50
2350	Soil & rock		144	.167		9.80	6.65	1.65	18.10	22.50
2360	6', common earth, flat		200	.120		11.25	4.78	1.19	17.22	21
2370	Clay		176	.136		11.25	5.45	1.35	18.05	22
2375	Soil & rock		144	.167		11.25	6.65	1.65	19.55	24.50
2600	Steel T-post, galvanized with clips, 5', common earth, hills		180	.133		9.45	5.30	1.32	16.07	19.95
2610	Clay		160	.150		9.45	6	1.49	16.94	21
2620	Soil & rock		130	.185		9.45	7.35	1.83	18.63	23.50
2630	5-1/2', common earth, hills		180	.133		9.80	5.30	1.32	16.42	20.50
2640	Clay		160	.150		9.80	6	1.49	17.29	21.50
2650	Soil & rock		130	.185		9.80	7.35	1.83	18.98	24
2660	6', common earth, hills		180	.133		11.25	5.30	1.32	17.87	22
2670	Clay		160	.150		11.25	6	1.49	18.74	23
2675	Soil & rock		130	.185		11.25	7.35	1.83	20.43	25.50
	32 31 13.64 Chain Link Terminal Post									
0010	**CHAIN LINK TERMINAL POST**									
0110	16 ga., steel, 2-1/2" x 6' x 0.065 wall, incl. post cap, excavation	B-80C	80	.300	Ea.	12.80	12.40	2.45	27.65	35.50
0120	2-1/2" x 7'-6" x 0.065 wall		80	.300		16.80	12.40	2.45	31.65	40
0130	2-1/2" x 8'-6" x 0.095 wall		80	.300		25	12.40	2.45	39.85	49
0210	16 ga., steel, 2-1/2" x 6' x 0.065 wall, incl. floor flange	B-80A	80	.300		31.50	11.95	2.98	46.43	56
0220	2-1/2" x 8' x 0.065 wall		80	.300		35.50	11.95	2.98	50.43	60.50
0230	4" x 10' x 0.160 wall		80	.300		114	11.95	2.98	128.93	146
0240	4" x 12' x 0.160 wall		80	.300		125	11.95	2.98	139.93	159
0810	16 ga., steel, 4" x 11' x 0.226 wall, incl. post cap, excavation	B-80C	80	.300		185	12.40	2.45	199.85	225

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32 31 Fences and Gates

32 31 26 – Wire Fences and Gates

	32 31 26.10 Fences, Misc. Metal	Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
4600	16' high	B-80	20	1.600	L.F.	79	71	30.50	180.50	229
4990	Security fence, prison grade, set in concrete, 10' high		25	1.280		61.50	57	24.50	143	181
	32 31 26.20 Wire Fencing, General									
0010	**WIRE FENCING, GENERAL**									
0015	Barbed wire, galvanized, domestic steel, hi-tensile 15-1/2 ga.				M.L.F.	130			130	142
0020	Standard, 12-3/4 ga.					146			146	160
0210	Barbless wire, 2-strand galvanized, 12-1/2 ga.					146			146	160
0500	Helical razor ribbon, stainless steel, 18" diam. x 18" spacing				C.L.F.	174			174	191
0600	Hardware cloth galv., 1/4" mesh, 23 ga., 2' wide				C.S.F.	34.50			34.50	38
0700	3' wide					26.50			26.50	29
0900	1/2" mesh, 19 ga., 2' wide					36			36	39.50
1000	4' wide					45			45	49.50
1200	Chain link fabric, steel, 2" mesh, 6 ga., galvanized					61			61	67
1300	9 ga., galvanized					54			54	59.50
1350	Vinyl coated					30			30	33
1360	Aluminized					184			184	203
1400	2-1/4" mesh, 11-1/2 ga., galvanized					42.50			42.50	46.50
1600	1-3/4" mesh (tennis courts), 11-1/2 ga. (core), vinyl coated					48			48	53
1700	9 ga., galvanized					85			85	93.50
2100	Welded wire fabric, galvanized, 1" x 2", 14 ga.	2 Carp	1600	.010	S.F.	.65	.51		1.16	1.49
2200	2" x 4", 12-1/2 ga.				C.S.F.	33			33	36

