REPORT

MINED LAND RECLAMATION PLAN – SUPERIOR MINE, ARIZONA

RESOLUTION COPPER MINING, LLC

Prepared for: Resolution Copper Mining, LLC
102 Magma Heights
PO Box 1944
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Submitted to: Arizona State Mine Inspector
1700 West Washington, 4th Floor
Phoenix, AZ 85007

Distribution:
4 copies - Arizona State Mine Inspector
1 copy – Resolution Copper Mining, LLC
1 copy – Golder Associates Inc.

April 22, 2014 **123-92522 Rev 4**

Golder Associates

Table of Contents

Tables

Figures

Attachments

1.0 INTRODUCTION

Resolution Copper Mining, LLC (RCML) is submitting for the Arizona State Mine Inspector's review and approval this Mined Land Reclamation Plan (MLRP) for the Superior Mine in the area of Superior, Arizona. This MLRP is prepared in accordance with the Arizona Mined Land Reclamation Act, ARS §§ 27-901 through 27-976, and implementing rules, AAC §§ R11-2-101 through R11-2-705. RCML intends to use this MLRP, once it is approved by the State Mine Inspector, as the basis of RCML's financial assurance mechanism under A.R.S. §§ 27-991 through 27-997 and A.A.C. §§ R11-2-801 through R11-2-822, which may consist of a demonstration of corporate financial ability or guarantee under ARS § 27-991(B)(8) and AAC § R11-2-811.

1.1 Approach to Reclamation

RCML will reclaim surface disturbances under this MLRP in accordance with the requirements of ARS §§ 27-901 through 27-976 and AAC §§ R11-2-101 through R11-2-705. Prior to any demolition work, there will be consultation with the community to help determine if some facilities, such as the shaft headframes, should remain intact for voluntary historic preservation.

This MLRP avoids, does not duplicate or overlap, and otherwise is subordinate to facility closures, corrective actions, water management, solid waste management, and remediation activities that are already mandated under applicable individual and general aquifer protection permit requirements, individual and general pollutant discharge elimination system permit requirements, solid waste program requirements, and voluntary remediation program requirements, in accordance with ARS §§ 27-902(B), 27-902(C), 27-924(A), and 27-994.

1.2 Applicant, Owner/Operator and Regulatory Contact

Applicant:

Resolution Copper Mining, LLC
102 Magma Heights
PO Box 1944
Superior, Arizona 85173
Phone No.: 520-689-9374
Fax No.: 520-689-9304

Owner and Operator:

Same as Applicant

Regulatory Contact:

Casey McKeon
Environmental Manager
Resolution Copper Mining, LLC
102 Magma Heights
P.O. Box 1944
Superior, Arizona 85173
Phone No.: 520-689-9374
Fax No.: 520-689-9304

1.3 Responsibility Statement

RCML assumes responsibility for the reclamation of surface disturbances that are attributable to "existing mining units" and/or "new mining units" at the Superior Mine, consistent ARS §§ 27-901 through 27-976 and AAC §§ R11-2-101 through R11-2-705.

Name:

Signature:

Title:

Date:

2.0 OVERVIEW OF THIS PLAN

The Superior Mine consists of two sets of "mining units" under ARS §§ 27-901(10) and 27-971(A): the West Plant Site and the East Plant Site (Figure 1). The West Plant Site is located adjacent to the Town of Superior and the East Plant Site is located within the same geographical area to the east, south of Highway 60. The West Plant Site and East Plant Site are connected by the Never Sweat Tunnel and other workings within a common property boundary and under common ownership, operation and management as one mining complex, forming a single "mining facility" under ARS § 27-901(9). The surface disturbances that need to be addressed by this MLRP are limited to the West Plant Site and East Plant Site. The RCML property surrounding the West Plant Site and East Plant Site is largely undisturbed.

Table 1 Acreage of Surface Disturbances Addressed by the MLRP

Plant Site	Acres[1]
West Plant Site	78
East Plant Site	25
Total	**103**

Note:
[1] Values rounded to the nearest acre.

The set of "mining units" comprising the West Plant Site is addressed by Attachment A of the MLRP. The set of "mining units" comprising the East Plant Site is addressed by Attachment B of this MLRP.

3.0 SUMMARY COST ESTIMATE

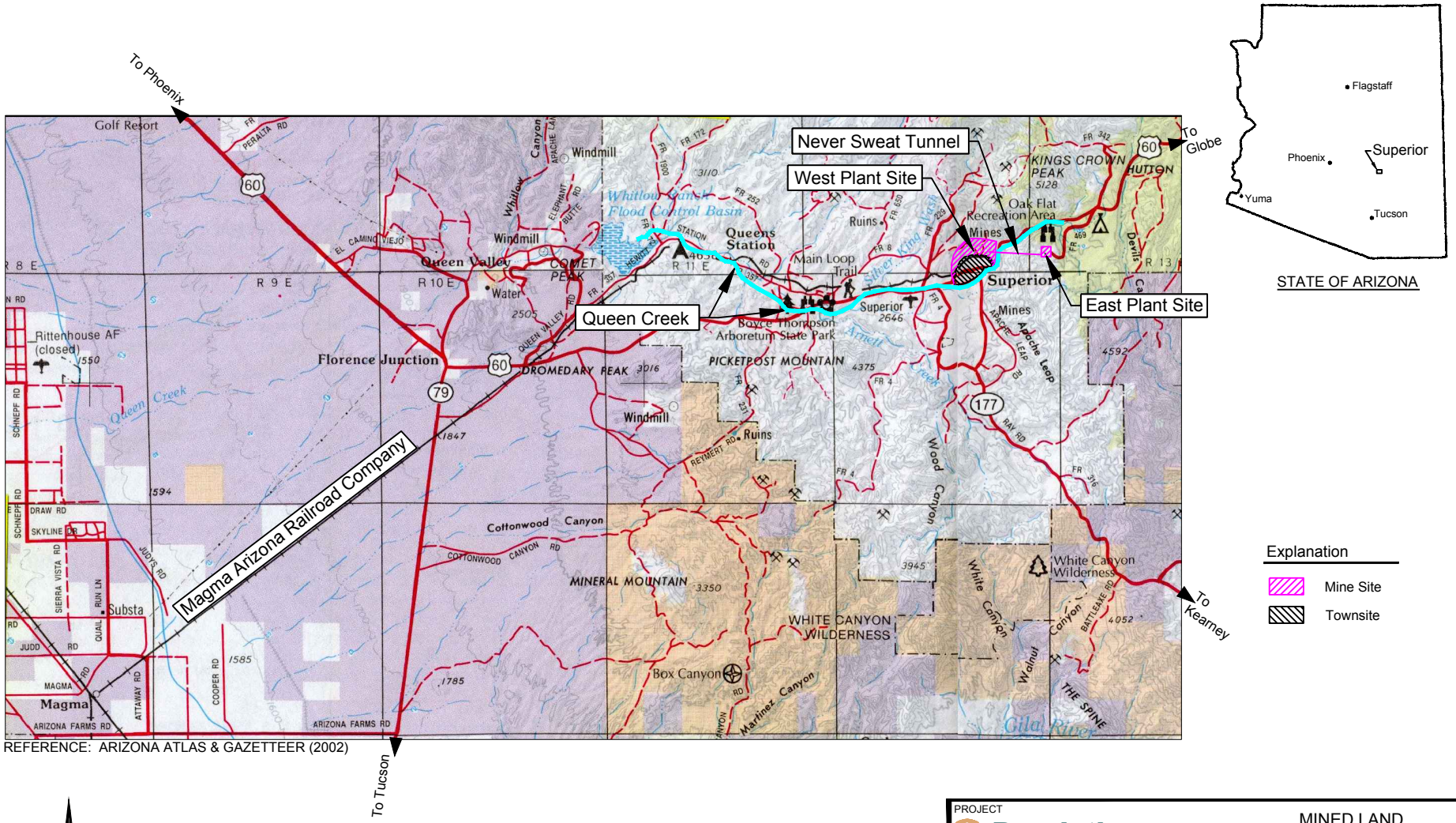
The estimated costs of performing the reclamation described in this MLRP are specified in Attachment A and Attachment B. The estimated costs are based on third-party implementation of the measures, although RCML may elect to demonstrate corporate financial ability or guarantee under ARS § 27-991(B)(8) and AAC § R11-2-811, which would result in lower costs. The estimated costs are present value costs.

Table 2 Estimated Costs of Implementing the MLRP

Mining Units	Cost[1]
West Plant Site	$2,520,000
East Plant Site	$3,500,000
Total	**$6,020,000**

Note:
[1] Values rounded to the nearest $10,000.

FIGURE 1
LOCATION MAP



PROJECT

Resolution Copper Mining

MINED LAND RECLAMATION PLAN
SUPERIOR MINE, ARIZONA

TITLE

LOCATION MAP

Golder Associates

PROJECT No.		123-92522	FILE No.	12392522B101
DESIGN	WK	2012-10-17	SCALE	NOT TO SCALE
CADD	NIL	2012-10-17		
CHECK	WK	2014-04-22		
REVIEW	KRJ	2014-04-22		

FIGURE 1

ATTACHMENT A
SUPERIOR MINE WEST PLANT SITE RECLAMATION PLAN

REPORT

ATTACHMENT A

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Table of Contents

Tables

Figures

Appendices

1.0 INTRODUCTION

Golder Associates Inc. (Golder) has prepared this Mined Land Reclamation Plan (MLRP) for the West Plant Site of the Superior Mine on behalf of Resolution Copper Mining, LLC (RCML). The West Plant Site is located adjacent to the northern edge of the Town of Superior in Pinal County, Arizona. The West Plant Site is located in Township 1 South, Range 12 East, Sections 34 and 35, and in Township 2 South, Range 12 East, Sections 3 and 4. Figure 1 shows the location of the West Plant Site and Figure 2 shows an aerial photograph.

The Lake Superior and Arizona Mining Company began underground mining at the West Plant Site in 1902, and was superseded by the Magma Copper Company in 1910. The Magma Copper Company built the original concentrator at the West Plant Site in 1914. Ore and concentrate were hauled by wagon to Florence, Arizona until 1915 when the Magma Arizona Railroad was completed to the West Plant Site (Canty and Greely, 1991). Planning for an on-site smelter began in 1920 and the smelter began operating in 1924. The process consisted of roasting to remove sulfur, followed by processing in a reverberatory furnace (Canty and Greely 1987). The smelter stack, which operated until 1972, is approximately 200 feet tall. The property was purchased by BHP in the mid-1990s and mining continued until mid-1996. From 2001 to 2004 exploration activities were led by Kennecott Canada Exploration and RCML was established in 2004. RCML is a Limited Liability Company owned by Resolution Copper Company (55 percent), a subsidiary of Rio Tinto Plc, and BHP Copper Inc. (45 percent), a subsidiary of BHP Billiton Plc. Since that time, RCML has undertaken a program of reclamation of the historic facilities, as well as redevelopment of the West and East Plant Sites as part of a Feasibility Study for a proposed underground mine for a different orebody than was originally mined.

2.0 SITE OVERVIEW

This section summarizes the topography, surface water hydrology, geology, groundwater hydrology, climate, vegetation, and soils at the West Plant Site.

2.1 Topography and Surface Water Hydrology

The West Plant Site is located on and at the edge of mountainous and rugged terrain characterized by steep slopes, cliff formations, and deeply incised canyons. The West Plant Site is west of the Apache Leap that rises to an elevation of approximately 4,600 feet above mean sea level (amsl). The West Plant Site is situated at lower elevations on moderate slopes (Figure 3). The site ranges in elevation from a high of approximately 3,975 feet amsl in the northern portion of the site, to a low of approximately 2,675 feet amsl at the southern edge of the site. Queen Creek Canyon, located east of the town of Superior and the West Plant Site, forms a significant topographic feature defined by an incised canyon through the Apache Leap escarpment.

The primary surface water drainage near the West Plant Site is Queen Creek (Figure 3) which flows through the town of Superior, south of the West Plant Site. The creek is approximately 53 miles long with channel elevations that range from approximately 5,600 feet amsl at its headwaters, to approximately 1,200 feet amsl where it discharges to the Gila River near the San Tan Mountains. The Queen Creek reach adjacent to the site is predominantly ephemeral.

The drainage pattern within the West Plant Site is predominately from northeast to southwest. Flow in all of the drainages within the area is ephemeral. The West Plant Site is located primarily between two tributaries of Queen Creek; Apex Wash to the northwest and Magma Wash to the east. Silver King Wash is located on the northwest corner of the site. The course of Apex Wash and Magma Wash has been altered by mining activities. Before mining, Apex Wash flowed into Queen Creek west of the study area. Currently, only the lower reach of the wash flows to Queen Creek southwest of Tailings Pond 6. The wash was diverted in 1971 by the Apex Berm and Apex Tunnel (Figure 3) on the northern portion of the study area into the Silver King Wash located further west. This diverts run-on from the landfill and Tailings Ponds 6 and 7.

2.2 Geology and Groundwater Hydrology

Geology at the West Plant Site is divided by the approximately north-south trending Concentrator Fault at the toe of the mountain front (Figure 4). Rocks east of the Concentrator Fault consist of Precambrian schist, diabase, quartzite, basalt, and limestone (Apache Group) overlain by Cambrian and Paleozoic sedimentary rocks, Tertiary Volcanics (Apache Leap Tuff), and Tertiary and Quaternary Alluvium. Because of past dewatering of the underground mine, groundwater levels are approximately

1,000 feet below ground surface (ft-bgs) at the 500 Yard facility on the eastern side of the West Plant Site (Figure 4).

Rocks west of the Concentrator Fault underlie most of the West Plant Site and comprise three geologic units (Figure 4). The first geologic unit is the Gila Conglomerate, which extends from the toe of the mountain front to the western and southern boundary of the site. As described by Peterson (1969), the Gila Formation was deposited in a broad alluvial basin and consists of gravel and conglomerate stream deposits derived from older rocks. The Gila Formation contains pebbles, cobbles, and boulders that range from angular to subrounded. The matrix is coarse, poorly sorted arkosic sandstone that varies from well consolidated to poorly consolidated and has crude to well-defined bedding. The second geologic unit is mudstone interbedded in the Gila Conglomerate that outcrops at the southwestern portion of the West Plant Site. This unit was historically used as clay for making bricks at the West Plant Site. Both the Gila Conglomerate and the interbedded mudstone are well consolidated and strongly calcite cemented. The third geologic unit overlies the Gila Conglomerate along the southeast boundary is the Quaternary Alluvium, which Peterson (1969) describes as sand and gravel deposits in partly enclosed basins or along streambeds. The materials are generally unconsolidated.

Based on the three geologic units described above and the site hydrogeologic conditions, five hydrostratigraphic units have been defined west of the Concentrator Fault as follows:

- **Mudstone Unit –** applies to the saturated, lenticular, fine grained formation within the Gila Conglomerate described above. The mudstone extends from the central portion of the site beyond the southern boundary.
- **Unconfined Gila Unit** – applies to the thick saturated zone of the Gila Conglomerate that lies north of the Mudstone Unit.
- **Confined Gila Unit** – applies to the saturated portion of the Gila Conglomerate that lies beneath the Mudstone Unit.
- **Shallow Unconfined Gila Unit** – applies to the saturated portion of the Gila Conglomerate that overlies the Mudstone Unit.
- **Alluvial Unit** – applies to saturated recent alluvium located on the southern portion of the West Plant Site near Smelter Pond.

The most notable characteristic of the hydrostratigraphic units, with the exception of the Alluvial Unit, is that the hydraulic conductivities are low, ranging from 10^{-6} to 10^{-9} centimeters per second (cm/sec). These low hydraulic conductivities in turn result in slow groundwater flow rates, and limit the quantity of groundwater that flows through the site groundwater system.

Within the West Plant Site, depths to groundwater vary from approximately 175 ft-bgs at well GAI-02-01 in the north, to near land surface in the Alluvial Unit at the Smelter Pond point of compliance well in the south. The approximate direction of the regional gradient is to the southwest. The most recent water table contour map is shown in Figure 5.

2.3 Climate

Climatic data were first collected at the West Plant Site in 1920 when daily precipitation measurements were taken. The record continues to the present and includes 90 years of data. These data through 2010 (i.e., 90 years of record) are presented on Figure 6 as total annual rainfall, with an annual average of approximately 18 inches during the period of record. Extreme events occurred in 1979 and 1992 when annual rainfall exceeded 35 inches. Several years had rainfall totals near 10 inches, and the lowest annual totals occurred during the droughts of 2002 and 2007 with a total of approximately 5 inches each.

A meteorological station was installed in 2002 at the West Plant Site (Figure 3). The equipment includes a tipping bucket rain gauge, evaporation pan at ground level, wind speed anemometer, wind direction sensor, relative humidity sensor, temperature sensor, barometric pressure sensor, nephelometer, and pyranometer. The meteorological station data (Table 1) show that from 2002 through 2010 there was an average pan evaporation rate of 62 inches, average rainfall of 12 inches, and an average temperature of 21 degrees Celsius. Other parameters included in the table are maximum temperature; minimum temperature; average, maximum, and minimum relative humidity; and average wind speed.

2.4 Vegetation and Soils

The vegetation in the lower elevation portions of the West Plant Site is classified as the Arizona Upland subdivision of the Sonoran Desert. The perennial vegetation includes saguaro, ocotillo, prickly pear and cholla cacti, foothill and blue paloverde, ironwood, mesquite, and creosotebush. In addition to perennial vegetation, the Sonoran Desert also has annual species that grow only after brief moist periods in the spring and in the summer, including lupine, Mexican gold poppy, desert bluebell, globemallow, desert marigold, and several varieties of primrose.

The vegetation in the higher elevation portions of the West Plant Site is transitional to the Interior Chaparral classification. Chaparral consists of deep-rooted evergreen shrubs and trees. Although 50 or more shrub species are in the chaparral vegetation zone in Arizona, generally fewer than 15 are important in terms of density. Shrub canopy cover may vary from less than 40 percent on dry sites to more than 80 percent on wetter sites. Annual and perennial grasses and forbs may grow where the overstory canopy is only moderately dense or is open.

In general, the hillsides comprising the northern and western boundary of the West Plant Site are covered with aridisols: “developed soils of dry regions” with light-colored surface layers, containing low organic matter, abundant calcium carbonate and varying amounts of soluble salts (University of Arizona, 2008). Site aridisols fall into three soil temperature regimes:

- Hyperthermic arid soils - mean annual soil temperature of 72° F or greater, maximum annual precipitation 10 inches

- Thermic semiarid soils - mean annual soil temperature of 59-72° F, annual precipitation 10-18 inches
- Mesic subhumid soils - mean annual soil temperature of 47-59° F, annual precipitation 16 inches or greater

Arizona Upland vegetation grows in higher elevation hyperthermic arid soils and lower elevation thermic semiarid soils. Chaparral vegetation grows mostly in mesic subhumid soils.

In particular, the native soil at the West Plant Site is Caralampi gravelly or cobbly sandy loam with 10 to 30 percent slopes. In some areas, there is also soil similar to the White House gravelly loam with 5 to 10 percent slopes. The natural soil is shallow, contains calcium carbonate or caliche in the subsoil and displays a coarse-textured surface. These soils have moderate permeability, low to moderate capillary water availability, and a moderate to high erosion hazard, according to the US Soil Conservation Service Soil survey for the Superior area. The native soil is typical of desert soils which are low in organic matter (4 to 5 percent), low in nitrogen, and moderately high in calcium and magnesium salts (Brown and Caldwell, 1999).

3.0 LAND OWNERSHIP AND USE

RCML owns, operates, and manages the West Plant Site along with the East Plant Site. Both sites are connected by the Never Sweat Tunnel and other workings within a common property boundary, forming a single "mining facility" under ARS § 27-901(9). The current and reasonably foreseeable use of the West Plant Site is industrial, based on RCML's intentions as owner of the property, Town of Superior zoning requirements, and licensing requirements established before the Arizona Department of Environmental Protection (ADEQ) voluntary remediation program and water quality permits programs.

4.0 POST-MINING LAND USE

Based on the land ownership, land use, zoning requirements, and ADEQ program requirements discussed in Section 2.0, the MLRP for the West Plant Site is geared to a post-mining land use of industrial use.

The following facilities will, therefore, be used after mining at the West Plant Site as part of an industrial park:

- Mine Water Treatment Plant, including its influent and effluent pipelines, equalization tank, silos, and other appurtenances, as well as the North and South Sludge Storage Impoundments (SSIs)
- Stormwater management system for "non-contact" stormwater, including the ponds and channels described in Section 6.6
- Potable water system, sewer system, power system, natural gas lines, and communications systems
- New or recently remodeled buildings, including the:
  - Nine-wide trailer, triple-wide trailer, and contractor trailer
  - Former general office
  - Former blueprint office
  - Verde building (administration office)
  - Magma Avenue and Lone Tree guard shacks
  - Warehouse
  - Guest house
- Roads that are necessary to access the above facilities, buildings, and infrastructure; or to provide access for security patrols to the overall industrial site

RCML has designated the historic cooling tower at the West Plant Site for preservation as a historic structure. This Superior Mine was the first cooled underground mine in the United States and the cooling tower has been designated as a national historic engineering landmark by the American Society of Mechanical Engineers.

5.0 MINING UNIT DEFINITION

The mining units at the West Plant Site were evaluated to determine which of them are not subject to the requirements of ARS §§ 27-901 through 27-997 and AAC §§ R11-2-101 through R11-2-822 because they are:

- Inactive mining units, ARS §§ 27-901(5), 27-924(B)
- Smelting, refining, fabricating or other metals process facilities or materials associated with such facilities, ARS § 27-901(9)
- Subject to ADEQ individual or general aquifer protection permit requirements, individual or general pollutant discharge elimination system permit requirements, solid waste program requirements, or voluntary remediation program requirements, which would make the application of mined land reclamation requirements to them redundant, inconsistent or contradictory, ARS §§ 27-902(B), 27-902(C), 27-924(A), 27-994
- Previously reclaimed in accordance with applicable mined land reclamation requirements
- Slated for incorporation in the post-mining land use, e.g., ARS § 27-992(C) (2), AAC § R11-2-603(A)

Table 2 summarizes the mining units that fall within one or more of the five criteria listed above. The mining units that remain are subject to mined land reclamation requirements, including those RCML has selected to remain with public protection measures (ARS § 27-995(A), (B), and (C)). Figure 7 shows the locations of these mining units and summarizes their surface disturbance acreages in an inset table.