32 31 29 – Wood Fences and Gates

32 31 29.10 Fence, Wood

0010	**FENCE, WOOD**									
0011	Basket weave, 3/8" x 4" boards, 2" x 4"									
0020	stringers on spreaders, 4" x 4" posts									
0050	No. 1 cedar, 6' high	B-80C	160	.150	L.F.	26	6.20	1.22	33.42	39.50
0070	Treated pine, 6' high	"	150	.160	"	37	6.60	1.31	44.91	52
0200	Board fence, 1" x 4" boards, 2" x 4" rails, 4" x 4" post									
0220	Preservative treated, 2 rail, 3' high	B-80C	145	.166	L.F.	10.30	6.85	1.35	18.50	23
0240	4' high		135	.178		11.85	7.35	1.45	20.65	25.50
0260	3 rail, 5' high		130	.185		12.40	7.65	1.51	21.56	27
0300	6' high		125	.192		15.30	7.95	1.57	24.82	30.50
0320	No. 2 grade western cedar, 2 rail, 3' high		145	.166		12.35	6.85	1.35	20.55	25.50
0340	4' high		135	.178		11.75	7.35	1.45	20.55	25.50
0360	3 rail, 5' high		130	.185		13.85	7.65	1.51	23.01	28.50
0400	6' high		125	.192		14.75	7.95	1.57	24.27	30
0420	No. 1 grade cedar, 2 rail, 3' high		145	.166		13.30	6.85	1.35	21.50	26.50
0440	4' high		135	.178		14.70	7.35	1.45	23.50	29
0460	3 rail, 5' high		130	.185		17.40	7.65	1.51	26.56	32.50
0500	6' high		125	.192		21.50	7.95	1.57	31.02	37.50
0860	Open rail fence, split rails, 2 rail, 3' high, no. 1 cedar		160	.150		9.75	6.20	1.22	17.17	21.50
0870	No. 2 cedar		160	.150		8.15	6.20	1.22	15.57	19.70
0880	3 rail, 4' high, no. 1 cedar		150	.160		12.15	6.60	1.31	20.06	25
0890	No. 2 cedar		150	.160		8	6.60	1.31	15.91	20
0920	Rustic rails, 2 rail, 3' high, no. 1 cedar		160	.150		12.30	6.20	1.22	19.72	24.50
0930	No. 2 cedar		160	.150		11.15	6.20	1.22	18.57	23
0940	3 rail, 4' high		150	.160		11.80	6.60	1.31	19.71	24.50
0950	No. 2 cedar		150	.160		8.05	6.60	1.31	15.96	20.50
1240	Stockade fence, no. 1 cedar, 3-1/4" rails, 6' high		160	.150		13.15	6.20	1.22	20.57	25
1260	8' high		155	.155		18.10	6.40	1.26	25.76	31
1270	Gate, 3'-6" wide		9	2.667	Ea.	260	110	22	392	475

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32 31 Fences and Gates

32 31 29 – Wood Fences and Gates

		Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
32 31 29.10 Fence, Wood										
1300	No. 2 cedar, treated wood rails, 6' high	B-80C	160	.150	L.F.	13.45	6.20	1.22	20.87	25.50
1320	Gate, 3'-6" wide		8	3	Ea.	89.50	124	24.50	238	315
1360	Treated pine, treated rails, 6' high		160	.150	L.F.	13.95	6.20	1.22	21.37	26
1400	8' high		150	.160	"	19.80	6.60	1.31	27.71	33.50
1420	Gate, 3'-6" wide		9	2.667	Ea.	100	110	22	232	300
32 31 29.20 Fence, Wood Rail										
0010	**FENCE, WOOD RAIL**									
0012	Picket, No. 2 cedar, Gothic, 2 rail, 3' high	B-1	160	.150	L.F.	8.10	6.10		14.20	18.15
0050	Gate, 3'-6" wide	B-80C	9	2.667	Ea.	78	110	22	210	277
0400	3 rail, 4' high		150	.160	L.F.	9.10	6.60	1.31	17.01	21.50
0500	Gate, 3'-6" wide		9	2.667	Ea.	95	110	22	227	295
5000	Fence rail, redwood, 2" x 4", merch. grade, 8'	B-1	2400	.010	L.F.	2.53	.41		2.94	3.40
6000	Fence post, select redwood, earth packed & treated, 4" x 4" x 6'		96	.250	Ea.	14	10.15		24.15	31
6010	4" x 4" x 8'		96	.250		19.25	10.15		29.40	36.50
6020	Set in concrete, 4" x 4" x 6'		50	.480		22	19.45		41.45	53.50
6030	4" x 4" x 8'		50	.480		23	19.45		42.45	55
6040	Wood post, 4' high, set in concrete, incl. concrete		50	.480		14.20	19.45		33.65	45
6050	Earth packed		96	.250		17.20	10.15		27.35	34.50
6060	6' high, set in concrete, incl. concrete		50	.480		17.70	19.45		37.15	49
6070	Earth packed		96	.250		12.10	10.15		22.25	29

32 32 Retaining Walls

32 32 13 – Cast-in-Place Concrete Retaining Walls

		Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
32 32 13.10 Retaining Walls, Cast Concrete										
0010	**RETAINING WALLS, CAST CONCRETE**									
1800	Concrete gravity wall with vertical face including excavation & backfill									
1850	No reinforcing									
1900	6' high, level embankment	C-17C	36	2.306	L.F.	89	122	15.80	226.80	300
2000	33° slope embankment		32	2.594		103	137	17.80	257.80	345
2200	8' high, no surcharge		27	3.074		110	163	21	294	395
2300	33° slope embankment		24	3.458		133	183	23.50	339.50	450
2500	10' high, level embankment		19	4.368		157	231	30	418	560
2600	33° slope embankment		18	4.611		217	244	31.50	492.50	650
2800	Reinforced concrete cantilever, incl. excavation, backfill & reinf.									
2900	6' high, 33° slope embankment	C-17C	35	2.371	L.F.	80.50	125	16.25	221.75	298
3000	8' high, 33° slope embankment		29	2.862		93	151	19.65	263.65	355
3100	10' high, 33° slope embankment		20	4.150		121	219	28.50	368.50	500
3200	20' high, 500 lb./L.F. surcharge		7.50	11.067		360	585	76	1,021	1,375
3500	Concrete cribbing, incl. excavation and backfill									
3700	12' high, open face	B-13	210	.267	S.F.	40.50	11.65	2.81	54.96	65.50
3900	Closed face	"	210	.267	"	38	11.65	2.81	52.46	62.50
4100	Concrete filled slurry trench, see Section 31 56 23.20									

32 32 23 – Segmental Retaining Walls

		Crew	Daily Output	Labor-Hours	Unit	2018 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
32 32 23.13 Segmental Conc. Unit Masonry Retaining Walls										
0010	**SEGMENTAL CONC. UNIT MASONRY RETAINING WALLS**									
7100	Segmental retaining wall system, incl. pins and void fill									
7120	base and backfill not included									
7140	Large unit, 8" high x 18" wide x 20" deep, 3 plane split	B-62	300	.080	S.F.	12.75	3.49	.58	16.82	20
7150	Straight split		300	.080		12.85	3.49	.58	16.92	20
7160	Medium, lt. wt., 8" high x 18" wide x 12" deep, 3 plane split		400	.060		6.30	2.62	.44	9.36	11.35

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			UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY
40	4100	Pump, centrifugal gas pump, 1-1/2" diameter, 65 GPM	Ea.	3.90	53.50	160	480	63.20
	4200	2" diameter, 130 GPM		5.00	63.50	190	570	78
	4300	3" diameter, 250 GPM		5.15	63.50	190	570	79.20
	4400	6" diameter, 1500 GPM		22.30	197	590	1,775	296.40
	4500	Submersible electric pump, 1-1/4" diameter, 55 GPM		.41	17.65	53	159	13.90
	4600	1-1/2" diameter, 83 GPM		.45	20.50	61	183	15.80
	4700	2" diameter, 120 GPM		1.65	25.50	76	228	28.40
	4800	3" diameter, 300 GPM		2.94	45	135	405	50.50
	4900	4" diameter, 560 GPM		14.70	167	500	1,500	217.60
	5000	6" diameter, 1590 GPM		21.94	218	655	1,975	306.50
	5100	Diaphragm pump, gas, single, 1-1/2" diameter		1.12	54.50	164	490	41.75
	5200	2" diameter		4.00	68.50	205	615	73
	5300	3" diameter		4.05	68.50	205	615	73.40
	5400	Double, 4" diameter		5.85	113	340	1,025	114.80
	5450	Pressure washer 5 GPM, 3000 psi		3.95	53.50	160	480	63.60
	5460	7 GPM, 3000 psi		4.90	63.50	190	570	77.20
	5500	Trash pump, self-priming, gas, 2" diameter		3.80	23.50	70	210	44.40
	5600	Diesel, 4" diameter		6.95	95	285	855	112.60
	5650	Diesel, 6" diameter		16.90	167	500	1,500	235.20
	5655	Grout pump		19.50	275	825	2,475	321
	5700	Salamanders, L.P. gas fired, 100,000 BTU		2.93	14	42	126	31.85
	5705	50,000 BTU		1.67	11.35	34	102	20.15
	5720	Sandblaster, portable, open top, 3 C.F. capacity		.60	27	81	243	21
	5730	6 C.F. capacity		1.00	40	120	360	32
	5740	Accessories for above		.14	22.50	68	204	14.70
	5750	Sander, floor		.77	17.65	53	159	16.75
	5760	Edger		.52	15	45	135	13.15
	5800	Saw, chain, gas engine, 18" long		1.80	22.50	67	201	27.80
	5900	Hydraulic powered, 36" long		.80	66.50	200	600	46.40
	5950	60" long		.80	68.50	205	615	47.40
	6000	Masonry, table mounted, 14" diameter, 5 H.P.		1.32	56.50	170	510	44.55
	6050	Portable cut-off, 8 H.P.		1.85	33.50	100	300	34.80
	6100	Circular, hand held, electric, 7-1/4" diameter		.23	5	15	45	4.85
	6200	12" diameter		.23	8	24	72	6.65
	6250	Wall saw, w/hydraulic power, 10 H.P.		3.30	33.50	100	300	46.40
	6275	Shot blaster, walk-behind, 20" wide		4.85	293	880	2,650	214.80
	6280	Sidewalk broom, walk-behind		2.39	85	255	765	70.10
	6300	Steam cleaner, 100 gallons per hour		3.35	80	240	720	74.80
	6310	200 gallons per hour		4.40	96.50	290	870	93.20
	6340	Tar kettle/pot, 400 gallons		15.15	76.50	230	690	167.20
	6350	Torch, cutting, acetylene-oxygen, 150' hose, excludes gases		.45	15	45	135	12.60
	6360	Hourly operating cost includes tips and gas		21.00				168
	6410	Toilet, portable chemical		.13	22	66	198	14.25
	6420	Recycle flush type		.16	27	81	243	17.50
	6430	Toilet, fresh water flush, garden hose,		.19	32.50	97	291	20.90
	6440	Hoisted, non-flush, for high rise		.16	26.50	79	237	17.10
	6465	Tractor, farm with attachment		17.80	340	1,025	3,075	347.40
	6480	Trailers, platform, flush deck, 2 axle, 3 ton capacity		1.60	21	63	189	25.40
	6500	25 ton capacity		6.25	138	415	1,250	133
	6600	40 ton capacity		8.00	193	580	1,750	180
	6700	3 axle, 50 ton capacity		8.65	215	645	1,925	198.20
	6800	75 ton capacity		10.90	285	855	2,575	258.20
	6810	Trailer mounted cable reel for high voltage line work		5.79	276	827	2,475	211.70
	6820	Trailer mounted cable tensioning rig		11.48	545	1,640	4,925	419.85
	6830	Cable pulling rig		72.98	3,075	9,210	27,600	2,426
	6850	Portable cable/wire puller, 8000 lb. max pulling capacity		3.72	167	502	1,500	130.15
	6900	Water tank trailer, engine driven discharge, 5000 gallons		7.20	150	450	1,350	147.60
	6925	10,000 gallons		9.70	207	620	1,850	201.60