6.0 RECLAMATION MEASURES

This section describes the reclamation measures that RCML will employ for the West Plant Site as required under ARS §§ 27-901 through 27-976 and AAC §§ R11-2-101 through R11-2-705. These include materials management, borrow sourcing, recontouring, covering, revegetation, road reclamation, access restrictions, and maintenance.

6.1 Materials Management

RCML will decommission stationary mining equipment by removing hydraulic fluids, oils, electrical switches, wiring, and the like. Likewise, buildings and structures that are unrelated to the industrial post-mining land use, or that are not designated as historical, or that will not be fenced, will be demolished. Concrete foundations will be removed, or broken up and buried. RCML will also remove scrap metal, wood, trash, and other debris that may pose a hazard to public safety or constitute a public nuisance. All of these materials will be handled by a licensed waste management contractor for proper disposal. Demolition will follow decommissioning with removal and salvage of pumps, rails, metal, and the like as appropriate. Non-salvageable inert materials (e.g., concrete, asphalt, wood, glass, and brick) will be disposed onsite.

6.2 Borrow Sources

The native soils at the West Plant Site are thin and classified as gravelly loams. Native soil, such as it is, is unavailable in sufficient quantities to be recovered during construction or even considered a viable resource for cover material. Therefore, RCML has opted to use the locally abundant Gila Conglomerate and/or inert development rock as cover material. RCML has used crushed and blasted Gila Conglomerate since 2007 as cover material on stockpiles, ponds, and tailings impoundments. Based on samples collected in 2010, the gradation of the Gila Conglomerate cover material is approximately 50 percent gravel, 40 percent sand, and 10 percent silt/clay. RCML has also used non-mineralized development rock, produced during sinking of the Shaft No. 10, as cover material since approximately 2010. RCML evaluated the revegetation potential of this material with test plots in 2008 to 2010 and found it suitable as cover material.

Rock for riprap will be obtained from the Raymert Quarry, approximately 10 to 15 miles from the West Plant Site. The rock produced by this quarry is hard, durable, and non-mineralized and has passed suitability testing performed on behalf of RCML. The quarry has also been approved by the Arizona Department of Transportation as a riprap supplier.

Structural fill and low permeability fill are occasionally used in certain reclamation activities. RCML has an onsite borrow source for structural fill at the Former Able Earth Quarry and for low permeability fill at the Clay Pit/Silt Ridge area. These materials are non-mineralized and have been tested for geotechnical suitability.

6.3 Recontouring

The top surface and outslopes of facilities, as well as disturbed surfaces, will be recontoured to:

- Prevent ponded water, thereby reducing the potential for infiltration to underlying materials
- Control runoff, thereby reducing the potential for erosion
- Improve stability, thereby reducing the potential for mass movements

RCML has established design criteria for control of ponding, runoff, and erosion. Top surfaces and planar disturbed areas generally will be recontoured to between approximately 2 and 5 percent to prevent ponding yet not result in rapid runoff. Outslopes will generally be recontoured to between 2.5 horizontal:1 vertical (H:V) to 3.5H:1V, depending on toe constraints. Outslope lengths will generally be limited to 200 to 300 feet, although exceptions may be made depending on constraints. For slope lengths longer than this target length, intermediate benches with vee-ditches will be installed to control runoff.

To reduce safety hazards, stability will be considered with respect to mass movements and differential settlement (where applicable, for example, certain ponds or tailings impoundments). Post-reclamation conditions will be modeled, as applicable, assuming current material and porewater conditions and long-term drained conditions to bracket the potential range of safety factors. RCML has established design criteria for stability. The minimum required factor of safety for slope stability will be 1.5 for static conditions and 1.1 for pseudostatic conditions.

Recontouring will be accomplished by local cut-to-fill, import of clean fill, or import of mass grading fill. Clean fill will consist of the same material as used for the closure covers (Section 6.4), but placed in lifts and compacted. Mass grading fill will consist of mine materials and/or natural materials that RCML has elected to remove from multiple locations for consolidation into fewer locations for better long-term management. Mass grading fill will not be imported from offsite. Mass grading fill will consist of a variety of mine and natural materials without specific gradations, as long as they are easily handled. Examples include pond deposits, impacted soil/sediment, development rock, and tailings. Mass grading fill may have paste pH less than approximately 5.5 standard units (su), paste electrical conductivity (EC) greater than approximately 4,000 micromhos per centimeter (µmhos/cm), and may have the potential to generate acid. Mass grading fill may have concentrations of constituents that exceed non-residential Soil Remediation Levels (SRLs) and Groundwater Protection Limits (GPLs) established by the Arizona Department of Environmental Quality (ADEQ), but may not exhibit the characteristics of ignitability, corrosivity, or toxicity at 40 CFR §§ 261.21 through 261.24. Mass grading will be placed in maximum 3-foot lifts, and compacted with three passes of the construction equipment. There are no moisture content or density requirements for placement of mass grading fill.

6.4 Closure Cover

Disturbed areas of native ground, areas where buildings were demolished, areas where facilities were removed, and those areas containing non-acid generating materials will not receive closure covers. Areas with mine materials and/or impacted mass grading fill (e.g., pond deposits, impacted soil/sediment, development rock, tailings) will receive closure covers. The closure cover will consist of a monolithic (i.e., single layer) store and release cover placed uncompacted on the top surfaces and outslopes of facilities to:

- Provide a rooting layer for vegetation
- Protect the underlying materials from erosion

Cover materials will have a paste pH greater than approximately 5.5 su, paste EC less than approximately 4,000 µmhos/cm, without visible sulfide mineralization, without the potential to generate acid, and with a range of particle sizes (i.e., less than 25 percent clay and a maximum particle size of approximately 12 inches). In addition cover materials will not have concentrations of constituents that exceed non-residential SRL and GPLs established by the ADEQ. The cover thickness will be 3 feet. The cover material will be placed as a single, uncompacted layer.

6.5 Revegetation

Revegetation will use both native and non-native species to:

- Stabilize covered and disturbed surfaces and thereby reduce the potential for erosion
- Transpire water, thereby reducing the potential for infiltration to underlying materials (if present)

Surfaces will be ripped and/or harrowed prior to hydroseeding with seed, fertilizer and mulch/tackifier. Fourteen species will be used in the mix (Table 3) at an application rate of approximately 15 pounds per acre (lb/ac). Seed will be provided by Granite Seed Company of Lehi, Utah, and perhaps other firms depending on seed availability, with the appropriate certification. The actual seed mix and application rates may vary slightly at the time of seeding depending on availability. A natural, environmentally safe, long-acting fertilizer may be used as per the manufacturer's recommendations. RCML targets May and June, prior to the summer rainy season, or early December to capture winter storms, as the preferred seasons for revegetation. However, some revegetation may occur at other times of the year depending on project needs.

6.6 Stormwater Management

As part of redeveloping the site for new mining and future industrial use, RCML is in the process of converting the former "contact" stormwater system to a new system for "non-contact" stormwater. At the same time, RCML is improving flood control at the West Plant Site. The new system diverts stormwater

around facilities to the extent practical, and where impractical conveys stormwater over the facilities in riprapped channels.

Three watersheds tributary to Queen Creek comprise the West Plant Site (Figure 8): Apex Tunnel watershed, Tailings Pond 6 (TP-6) watershed, and the Southeastern watershed (i.e., Magma Wash). The watercourses generally flow from northeast to southwest and are ephemeral. Flow in Apex Wash is diverted upstream of the West Plant Site facilities into Silver King Wash to the west by the Apex Tunnel. Flow from the TP-6 watershed currently reports to the top surface of TP-6 and does not leave the site, but after closure of TP-6, the flow will report to the former channel of Apex Wash and thence to Queen Creek. Flow in the Southeastern watershed is conveyed through the West Plant Site to the Indian Ponds where it may be discharged to Queen Creek in accordance with RCML's Arizona Pollutant Discharge Elimination System (AZPDES) Permit No. AZ0020389.

The key structures in the redeveloped stormwater system are three ponds that are exempt from regulation under the Aquifer Protection Permit (APP) program and from dam safety regulations under AAC R12-15-1203(1)(b). The structures are designed as detention ponds to control the 100-year, 24-hour flood, meaning they will release flow at a rate less than the rate that flow enters the structure without permanently storing water. The three structures are:

- **CP-6 Pond –** RCML constructed this pond in 2007. This facility is located in the northeast part of the West Plant Site and receives runoff from the headwaters portion of Magma Wash. Ponded water is released during low flows through culverts and during high flows via the culverts and a spillway.
- **CP-102 Pond –** RCML constructed this pond in 2010. This facility is located at the upstream end of Tailings Ponds 3/4 and receives flow from the CP-6 Pond, as well as runoff from the 500 Yard, Administration Building area, the Mine Water Treatment Plant area, and the Loadout area. Ponded water is released during low flows through culverts and during high flows via the culverts and a spillway.
- **Indian Ponds (future CP-105 Pond) –** RCML will clean close the existing Indian Ponds under the APP program and construct the new CP-105 Pond within approximately the next 10 years. The current and future ponds receive flow from the CP-102 Pond, as well as the closed Tailings Ponds 1/2, the closed Tailings Ponds 3/4, and the smelter area. Ponded water may be released to Queen Creek via a channel and culverts under US Highway 60 under the provisions of the aforementioned AZPDES permit.

6.7 Roads

Paved or unpaved roads that are not related to maintenance, security access, monitoring, or the industrial post-mining land use will be reclaimed. Some existing roads will be removed as part of developing borrow sources or completing remedial actions under other voluntary programs (e.g., the cleanup of smelter-affected soil under ADEQ voluntary remediation program requirements). For paved roads, the asphalt, concrete, bricks, etc. will be removed and properly managed (Section 6.1). On roads to be reclaimed, culverts will be removed to eliminate restrictions to restored or new drainage patterns. Water

bars (a type of swale) will be installed on steeper segments to control runoff and erosion. If any road fills are comprised of mine rock with the potential to generate acid, that rock will be used as mass grading fill (Section 6.3). The final surfaces will be scarified and revegetated.

6.8 Access Restrictions

RCML will provide site security via two guard gates, security patrols, and fencing along the south property line of the West Plant Site adjacent to the Town of Superior. In addition, RCML will fence highwalls and excavations where they are impractical to backfill or push down. In general, the smaller excavations will be backfilled or pushed down and the larger ones will be fenced around the perimeter. Warning signs will be attached to the fencing where inadvertent access by the public is possible.

For underground mine openings (e.g., shafts, tunnels, and adits), RCML has pursued a program of closing historic mine openings and most are currently closed with bat gates, locked metal doors, concrete slabs, or foam closures. RCML will similarly close the few remaining mine openings consistent with the industrial post-mining land use. Warning signs will be posted where necessary concerning the presence of closed mine openings.

6.9 Maintenance of Structures, Equipment, and Excavations

For structures, equipment, and excavations that will remain, RCML will maintain them and their access restrictions to the public. Given the current mining use and the industrial post-mining land use, RCML does not envision a time when the West Plant Site would be inactive and unstaffed.

7.0 COST ESTIMATE

This section describes the estimated costs of the reclamation of surface disturbances at the West Plant Site subject to the requirements of ARS §§ 27-901 through 27-997 and AAC §§ R11-2-101 through R11-2-822.Approach to Estimated Costs

7.1 Approach to Estimated Costs

Conceptual designs were prepared for the reclamation. The following cost estimating references were used to build unit costs for tasks within each item:

- Caterpillar (Cat) Handbook (37th edition, 2007) for estimating equipment production rates
- Empire Caterpillar rental rates (2008)
- RS Means Heavy Construction Manual (2011 and 2012 Editions)
- Dalmolin and CRC bids for Tailings Ponds 1/2 and 3/4
- Quotes from suppliers
- Arizona Water Company
- Davis Bacon wage determinations for Heavy Dam Construction in Maricopa, Mohave, Pima, Pinal, and Yuma Counties (8/12/2011)

Hourly equipment rates are based on monthly rates divided by 176 hours. The estimate assumes a fuel cost of $4.00/gallon of diesel, which is consistent with the US Energy Information Administration projected diesel fuel prices of $3.91 for 2012 and $3.99 for 2013 (February 8, 2012 update). The maximum average speed for haul trucks is 18 miles/hour, with lower average speeds for shorter distances. Based on experience from previous closure projects at the site, it is assumed that the labor is local and will not be charging per diem.

Based on input from RCML, the following factors were applied to each cost item:

- Mobilization/demobilization as a percent of all other estimated construction costs: 3 percent
- Overhead and profit as a percentage of estimated construction costs: 5 percent
- Detailed engineering as a percentage of estimated construction costs: 4 percent
- Construction monitoring as a percentage of estimated construction costs: 3 percent

Detailed costing assumptions are provided below. Unit cost calculations are presented in the cost estimate spreadsheet in Appendix 1, which is provided electronically.

7.2 Basis of Estimated Costs

The reclamation cost estimate is based on the estimated quantities and haul lengths derived from the conceptual designs. Figure 9 shows the earthwork flow chart to account for the locations to receive mass grading fill, clean fill, borrow sources of low permeability fill, structural fill, cover material, and riprap.

Figure 10 shows the conceptual closure designs while Figure 11 shows typical details. Figure 12 shows the roads that will be removed and those that will remain for the industrial post-mining land use. Unit cost calculations are presented in the cost estimate (Appendix 1).

7.2.1 Non-Stormwater Ponds

7.2.1.1 Loadout Modular Tank

Future plans include using the Loadout Modular Tank area as a laydown/storage area. Based on the estimated quantities, the closure consists of:

1.1 Demolition and recycling of the above ground modular tank (4,225 square feet [ft^2]). The unit cost is developed from the 2012 RS Means 02 41 16.13 line 0500. The unit cost includes hauling and disposal.

7.2.2 Stockpiles

7.2.2.1 Shaft No. 8 Stockpile

1.1 Removal of 28,700 cubic yards (cy) of clean fill from Shaft No. 8 Stockpile and transporting to the Wedge Flux Pit. The unit cost is based on excavating the material with a Cat 325D excavator, loading Cat 769 (40 ton) haul trucks, and transporting 3,300 feet.

1.2 Local cut to fill of 100 cy. The unit cost is based on ripping and spreading the material with a Cat D7R dozer and a Cat 140H grader.

1.3 10,000 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No cover material to be imported.

1.4 Low permeability fill is not required for non- channels in non-acid generating materials and therefore no cost is included.

1.5 Installing 13,000 ft^2 of geotextile for channel erosion control.

1.6 Procuring and placing 182 cy of riprap (Type I) for channel erosion control.

1.7 Revegetating 2.1 acres.

7.2.2.2 Cover Stockpile 1

2.1 Removal of 61,000 cy of clean fill from the stockpile and transporting to the Intermediate Rock Stockpile (IRS) to backfill the highwall after the rock is removed. The unit cost is based on excavating the material with a Cat D9T dozer and CAT 980G (7.5 cy) front end loader, loading Cat 769 (40 ton) haul trucks, and transporting 300 feet.

2.2 8,200 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported.

2.3 Revegetating 1.7 acres.

7.2.2.3 Cover Stockpile 2

3.1 Removal of 33,800 cy of clean fill from the stockpile and transporting to the Intermediate Rock Stockpile and Disposal Area 2 (19,300 and 14,500 cy respectively).

The unit cost is based on excavating the material with a Cat D9T dozer and CAT 980G (7.5 cy) front end loader, loading Cat 769 (40 ton) haul trucks, and transporting 775 feet.

3.2 Removal of 4,100 cy of clean fill from the stockpile and transporting to the Loadout Rock Face. The unit cost is based on excavating the material with a Cat D9T dozer and CAT 980G (7.5 cy) front end loader, loading Cat 769 (40 ton) haul trucks, and transporting 1,730 feet.

3.3 Removal of 1,100 cy of clean fill from the stockpile and transporting to the Adit No. 5 Rock face. The unit cost is based on excavating the material with a Cat D9T dozer and CAT 980G (7.5 cy) front end loader, loading Cat 769 (40 ton) haul trucks, and transporting 3,100 feet.

3.4 Removal of 17,000 cy of clean fill from the stockpile and transporting to the Clay Pit. The unit cost is based on excavating the material with a Cat D9T dozer and CAT 980G (7.5 cy) front end loader, loading Cat 769 (40 ton) haul trucks, and transporting 8,300 feet.

3.5 8,300 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported.

3.6 Revegetating 1.7 acres

7.2.2.4 Cover Stockpile 3

4.1 Removal of 4,300 cy of clean fill from the stockpile and transporting to facilities covered under other programs. Therefore the cost for this activity is not included.

4.2 6,000 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported

4.3 Revegetating 1.2 acres.

7.2.2.5 Cover Stockpile 4

5.1 Removal of 10,700 cy of clean fill from the stockpile and transporting to the Clay Pit to backfill the existing below grade borrow area. The unit cost is based on excavating the material with a Cat D7R dozer and CAT 966H (5.25 cy) front end loader, loading Cat 769 (40 ton) haul trucks, and transporting 3,400 feet.

5.2 17,300 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported.

5.3 Revegetating 3.6 acres.

7.2.2.6 Mill Sands Pond Pad

6.1 Local cut to fill of 350 cy. The unit cost is based on dozing and spreading the material with a Cat D7R dozer to attain a grade that will facilitate proper drainage.

6.2 11,300 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported.

6.3 Revegetating 2.3 acres.

7.2.2.7 Intermediate Rock Stockpile

7.1 Placing 61,000 cy of clean fill from Cover Stockpile 1 to create the correct slopes for closure (i.e., backfill the highwall after the rock is removed). The unit cost is based on

placing the material with a Cat D7 dozer, compacting with a Cat 815 compactor, and moisture conditioning with a Cat 621G water tanker.

7.2 Placing 19,300 cy of uncompacted cover from Cover Stockpile 2. The unit cost is based on spreading and ripping the material to a depth of 3 feet to prepare the area for revegetation.

7.3 Revegetating 7.4 acres.

7.2.2.8 Shaft No. 4 Pad

8.1 Local cut to fill of 300 cy. The unit cost is based on ripping and spreading the material with a Cat D7R dozer to attain a grade that will facilitate proper drainage.

8.2 3,900 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported.

8.3 Revegetating 0.8 acres.

8.4 Install a 6-foot chain link fence around the perimeter of the high wall. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.3 Borrow Areas and Quarries

7.2.3.1 Clay Pit

1.1 Removal of 15,150 cy of low permeability fill and transporting to the CP-105 Pond. This unit cost is included in the CP-105 closure cost estimate (Item 7.2.3.1).

1.2 Placing 17,000 cy of clean backfill from Cover Stockpile 2 to backfill a below grade hole for proper drainage. The unit cost is based on placing the material with a Cat D8T dozer, compacting with a Cat 815 compactor, and moisture conditioning with a Cat 621G water tanker.

1.3 Placing 10,700 cy of clean backfill from Cover Stockpile 4 to backfill a below grade hole for proper drainage. The unit cost is based on placing the material with a Cat D8T dozer, compacting with a Cat 815 compactor, and moisture conditioning with a Cat 621G water tanker.

1.4 Local cut to fill of 7,500 cy. The unit cost is based on ripping and spreading the material with a Cat D8T dozer to attain a grade that will facilitate proper drainage.

1.5 19,200 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation.

1.6 Revegetating 4.0 acres.

7.2.3.2 Silt Ridge Borrow Area

2.1 Local cut to fill of 100 cy. The unit cost is based on ripping and spreading the material with a Cat D8T dozer and to attain a grade that will facilitate proper drainage.

2.2 11,900 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported.

2.3 Revegetating 2.5 acres.

7.2.3.3 Tailings Pond 3/4 Borrow Area

3.1 Removal of 152,000 cy of clean fill and uncompacted cover and transporting to facilities covered under other programs. Therefore the cost for this activity is not included.

3.3 59,000 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported.

3.4 Revegetating 12.2 acres.

7.2.3.4 Former Able Earth Quarry

4.1 Removal of 29,300 cy of structural fill and transporting to the CP-105 Berm and Channels. This unit cost is included in the CP-105 closure cost estimate (Item 7.2.9.1).

4.2 Removal of 16,610 cy of structural fill and transporting to facilities covered under other programs. Therefore the cost for this activity is not included.

4.3 Local cut to fill of 12,000 cy. The unit cost is based on ripping and spreading the material with a Cat D8T dozer to attain a grade that will facilitate proper drainage.

4.4 30,800 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported.

4.5 Revegetating 6.4 acres.

4.6 Install a 6-foot chain link fence around the perimeter of the high wall. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.3.5 Silica Flux Pad

5.1 Local cut to fill of 9,000 cy. The unit cost is based on ripping and spreading the material with a Cat D8T dozer to attain a grade that will facilitate proper drainage.

5.2 34,000 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation. No material to be imported.

5.3 Revegetating 7.0 acres.

7.2.4 Pits, Rock Faces, and Subsidence Areas

7.2.4.1 Silica Flux Pit Near Water Tank

1.1 Install a 6-foot chain link fence around the perimeter of the high wall. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.4.2 Wedge Flux Pit

2.1 Placing 28,700 cy of clean fill from Shaft No. 8 Stockpile. The unit cost is based on placing the material with a Cat D7R dozer, compacting with a Cat 815 compactor, and moisture conditioning with a Cat 621G water tanker.

2.2 6,600 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation.

2.3 Revegetating 1.4 acres.

7.2.4.3 Adit No. 5 Rock Face

3.1 Placing 1,100 cy of clean fill from Cover Stockpile 2. The unit cost is based on placing the material with a Cat D7R dozer, compacting with a Cat 815 compactor, and moisture conditioning with a Cat 621G water tanker.

3.2 Local cut to fill of 75 cy. The unit cost is based on ripping and spreading the material with a Cat D7R dozer to attain a grade that will facilitate proper drainage.

3.3 2,600 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation.

3.4 Revegetating 0.5 acres.

7.2.4.4 Loadout Rock Face

4.1 Demolition of the Loadout and conveyor pit is included in Section 7.2.8, Buildings and Structures.

4.2 Placing 4,100 cy of clean fill from Cover Stockpile 2. The unit cost is based on placing the material with a Cat D7R dozer, compacting with a Cat 815 compactor, and moisture conditioning with a Cat 621G water tanker.

4.3 Local cut to fill of 1,700 cy. The unit cost is based on ripping and spreading the material with a Cat D7R dozer to attain a grade that will facilitate proper drainage.

4.4 5,000 cy of prepared surface. The unit cost is based on ripping the final surface to a depth of 3 feet to prepare the area for revegetation.

4.5 Revegetating 1.1 acres.

7.2.5 Smelter Area

7.2.5.1 Slag Pile

1.1 Install a 6-foot chain link fence around a portion of the slag pile with a near-vertical slope. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.6 Disposal Areas

7.2.6.1 Disposal Area

2.1 Local cut to fill of 3,800 cy. The unit cost is based on ripping and spreading the material with a Cat D9T dozer and a Cat 140H grader.

2.2 Placing 14,500 cy of uncompacted cover from Cover Stockpile 2. The unit cost is based on spreading and ripping the material to a depth of 3 feet to prepare the area for revegetation.

2.3 Revegetating 3.1 acres.

7.2.7 Shafts, Adits, and Tunnels

7.2.7.1 Neversweat Tunnel

1.1 The portal of the Neversweat Tunnel is equipped with steel doors that are capable of being locked to prevent access. No additional costs are anticipated.

7.2.7.2 Shaft No. 6

2.1 Demolition of the various structures. The unit cost is developed from the 2012 RS Means 02 41 16.13 line 0500 steel buildings. The unit cost includes hauling and disposal.

2.2 Sealing the shaft with a 12-foot x 12-foot x 0.67-foot concrete slab. The unit cost is developed from the 2012 RS Means 03 30 53.40 line 4200, cast-in-place concrete.

7.2.8 Buildings and Structures

7.2.8.1 No. 3 Hoist House

1.1 Install a 6-foot chain link fence around the perimeter of the building. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.8.2 Power Plant

2.1 Install a 6-foot chain link fence around the perimeter of the Power Plant, Machine Shop, Engine House, and the Smelter Warehouse buildings. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.8.3 Machine Shop

3.1 Install a 6-foot chain link fence around the perimeter of the building. The unit cost is included in item No. 7.2.8.2.

7.2.8.4 Engine House

4.1 Install a 6-foot chain link fence around the perimeter of the building. The unit cost is included in item No. 7.2.8.2.

7.2.8.5 Smelter Office

5.1 Install a 6-foot chain link fence around the perimeter of the building. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.8.6 Smelter Warehouse

6.1 Install a 6-foot chain link fence around the perimeter of the building. The unit cost is included in item No. 7.2.8.2.

7.2.8.7 Adit No. 5 Hoist Building

7.1 Install a 6-foot chain link fence around the perimeter of the building. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.8.8 Adit No. 5 Pump House

8.1 Install a 6-foot chain link fence around the perimeter of the building. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.8.9 Switching Gear Building

9.1 Install a 6-foot chain link fence around the perimeter of the building. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.8.10 Smelter Concrete Water Structure

10.1 Demolition of the structure. The unit cost is developed from the 2012 RS Means 02 41 13.90 line 0700, concrete retaining wall. The unit cost includes hauling and disposal.

7.2.8.11 Loadout and Conveyor Pit

11.1 Demolition of the structures. The unit cost is based on 10 days to demolish the piers and conveyor pit with a Cat 365C hammer hoe and a Cat D7R dozer, then using the material in-situ as mass grading fill.

7.2.8.12 Historic Cooling Tower

12.1 Install a 6-foot chain link fence around the perimeter of the high wall. The unit cost is developed from the 2012 RS Means line 32 31 13.20.

7.2.9 Stormwater Management

7.2.9.1 CP-105 Berm and Channels

1.1 Removal of 125,900 cy of mass grading fill from CP-105 Pond and transporting to facilities covered under other programs. Therefore the cost for this activity is not included.

1.2 Local cut to fill of 4,000 cy. The unit cost is based on ripping and spreading the material with a Cat D9T dozer and a Cat 140H grader.

1.3 Hauling and placing 15,150 cy of low permeability fill from the Silt Ridge borrow area. The unit cost is based on breaking the clay in the borrow area using a Cat D7 dozer, loading 769/770 haul trucks with a Cat 966H front end loader, placing the clay with a D7R dozer, compacting with a Cat 815 compactor, and moisture conditioning with a Cat 621G water tanker.

1.4 Hauling and placing 29,300 cy of structural fill from former Able Earth quarry. The unit cost is based on ripping the material with a Cat D9T dozer, loading with a Cat 988 G/H front end loader, hauling with Cat 769/770 (40 ton) articulated haul trucks, spreading with a Cat D7R dozer, compacting with a Cat 815 compactor, and moisture conditioning with a Cat 621G water tanker.

1.5 Procuring and placing 4,900 cy of riprap (Type III) for channels.

1.6 Procuring and placing 3,260 cy of riprap (Type II) for channels.

1.7 Procuring and installing 520 lineal feet (lin ft) of outlet pipes (24-inch diameter RCP).

1.8 Procuring and installing 120 lin ft of culvert (24-inch diameter RCP).

1.9 Procuring and installing 200 lin ft of concrete box culverts (2 Barrels).

1.10 Procuring and installing 300 lin ft of concrete box culverts (3 Barrels).

7.2.10 Railroads

7.2.10.1 Never Sweat Tunnel to Loadout

1.1 Removal of rail ties, track, and ballast. The unit cost assumes the ballast is 1 foot thick and 10 feet wide and is developed from the 2012 RS Means 02 41 13.33 lines 3500 and 3600.

7.2.11 Roads

7.2.11.1 Roads with No Post-Mining Land Use

11.1 Removal of 1,700 cy of mass grading fill from the Asphalt Road to the east and uphill from the CP-6 Berm. The unit cost is based on excavating the material with a Cat 345C excavator and loading Cat 769 (40 ton) articulated haul trucks, and spreading with a Cat D7R.

11.2 Opening 10 roadside drains. The unit cost is based on removing existing culverts (if applicable) and excavating existing road material to open existing drainage path.

11.3 2,000 cy of prepared surface. The unit cost is based on scarifying and spreading the existing surface material to prepare the area for revegetation.

11.4 Construction of 25 water bars (a type of swale). The unit cost is based on local cut to fill to facilitate drainage and prevent erosion along selected roadways.

11.5 Revegetating 2.0 acres.

7.2.12 Maintenance

Direct costs for maintenance of the reclaimed mining units or surface disturbances were estimated as the present value of annual costs for labor, equipment, and miscellaneous items as provided in Section 2.13 of Appendix 1. Roads, channels, and fences will be maintained for 10 years in the post-reclamation period. For channels, the level of effort will be higher in the first 3 years and lower in last 7 years as the reclamation components mature and stabilize. For roads and fences, the level of effort is the same in each of the 10 years.

The annual costs were converted to a present value using an interest rate of 5.4 percent. This rate was the 20-year average derived from the Bloomberg Generic Pricing source, using the US Generic Government 20-Year Yield Index. The rates are comprised of generic US on-the-run-government bond index, based on the last yield traded on any give trading day. These yields are yield-to-maturity based on the ask side of the market and are pre-tax.

7.2.12.1 Roads

Access roads will be maintained to allow for inspection and maintenance.

1.1 Inspection of access roads. The unit cost is based on one inspector/foreman and a four-wheel drive pick-up truck.

1.2 Maintenance of access roads. The unit cost is based on regrading with a Cat 140H motor grader.

7.2.12.2 Channels

Channels will be inspected regularly and maintained to prevent excessive erosion, sedimentation, or vegetation growth.

2.1 Inspection of channels, years 1-3. The unit cost is based on one inspector/foreman and a four-wheel drive pick-up truck.

2.2 Maintenance of channels, years 1-3. The unit cost is based on using a backhoe and laborers to reset riprap, remove vegetation, and clean out sediment.

2.3 Inspection of channels, years 4-10. The unit cost is based on one inspector/foreman and a four-wheel drive pick-up truck, but at a lower level of effort than the first 3 years.

2.4 Maintenance of channels, years 4-10. The unit cost assumes a decreased level of effort and is based on using a backhoe and laborers to reset riprap, remove vegetation, and clean out sediment.

7.2.12.3 Covers and Vegetation

Portions of the revegetated surfaces may not initially revegetate successfully and will need revegetation and repair annually, at least for the first several years. ARS §27-992-C.2 states, “Provide continued care and monitoring of the areas stated in the reclamation plan for revegetation for no more than three growing seasons…”.

3.1 Inspection of cover and vegetation, years 1-3. The unit cost is based on one inspector/foreman and a four-wheel drive pick-up truck.

3.2 Cover Repair, years 1-3. The unit cost is based on using a CAT D7 Dozer to repair erosion and scarify the existing surface material to prepare the area for revegetation.

3.3 Revegetation, years 1-3. Fifteen percent of the total acreage initially revegetated, 14.5 acres.

7.2.12.4 Fences and Signs

Fences and signs will be inspected periodically and maintained to ensure access is effectively restricted.

4.1 Inspection of fences. The unit cost is based on one laborer and a four-wheel drive pick-up truck.

7.3 Summary of Estimated Costs

Based on items listed in the cost estimate basis section, the estimated cost for the reclamation of the West Plant Site is $2,520,000. A summary of the estimated cost for each item is presented in Table 4 below.

Table 4 – Cost Estimate Summary

Facility	Estimated Cost[1]
Non-Stormwater Ponds	$10,000
Stockpiles	$590,000
Borrow Areas and Quarries	$260,000
Pits, Rock Faces, and Subsidence Areas	$90,000
Smelter Area	$10,000
Disposal Areas	$30,000
Shafts, Adits, and Tunnels	$10,000
Buildings and Structures	$170,000
Stormwater Management	$1,090,000
Railroads	$20,000
Roads	$40,000
Maintenance	$200,000
Total	**$2,520,000**

Note:
[1] Values rounded to the nearest $10,000.

8.0 TENTATIVE SCHEDULE

The schedule for completing reclamation is tentative because mining activities will continue at the West Plant Site for the foreseeable future. Nonetheless, reclamation measures can be categorized and approximately scheduled as follows:

- **Near-term –** These are the reclamation measures related to inactive and existing units not being used to support exploration activities. Compliance schedules under the other permits and programs generally determine the schedule for these units. These measures will generally be completed between 2012 and 2022. Units include stockpiles, borrow areas, pits and rock faces, and the disposal area.
- **Indefinite future –** These are the reclamation measures related to active units that are now, and for the foreseeable future, being used to support mining activities. These reclamation measures will be completed within several years after the cessation of mining, which is indeterminate at this time. Units include the Neversweat Tunnel, Shaft No. 6 (an active ventilation shaft), the railroad from the Neversweat Tunnel to the Loadout, the Loadout and conveyor pit, and some roads.

9.0 SUMMARY

This reclamation plan was prepared for the West Plant Site of the Superior Mine, Superior, Arizona. The plan was developed in accordance with the MLRA and is intended for submittal to the Arizona State Mine Inspector's Office as the basis for financial assurance under the MLRA. RCML is the current owner of the West Plant Site and is responsible for reclamation.

The current and foreseeable land use at the West Plant Site is mining. The current land use around the West Plant Site is residential, commercial, industrial, grazing, and recreation. RCML has selected an industrial post-mining land use to provide for the sustainable development of the area.

RCML, and the previous owner BHP Copper Inc., have been reclaiming and redeveloping the West Plant Site since the late 1990's. The majority of the historic mining units have already been demolished, closed, and reclaimed. Of those that remain, a number are being reclaimed voluntarily under other programs or have financial assurance in place under the APP program. A small number of new mining units have been added at the West Plant Site to support the new exploration activities. Therefore, not all of the mining units currently at the West Plant Site area subject to the financial assurance requirements of the MLRA.

This reclamation plan describes the measures to reclaim surface disturbances subject to the requirements of ARS §§ 27-901 through 27-997 and AAC §§ R11-2-101 through R11-2-822. Reclamation measures include management of materials, development of borrow sources, recontouring, placement of covers, revegetation, stormwater management, road removal, demolition of structures and buildings with no post-mining use, stabilization of slopes, closure of mine openings and excavations, access restrictions (e.g., security, fencing), warning signs, and maintenance of remaining facilities.

The estimated cost for financial assurance to complete the reclamation measures is approximately $2,520,000. This estimated cost is based on conceptual designs and third party unit costs, although RCML may elect to demonstrate corporate financial ability or guarantee under ARS § 27-991(B)(8) and AAC. § R11-2-811, which would reduce the estimate. The estimate is conservative in that salvage credits are not included. This estimated cost includes a 15 percent add-on for mobilization/demobilization, overhead and profit, detailed engineering, and construction monitoring.

10.0 REFERENCES

Brown and Caldwell, 1999. Site Characterization Report, Superior Mine. Prepared for BHP-Billiton – Superior Operations, Superior, Arizona. June 1999.

Canty and Greely, 1987. History of Mining in Arizona. Arizona: Mining Club of the Southwest Foundation, Tucson, AZ.

Canty and Greely, 1991. History of Mining in Arizona, Volume II. Arizona: Mining Club of the Southwest Foundation, Tucson, AZ.

Caterpillar, 2007. Caterpillar Performance Handbook, 37th edition, Caterpillar Inc., Peoria, IL.

Peterson, D.W., 1969. USGS Geologic Quadrangle Map GQ-818, Superior Quadrangle, Arizona. Scale 1:24,000, 1 Plate.

RS Means, 2011. Heavy Construction Cost Data, 25th Edition. Published by Reed Construction Data, Norwell, MA.

RS Means, 2012. Heavy Construction Cost Data, 26th Edition. Published by Reed Construction Data, Norwell, MA.

University of Arizona, 2008. Chapter 4, Natural Vegetation of Arizona, Books of the Southwest, accessed on-line through the University of Arizona website (2008): (southwest.library.arizona.edu/azso/body.1_div.4.html).

TABLES

Table 1: Monthly and Average Annual Climatic Data

Time Period	Total Evaporation (inch)	Total Precipitation (inch)	Average Temperature (ºC)	Maximum Temperature (ºC)	Minimum Temperature (ºC)	Average Relative Humidity (%)	Maximum Relative Humidity (%)	Minimum Relative Humidity (%)	Average Wind Speed (mph)	Average Wind Speed (m/s)
Annual Climate Data										
2002	34.93	4.92	22.1	40.4	2.3	32.7	93.7	1.6	7.0	3.2
2003	90.41	13.68	22.2	44.5	-1.0	30.9	97.8	1.6	6.5	3.0
2004	77.88	15.24	21.1	40.7	0.1	34.9	99.0	1.7	7.0	3.2
2005	16.64	18.81	14.8	32.3	2.7	47.8	99.3	3.5	6.2	3.0
2006	73.17[a]	12.71	21.8	44.0	-0.1	34.6	99.9	1.6	6.5	2.9
2007	18.36[b]	4.90[c]	16.4	35.1	-4.4	37.4	99.9	4.0	7.2	3.2
2008[d]	---	---	---	---	---	---	---	---	---	---
2009[d]	106.51	5,71	23.9	34.8	4.4	27.0	81.7	7.5	6.9	3.1
2010	74.34	12.55	22.44	34.23	6.28	29.92	88.92	8.17	6.9	3.1
Average	**61.53**	**11.83**	**20.59**	**38.26**	**1.29**	**34.40**	**95.03**	**3.71**	**6.77**	**3.09**
Monthly Climate Data										
1/2009[d]	---	---	---	---	---	---	---	---	---	---
2/2009[d]	---	---	---	---	---	---	---	---	---	---
3/2009[d]	---	---	---	---	---	---	---	---	---	---
4/2009	6.97	---	19.1	27.8	8.9	25.9	78.9	9.5	6.9	3.1
5/2009	13.72	0.21	26.5	31.3	17.6	22.4	76.8	11.7	6.5	2.9
6/2009	14.96	0.06	27.5	32.5	23.0	21.2	36.3	8.1	6.5	2.9
7/2009	16.48	0.63	31.9	34.8	28.5	29.3	47.3	15.7	6.5	3.0
8/2009	15.61	0.12	31.2	34.6	25.6	24.0	60.0	11.9	6.5	2.9
9/2009	13.61	2.33	28.2	31.0	24.4	27.8	60.5	9.6	7.8	3.5
10/2009	10.80	0.00	20.6	29.7	8.1	25.7	47.9	7.5	6.5	3.0
11/2009	8.73	0.48	18.5	25.9	10.4	24.8	75.0	10.6	7.8	3.5
12/2009	5.63	1.86	10.1	15.4	4.4	41.4	81.7	11.7	6.9	3.1
1/2010	4.17	2.17	12.7	15.9	7.0	33.9	84.4	13.8	8.5	3.8
2/2010	3.28	10.38	11.5	16.2	6.3	49.0	88.9	21.8	6.9	3.1
3/2010	4.94	2.19	16.6	20.4	12.5	26.7	63.0	15.4	6.9	3.1
4/2010	10.32	0.04	18.0	23.8	9.7	27.5	56.6	11.7	6.5	3.0
5/2010	13.49	0.02	22.5	27.0	15.2	16.8	25.2	11.5	6.3	2.8
6/2010	16.02	0.04	29.4	33.9	21.8	15.7	25.0	8.2	6.5	2.9
7/2010	10.67	4.64	30.5	34.2	23.5	37.0	76.7	15.6	7.4	3.3
8/2010	11.47	1.11	30.2	33.3	25.6	36.8	61.1	18.6	6.5	3.0
Average	**10.64**	**1.64**	**22.64**	**27.52**	**16.02**	**28.58**	**61.49**	**12.54**	**6.91**	**3.11**

Notes:

[a] Partial year summary (limited datagaps in April, July, September, November and December not exceeding 1 week each).

[b] Partial year summary (January 1 to May 31, 2007 with part of April and much of May data missing).

[c] Partial year summary (January 1 to May 31, 2007).