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			UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY	
40	6950	Water truck, off highway, 6000 gallons	Ea.	70.16	805	2,420	7,250	1,045	40
	7010	Tram car for high voltage line work, powered, 2 conductor		6.85	150	449	1,350	144.60	
	7020	Transit (builder's level) with tripod		.10	16.35	49	147	10.60	
	7030	Trench box, 3000 lb., 6' x 8'		.56	93.50	280	840	60.50	
	7040	7200 lb., 6' x 20'		.75	125	375	1,125	81	
	7050	8000 lb., 8' x 16'		1.08	180	540	1,625	116.65	
	7060	9500 lb., 8' x 20'		1.21	201	603	1,800	130.30	
	7065	11,000 lb., 8' x 24'		1.27	211	633	1,900	136.75	
	7070	12,000 lb., 10' x 20'		1.50	251	752	2,250	162.40	
	7100	Truck, pickup, 3/4 ton, 2 wheel drive		9.90	60	180	540	115.20	
	7200	4 wheel drive		10.20	75	225	675	126.60	
	7250	Crew carrier, 9 passenger		14.00	90	270	810	166	
	7290	Flat bed truck, 20,000 lb. GVW		14.90	130	390	1,175	197.20	
	7300	Tractor, 4 x 2, 220 H.P.		21.00	203	610	1,825	290	
	7410	330 H.P.		30.80	280	840	2,525	414.40	
	7500	6 x 4, 380 H.P.		35.15	325	975	2,925	476.20	
	7600	450 H.P.		43.30	395	1,185	3,550	583.40	
	7610	Tractor, with A frame, boom and winch, 225 H.P.		24.10	282	845	2,525	361.80	
	7620	Vacuum truck, hazardous material, 2500 gallons		12.85	305	910	2,725	284.80	
	7625	5000 gallons		13.11	425	1,270	3,800	358.90	
	7650	Vacuum, HEPA, 16 gallon, wet/dry		.90	18	54	162	18	
	7655	55 gallon, wet/dry		.81	27	81	243	22.70	
	7660	Water tank, portable		.74	123	370	1,100	79.90	
	7690	Sewer/catch basin vacuum, 14 C.Y., 1500 gallons		17.59	635	1,910	5,725	522.70	
	7700	Welder, electric, 200 amp		3.99	16.35	49	147	41.70	
	7800	300 amp		5.90	20	60	180	59.20	
	7900	Gas engine, 200 amp		9.10	24.50	74	222	87.60	
	8000	300 amp		10.35	26	78	234	98.40	
	8100	Wheelbarrow, any size		.06	10.65	32	96	6.90	
	8200	Wrecking ball, 4000 lb.		2.45	71.50	215	645	62.60	
50	0010	**HIGHWAY EQUIPMENT RENTAL** without operators R015433-10							50
	0050	Asphalt batch plant, portable drum mixer, 100 ton/hr.	Ea.	85.49	1,500	4,505	13,500	1,585	
	0060	200 ton/hr.		97.81	1,600	4,800	14,400	1,742	
	0070	300 ton/hr.		116.21	1,875	5,625	16,900	2,055	
	0100	Backhoe attachment, long stick, up to 185 H.P., 10.5' long		.37	24.50	73	219	17.55	
	0140	Up to 250 H.P., 12' long		.41	27	81	243	19.50	
	0180	Over 250 H.P., 15' long		.56	37	111	335	26.70	
	0200	Special dipper arm, up to 100 H.P., 32' long		1.14	75.50	227	680	54.50	
	0240	Over 100 H.P., 33' long		1.42	94.50	284	850	68.15	
	0280	Catch basin/sewer cleaning truck, 3 ton, 9 C.Y., 1000 gal.		35.10	405	1,210	3,625	522.80	
	0300	Concrete batch plant, portable, electric, 200 C.Y./hr.		24.34	545	1,630	4,900	520.70	
	0520	Grader/dozer attachment, ripper/scarifier, rear mounted, up to 135 H.P.		3.15	61.50	185	555	62.20	
	0540	Up to 180 H.P.		4.10	91.50	275	825	87.80	
	0580	Up to 250 H.P.		5.70	145	435	1,300	132.60	
	0700	Pvmt. removal bucket, for hyd. excavator, up to 90 H.P.		2.10	56.50	170	510	50.80	
	0740	Up to 200 H.P.		2.25	71.50	215	645	61	
	0780	Over 200 H.P.		2.45	88.50	265	795	72.60	
	0900	Aggregate spreader, self-propelled, 187 H.P.		50.00	730	2,185	6,550	837	
	1000	Chemical spreader, 3 C.Y.		3.15	45	135	405	52.20	
	1900	Hammermill, traveling, 250 H.P.		68.23	2,200	6,620	19,900	1,870	
	2000	Horizontal borer, 3" diameter, 13 H.P. gas driven		5.50	56.50	170	510	78	
	2150	Horizontal directional drill, 20,000 lb. thrust, 78 H.P. diesel		27.50	680	2,045	6,125	629	
	2160	30,000 lb. thrust, 115 H.P.		33.65	1,050	3,135	9,400	896.20	
	2170	50,000 lb. thrust, 170 H.P.		48.35	1,325	4,005	12,000	1,188	
	2190	Mud trailer for HDD, 1500 gallons, 175 H.P., gas		24.10	158	475	1,425	287.80	
	2200	Hydromulcher, diesel, 3000 gallon, for truck mounting		16.35	253	760	2,275	282.80	
	2300	Gas, 600 gallon		7.40	103	310	930	121.20	
	2400	Joint & crack cleaner, walk behind, 25 H.P.		3.10	51.50	155	465	55.80	