[d] The West Plant Site MET station was inoperational from May 2007 to April 2009. No data exist for 2008.

mph = miles per hour

m/s = meters per second

Table 2: Mining Units Subject to Financial Assurance Requirements Under the MLRA

General Type of Mining Unit	Surface Disturbance / Mining Unit	Criteria for Exclusion from the MLRA Financial Assurance Requirements					Features Selected by RCML to Remain with Public Protection Measures (ARS. §27-975(A), (B), and (C))	Mining Units Subject to the MLRA Financial Assurance Requirements
		Inactive Units (ARS §§27-901(5), 27-924(B))	Related to Smelting, Refining, Fabricating, or Other Metals Process Facilities or Materials Associated with Such Facilities (ARS §27-901(9)	Subject to Other ADEQ Permits or VRP Requirements Which Make the MLRA Requirements Redundant, Inconsistent, or Contradictory (ARS §§27-902(B), 27-902(C), 27-924(A), 27-994)	Previously Reclaimed in Accordance with MLRA Requirements	Slated for Incorporation in the Post-Mining Land Use (ARS §27-992(C)(2), AAC §R11-2-603(A))		
Tailings	Tailings Pond 1/2	Exclude			Exclude			No
	Tailings Pond 3/4	Exclude			Exclude			No
	Tailings Pond 5			Exclude	Exclude			No
	Tailings Pond 6 (including West Outslope Tailings Pond 5)			Exclude				No
	Tailings Pond 7			Exclude				No
Non-stormwater Ponds	Former Mill Sand Ponds			Exclude	Exclude			No
	Settling Pond No. 1			Exclude				No
	Former Settling Pond No. 2			Exclude	Exclude			No
	Smelter Pond			Exclude	Exclude			No
	Lower Smelter Pond	Exclude						No
	Depot Pond			Exclude	Exclude			No
	Loadout Modular Tank			Exclude				**YES**
	Indian Ponds (East, West, North)			Exclude				No
Stockpiles	Shaft No. 8 Stockpile							**YES**
	500 Yard Development Rock Stockpile			Exclude	Exclude			No
	Ore Bins	Exclude			Exclude			No
	Cover Stockpile 1							**YES**
	Cover Stockpile 2							**YES**
	Cover Stockpile 3			Partially Exclude[a]				**YES**
	Cover Stockpile 4							**YES**
	Mill Sand Ponds Pad							**YES**
	Intermediate Rock Stockpile			Exclude				**YES**
	Magma Fault Pile	Exclude						No
	Roadside Pile	Exclude						No
	Shaft No. 4 Pad							**YES**
Borrow Areas and Quarries	Clay Pit							**YES**
	Silt Ridge Borrow Area							**YES**
	TP 3/4 Borrow Area			Partially Exclude[a]				**YES**
	Former Able Earth Quarry							**YES**
	Silica Flux Pad							**YES**
Pits, Rock Faces, and Subsidence Areas	Silica Flux Pit 1	Exclude			Exclude			No
	Silica Flux Pit 2	Exclude			Exclude			No
	Silica Flux Pit near Water Tank						X	**YES**
	Wedge Flux Pit							**YES**
	Adit No 5 Rock Face							**YES**
	Quarry Rock Face							**YES**
	Loadout Rock Face							**YES**
Smelter Area	Stack	Exclude	Exclude					No
	Slag Pile	Exclude	Exclude				X	**YES**
Disposal Areas	Solid Waste Landfill North of Tailings Pond 7			Exclude				No
	Disposal Area							**YES**
Remedial Projects	Future Smelter-affected Soil Remediation (including Smelter Town)	Exclude		Exclude				No
Mill	Mill Foundations				Exclude			No
Shafts, Adits, Tunnels	Never Sweat Tunnel							**YES**
	Adit No. 1	Exclude			Exclude			No
	Shaft No. 1	Exclude			Exclude			No
	Adit No. 2				Exclude			No
	Shaft No. 2				Exclude			No
	Adit No. 3 (500 Level)				Exclude			No
	Adit No. 3 (200 Level)				Exclude			No
	Shaft No. 3				Exclude			No
	Shaft No. 4				Exclude			No
	Adit No. 5				Exclude			No
	Shaft No. 5				Exclude			No
	Shaft No. 6							**YES**
	Shaft No. 7	Exclude			Exclude			No
	Shaft No. 8				Exclude			No
	Apex Shaft	Exclude			Exclude			No
Buildings and Structures	Nine-wide Trailer					Exclude		No
	Triple-wide Trailer					Exclude		No
	Contractor Trailer					Exclude		No
	Former General Office					Exclude		No
	Former Blueprint Office					Exclude		No
	Verde Building					Exclude		No
	Magma Avenue Guard Shack					Exclude		No
	Lone Tree Guard Shack					Exclude		No
	Warehouse					Exclude		No
	Guest House					Exclude		No
	No. 3 Hoist House						XX	**YES**
	Power Plant						XX	**YES**
	Machine Shop						XX	**YES**
	Engine House						XX	**YES**
	Smelter Office						XX	**YES**
	Smelter Warehouse						XX	**YES**
	Adit No. 5 Hoist Building						XX	**YES**
	Adit No. 5 Pump House						XX	**YES**
	Switching Gear Building						XX	**YES**
	Smelter Concrete Water Structure							**YES**
	Loadout and Conveyor Pit							**YES**
	Historic Cooling Tower						XX	**YES**
Infrastructure	Potable Water System					Exclude		No
	Sewer System					Exclude		No
	Power System					Exclude		No
	Natural Gas					Exclude		No
	Above-ground Tanks					Exclude		No
	Monitoring Wells					Exclude		No
Stormwater Management	CP-6 Berm					Exclude		No
	Magma Wash 500 Yard to CP-102 Channel					Exclude		No
	South Perimeter Channel					Exclude		No
	Loadout to CP-102 Channel					Exclude		No
	500 Yard to CP 102 Channel					Exclude		No
	CP-102 Berm					Exclude		No
	TP 3/4 Main and South Channels					Exclude		No
	Future CP-105 Berm and Channels			Partially Exclude[d]				**YES**
	Apex Berm and Tunnel					Exclude		No
Mine Water Treatment System	Mine Water Influent Line to Treatment Plant			Exclude		Exclude		No
	Minewater Equalization Tank			Exclude		Exclude		No
	Mine Water Treatment Plant			Exclude		Exclude		No
	Sludge Storage Impoundment North			Exclude		Exclude		No
	Sludge Storage Impoundment South			Exclude		Exclude		No
	Mine Water Effluent Line to NMID			Exclude		Exclude		No
	Mine Water Effluent Outfall to Queen Creek			Exclude		Exclude		No
Railroads	Neversweat Tunnel to Loadout							**YES**
	MARCO Remnants at West Plant Site					Exclude		No
Roads	Roads for industrial use, security, maintenance, monitoring					Exclude		No
	Roads with no post-mining purpose							**YES**

[a] Individual or General Aquifer Protection Permits; Individual or General Pollutant Discharge Elimination System Permits; Solid Waste Program Permits
[b] Units are partially excluded because a portion of the closure activity has duplicate financial assurance (ARS. §27-994)
X = Open area, rock face, or subsidence area to be fenced for public protection because reclamation is impractical
XX = Building to remain with fencing for public protection
MLRA = Mined Land Reclamation Act
ARS. = Arizona Revised Statutes
ADEQ = Arizona Department of Environmental Quality
VRP = Voluntary Remediation Program
AAC = Arizona Administrative Code

Table 3: Seed Mix

Common Name	Scientific Name	Total Bulk lbs./acre	Total PLS lbs.	% Bulk lbs./acre
Purple Three-Awn	Aristida Purprea	1.16	1	7.34
Needle Grama Grass	Bouteloua Aristidoides	0.66	0.5	4.18
Sideoats Grama	Bouteloua Curtipendula	0.69	0.5	4.33
Sand Dropseed	Sporobolus Cryptandrus	0.26	0.25	1.65
Desert Marigold	Baileya Multiradiata	0.52	0.5	3.31
Coves' Cassia	Senna Covesii	0.51	0.5	3.25
Mexican Gold Poppy	Eschscholtzia Mexicana	0.27	0.25	1.67
Desert Indianwheat	Plantago Ovata	0.54	0.5	3.39
Desert Globemallow	Sphaeralcea Ambigua	0.71	0.5	4.49
Fourwing Saltbrush	Atriplex Canescens	2.13	1	13.52
Brittlebush	Encelia Farinosa	4.24	1.5	26.84
Triangle Leaf Bursag	Ambrosia Deltoidea	1.98	1.5	12.52
Catclaw Acacia	Acacia Greggii	1.07	1	6.76
Jojoba	Simmondsia Chinensis	1.07	1	6.75

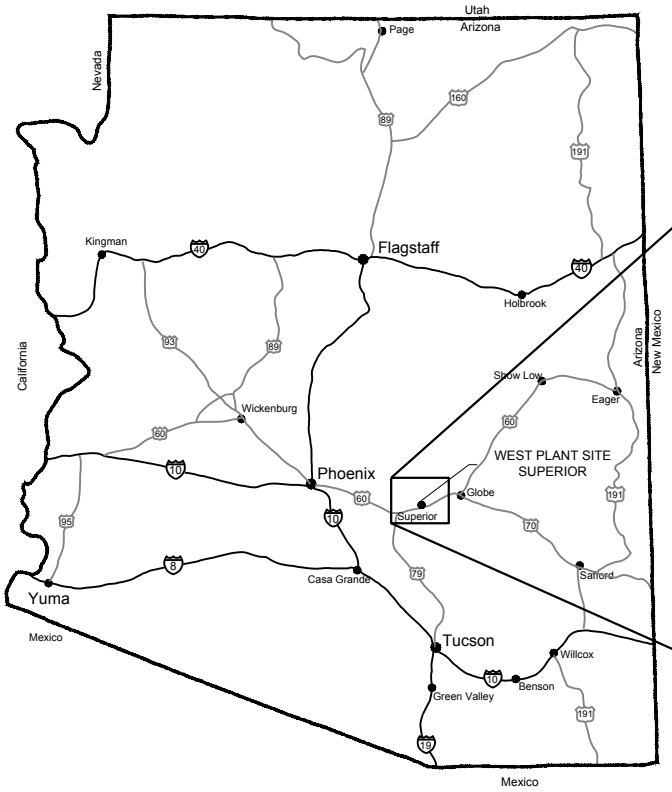
Notes:

lbs. – pounds

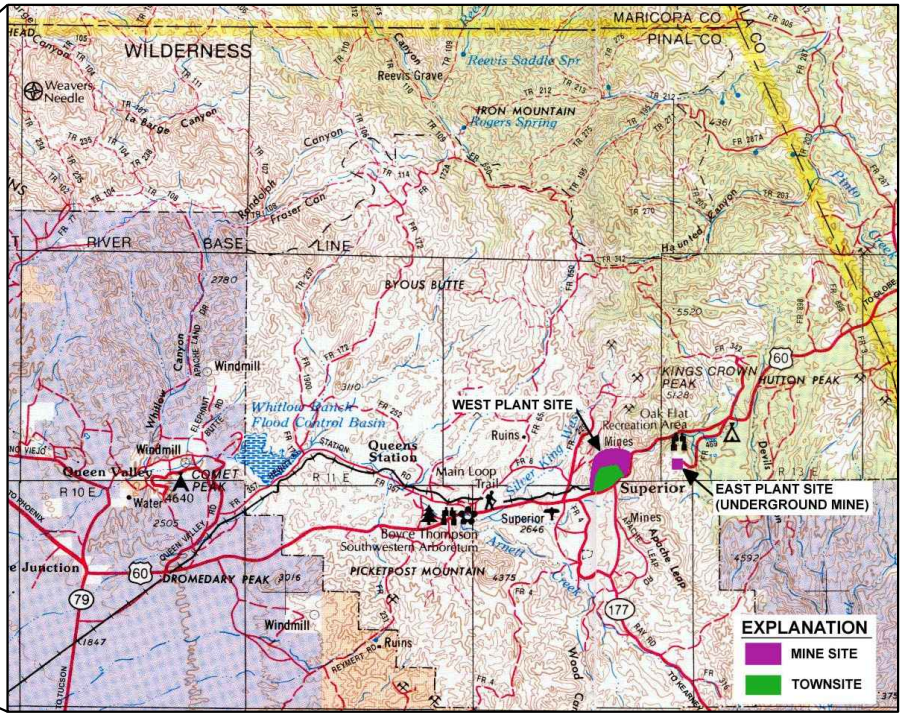
PLS – Pure Live Seed

Bulk seed application: 15 lbs. per acre

FIGURES



STATE OF ARIZONA



REFERENCE: ARIZONA ATLAS & GAZETTEER (1993).

LOCATION MAP

PROJECT

Resolution Copper Mining

MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

TITLE

LOCATION MAP

Golder Associates

PROJECT No.		123-92522	FILE No.	12392522B001
DESIGN	WK	2012-08-02	SCALE	NOT TO SCALE
CADD	ANV	2012-08-02		
CHECK	WK	2014-04-21		
REVIEW	KRJ	2014-04-21		

FIGURE 1

842000 N
840000 N
838000 N
836000 N
834000 N
942000 E
944000 E
946000 E
948000 E
950000 E
952000 E
954000 E
956000 E
958000 E
960000 E

SILVER KING WASH
APEX TUNNEL
APEX WASH
APEX WASH BERM
LANDFILL
FORMER ABLE EARTH QUARRY
TAILINGS POND 7
TAILINGS POND 6 RIDGE
TAILINGS POND 6
TAILINGS POND 5
MAGMA WASH
SHAFT No. 8
LOADOUT
CP-6 BERM
SETTLING POND 1
SSI-N
SSI-S
MINE WATER TREATMENT PLANT
500 YARD
NEVER SWEAT TUNNEL
MINE OFFICE
WEST PLANT SITE
TAILINGS PONDS 1/2
CP-102 BERM
TP 3/4 BORROW AREA
TAILINGS PONDS 3/4
TOWN OF SUPERIOR
STACK
FORMER SMELTER AREA
SMELTER POND
QUEEN CREEK
SLAG PILE
DEPOT POND
SILT RIDGE BORROW AREA
INDIAN PONDS
CLAY PIT
60
SHAFT No. 6
EAST PLANT SITE
QUEEN CREEK
N

LEGEND

PROPERTY LINE

NOTES

1.) SSI = SLUDGE STORAGE IMPOUNDMENT.

REFERENCES

1.) 2008 AERIAL PHOTOGRAPH PROVIDED BY RCML.

2.) 2005 USGS DOQQ AERIAL PHOTOGRAPH OBTAINED FROM ALRIS.

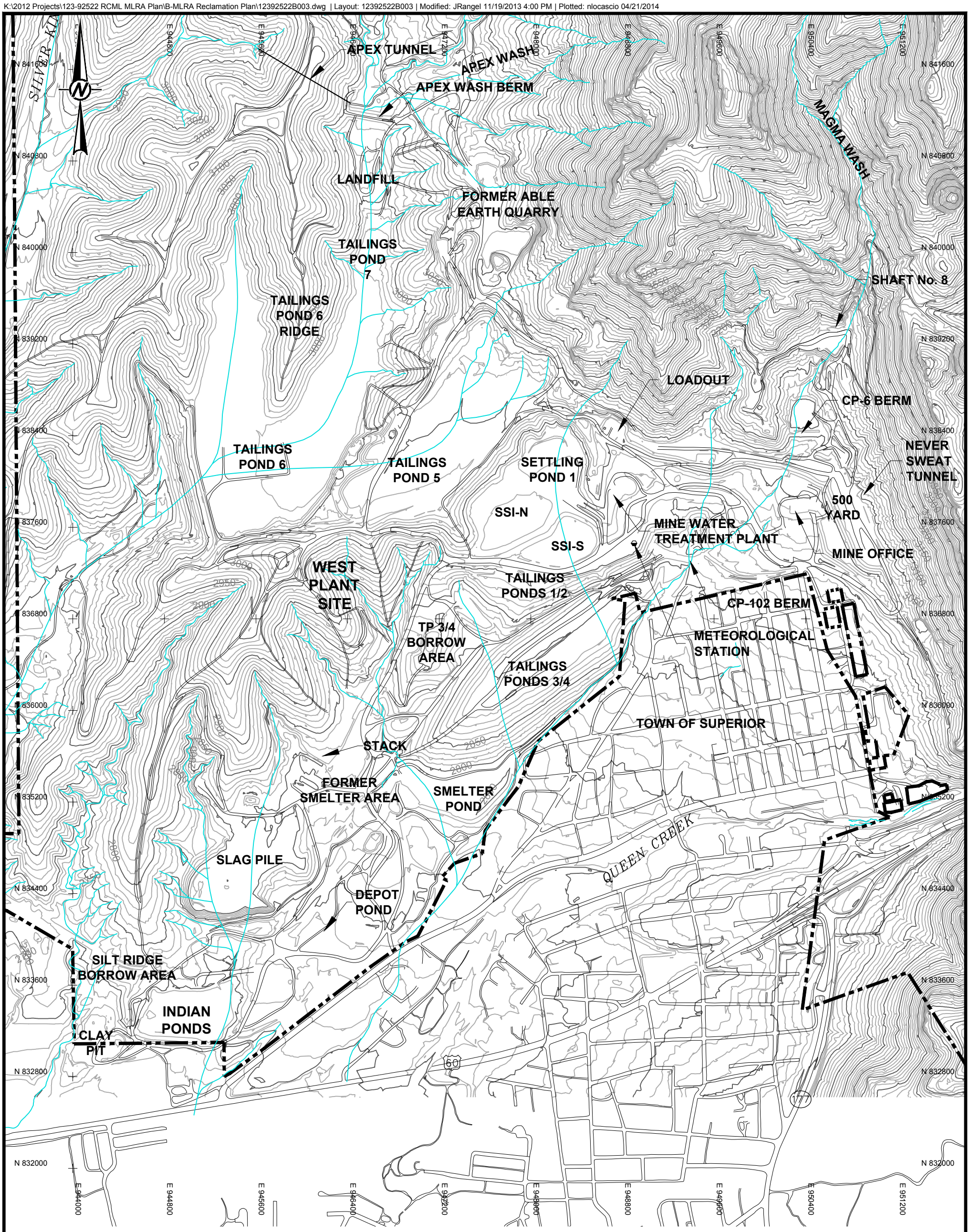
1200 0 1200
SCALE FEET

PROJECT
Resolution Copper Mining
MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

TITLE
AERIAL PHOTOGRAPH

Golder Associates

PROJECT No.		123-92522	FILE No.		12392522B002
DESIGN	WK	2012-08-02	SCALE		AS SHOWN
CADD	ANV	2012-08-02	FIGURE 2		
CHECK	WK	2014-04-21			
REVIEW	KRJ	2014-04-21			



LEGEND

- PROPERTY LINE
- METEOROLOGICAL STATION
- HISTORICAL DRAINAGE

NOTE

1.) SSI = SLUDGE STORAGE IMPOUNDMENT.

800 0 800
SCALE FEET

PROJECT
Resolution Copper Mining

MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

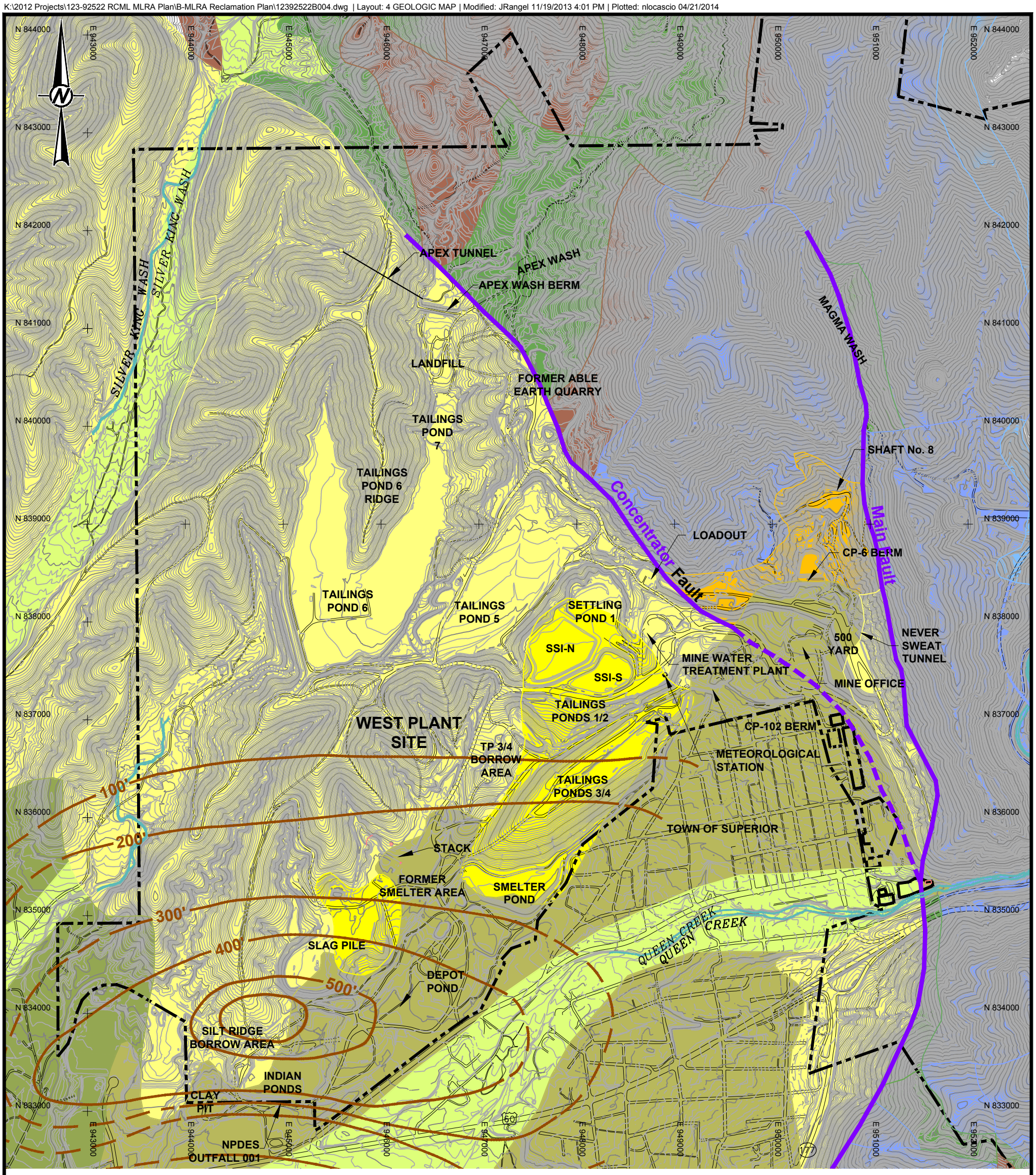
TITLE

SURFACE WATER HYDROLOGY AND TOPOGRAPHY

Golder Associates

PROJECT No.		123-92522	FILE No.	12392522B003
DESIGN	WK	2012-08-02	SCALE	AS SHOWN
CADD	ANV	2012-08-02		
CHECK	WK	2014-04-21		
REVIEW	KRJ	2014-04-21		

FIGURE 3



LEGEND

- EXISTING FAULT (DASHED WHERE INFERRED)
- PROPERTY LINE
- MUDSTONE ISOPACH CONTOUR (100 FT INTERVAL)

REFERENCES

1.) 2010 TOPOGRAPHY PROVIDED BY RCML

2.) GEOLOGY FROM *DI–13 – GEOLOGIC MAP OF PORTIONS OF THE GLOBE 30' X 60' QUADRANGLE, ARIZONA*, ARIZONA GEOLOGIC SURVEY, 1998.

1000 0 1000
SCALE FEET

GEOLOGIC LEGEND

- EXTENT OF TAILINGS SLAG PILES, AND FILL IN 1968
- HOLOCENE ALLUVIUM
- QUARTERNARY ALLUVIAL FAN REMNANTS DEEPLY INCISED
- QUARTERNARY ALLUVIUM, UNDIFFERENTIATED
- TERTIARY/ QUARTERNARY GILA CONGLOMERATE
- TERTIARY APACHE LEAP TUFF
- PENNSYLVANIAN NACO LIMESTONE
- MISSISSIPPIAN, DEVONIAN, AND CAMBRIAN SEDIMENTARY ROCKS
- PRECAMBRIAN DIABASE
- PRECAMBRIAN APACHE GROUP

PROJECT
Resolution Copper Mining
MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

TITLE
GEOLOGIC MAP

Golder Associates

PROJECT No.		123-92522	FILE No.		12392522B004
DESIGN	WK	2012-08-02	SCALE		AS SHOWN
CADD	ANV	2012-08-02			
CHECK	WK	2014-04-21			FIGURE 4
REVIEW	KRJ	2014-04-21			

Map: L:\Site\Resolution\Maps\Groundwater\QuarterlyContourMaps\11x17_GWEContours_201402_ForKent.mxd | Modified: 4/21/2014 9:35:05 AM | Plotted: 4/21/2014 9:35:26 AM by DZelmanfahm

LEGEND

Well with Groundwater Elevation
- Shallow or Upper Unstratified Unit
- Deep Confined Unit

Shallow or Upper Unstratified Unit
- Groundwater Elevation Contour (50 ft)
- Inferred Groundwater Elevation Contour (50 ft)

Deep Confined Unit
- Groundwater Elevation Contour (50 ft)
- Inferred Groundwater Elevation Contour (50 ft)

- Approximate Northern Extent of Mudstone Aquitard
- Fault
- Approximate Direction of Regional Gradient

833 416.5 0 833

SCALE 1:10,000
1 inch = 833 feet
FEET

NOTES

SP1&2-Alert-B well is completed in the Settling Ponds 1 & 2 Tailings.

REFERENCES

1) Projection: NAD 1983 StatePlane Arizona Central FIPS 0202 Feet.
2) Regional flow direction from Montgomery and Associates, 2001. Summary of Hydrogeologic Data for the Superior Area, Pinal and Gila Counties, Arizona. November 27, 2001.
3) March 2006 Aerial Provided by Arizona State Land Department.

PROJECT

Resolution Copper Mining

MLRA RECLAMATION PLAN
WEST PLANT SITE
SUPERIOR MINE, SUPERIOR, AZ

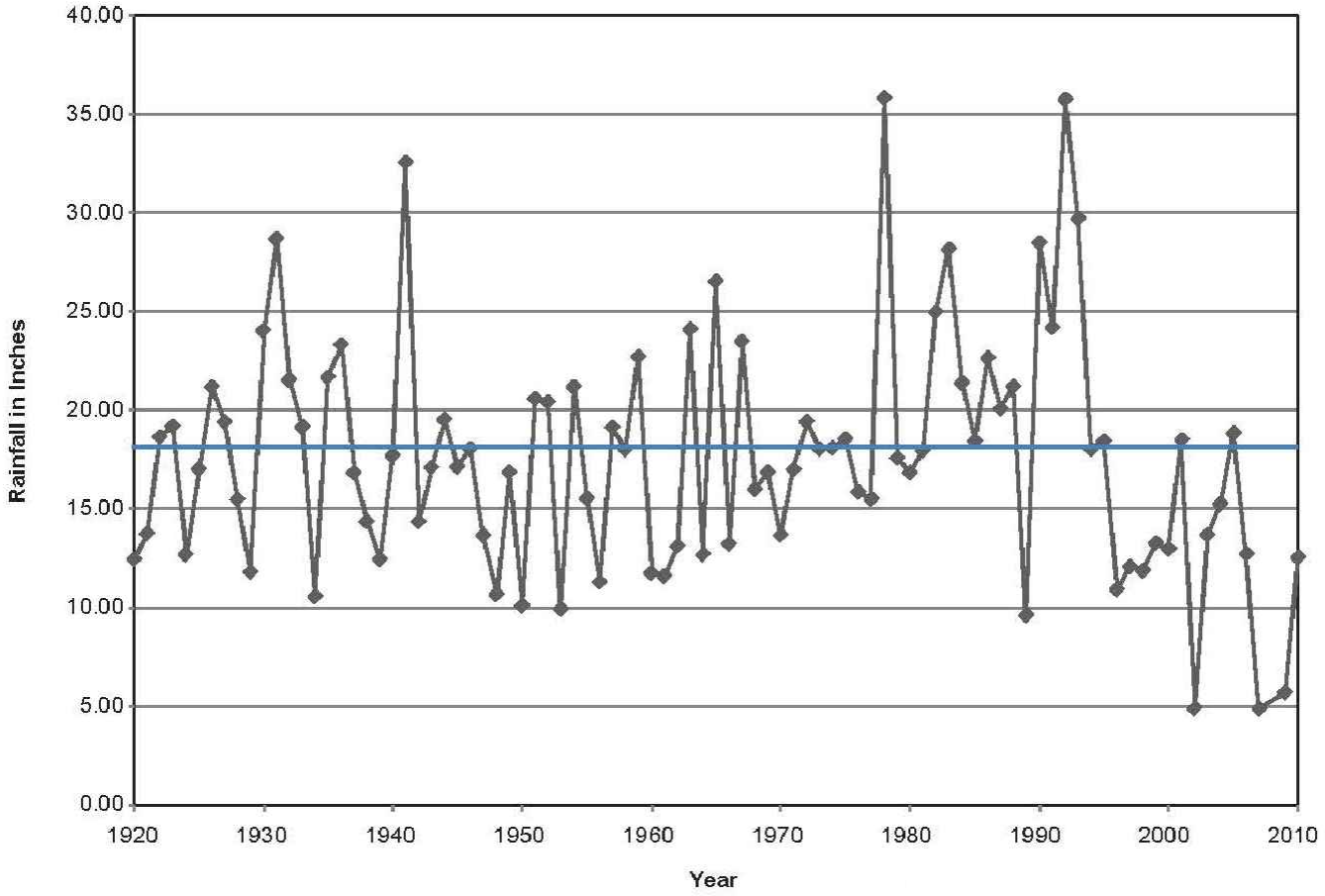
TITLE

WATER TABLE CONTOUR MAP AND DEEP POTENTIOMETRIC SURFACE 1ST QUARTER 2014

Golder Associates
Tucson, Arizona

PROJECT No.
123-92522

FIGURE 5



Note: Annual rainfall, town of Superior 1920 to 2010

PROJECT
Resolution Copper Mining

MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

TITLE

TOTAL ANNUAL RAINFALL

Golder Associates

PROJECT No.		123-92522	FILE No.		12392522B007
DESIGN	WK	2012-08-02	SCALE		NOT APPLICABLE
CADD	ANV	2012-08-02			
CHECK	WK	2014-04-21			
REVIEW	KRJ	2014-04-21			

FIGURE 6

E 944000 E 946000 E 948000 E 950000 E 952000 E 954000

N 842000 N 840000 N 838000 N 836000 N 834000

SILVER KING WASH

FORMER ABLE EARTH QUARRY

QUARRY ROCK FACE

SILICA FLUX PIT NEAR WATER TANK

DISPOSAL AREA

INTERMEDIATE ROCK STOCKPILE

SHAFT No. 8 STOCKPILE

SHAFT No. 4 PAD

SHAFT No. 6

COVER STOCKPILE 2

LOADOUT ROCK FACE

ADIT No. 5 ROCK FACE

COVER STOCKPILE 1

LOADOUT AND CONVEYOR PIT

LOADOUT MODULAR TANK

NEVERSWEAT RAILROAD

NEVERSWEAT TUNNEL

MILL SANDS POND PAD

WEST PLANT SITE

TP 3/4 BORROW AREA

WEDGE FLUX PIT

TOWN OF SUPERIOR

COVER STOCKPILE 3

COVER STOCKPILE 4

SLAG PILE

QUEEN CREEK

SILICA FLUX PAD

FUTURE CP-105 BERM AND CHANNELS

SILT RIDGE BORROW AREA

CLAY PIT

60

177

1000 0 1000

SCALE FEET

Mining Unit (Building) Key

1	No. 3 Hoist House
2	Power Plant
3	Machine Shop
4	Engine House
5	Smelter Office
6	Smelter Warehouse
7	Adit No. 5 Hoist Building
8	Adit No. 5 Pump House
9	Switching Gear Building
10	Smelter Concrete Water Structure
11	Loadout and Conveyor Pit
12	Historic Cooling Tower

LEGEND

PROPERTY LINE

MINING UNITS SUBJECT TO MLRA FINANCIAL ASSURANCE REQUIREMENT

REFERENCE

2010 TOPOGRAPHY PROVIDED BY RCML.

TABLE OF ACREAGES

Mining Unit	Area (acres)
Shaft No. 8 Stockpile	2.1
Cover Stockpile 1 Footprint	1.7
Cover Stockpile 2 Footprint	1.7
Cover Stockpile 3 Footprint	1.2
Cover Stockpile 4 Footprint	3.6
Mill Sands Pond Pad	2.3
Intermediate Rock Stockpile Footprint	7.4
Shaft No. 4 Pad	0.8
Clay Pit	4.0
Silt Ridge Borrow Area	2.5
TP 3/4 Borrow Area	12.2
Former Able Earth Quarry	6.4
Silica Flux Pad	7.0
Wedge Flux Pit	1.4
Adit No 5 Rock Face	0.5
Loadout Rock Face	1.1
Disposal Area (near Able Earth Quarry)	3.1
Shaft No. 6	0.8
Future CP-105 Berm and Channels	17.9
Total:	**77.7**

PROJECT

Resolution Copper Mining

MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

TITLE

MINING UNITS

Golder Associates

PROJECT No.		123-92522	FILE No.		12392522B008
DESIGN	WK	2012-08-02	SCALE		AS SHOWN
CADD	ANV	2012-08-02			
CHECK	WK	2014-04-21			
REVIEW	KRJ	2014-04-21			

FIGURE 7

APEX TUNNEL WATERSHED

TAILINGS POND 6 WATERSHED

SOUTHEASTERN WATERSHED

FUTURE RIPRAP-LINED CHANNELS

RIPRAP-LINED CHANNELS

CP-102 POND

CP-6 POND

2x48" PIPES OUTFALL WITH ENERGY DISSIPATOR

CP-6 POND OUTLET 2x48" PIPES (BURIED)

CP-6 POND TO CP-102 POND RIPRAP-LINED CHANNEL

SOUTH PERIMETER CHANNEL

RIPRAP-LINED CHANNEL

PRIMARY FLOW ROUTE

SECONDARY FLOW ROUTE

RIPRAP-LINED CHANNEL

RIPRAP-LINED CHANNEL

PRIMARY FLOW ROUTE

CURRENT INDIAN POND

FUTURE RIPRAP-LINED CHANNEL

FUTURE CP-105 POND

FUTURE CP-105 POND OUTLET CHANNEL

FUTURE OUTFALL TO QUEEN CREEK WITH ENERGY DISSIPATION

E 944000 E 944800 E 945600 E 946400 E 947200 E 948000 E 948800 E 949600 E 950400 E 951200

N 841600 N 840800 N 840000 N 839200 N 838400 N 837600 N 836800 N 836000 N 835200 N 834400 N 833600 N 832800 N 832000

LEGEND

- CHANNEL REACH
- TP-6 WATERSHED
- SOUTHEASTERN WATERSHED
- APEX TUNNEL WATERSHED
- PROPERTY LINE
- ELIMINATED POND
- NEW POND

800 0 800
SCALE FEET

PROJECT
Resolution Copper Mining

MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

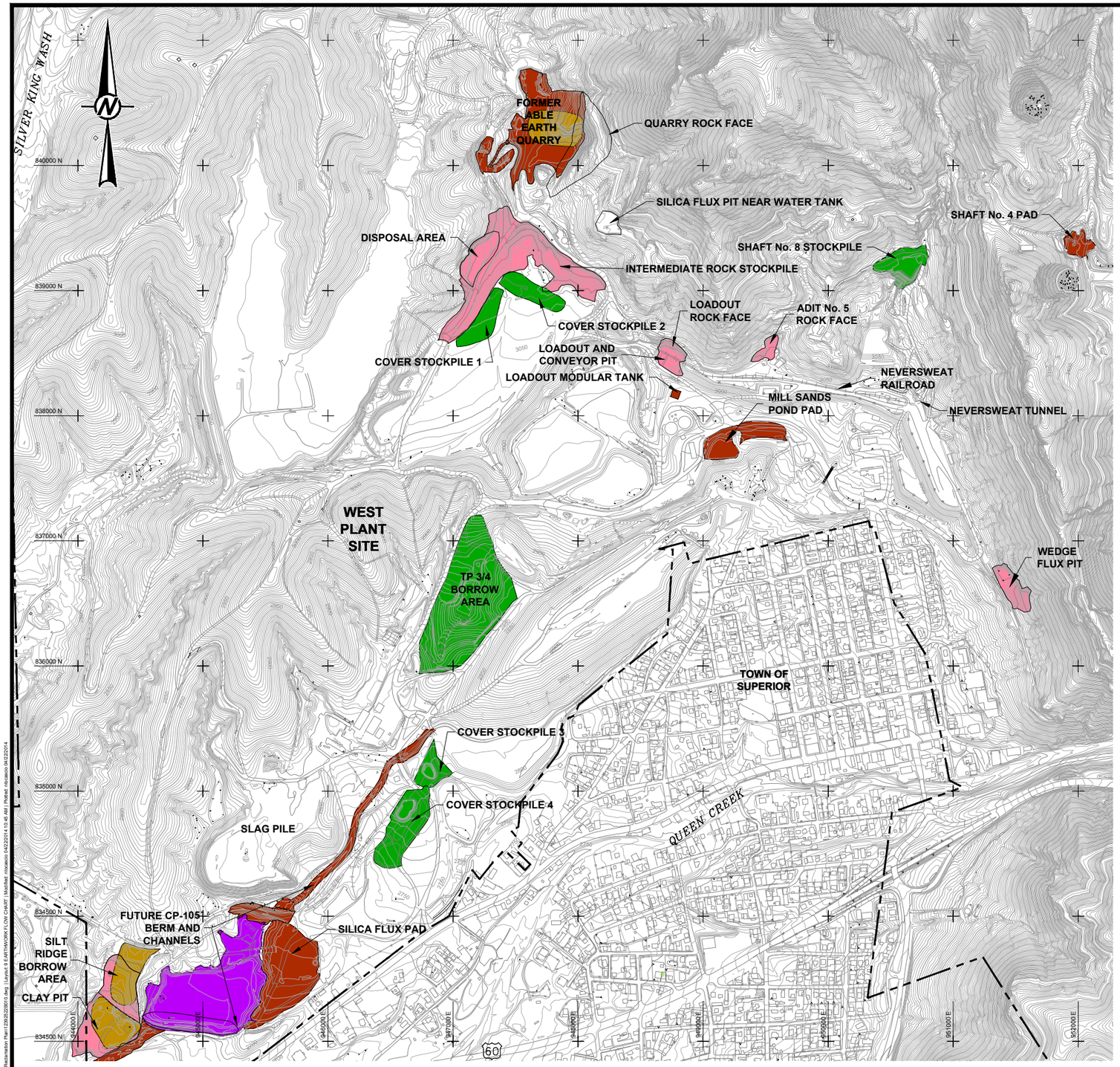
TITLE

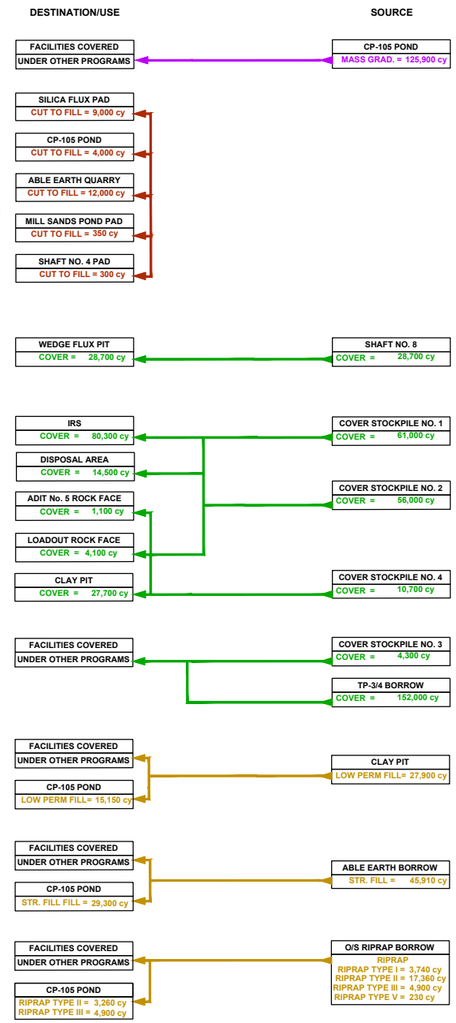
STORMWATER MANAGMENT

Golder Associates

PROJECT No.		123-92522	FILE No.	12392522B009
DESIGN	WK	2012-08-02	SCALE	AS SHOWN
CADD	ANV	2012-08-02		
CHECK	WK	2014-04-21		
REVIEW	KRJ	2014-04-21		

FIGURE 8





GENERAL LEGEND

- EXISTING GROUND CONTOUR (FT.-MSL)
- EXISTING ROADS
- EXISTING DRAINAGE
- EXISTING FENCELINE
- EXISTING POWER POLE OR POST
- PROPERTY LINE
- CUT TO FILL AREA
- FILL AREA
- CLEAN FILL BORROW AREA
- COVER FILL BORROW AREA
- MASS GRADING SOURCE AREA
- POTENTIALLY AFFECTED SOILS AREA

NOTE

IRS = INTERMEDIATE ROCK STOCKPILE
STR= STRUCTURAL
L.F. = LANDFILL
P.A. = POTENTIALLY AFFECTED

450 0 450 900
SCALE FEET

PROJECT
Resolution Copper Mining
MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

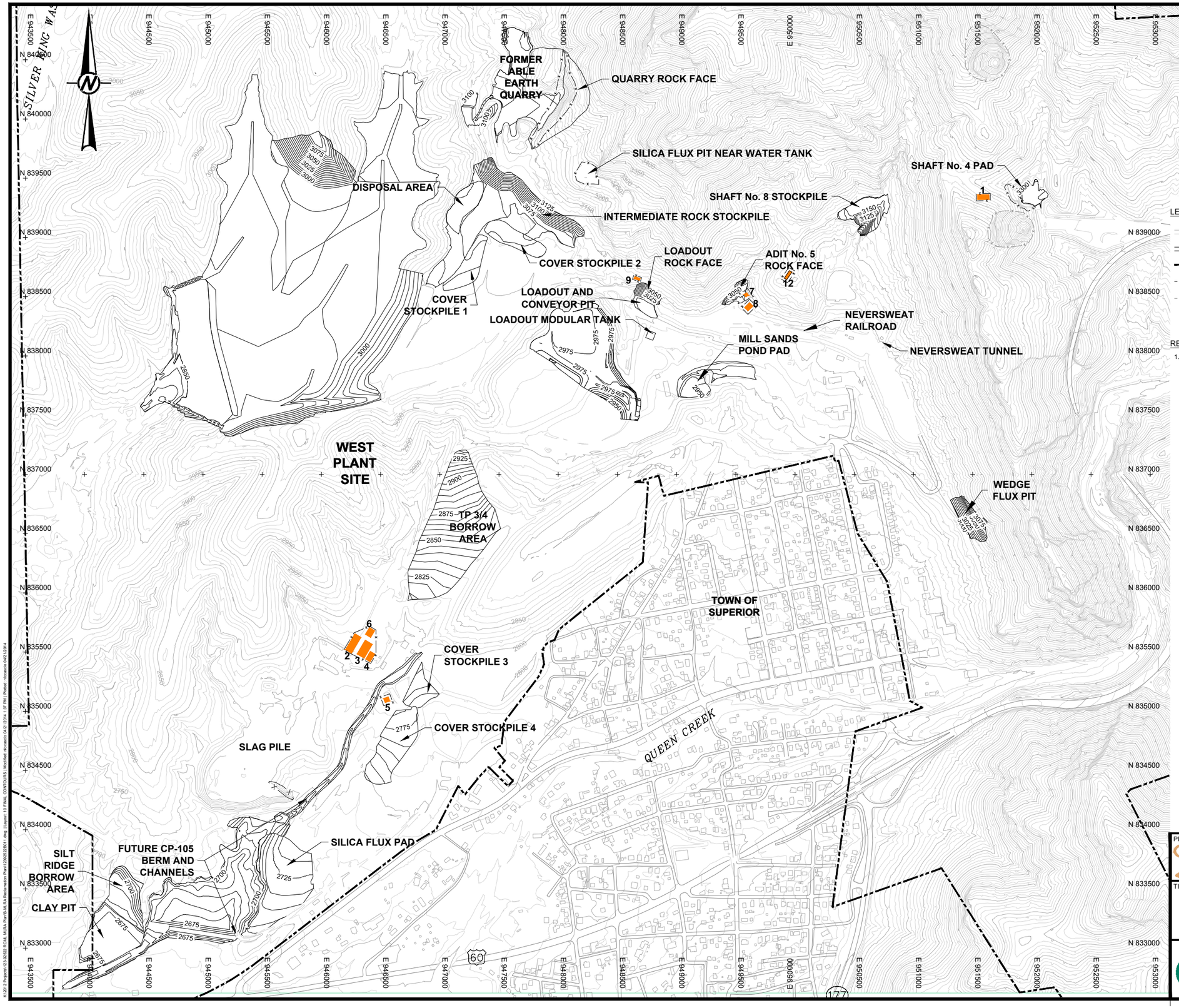
TITLE

EARTHWORK FLOW CHART

Golder Associates

PROJECT No.		123-92522	FILE No.	12392522B010
DESIGN	WK	2012-08-02	SCALE	AS SHOWN
CADD	ANV	2012-08-02		
CHECK	WK	2014-04-21		
REVIEW	KRJ	2014-04-21		

FIGURE 9



LEGEND

- 3150 EXISTING GROUND CONTOURS
- 3150 FINAL CONTOURS
- PROPERTY LINE
- FUTURE FENCE LINE
- EXISTING FENCE LINE
- 1 MINING UNIT (BUILDING) (SEE FIGURE 7 FOR KEY)

REFERENCE

1. 2010 TOPOGRAPHY PROVIDED BY RCML.