R012909-80 Sales Tax by State

State sales tax on materials is tabulated below (5 states have no sales tax). Many states allow local jurisdictions, such as a county or city, to levy additional sales tax.

Some projects may be sales tax exempt, particularly those constructed with public funds.

State	Tax (%)	State	Tax (%)	State	Tax (%)	State	Tax (%)
Alabama	4	Illinois	6.25	Montana	0	Rhode Island	7
Alaska	0	Indiana	7	Nebraska	5.5	South Carolina	6
Arizona	5.6	Iowa	6	Nevada	6.85	South Dakota	5
Arkansas	6.5	Kansas	6.5	New Hampshire	0	Tennessee	7
California	7.25	Kentucky	6	New Jersey	7	Texas	6.25
Colorado	2.9	Louisiana	4	New Mexico	5.125	Utah	5.95
Connecticut	6.35	Maine	5.5	New York	4	Vermont	6
Delaware	0	Maryland	6	North Carolina	4.75	Virginia	5.3
District of Columbia	5.75	Massachusetts	6.25	North Dakota	5	Washington	6.5
Florida	6	Michigan	6	Ohio	5.75	West Virginia	6
Georgia	4	Minnesota	6.875	Oklahoma	4.5	Wisconsin	5
Hawaii	4	Mississippi	7	Oregon	0	Wyoming	4
Idaho	6	Missouri	4.225	Pennsylvania	6	Average	5.11%

Sales Tax by Province (Canada)

GST - a value-added tax, which the government imposes on most goods and services provided in or imported into Canada. PST - a retail sales tax, which five of the provinces impose on the prices of most goods and some services. QST - a value-added tax, similar to the federal GST, which Quebec imposes. HST - Three provinces have combined their retail sales taxes with the federal GST into one harmonized tax.

Province	PST (%)	QST (%)	GST(%)	HST(%)
Alberta	0	0	5	0
British Columbia	7	0	5	0
Manitoba	8	0	5	0
New Brunswick	0	0	0	15
Newfoundland	0	0	0	15
Northwest Territories	0	0	5	0
Nova Scotia	0	0	0	15
Ontario	0	0	0	13
Prince Edward Island	0	0	0	15
Quebec	0	9.975	5	0
Saskatchewan	6	0	5	0
Yukon	0	0	5	0

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R012909-85 Unemployment Taxes and Social Security Taxes

State unemployment tax rates vary not only from state to state, but also with the experience rating of the contractor. The federal unemployment tax rate is 6.0% of the first $7,000 of wages. This is reduced by a credit of up to 5.4% for timely payment to the state. The minimum federal unemployment tax is 0.6% after all credits.