SCALE 400 0 400 800 FEET

CONTOUR INTERVAL:
EXISTING GROUND = 10 FT
FINAL CONTOURS = 5 FT

PROJECT

Resolution Copper Mining

MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

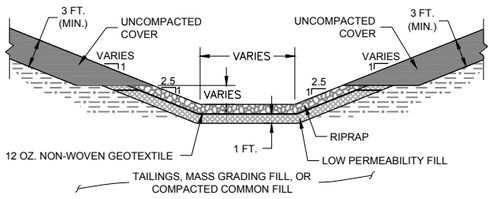
TITLE

FINAL CONTOURS

Golder Associates

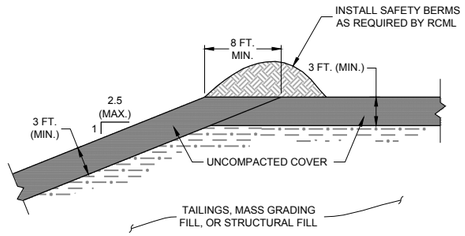
PROJECT No.		123-92522	FILE No.		12392522B011
DESIGN	WK	2012-08-02	SCALE		AS SHOWN
CADD	ANV	2012-08-02			
CHECK	WK	2014-04-21			
REVIEW	KRJ	2014-04-21			

FIGURE 10



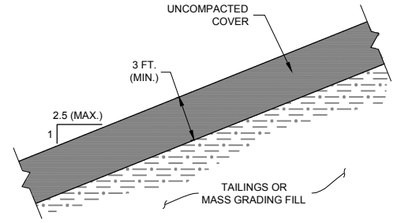
1/11 TYPICAL DIVERSION CHANNEL DETAIL

NOT TO SCALE



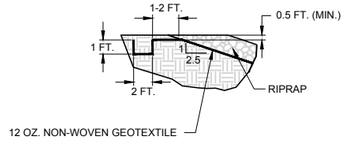
2/11 TYPICAL COVER AT CREST DETAIL

NOT TO SCALE



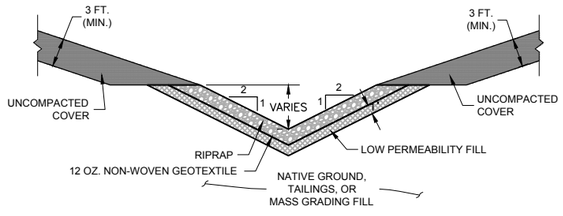
3/11 TYPICAL UNCOMPACTED COVER DETAIL

NOT TO SCALE



4/11 TYPICAL GEOTEXTILE ANCHOR TRENCH DETAIL

NOT TO SCALE



5/11 TYPICAL VEE DITCH DETAIL

NOT TO SCALE

PROJECT

Resolution Copper Mining

MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

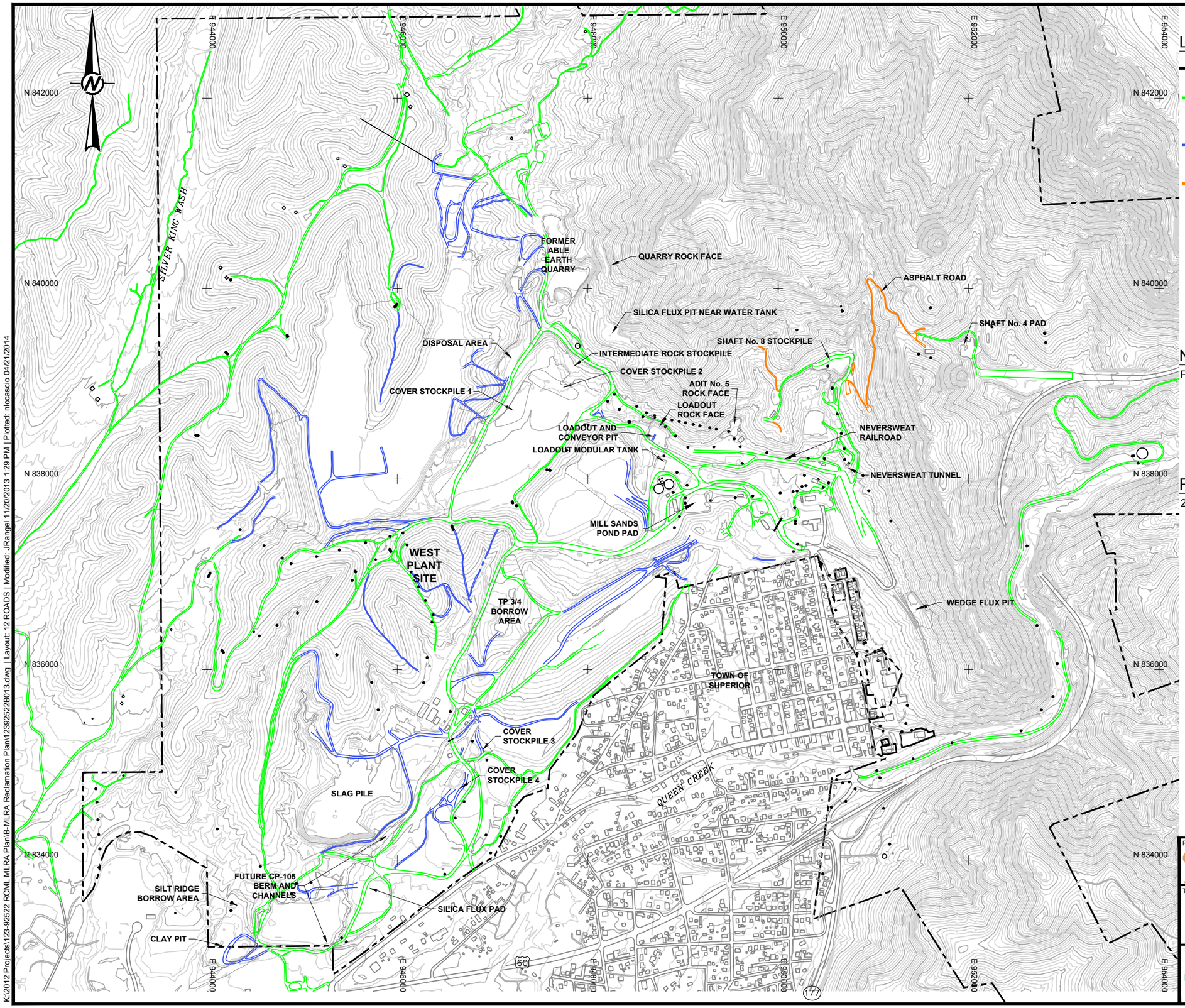
TITLE

TYPICAL DETAILS

Golder Associates

PROJECT No.		123-92522	FILE No.	12392522B012
DESIGN	WK	2012-08-02	SCALE	NOT TO SCALE
CADD	ANV	2012-08-02		
CHECK	WK	2014-04-21		
REVIEW	KRJ	2014-04-21		

FIGURE 11



LEGEND

- PROPERTY LINE
- ROADS TO REMAIN FOR MAINTENANCE, SECURITY, MONITORING, AND INDUSTRIAL PMLU
- ROADS TO BE REMOVED UNDER OTHER PROGRAMS
- ROADS TO BE REMOVED UNDER MLRA
- BUILDING
- POWERPOLE

NOTE

PMLU = POST-MINING LAND USE

REFERENCE

2010 TOPOGRAPHY PROVIDED BY RCML.

1000 0 1000
SCALE FEET

PROJECT
Resolution Copper Mining

MLRA RECLAMATION PLAN
WEST PLANT SITE, SUPERIOR MINE
SUPERIOR, ARIZONA

TITLE

ROADS

Golder Associates

PROJECT No.		123-92522	FILE No.	12392522B013
DESIGN	WK	2012-08-02	SCALE	AS SHOWN
CADD	ANV	2012-08-02		
CHECK	WK	2014-04-21		
REVIEW	KRJ	2014-04-21		

FIGURE 12

K:\2012 Projects\123-92522 RCML MLRA Plan\B-MLRA Reclamation Plan\12392522B013.dwg | Layout: 12 ROADS | Modified: JRangel 11/20/2013 1:29 PM | Plotted: nlocascio 04/21/2014

APPENDIX 1
COST ESTIMATE

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

TABLE OF CONTENTS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

1.0 RECLAMATION COST ESTIMATE SUMMARY

ITEM	FACILITY	ESTIMATED COST
1	NON-STORMWATER PONDS	$ 10,000
2	STOCKPILES	$ 590,000
3	BORROW AREAS AND QUARRIES	$ 260,000
4	PITS, ROCK FACES, AND SUBSIDENCE AREAS	$ 90,000
5	SMELTER AREA	$ 10,000
6	DISPOSAL AREAS	$ 30,000
7	SHAFTS, ADITS, AND TUNNELS	$ 10,000
8	BUILDINGS AND STRUCTURES	$ 170,000
9	STORMWATER MANAGEMENT	$ 1,090,000
10	RAILROADS	$ 20,000
11	ROADS	$ 40,000
13	MAINTENANCE	$ 200,000
	ESTIMATED TOTAL:	**$ 2,520,000**

Estimated Cost includes following Assumptions:

Published Water Cost (Arizona Water Company)	$ 0.005	/gallon
Mobilization/Demobilization as a pecent of all other costs:	3%	
Overhead & Profit:	5%	
Detailed Engineering:	4%	
Construction Monitoring:	3%	

This highlight is for input cells. Do not modify cells without this highlight!

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 COST DEVELOPMENT

2.1 NON-STORMWATER PONDS

COST SUMMARY

Item		Estimated Cost
2.1.1	LOADOUT MODULAR TANK	$ 10,000
	ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 10,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 COST DEVELOPMENT

2.1 NON-STORMWATER PONDS

2.1.1 LOADOUT MODULAR TANK

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.1.1.1	Demolition	4,225	CF	$ 0.27	$ 1,141
				ESTIMATED SUBTOTAL:	**$ 1,141**
				Overhead & Profit:	$ 57
				Detailed Engineering:	$ 46
				Construction Monitoring:	$ 34
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 10,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 COST DEVELOPMENT

2.1 NON-STORMWATER PONDS

2.1.1 LOADOUT MODULAR TANK

2.1.1.1 Demolition

Assumptions:

Steel tank, 65' x 65'

Estimate developed from RS Means 2012 02 41 16.13 Line 0500

Estimated Unit Cost: $ 0.27 /CF

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

COST SUMMARY

Item		Estimated Cost
2.2.1	SHAFT NO. 8 STOCKPILE	$ 110,000
2.2.2	COVER STOCKPILE 1	$ 120,000
2.2.3	COVER STOCKPILE 2	$ 160,000
2.2.4	COVER STOCKPILE 3	$ 10,000
2.2.5	COVER STOCKPILE 4	$ 50,000
2.2.6	MILL SANDS POND PAD	$ 10,000
2.2.7	INTERMEDIATE ROCK STOCKPILE	$ 110,000
2.2.8	SHAFT NO. 4 PAD	$ 20,000
	ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 590,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.1 SHAFT NO. 8 STOCKPILE

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.2.1.1	Excavation to Wedge Flux Pit	28,700	BCY	$ 2.32	$ 66,515
2.2.1.2	Local Cut to Fill	100	BCY	$ 1.65	$ 165
2.1.1.3	Prepared Surface	10,000	LCY	$ 0.20	$ 1,951
2.1.1.4	Low Permeability Fill	0	CCY	$ 5.11	$ 0
2.1.1.5	Geotextile	13,000	SF	$ 0.55	$ 7,150
2.1.1.6	Riprap (Type I)	182	LCY	$ 37.75	$ 6,871
2.1.1.7	Revegetation	2.1	AC	$ 3,082	$ 6,380
2.1.1.8	Water for Dust Control	4	Days	$ 1,821	$ 7,284
2.1.1.9	Survey	1	LS	$ 2,167	$ 2,167
2.1.1.10	Mobilization/Demobilization	1	LS	$ 2,954	$ 2,954
				ESTIMATED SUBTOTAL:	**$ 101,437**
				Overhead & Profit:	$ 5,072
				Detailed Engineering:	$ 4,057
				Construction Monitoring:	$ 3,043
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 110,000**

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.1 SHAFT NO. 8 STOCKPILE

2.2.1.1 Excavation to Wedge Flux Pit

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity -	28,700	BCY
Estimated Production Rate -	335	BCY/hr
Estimated Duration -	85.8	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
325D L 64,460lb	1	$ 76.83	85.8	$ 6,588
769/770 40 Ton	4	$ 128.37	85.8	$ 44,036
			Equipment Subtotal:	$ 50,625

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	42.9	$ 1,829
Excavator Operator	1	$ 36.09	85.8	$ 3,095
Haul Truck Driver	4	$ 31.97	85.8	$ 10,966
			Labor Subtotal:	$ 15,891

Estimated Subtotal: $ 66,515

Estimated Unit Cost: $ 2.32 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.1 SHAFT NO. 8 STOCKPILE

2.2.1.2 Local Cut to Fill

Assumptions:

Estimated Quantity -	100	BCY
Estimated Production Rate -	159	BCY/hr
Estimated Duration -	1	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	1	$ 67
140H/M - 14' Blade/Ripper	1	$ 64.60	1	$ 41
			Equipment Subtotal:	$ 108

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	0	$ 13
Dozer Operator	1	$ 35.01	1	$ 22
Grader Operator	1	$ 35.01	1	$ 22
			Labor Subtotal:	$ 57

Estimated Subtotal: $ 165

Estimated Unit Cost: $ 1.65 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.1 SHAFT NO. 8 STOCKPILE

2.1.1.3 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

Estimated Quantity - 10,000 LCY

Estimated Production Rate - 1076 LCY/hr

Estimated Duration - 9 hours

Equipment:

Item	Estimated Quantity		Rate	Estimated Hours		Estimated Cost
D6N P.A.T. (6 way) Dozer/Ripper	2	$	59.26	9	$	1,102
				Equipment Subtotal:	$	1,102

Labor:

Item	Quantity		Rate	Hours		Cost
Foreman	1	$	42.67	5	$	198
Dozer Operator	2	$	35.01	9	$	651
				Labor Subtotal:	$	849

Estimated Subtotal: $ 1,951

Estimated Unit Cost: $ 0.20

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.1 SHAFT NO. 8 STOCKPILE

2.2.1.4 Low Permeability Fill

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 0 CCY

Estimated Production Rate - 304 CCY/hr

Estimated Duration - 0.0 hours

Equipment:

Item	Estimated	Rate	Estimated	Estimated
D7R SU Dozer/Ripper	1	$ 106.78	0.0	$ 0
966H 5.25CY	1	$ 80.78	0.0	$ 0
769/770 40 Ton	5	$ 128.37	0.0	$ 0
D7R SU Dozer/Ripper	1	$ 106.78	0.0	$ 0
815F/G 44,200lb	1	$ 100.49	0.0	$ 0
621G 8,000 gal	1	$ 134.39	0.0	$ 0
			Equipment Subtotal:	$ 0

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	0.0	$ 0
Dozer Operator	2	$ 35.01	0.0	$ 0
Loader Operator	1	$ 36.09	0.0	$ 0
Compactor Operator	1	$ 35.01	0.0	$ 0
Haul Truck Driver	6	$ 31.97	0.0	$ 0
			Labor Subtotal:	$ 0

Material:

Item	Quantity	Unit	Unit Rate	Cost
Water (incr. moisture 10%)	0	gal	$ 0.005	$ 0
			Material Subtotal:	$ 0

Estimated Subtotal: $ 0

Estimated Unit Cost: $ 5.11 CCY

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.1 SHAFT NO. 8 STOCKPILE

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.1 SHAFT NO. 8 STOCKPILE

2.2.1.5 Geotextile

Assumptions:

Estimated Quantity - 13,000 SF

Estimated Unit Cost: $ 0.55 /SF

See Miscellaneous Unit Cost for cost basis.

2.2.1.6 Riprap (Type I)

Assumptions:

Riprap will be procured offsite and delivered to work area. Cost to procure riprap is based on CRC Cost Break Down for Tailings Pond 3-4 Closure. Assume riprap will be placed using small excavator with two laborers.

Estimated Quantity - 182 LCY
Estimated Production Rate - 159 LCY/hr
Estimated Duration - 1.1 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
325D L 64,460lb	1	$ 76.83	1.1	$ 88
			Equipment Subtotal:	$ 88

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	0.6	$ 24
Laborer	2	$ 21.96	1.1	$ 50
Excavator Operator	1	$ 36.09	1.1	$ 41
			Labor Subtotal:	$ 116

Material:

Item	Quantity		Rate	Hours	Cost
Riprap (Type I) FOB	182	CY	$ 26.63		$ 4,847
Deliver Riprap	182	CY	$ 10.00		$ 1,820
				Material Subtotal:	$ 6,667

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.1 SHAFT NO. 8 STOCKPILE

Estimated Subtotal:	**$**	**6,871**	
Estimated Unit Cost:	**$**	**37.75**	**LCY**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.1 SHAFT NO. 8 STOCKPILE

2.2.1.7 Revegetation

Assumptions:

Estimated Quantity - 2.1 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.1.1.8 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 96 Hours
Estimated Quantity - 4 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.1.1.9 Survey

Assumptions:

Estimated Days on Site: 2 Days

Estimated Cost:

Survey Crew Daily Rate:	$	784	/Day
Office Rate/Day on site:	$	300	/Day
	$	1,084	/Day

Estimated Unit Cost: $ 2,167 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.2 COVER STOCKPILE 1

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.2.2.1	Excavation to Intermediate Rock Stockpile	61,000	BCY	$ 1.60	$ 97,886
2.2.2.2	Prepared Surface	8,200	LCY	$ 0.20	$ 1,600
2.2.2.3	Revegetation	1.7	AC	$ 3,082	$ 5,208
2.2.2.4	Water for Dust Control	5	Days	$ -	$ -
2.2.2.5	Survey	1	LS	$ 542	$ 542
2.2.2.6	Mobilization/Demobilization	1	LS	$ 3,157	$ 3,157
				ESTIMATED SUBTOTAL:	**$ 104,694**
				Overhead & Profit:	$ 5,235
				Detailed Engineering:	$ 4,188
				Construction Monitoring:	$ 3,141
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 120,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.2 COVER STOCKPILE 1

2.2.2.1 Excavation to Intermediate Rock Stockpile

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 61,000 BCY

Estimated Production Rate - 543 LCY/hr

Estimated Duration - 112.3 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D9T SU Dozer Ripper	1	$ 188.92	112.3	$ 21,212
980G/H 7.5CY	1	$ 109.42	112.3	$ 12,286
769/770 40 Ton	3	$ 128.37	112.3	$ 43,241
			Equipment Subtotal:	$ 76,739

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	56.1	$ 2,395
Dozer Operator	1	$ 35.01	112.3	$ 3,931
Loader Operator	1	$ 36.09	112.3	$ 4,052
Haul Truck Driver	3	$ 31.97	112.3	$ 10,768
			Labor Subtotal:	$ 21,147

Estimated Subtotal: $ 97,886

Estimated Unit Cost: $ 1.60 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.2 COVER STOCKPILE 1

2.2.2.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

Estimated Quantity -	8,200	LCY
Estimated Production Rate -	1076	LCY/hr
Estimated Duration -	8	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D6N P.A.T. (6 way) Dozer/Ripper	2	$ 59.26	8	$ 904
			Equipment Subtotal:	$ 904

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	4	$ 163
Dozer Operator	2	$ 35.01	8	$ 534
			Labor Subtotal:	$ 696
			Estimated Subtotal:	**$ 1,600**
			Estimated Unit Cost:	**$ 0.20**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.2 COVER STOCKPILE 1

2.2.2.3 Revegetation

Assumptions:

Estimated Quantity - 1.7 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.2.2.4 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 120 Hours
Estimated Quantity - 5 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.2.2.5 Survey

Assumptions:

Estimated Days on Site: 0.5 Days

Estimated Cost:

Survey Crew Daily Rate:	$	784	/Day
Office Rate/Day on site:	$	300	/Day
	$	1,084	/Day

Estimated Unit Cost: $ 542 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.3 COVER STOCKPILE 2

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.2.3.1	Excavation to Intermediate Rock Stockpile	33,800	BCY	$ 1.90	$ 64,214
2.2.3.2	Excavation to LoadOut Rock face	9,100	BCY	$ 2.19	$ 19,974
2.2.3.3	Excavation to Adit #5	1,100	BCY	$ 2.19	$ 2,414
2.2.3.4	Excavation to Clay Pit	17,000	BCY	$ 3.08	$ 52,366
2.2.3.5	Prepared Surface	8,300	LCY	$ 0.23	$ 1,908
2.2.3.6	Revegetation	1.7	AC	$ 3,082	$ 5,288
2.2.3.7	Water for Dust Control	5	Days	$ 1,821	$ 9,105
2.2.3.9	Survey	1	LS	$ 1,084	$ 1,084
2.2.3.10	Mobilization/Demobilization	1	LS	$ 4,691	$ 4,691
				ESTIMATED SUBTOTAL:	**$ 146,164**
				Overhead & Profit:	$ 7,308
				Detailed Engineering:	$ 5,847
				Construction Monitoring:	$ 4,385
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 160,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.3 COVER STOCKPILE 2

2.2.3.1 Excavation to Intermediate Rock Stockpile

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity -	33,800	BCY
Estimated Production Rate -	543	LCY/hr
Estimated Duration -	62.2	hours

Equipment:

Item	Quantity	Rate	Hours		Cost
D9T SU Dozer Ripper	1	$ 188.92	62.2	$	11,754
980G/H 7.5CY	1	$ 109.42	62.2	$	6,808
769/770 40 Ton	4	$ 128.37	62.2	$	31,947
			Equipment Subtotal:	$	50,508

Labor:

Item	Quantity	Rate	Hours		Cost
Foreman	1	$ 42.67	31.1	$	1,327
Dozer Operator	1	$ 35.01	62.2	$	2,178
Loader Operator	1	$ 36.09	62.2	$	2,245
Haul Truck Driver	4	$ 31.97	62.2	$	7,955
			Labor Subtotal:	$	13,706

Estimated Subtotal: $ 64,214

Estimated Unit Cost: $ 1.90 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.3 COVER STOCKPILE 2

2.2.3.2 Excavation to LoadOut Rock face

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity -	9,100	BCY
Estimated Production Rate -	543	LCY/hr
Estimated Duration -	16.8	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D9T SU Dozer Ripper	1	$ 188.92	16.8	$ 3,164
980G/H 7.5CY	1	$ 109.42	16.8	$ 1,833
769/770 40 Ton	5	$ 128.37	16.8	$ 10,751
			Equipment Subtotal:	$ 15,748

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	8.4	$ 357
Dozer Operator	1	$ 35.01	16.8	$ 586
Loader Operator	1	$ 36.09	16.8	$ 605
Haul Truck Driver	5	$ 31.97	16.8	$ 2,677
			Labor Subtotal:	$ 4,226

Estimated Subtotal: $ 19,974

Estimated Unit Cost: $ 2.19 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.3 COVER STOCKPILE 2

2.2.3.3 Excavation to Adit #5

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity -	1,100	BCY
Estimated Production Rate -	543	LCY/hr
Estimated Duration -	2.0	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D9T SU Dozer Ripper	1	$ 188.92	2.0	$ 383
980G/H 7.5CY	1	$ 109.42	2.0	$ 222
769/770 40 Ton	5	$ 128.37	2.0	$ 1,300
			Equipment Subtotal:	$ 1,904

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	1.0	$ 43
Dozer Operator	1	$ 35.01	2.0	$ 71
Loader Operator	1	$ 36.09	2.0	$ 73
Haul Truck Driver	5	$ 31.97	2.0	$ 324
			Labor Subtotal:	$ 511

Estimated Subtotal: $ 2,414

Estimated Unit Cost: $ 2.19 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.3 COVER STOCKPILE 2

2.2.3.4 Excavation to Clay Pit

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity -	17,000	BCY
Estimated Production Rate -	543	LCY/hr
Estimated Duration -	31.3	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D9T SU Dozer Ripper	1	$ 188.92	31.3	$ 5,912
980G/H 7.5CY	1	$ 109.42	31.3	$ 3,424
769/770 40 Ton	8	$ 128.37	31.3	$ 32,136
			Equipment Subtotal:	$ 41,471

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	15.6	$ 668
Dozer Operator	1	$ 35.01	31.3	$ 1,096
Loader Operator	1	$ 36.09	31.3	$ 1,129
Haul Truck Driver	8	$ 31.97	31.3	$ 8,003
			Labor Subtotal:	$ 10,895

Estimated Subtotal: $ 52,366

Estimated Unit Cost: $ 3.08 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.3 COVER STOCKPILE 2

2.2.3.5 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

Estimated Quantity - 8,300 LCY
Estimated Production Rate - 710 LCY/hr
Estimated Duration - 12 hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D7R SU Dozer/Ripper	1	$ 106.78	12	$ 1,249
			Equipment Subtotal:	$ 1,249

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	6	$ 250
Dozer Operator	1	$ 35.01	12	$ 409
			Labor Subtotal:	$ 659
			Estimated Subtotal:	**$ 1,908**
			Estimated Unit Cost:	**$ 0.23**

2.2.3.6 Revegetation

Assumptions:

Estimated Quantity - 2 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

Golder Associates

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.3 COVER STOCKPILE 2

2.2.3.7 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity -	124	Hours
Estimated Quantity -	5	Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.2.3.6 Survey

Assumptions:

Estimated Days on Site:	1	Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 1,084 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.4 COVER STOCKPILE 3

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.2.4.1	Excavation to Facilities Covered Under Separate Bonds	4,300	BCY	$ 2.42	$ -
2.2.4.2	Prepared Surface	6,000	LCY	$ 0.23	$ 1,379
2.2.4.3	Revegetation	1.2	AC	$ 3,082	$ 3,802
2.2.4.4	Water for Dust Control	1	Days	$ 1,821	$ 1,821
2.2.4.5	Survey	1	LS	$ 217	$ 217
2.2.4.6	Mobilization/Demobilization	1	LS	$ 217	$ 217
				ESTIMATED SUBTOTAL:	**$ 5,181**
				Overhead & Profit:	$ 259
				Detailed Engineering:	$ 207
				Construction Monitoring:	$ 155
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 10,000**

Golder Associates

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.4 COVER STOCKPILE 3

2.2.4.1 Excavation to Facilities Covered Under Separate Bonds

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 4,300 BCY

Estimated Production Rate - 380 LCY/hr

Estimated Duration - 11.3 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	11.3	$ 1,207
966H 5.25CY	1	$ 80.78	11.3	$ 913
769/770 40 Ton	4	$ 128.37	11.3	$ 5,806
			Equipment Subtotal:	$ 7,927

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	5.7	$ 241
Dozer Operator	1	$ 35.01	11.3	$ 396
Loader Operator	1	$ 36.09	11.3	$ 408
Haul Truck Driver	4	$ 31.97	11.3	$ 1,446
			Labor Subtotal:	$ 2,491

Estimated Subtotal: $ 10,418

Estimated Unit Cost: $ 2.42 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.4 COVER STOCKPILE 3

2.2.4.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

Estimated Quantity -	6,000	LCY
Estimated Production Rate -	710	LCY/hr
Estimated Duration -	8	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	8	$ 903
			Equipment Subtotal:	$ 903

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	4	$ 180
Dozer Operator	1	$ 35.01	8	$ 296
			Labor Subtotal:	$ 476
			Estimated Subtotal:	**$ 1,379**
			Estimated Unit Cost:	**$ 0.23**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.4 COVER STOCKPILE 3

2.2.4.3 Revegetation

Assumptions:

Estimated Quantity - 1.2 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.2.4.4 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 20 Hours
Estimated Quantity - 1 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.2.4.5 Survey

Assumptions:

Estimated Days on Site: 0.2 Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 217 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.5 COVER STOCKPILE 4

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.2.5.1	Excavation to Clay Pit	10,700	BCY	$ 2.42	$ 25,923
2.2.5.2	Prepared Surface	17,300	LCY	$ 0.28	$ 4,830
2.2.5.3	Revegetation	3.6	AC	$ 3,082	$ 11,027
2.2.5.4	Water for Dust Control	2	Days	$ 1,821	$ 3,642
2.2.5.5	Survey	1	LS	$ 1,084	$ 1,084
2.2.5.6	Mobilization/Demobilization	1	LS	$ 1,395	$ 1,395
				ESTIMATED SUBTOTAL:	**$ 41,780**
				Overhead & Profit:	$ 2,089
				Detailed Engineering:	$ 1,671
				Construction Monitoring:	$ 1,253
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 50,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.5 COVER STOCKPILE 4

2.2.5.1 Excavation to Clay Pit

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 10,700 BCY

Estimated Production Rate - 380 LCY/hr

Estimated Duration - 28.1 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	28.1	$ 3,005
966H 5.25CY	1	$ 80.78	28.1	$ 2,273
769/770 40 Ton	4	$ 128.37	28.1	$ 14,448
			Equipment Subtotal:	$ 19,725

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	14.1	$ 600
Dozer Operator	1	$ 35.01	28.1	$ 985
Loader Operator	1	$ 36.09	28.1	$ 1,015
Haul Truck Driver	4	$ 31.97	28.1	$ 3,598
			Labor Subtotal:	$ 6,198

Estimated Subtotal: $ 25,923

Estimated Unit Cost: $ 2.42 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.5 COVER STOCKPILE 4

2.2.5.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

Estimated Quantity -	17,300	LCY
Estimated Production Rate -	710	LCY/hr
Estimated Duration -	24	hours

Equipment:

Item	Quantity	Rate	Hours		Cost
D7R SU Dozer/Ripper	1	$ 106.78	24	$	2,603
			Equipment Subtotal:	$	2,603

Labor:

Item	Quantity	Rate	Hours		Cost
Foreman	1	$ 42.67	12	$	520
Dozer Operator	2	$ 35.01	24	$	1,707
			Labor Subtotal:	$	2,227
			Estimated Subtotal:	**$**	**4,830**
			Estimated Unit Cost:	**$**	**0.28**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.5 COVER STOCKPILE 4

2.2.5.3 Revegetation

Assumptions:

Estimated Quantity - 3.6 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.2.5.4 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 53 Hours
Estimated Quantity - 2 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.2.5.5 Survey

Assumptions:

Estimated Days on Site: 1 Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 1,084 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.6 MILL SANDS POND PAD

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.2.6.1	Local Cut to Fill	350	BCY	$ 1.02	$ 358
2.2.6.2	Prepared Surface	11,300	LCY	$ 0.23	$ 2,598
2.2.6.3	Revegetation	2.3	AC	$ 3,082	$ 7,188
2.2.6.4	Water for Dust Control	-	Days	$ 1,821	$ -
2.2.6.5	Survey	1	LS	$ 542	$ 542
2.2.6.6	Mobilization/Demobilization	1	LS	$ 321	$ 321
				ESTIMATED SUBTOTAL:	**$ 10,144**
				Overhead & Profit:	$ 507
				Detailed Engineering:	$ 406
				Construction Monitoring:	$ 304
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 10,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.6 MILL SANDS POND PAD

2.2.6.1 Local Cut to Fill

Assumptions:

Estimated Quantity -	350	BCY
Estimated Production Rate -	159	BCY/hr
Estimated Duration -	2	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D7R SU Dozer/Ripper	1	$ 106.78	2	$ 235
			Equipment Subtotal:	$ 235

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	1	$ 47
Dozer Operator	1	$ 35.01	2	$ 77
			Labor Subtotal:	$ 124

Estimated Subtotal: $ 358

Estimated Unit Cost: $ 1.02 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.6 MILL SANDS POND PAD

2.2.6.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

Estimated Quantity - 11,300 LCY

Estimated Production Rate - 710 LCY/hr

Estimated Duration - 16 hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D7R SU Dozer/Ripper	1	$ 106.78	16	$ 1,700
			Equipment Subtotal:	$ 1,700

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	8	$ 340
Dozer Operator	1	$ 35.01	16	$ 557
			Labor Subtotal:	$ 897
			Estimated Subtotal:	**$ 2,598**
			Estimated Unit Cost:	**$ 0.23**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.6 MILL SANDS POND PAD

2.2.6.3 Revegetation

Assumptions:

Estimated Quantity - 2.3 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.2.6.4 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 18 Hours

Estimated Quantity - 1 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.2.6.5 Survey

Assumptions:

Estimated Days on Site: 0.5 Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 542 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.7 INTERMEDIATE ROCK STOCKPILE

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.2.7.1	Clean Fill from Cover Stockpile No.1	61,000	BCY	$ 0.96	$ 58,369
2.2.7.2	Uncompacted Cover from Stockpile No. 2	19,300	LCY	$ 0.21	$ 4,107
2.2.7.3	Revegetation	7.4	AC	$ 3,082	$ 22,810
2.2.7.4	Water for Dust Control	6	Days	$ 1,821	$ 10,926
2.2.7.5	Survey	1	LS	$ 2,709	$ 2,709
2.2.6.6	Mobilization/Demobilization	1	LS	$ 2,968	$ 2,968
				ESTIMATED SUBTOTAL:	**$ 98,920**
				Overhead & Profit:	$ 4,946
				Detailed Engineering:	$ 3,957
				Construction Monitoring:	$ 2,968
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 110,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.7 INTERMEDIATE ROCK STOCKPILE

2.2.7.1 Clean Fill from Cover Stockpile No.1

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 61,000 BCY

Estimated Production Rate - 543 LCY/hr

Estimated Duration - 112.3 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	112.3	$ 11,990
815F/G 44,200lb	1	$ 100.49	112.3	$ 11,283
621G 8,000 gal	1	$ 134.39	112.3	$ 15,089
			Equipment Subtotal:	$ 38,362

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	56.1	$ 2,395
Dozer Operator	1	$ 35.01	112.3	$ 3,931
Compactor Operator	1	$ 35.01	112.3	$ 3,931
Haul Truck Driver	1	$ 31.97	112.3	$ 3,589
			Labor Subtotal:	$ 13,847

Material:

Item	Quantity	Unit	Unit Rate	Cost
Water (incr. moisture 10%)	1,231,956	gal	$ 0.005	$ 6,160
			Material Subtotal:	$ 6,160

Estimated Subtotal: $ 58,369

Estimated Unit Cost: $ 0.96 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.7 INTERMEDIATE ROCK STOCKPILE

2.2.7.2 Uncompacted Cover from Stockpile No. 2

Assumptions:

Estimated Quantity -	19,300	LCY
Estimated Production Rate -	543	LCY/hr
Estimated Duration -	36	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D6N P.A.T. (6 way) Dozer/Ripper	1	$ 59.26	36	$ 2,105
			Equipment Subtotal:	$ 2,105

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	18	$ 758
Dozer Operator	1	$ 35.01	36	$ 1,244
			Labor Subtotal:	$ 2,002

Estimated Subtotal: $ 4,107

Estimated Unit Cost: $ 0.21 LCY

Estimated Unit Cost: $ 0.21 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.7 INTERMEDIATE ROCK STOCKPILE

2.2.7.3 Revegetation

Assumptions:

Estimated Quantity - 7.4 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.2.7.4 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 148 Hours
Estimated Quantity - 6 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.2.7.5 Survey

Assumptions:

Estimated Days on Site: 2.5 Days

Estimated Cost:

Survey Crew Daily Rate:	$	784	/Day
Office Rate/Day on site:	$	300	/Day
	$	1,084	/Day

Estimated Unit Cost: $ 2,709 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.8 SHAFT NO. 4 PAD

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.2.8.1	Local Cut to Fill	300	BCY	$ 1.02	$ 307
2.2.8.2	Prepared Surface	3,900	LCY	$ 0.23	$ 896
2.2.8.3	Revegetation	0.8	AC	$ 3,082	$ 2,461
2.2.8.4	Perimeter Fence	756	LF	$ 22.77	$ 17,214
2.2.8.5	Water for Dust Control	-	Days	$ 1,821	$ -
2.2.8.6	Survey	1	LS	$ 542	$ 542
2.2.8.7	Mobilization/Demobilization	1	LS	$ 643	$ 643
				ESTIMATED SUBTOTAL:	**$ 22,063**
				Overhead & Profit:	$ 1,103
				Detailed Engineering:	$ 883
				Construction Monitoring:	$ 662
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 20,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.8 SHAFT NO. 4 PAD

2.2.8.1 Local Cut to Fill

Assumptions:

Estimated Quantity -	300	BCY
Estimated Production Rate -	159	BCY/hr
Estimated Duration -	2	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	2	$ 201
		Equipment Subtotal:		$ 201

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	1	$ 40
Dozer Operator	1	$ 35.01	2	$ 66
			Labor Subtotal:	$ 106
			Estimated Subtotal:	**$ 307**
			Estimated Unit Cost:	**$ 1.02 BCY**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.8 SHAFT NO. 4 PAD

2.2.8.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

Estimated Quantity -	3,900	LCY
Estimated Production Rate -	710	LCY/hr
Estimated Duration -	5	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D7R SU Dozer/Ripper	1	$ 106.78	5	$ 587
			Equipment Subtotal:	$ 587

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	3	$ 117
Dozer Operator	1	$ 35.01	5	$ 192
			Labor Subtotal:	$ 310
			Estimated Subtotal:	**$ 896**
			Estimated Unit Cost:	**$ 0.23**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.2 STOCKPILES

2.2.8 SHAFT NO. 4 PAD

2.2.8.3 Revegetation

Assumptions:

Estimated Quantity - 0.8 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.2.8.4 Perimeter Fence

Assumptions:

Install 6 ft chain link fencing around perimeter of highwalls.
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Fencing $ 22.77 /LF

Estimated Unit Cost: $ 22.77 /LF

2.2.8.5 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 7 Hours
Estimated Quantity - 0 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.2.8.6 Survey

Assumptions:

Estimated Days on Site: 0.5 Days

Estimated Cost:

Survey Crew Daily Rate: $ 784 /Day
Office Rate/Day on site: $ 300 /Day
$ 1,084 /Day

Estimated Unit Cost: $ 542 LS

Golder Associates

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

COST SUMMARY

Item		Estimated Cost
2.3.1	CLAY PIT	$ 50,000
2.3.2	SILT RIDGE BORROW AREA	$ 10,000
2.3.3	TP 3/4 BORROW AREA	$ 60,000
2.3.4	FORMER ABLE EARTH QUARRY	$ 100,000
2.3.5	SILICA FLUX PAD	$ 40,000
	ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 260,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.1 CLAY PIT

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.3.1.1	Excavation to CP-105 Pond (Low Perm Fill)	15,150	BCY	$ -	$ -
2.3.1.2	Clean Fill from Cover Stockpile No. 2	2,100	LCY	$ 1.05	$ 2,208
2.3.1.3	Clean Fill from Cover Stockpile No. 4	10,700	LCY	$ 1.46	$ 15,610
2.3.1.4	Local Cut to Fill	7,500	BCY	$ 0.21	$ 1,539
2.3.1.5	Prepared Surface	19,200	LCY	$ 0.21	$ 4,086
2.3.1.6	Revegetation	4.0	AC	$ 3,082	$ 12,214
2.3.1.7	Water for Dust Control	3	Days	$ 1,821	$ 5,463
2.3.1.8	Survey	1	LS	$ 3,251	$ 3,251
2.3.1.9	Mobilization/Demobilization	1	LS	$ 1,234	$ 1,234
				ESTIMATED SUBTOTAL:	**$ 45,604**
				Overhead & Profit:	$ 2,280
				Detailed Engineering:	$ 1,824
				Construction Monitoring:	$ 1,368
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 50,000**

2.3.1.1 Excavation to CP-105 Pond (Low Perm Fill)

Assumptions:

Loading and haulage estimates included with CP-105 estimate.

2.3.1.2 Clean Fill from Cover Stockpile No. 2

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 2,100 LCY
Estimated Production Rate - 543 LCY/hr
Estimated Duration - 3.9 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D8T SU Dozer Ripper	1	$ 158.22	3.9	$ 612
815F/G 44,200lb	1	$ 100.49	3.9	$ 388

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.1 CLAY PIT

621G 8,000 gal	1	$ 134.39	3.9	$ 519
			Equipment Subtotal:	$ 1,519

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	1.9	$ 82
Dozer Operator	1	$ 35.01	3.9	$ 135
Compactor Operator	1	$ 35.01	3.9	$ 135
Haul Truck Driver	1	$ 31.97	3.9	$ 124
			Labor Subtotal:	$ 477

Material:

Item	Quantity	Unit	Unit Rate	Cost
Water (incr. moisture 10%)	42,412	gal	$ 0.005	$ 212
			Material Subtotal:	$ 212

Estimated Subtotal: $ 2,208

Estimated Unit Cost: $ 1.05 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.1 CLAY PIT

2.3.1.3 Clean Fill from Cover Stockpile No. 4

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 10,700 LCY

Estimated Production Rate - 380 LCY/hr

Estimated Duration - 28.1 hours

Equipment:

Item	Quantity	Rate	Hours		Cost
D8T SU Dozer Ripper	1	$ 158.22	28.1	$	4,452
815F/G 44,200lb	1	$ 100.49	28.1	$	2,827
621G 8,000 gal	1	$ 134.39	28.1	$	3,781
			Equipment Subtotal:	$	11,060

Labor:

Item	Quantity	Rate	Hours		Cost
Foreman	1	$ 42.67	14.1	$	600
Dozer Operator	1	$ 35.01	28.1	$	985
Compactor Operator	1	$ 35.01	28.1	$	985
Haul Truck Driver	1	$ 31.97	28.1	$	899
			Labor Subtotal:	$	3,470

Material:

Item	Quantity	Unit	Unit Rate		Cost
Water (incr. moisture 10%)	216,097	gal	$ 0.005	$	1,080
			Material Subtotal:	$	1,080

Estimated Subtotal: $ 15,610

Estimated Unit Cost: $ 1.46 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.1 CLAY PIT

2.3.1.4 Local Cut to Fill

Assumptions:

Estimated Quantity -	7,500	BCY
Estimated Production Rate -	1046	LCY/hr
Estimated Duration -	7	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D8T SU Dozer Ripper	1	$ 158.22	7	$ 1,135
			Equipment Subtotal:	$ 1,135

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	4	$ 153
Dozer Operator	1	$ 35.01	7	$ 251
			Labor Subtotal:	$ 404

Estimated Subtotal: $ 1,539

Estimated Unit Cost: $ 0.21 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.1 CLAY PIT

2.3.1.5 Prepared Surface

Assumptions:

No drilling/blasting. Material sourced locally and from Cover Stockpile No. 2.

Estimated Quantity - 19,200 LCY

Estimated Production Rate - 543 LCY/hr

Estimated Duration - 35 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D6N P.A.T. (6 way) Dozer/Ripper	1	$ 59.26	35	$ 2,094
			Equipment Subtotal:	$ 2,094

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	18	$ 754
Dozer Operator	1	$ 35.01	35	$ 1,237
			Labor Subtotal:	$ 1,991

Estimated Subtotal: $ 4,086

Estimated Unit Cost: $ 0.21

2.3.1.6 Revegetation

Assumptions:

Estimated Quantity - 4.0 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.1 CLAY PIT

2.3.1.7 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 75 Hours

Estimated Quantity - 3 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.3.1.8 Survey

Assumptions:

Estimated Days on Site: 3 Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 3,251 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.2 SILT RIDGE BORROW AREA

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.3.2.1	Local Cut to Fill	100	BCY	$ 0.21	$ 21
2.3.2.2	Prepared Surface	11,900	LCY	$ 0.20	$ 2,322
2.3.2.3	Revegetation	2.5	AC	$ 3,082	$ 7,573
2.3.2.4	Water for Dust Control	-	Days	$ 1,821	$ -
2.3.2.5	Survey	1	LS	$ 542	$ 542
2.3.2.6	Mobilization/Demobilization	1	LS	$ 297	$ 297
				ESTIMATED SUBTOTAL:	**$ 10,755**
				Overhead & Profit:	$ 538
				Detailed Engineering:	$ 430
				Construction Monitoring:	$ 323
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 10,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.2 SILT RIDGE BORROW AREA

2.3.2.1 Local Cut to Fill

Assumptions:

Estimated Quantity -	100	BCY
Estimated Production Rate -	1046	LCY/hr
Estimated Duration -	0	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D8T SU Dozer Ripper	1	$ 158.22	0	$ 15
			Equipment Subtotal:	$ 15

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	0	$ 2
Dozer Operator	1	$ 35.01	0	$ 3
			Labor Subtotal:	$ 5

Estimated Subtotal: $ 21

Estimated Unit Cost: $ 0.21 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.2 SILT RIDGE BORROW AREA

2.3.2.2 Prepared Surface

Assumptions:

No drilling/blasting, rip and spread surface material.