Social security (FICA) for 2018 is estimated at time of publication to be 7.65% of wages up to $127,200.

R012909-86 Unemployment Tax by State

Information is from the U.S. Department of Labor, state unemployment tax rates.

State	Tax (%)	State	Tax (%)	State	Tax (%)	State	Tax (%)
Alabama	6.74	Illinois	7.75	Montana	6.12	Rhode Island	9.79
Alaska	5.4	Indiana	7.474	Nebraska	5.4	South Carolina	5.46
Arizona	8.91	Iowa	8	Nevada	5.4	South Dakota	9.5
Arkansas	6.0	Kansas	7.6	New Hampshire	7.5	Tennessee	10.0
California	6.2	Kentucky	10.0	New Jersey	5.8	Texas	7.5
Colorado	8.9	Louisiana	6.2	New Mexico	5.4	Utah	7.2
Connecticut	6.8	Maine	5.4	New York	8.5	Vermont	8.4
Delaware	8.0	Maryland	7.50	North Carolina	5.76	Virginia	6.27
District of Columbia	7	Massachusetts	11.13	North Dakota	10.72	Washington	5.7
Florida	5.4	Michigan	10.3	Ohio	8.7	West Virginia	7.5
Georgia	5.4	Minnesota	9.0	Oklahoma	5.5	Wisconsin	12.0
Hawaii	5.6	Mississippi	5.4	Oregon	5.4	Wyoming	8.8
Idaho	5.4	Missouri	9.75	Pennsylvania	10.89	Median	7.47%

R012909-90 Overtime

One way to improve the completion date of a project or eliminate negative float from a schedule is to compress activity duration times. This can be achieved by increasing the crew size or working overtime with the proposed crew.

To determine the costs of working overtime to compress activity duration times, consider the following examples. Below is an overtime efficiency and cost chart based on a five, six, or seven day week with an eight through twelve hour day. Payroll percentage increases for time and one half and double times are shown for the various working days.

Days per Week	Hours per Day	Production Efficiency					Payroll Cost Factors	
		1st Week	2nd Week	3rd Week	4th Week	Average 4 Weeks	@ 1-1/2 Times	@ 2 Times
5	8	100%	100%	100%	100%	100%	1.000	1.000
	9	100	100	95	90	96	1.056	1.111
	10	100	95	90	85	93	1.100	1.200
	11	95	90	75	65	81	1.136	1.273
	12	90	85	70	60	76	1.167	1.333
6	8	100	100	95	90	96	1.083	1.167
	9	100	95	90	85	93	1.130	1.259
	10	95	90	85	80	88	1.167	1.333
	11	95	85	70	65	79	1.197	1.394
	12	90	80	65	60	74	1.222	1.444
7	8	100	95	85	75	89	1.143	1.286
	9	95	90	80	70	84	1.183	1.365
	10	90	85	75	65	79	1.214	1.429
	11	85	80	65	60	73	1.240	1.481
	12	85	75	60	55	69	1.262	1.524

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R013113-40 Builder's Risk Insurance

Builder's risk insurance is insurance on a building during construction. Premiums are paid by the owner or the contractor. Blasting, collapse and underground insurance would raise total insurance costs.

R013113-50 General Contractor's Overhead

There are two distinct types of overhead on a construction project: Project overhead and main office overhead. Project overhead includes those costs at a construction site not directly associated with the installation of construction materials. Examples of project overhead costs include the following:

1. Superintendent
2. Construction office and storage trailers
3. Temporary sanitary facilities
4. Temporary utilities
5. Security fencing
6. Photographs
7. Cleanup
8. Performance and payment bonds

The above project overhead items are also referred to as general requirements and therefore are estimated in Division 1. Division 1 is the first division listed in the CSI MasterFormat but it is usually the last division estimated. The sum of the costs in Divisions 1 through 49 is referred to as the sum of the direct costs.

All construction projects also include indirect costs. The primary components of indirect costs are the contractor's main office overhead and profit. The amount of the main office overhead expense varies depending on the following:

1. Owner's compensation
2. Project managers' and estimators' wages
3. Clerical support wages
4. Office rent and utilities
5. Corporate legal and accounting costs
6. Advertising
7. Automobile expenses
8. Association dues
9. Travel and entertainment expenses

These costs are usually calculated as a percentage of annual sales volume. This percentage can range from 35% for a small contractor doing less than $500,000 to 5% for a large contractor with sales in excess of $100 million.

R013113-55 Installing Contractor's Overhead

Installing contractors (subcontractors) also incur costs for general requirements and main office overhead.

Included within the total incl. overhead and profit costs is a percent mark-up for overhead that includes:

1. Compensation and benefits for office staff and project managers
2. Office rent, utilities, business equipment, and maintenance
3. Corporate legal and accounting costs
4. Advertising
5. Vehicle expenses (for office staff and project managers)
6. Association dues
7. Travel, entertainment
8. Insurance
9. Small tools and equipment

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R013113-60 Workers' Compensation Insurance Rates by Trade

The table below tabulates the national averages for workers' compensation insurance rates by trade and type of building. The average "Insurance Rate" is multiplied by the "% of Building Cost" for each trade. This produces the "Workers' Compensation" cost by % of total labor cost, to be added for each trade by building type to determine the weighted average workers' compensation rate for the building types analyzed.

Trade	Insurance Rate (% Labor Cost)		% of Building Cost			Workers' Compensation		
	Range	Average	Office Bldgs.	Schools & Apts.	Mfg.	Office Bldgs.	Schools & Apts.	Mfg.
Excavation, Grading, etc.	2.7 % to 20.1%	8.5%	4.8%	4.9%	4.5%	0.41%	0.42%	0.38%
Piles & Foundations	5.3 to 29.8	13.4	7.1	5.2	8.7	0.95	0.70	1.17
Concrete	4.1 to 28.0	11.8	5.0	14.8	3.7	0.59	1.75	0.44
Masonry	3.9 to 49.3	13.8	6.9	7.5	1.9	0.95	1.04	0.26
Structural Steel	5.3 to 59.1	21.2	10.7	3.9	17.6	2.27	0.83	3.73
Miscellaneous & Ornamental Metals	3.3 to 24.4	10.6	2.8	4.0	3.6	0.30	0.42	0.38
Carpentry & Millwork	4.4 to 32.4	13.0	3.7	4.0	0.5	0.48	0.52	0.07
Metal or Composition Siding	5.5 to 107.2	19.0	2.3	0.3	4.3	0.44	0.06	0.82
Roofing	5.5 to 120.3	29.0	2.3	2.6	3.1	0.67	0.75	0.90
Doors & Hardware	3.2 to 32.4	11.0	0.9	1.4	0.4	0.10	0.15	0.04
Sash & Glazing	4.7 to 25.5	12.1	3.5	4.0	1.0	0.42	0.48	0.12
Lath & Plaster	3.0 to 31.6	10.7	3.3	6.9	0.8	0.35	0.74	0.09
Tile, Marble & Floors	2.7 to 18.3	8.7	2.6	3.0	0.5	0.23	0.26	0.04
Acoustical Ceilings	2.4 to 46.3	8.5	2.4	0.2	0.3	0.20	0.02	0.03
Painting	3.3 to 38.8	11.2	1.5	1.6	1.6	0.17	0.18	0.18
Interior Partitions	4.4 to 32.4	13.0	3.9	4.3	4.4	0.51	0.56	0.57
Miscellaneous Items	2.3 to 97.7	11.2	5.2	3.7	9.7	0.58	0.42	1.09
Elevators	1.3 to 13.7	4.7	2.1	1.1	2.2	0.10	0.05	0.10
Sprinklers	2.0 to 15.5	6.7	0.5	—	2.0	0.03	—	0.13
Plumbing	1.7 to 14.0	6.3	4.9	7.2	5.2	0.31	0.45	0.33
Heat., Vent., Air Conditioning	3.3 to 17.8	8.3	13.5	11.0	12.9	1.12	0.91	1.07
Electrical	1.9 to 11.6	5.2	10.1	8.4	11.1	0.53	0.44	0.58
Total	1.3 % to 120.3%	—	100.0%	100.0%	100.0%	11.71%	11.15%	12.52%
		Overall Weighted Average	11.79%					

Workers' Compensation Insurance Rates by States

The table below lists the weighted average Workers' Compensation base rate for each state with a factor comparing this with the national average of 11.8%.

State	Weighted Average	Factor	State	Weighted Average	Factor	State	Weighted Average	Factor
Alabama	15.0%	127	Kentucky	10.4%	88	North Dakota	6.2%	53
Alaska	10.4	88	Louisiana	18.7	158	Ohio	7.2	61
Arizona	9.6	81	Maine	10.4	88	Oklahoma	8.9	75
Arkansas	7.0	59	Maryland	11.3	96	Oregon	9.3	79
California	22.2	188	Massachusetts	11.2	95	Pennsylvania	21.1	179
Colorado	7.5	64	Michigan	8.2	69	Rhode Island	13.7	116
Connecticut	17.5	148	Minnesota	16.9	143	South Carolina	16.5	140
Delaware	13.9	118	Mississippi	11.8	100	South Dakota	11.8	100
District of Columbia	9.1	77	Missouri	12.4	105	Tennessee	8.6	73
Florida	11.1	94	Montana	8.8	75	Texas	6.6	56
Georgia	31.9	270	Nebraska	13.5	114	Utah	7.4	63
Hawaii	8.5	72	Nevada	7.5	64	Vermont	10.9	92
Idaho	9.4	80	New Hampshire	12.0	102	Virginia	6.9	58
Illinois	21.1	179	New Jersey	14.8	125	Washington	9.1	77
Indiana	4.1	35	New Mexico	13.3	113	West Virginia	4.5	38
Iowa	13.7	116	New York	19.2	163	Wisconsin	12.2	103
Kansas	6.5	55	North Carolina	15.8	134	Wyoming	5.6	47
			Weighted Average for U.S. is	11.8% of payroll = 100%				

The weighted average skilled worker rate for 35 trades is 11.8%. For bidding purposes, apply the full value of Workers' Compensation directly to total labor costs, or if labor is 38%, materials 42% and overhead and profit 20% of total cost, carry 38/80 x 11.8% = 6.0% of cost (before overhead and profit) into overhead. Rates vary not only from state to state but also with the experience rating of the contractor.

Rates are the most current available at the time of publication.

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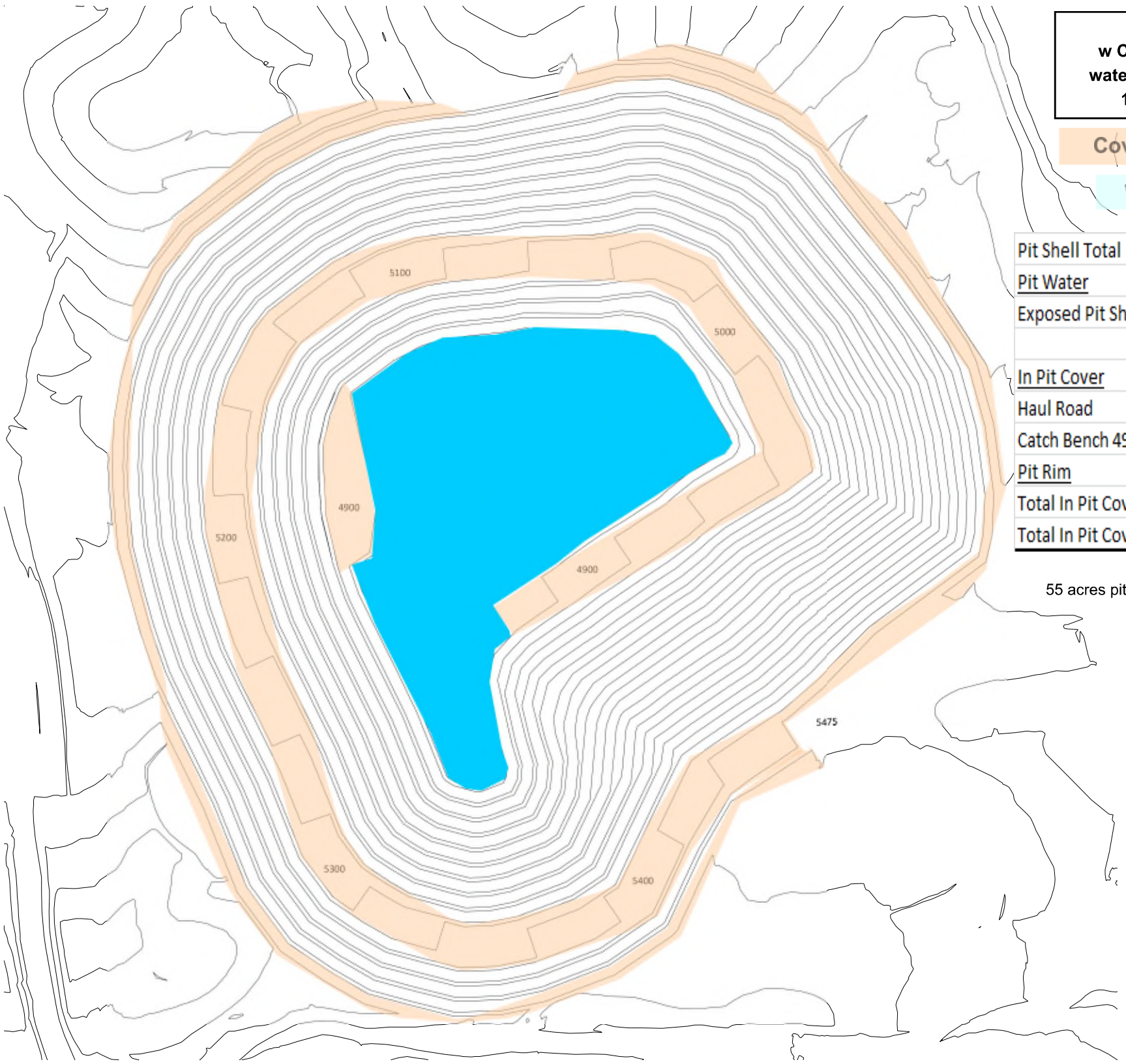

Copper Flat Pit
w Catch Bench @ 4900
water surface ~4897' elev
1" = 380' (approx)

Covered Pit Surface

Water Surface

Pit Shell Total	129	Acres
Pit Water	20	Acres
Exposed Pit Shell	109	Acres
In Pit Cover		
Haul Road	23	Acres
Catch Bench 4900	2	Acres
Pit Rim	10	Acres
Total In Pit Cover - Acres	35	Acres
Total In Pit Cover - %	32	%

55 acres pit lake and pit cover combined
= 43% of pit shell