Estimated Quantity - 11,900 LCY

Estimated Production Rate - 1076 0

Estimated Duration - 11 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D6N P.A.T. (6 way) Dozer/Ripper	2	$ 59.26	11	$ 1,311
			Equipment Subtotal:	$ 1,311

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	6	$ 236
Dozer Operator	2	$ 35.01	11	$ 775
			Labor Subtotal:	$ 1,011

Estimated Subtotal: $ 2,322

Estimated Unit Cost: $ 0.20

2.3.2.3 Revegetation

Assumptions:

Estimated Quantity - 2.5 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.2 SILT RIDGE BORROW AREA

2.3.2.4 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity -	11	Hours
Estimated Quantity -	0	Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.3.2.5 Survey

Assumptions:

Estimated Days on Site:	0.5	Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 542 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.3 TP 3/4 BORROW AREA

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.3.3.1	Excavation to Facilities Covered Under Separate Bonds	152,000	LCY	$ -	$ -
2.3.3.2	Prepared Surface	59,000	LCY	$ 0.20	$ 11,511
2.3.3.3	Revegetation	12.2	AC	$ 3,082	$ 37,577
2.3.3.4	Water for Dust Control	2	Days	$ 1,821	$ 3,642
2.3.3.5	Survey	1	LS	$ 2,167	$ 2,167
2.3.3.6	Mobilization/Demobilization	1	LS	$ 1,582	$ 1,582
				ESTIMATED SUBTOTAL:	**$ 56,479**
				Overhead & Profit:	$ 2,824
				Detailed Engineering:	$ 2,259
				Construction Monitoring:	$ 1,694
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 60,000**

2.3.3.1 Excavation to Facilities Covered Under Separate Bonds

Assumptions:

Cost not included in this estimate.

Estimated Quantity - 152,000 LCY

Estimated Production Rate - 543 LCY/hr

Estimated Duration - 280 hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D8T SU Dozer Ripper	1	$ 158.22	280	$ 44,267
769/770 40 Ton	6	$ 128.37	280	$ 215,497
345 Rock Ripping Bucket	1	$ 27.95	280	$ 7,821
980G/H 7.5CY	1	$ 109.42	280	$ 30,614
			Equipment Subtotal:	$ 298,199

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.3 TP 3/4 BORROW AREA

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	140	$ 5,969
Dozer Operator	1	$ 35.01	280	$ 9,795
Excavator Operator	1	$ 36.09	280	$ 10,097
Excavator Operator	1	$ 36.09	280	$ 10,097
Haul Truck Driver	6	$ 31.97	280	$ 53,664
			Labor Subtotal:	$ 89,623

Estimated Subtotal: $ 387,822

Estimated Unit Cost: $ 2.55 LCY

Drilling/Blasting/Crushing Unit Cost $ 4.40 LCY

Estimated Unit Cost: $ 6.95 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.3 TP 3/4 BORROW AREA

2.3.3.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

Estimated Quantity - 59,000 LCY
Estimated Production Rate - 1076 LCY/hr
Estimated Duration - 55 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D6N P.A.T. (6 way) Dozer/Ripper	2	$ 59.26	55	$ 6,501
			Equipment Subtotal:	$ 6,501

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	27	$ 1,170
Dozer Operator	2	$ 35.01	55	$ 3,841
			Labor Subtotal:	$ 5,011

Estimated Subtotal: $ 11,511

Estimated Unit Cost: $ 0.20

2.3.3.3 Revegetation

Assumptions:

Estimated Quantity - 12.2 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.3 TP 3/4 BORROW AREA

2.3.3.4 Water for Dust Control

Assumptions:

Water useage not included for items covered under separate bonds.

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 55 Hours

Estimated Quantity - 2 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.3.3.5 Survey

Assumptions:

Estimated Days on Site: 2 Days

Estimated Cost:

Survey Crew Daily Rate:	$	784	/Day
Office Rate/Day on site:	$	300	/Day
	$	1,084	/Day

Estimated Unit Cost: $ 2,167 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.4 FORMER ABLE EARTH QUARRY

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.3.4.1	Excavation to CP-105 Pond	29,300	BCY	$ -	$ -
2.3.4.2	Excavation to Facilities Covered Under Separate Bonds	16,610	BCY	$ -	$ -
2.3.4.3	Local Cut to Fill	12,000	BCY	$ 1.15	$ 13,744
2.3.4.4	Prepared Surface	30,800	LCY	$ 0.20	$ 6,009
2.3.4.5	Revegetation	6.4	AC	$ 3,082	$ 19,644
2.3.4.6	Water for Dust Control	1	Days	$ 1,821	$ 1,821
2.3.4.7	Perimeter Fence	1892	LF	$ 22.77	$ 43,081
2.3.4.8	Survey	1	LS	$ 1,084	$ 1,084
2.3.4.9	Mobilization/Demobilization	1	LS	$ 1,237	$ 1,237
				ESTIMATED SUBTOTAL:	**$ 86,619**
				Overhead & Profit:	$ 4,331
				Detailed Engineering:	$ 3,465
				Construction Monitoring:	$ 2,599
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 100,000**

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.4 FORMER ABLE EARTH QUARRY

2.3.4.1 Excavation to CP-105 Pond

Assumptions:

Cost Included in CP-105 Pond estimate.

2.3.4.2 Excavation to Facilities Covered Under Separate Bonds

Assumptions:

Cost not included in this estimate.

Estimated Quantity - 29,300 BCY

Estimated Production Rate - 335 BCY/hr

Estimated Duration - 88 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D8T SU Dozer Ripper	1	$ 158.22	88	$ 13,852
735 35 Ton Articulated	4	$ 115.88	88	$ 40,581
365C L 155,177lb	1	$ 179.29	88	$ 15,697
966H 5.25CY	1	$ 80.78	88	$ 7,073
			Equipment Subtotal:	$ 77,204

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	44	$ 1,868
Dozer Operator	1	$ 35.01	88	$ 3,065
Excavator Operator	1	$ 36.09	88	$ 3,160
Loader Operator	1	$ 36.09	88	$ 3,160
Haul Truck Driver	4	$ 31.97	88	$ 11,195
			Labor Subtotal:	$ 22,448

Estimated Subtotal: $ 99,652

Estimated Unit Cost: $ 3.40 BCY

Drilling/Blasting/Crushing Unit Cost $ 4.40 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.4 FORMER ABLE EARTH QUARRY

Estimated Unit Cost:	**$**	**7.80**	**LCY**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.4 FORMER ABLE EARTH QUARRY

2.3.4.3 Local Cut to Fill

Assumptions:

Estimated Quantity -	12,000	BCY
Estimated Production Rate -	214	BCY/hr
Estimated Duration -	56	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D9T SU Dozer Ripper	1	$ 188.92	56	$ 10,587
		Equipment Subtotal:		$ 10,587

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	28	$ 1,195
Dozer Operator	1	$ 35.01	56	$ 1,962
			Labor Subtotal:	$ 3,157

Estimated Subtotal: $ 13,744

Estimated Unit Cost: $ 1.15 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.4 FORMER ABLE EARTH QUARRY

2.3.4.4 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

Estimated Quantity - 30,800 LCY

Estimated Production Rate - 1076 LCY/hr

Estimated Duration - 29 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D6N P.A.T. (6 way) Dozer/Ripper	2	$ 59.26	29	$ 3,394
			Equipment Subtotal:	$ 3,394

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	14	$ 611
Dozer Operator	2	$ 35.01	29	$ 2,005
			Labor Subtotal:	$ 2,616

Estimated Subtotal: $ 6,009

Estimated Unit Cost: $ 0.20

2.3.4.5 Revegetation

Assumptions:

Estimated Quantity - 6.4 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.4 FORMER ABLE EARTH QUARRY

2.3.4.6 Water for Dust Control

Assumptions:

Water useage not included for items covered under separate bonds.
Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 29 Hours
Estimated Quantity - 1 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.3.4.7 Perimeter Fence

Assumptions:

Install 6 ft chain link fencing around perimeter of highwalls.
Estimate developed from RS Means 2012 line 32 31 12.20 lines 0800 and 1400

Estimated Cost:

Fencing $ 22.77 /LF

Estimated Unit Cost: $ 22.77 /LF

2.3.4.8 Survey

Assumptions:

Estimated Days on Site: 1 Days

Estimated Cost:

Survey Crew Daily Rate: $ 784 /Day
Office Rate/Day on site: $ 300 /Day
$ 1,084 /Day

Estimated Unit Cost: $ 1,084 LS

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.5 SILICA FLUX PAD

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.3.5.1	Local Cut to Fill	9,000	BCY	$ 0.21	$ 1,846
2.3.5.2	Prepared Surface	34,000	LCY	$ 0.20	$ 6,634
2.3.5.3	Revegetation	7.0	AC	$ 3,082	$ 21,649
2.3.5.4	Water for Dust Control	2	Days	$ 1,821	$ 3,642
2.3.5.5	Survey	1	LS	$ 217	$ 217
2.3.5.6	Mobilization/Demobilization	1	LS	$ 1,013	$ 1,013
				ESTIMATED SUBTOTAL:	**$ 35,001**
				Overhead & Profit:	$ 1,750
				Detailed Engineering:	$ 1,400
				Construction Monitoring:	$ 1,050
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 40,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.5 SILICA FLUX PAD

2.3.5.1 Local Cut to Fill

Assumptions:

Estimated Quantity -	9,000	BCY
Estimated Production Rate -	1046	LCY/hr
Estimated Duration -	9	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D8T SU Dozer Ripper	1	$ 158.22	9	$ 1,362
			Equipment Subtotal:	$ 1,362

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	4	$ 184
Dozer Operator	1	$ 35.01	9	$ 301
			Labor Subtotal:	$ 485
			Estimated Subtotal:	**$ 1,846**
			Estimated Unit Cost:	**$ 0.21 BCY**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.5 SILICA FLUX PAD

2.3.5.2 Prepared Surface

Assumptions:

No drilling/blasting. Material sourced locally and from Cover Stockpile No.4.

Estimated Quantity - 34,000 LCY

Estimated Production Rate - 1076 LCY/hr

Estimated Duration - 32 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D6N P.A.T. (6 way) Dozer/Ripper	2	$ 59.26	32	$ 3,746
			Equipment Subtotal:	$ 3,746

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	16	$ 674
Dozer Operator	2	$ 35.01	32	$ 2,213
			Labor Subtotal:	$ 2,887
			Estimated Subtotal:	**$ 6,634**
			Estimated Unit Cost:	**$ 0.20**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.3 BORROW AREAS AND QUARRIES

2.3.5 SILICA FLUX PAD

2.3.5.3 Revegetation

Assumptions:

Estimated Quantity - 7.0 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.3.5.4 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 40 Hours

Estimated Quantity - 2 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.3.5.5 Survey

Assumptions:

Estimated Days on Site: 0.2 Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 217 LS

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

COST SUMMARY

Item		Estimated Cost
2.4.1	SILICA FLUX PIT NEAR WATER TANK	$ 20,000
2.4.2	WEDGE FLUX PIT	$ 50,000
2.4.3	ADIT NO. 5 ROCK FACE	$ -
2.4.4	LOADOUT ROCK FACE	$ 20,000
	ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 90,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.1 SILICA FLUX PIT NEAR WATER TANK

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.4.1.1	Perimeter Fence	661	LF	$ 22.77	$ 15,051
				ESTIMATED SUBTOTAL:	**$ 15,051**
				Overhead & Profit:	$ 753
				Detailed Engineering:	$ 602
				Construction Monitoring:	$ 452
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 20,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.1 SILICA FLUX PIT NEAR WATER TANK

2.4.1.1 Perimeter Fence

Assumptions:

Install 6 ft chain link fencing around perimeter of highwalls.
Estimate developed from RS Means 2012 line 32 31 12.20 lines 0800 and 1400

Estimated Cost:

Fencing $ 22.77 /LF

Estimated Unit Cost: $ 22.77 /LF

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.2 WEDGE FLUX PIT

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.4.2.1	Clean Fill from Shaft No. 8	22,100	BCY	$ 1.49	$ 32,938
2.4.2.2	Prepared Surface	6,600	LCY	$ 0.21	$ 1,419
2.4.2.3	Revegetation	1.4	AC	$ 3,082	$ 4,198
2.4.2.4	Water for Dust Control	3	Days	$ 1,821	$ 5,463
2.4.2.5	Survey	1	LS	$ 271	$ 271
2.4.2.6	Mobilization/Demobilization	1	LS	$ 1,321	$ 1,321
				ESTIMATED SUBTOTAL:	**$ 45,609**
				Overhead & Profit:	$ 2,280
				Detailed Engineering:	$ 1,824
				Construction Monitoring:	$ 1,368
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 50,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.2 WEDGE FLUX PIT

2.4.2.1 Clean Fill from Shaft No. 8

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 22,100 BCY

Estimated Production Rate - 335 BCY/hr

Estimated Duration - 66.0 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	66.0	$ 7,052
815F/G 44,200lb	1	$ 100.49	66.0	$ 6,636
621G 8,000 gal	1	$ 134.39	66.0	$ 8,875
			Equipment Subtotal:	$ 22,562

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	33.0	$ 1,409
Dozer Operator	1	$ 35.01	66.0	$ 2,312
Compactor Operator	1	$ 35.01	66.0	$ 2,312
Haul Truck Driver	1	$ 31.97	66.0	$ 2,111
			Labor Subtotal:	$ 8,144

Material:

Item	Quantity	Unit	Unit Rate	Cost
Water (incr. moisture 10%)	446,332	gal	$ 0.005	$ 2,232
			Material Subtotal:	$ 2,232

Estimated Subtotal: $ 32,938

Estimated Unit Cost: $ 1.49 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.2 WEDGE FLUX PIT

2.4.2.2 Prepared Surface

Assumptions:

Estimated Quantity -	6,600	LCY
Estimated Production Rate -	538	LCY/hr
Estimated Duration -	12	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D6N P.A.T. (6 way) Dozer/Ripper	1	$ 59.26	12	$ 727
			Equipment Subtotal:	$ 727

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	6	$ 262
Dozer Operator	1	$ 35.01	12	$ 430
			Labor Subtotal:	$ 691

Estimated Subtotal: $ 1,419

Estimated Unit Cost: $ 0.21 LCY

2.4.2.3 Revegetation

Assumptions:

Estimated Quantity -	1.4	AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.2 WEDGE FLUX PIT

2.4.2.4 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity -	78	Hours
Estimated Quantity -	3	Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.4.2.5 Survey

Assumptions:

Estimated Days on Site:	0.25	Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 271 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.3 ADIT NO. 5 ROCK FACE

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.4.3.1	Clean Fill from Cover Stockpile No. 2	1,100	LCY	$ 0.96	$ 1,053
2.4.3.2	Local Cut to Fill	75	BCY	$ 1.02	$ 77
2.4.3.3	Prepared Surface	2,600	LCY	$ 0.21	$ 553
2.4.3.4	Revegetation	0.5	AC	$ 3,082	$ 1,668
2.4.3.5	Water for Dust Control	-	Days	$ 1,821	$ -
2.4.3.6	Survey	1	LS	$ 217	$ 217
2.4.3.7	Mobilization/Demobilization	1	LS	$ 101	$ 101
				ESTIMATED SUBTOTAL:	**$ 3,668**
				Overhead & Profit:	$ 183
				Detailed Engineering:	$ 147
				Construction Monitoring:	$ 110
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ -**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.3 ADIT NO. 5 ROCK FACE

2.4.3.1 Clean Fill from Cover Stockpile No. 2

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 1,100 LCY

Estimated Production Rate - 543 LCY/hr

Estimated Duration - 2.0 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	2.0	$ 216
815F/G 44,200lb	1	$ 100.49	2.0	$ 203
621G 8,000 gal	1	$ 134.39	2.0	$ 272
			Equipment Subtotal:	$ 692

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	1.0	$ 43
Dozer Operator	1	$ 35.01	2.0	$ 71
Compactor Operator	1	$ 35.01	2.0	$ 71
Haul Truck Driver	1	$ 31.97	2.0	$ 65
			Labor Subtotal:	$ 250

Material:

Item	Quantity	Unit	Unit Rate	Cost
Water (incr. moisture 10%)	22,216	gal	$ 0.005	$ 111
			Material Subtotal:	$ 111

Estimated Subtotal: $ 1,053

Estimated Unit Cost: $ 0.96 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.3 ADIT NO. 5 ROCK FACE

2.4.3.2 Local Cut to Fill

Assumptions:

Estimated Quantity -	75	BCY
Estimated Production Rate -	159	BCY/hr
Estimated Duration -	0	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	0	$ 50
			Equipment Subtotal:	$ 50

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	0	$ 10
Dozer Operator	1	$ 35.01	0	$ 16
			Labor Subtotal:	$ 27

Estimated Subtotal: $ 77

Estimated Unit Cost: $ 1.02 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.3 ADIT NO. 5 ROCK FACE

2.4.3.3 Prepared Surface

Assumptions:

Estimated Quantity -	75	BCY
Estimated Production Rate -	543	LCY/hr
Estimated Duration -	0	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D6N P.A.T. (6 way) Dozer/Ripper	1	$ 59.26	0	$ 8
			Equipment Subtotal:	$ 8

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	0	$ 3
Dozer Operator	1	$ 35.01	0	$ 5
			Labor Subtotal:	$ 8

Estimated Subtotal: $ 16

Estimated Unit Cost: $ 0.21 BCY

Estimated Unit Cost: $ 0.21 BCY

2.4.3.4 Revegetation

Assumptions:

Estimated Quantity -	0.5	AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.3 ADIT NO. 5 ROCK FACE

2.4.3.5 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity -	3	Hours
Estimated Quantity -	0	Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.4.3.6 Survey

Assumptions:

Estimated Days on Site:	0.2	Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 217 LS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.4 LOADOUT ROCK FACE

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.4.4.1	Clean Fill from Cover Stockpile No.2	4,100	LCY	$ 1.49	$ 6,111
2.4.4.2	Local Cut to Fill	1,662	BCY	$ 1.02	$ 1,701
2.4.4.3	Prepared Surface	5,000	LCY	$ 0.21	$ 1,064
2.4.4.4	Revegetation	1.1	AC	$ 3,082	$ 3,253
2.4.4.5	Water for Dust Control	1	Days	$ 1,821	$ 1,821
2.4.2.5	Survey	1	LS	$ 217	$ 217
2.4.4.6	Mobilization/Demobilization	1	LS	$ 425	$ 425
				ESTIMATED SUBTOTAL:	**$ 14,592**
				Overhead & Profit:	$ 730
				Detailed Engineering:	$ 584
				Construction Monitoring:	$ 438
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 20,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.4 LOADOUT ROCK FACE

2.4.4.1 Clean Fill from Cover Stockpile No.2

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 4,100 LCY

Estimated Production Rate - 335 BCY/hr

Estimated Duration - 12.3 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	12.3	$ 1,308
815F/G 44,200lb	1	$ 100.49	12.3	$ 1,231
621G 8,000 gal	1	$ 134.39	12.3	$ 1,646
			Equipment Subtotal:	$ 4,186

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	6.1	$ 261
Dozer Operator	1	$ 35.01	12.3	$ 429
Compactor Operator	1	$ 35.01	12.3	$ 429
Haul Truck Driver	1	$ 31.97	12.3	$ 392
			Labor Subtotal:	$ 1,511

Material:

Item	Quantity	Unit	Unit Rate	Cost
Water (incr. moisture 10%)	82,804	gal	$ 0.005	$ 414
			Material Subtotal:	$ 414

Estimated Subtotal: $ 6,111

Estimated Unit Cost: $ 1.49 LCY

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.4 LOADOUT ROCK FACE

2.4.4.2 Local Cut to Fill

Assumptions:

Estimated Quantity -	1,662	BCY
Estimated Production Rate -	159	#REF!
Estimated Duration -	10	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D7R SU Dozer/Ripper	1	$ 106.78	10	$ 1,114
			Equipment Subtotal:	$ 1,114

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	5	$ 222
Dozer Operator	1	$ 35.01	10	$ 365
			Labor Subtotal:	$ 588

Estimated Subtotal: $ 1,701

Estimated Unit Cost: $ 1.02 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.4 LOADOUT ROCK FACE

2.4.4.3 Prepared Surface

Assumptions:

Estimated Quantity -	5,000	LCY
Estimated Production Rate -	543	LCY/hr
Estimated Duration -	9	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D6N P.A.T. (6 way) Dozer/Ripper	1	$ 59.26	9	$ 545
			Equipment Subtotal:	$ 545

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	5	$ 196
Dozer Operator	1	$ 35.01	9	$ 322
			Labor Subtotal:	$ 519

Estimated Subtotal: $ 1,064

Estimated Unit Cost: $ 0.21 LCY

Estimated Unit Cost: $ 0.21 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.4 PITS, ROCK FACES, AND SUBSIDENCE AREAS

2.4.4 LOADOUT ROCK FACE

2.4.4.4 Revegetation

Assumptions:

Estimated Quantity - 1.1 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.4.4.5 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 32 Hours

Estimated Quantity - 1 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.4.2.5 Survey

Assumptions:

Estimated Days on Site: 0.2 Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 217 LS

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.5 SMELTER AREA

COST SUMMARY

Item		Estimated Cost
2.5.1	SLAG PILE	$ 10,000
	ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 10,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 COST DEVELOPMENT

2.5 SMELTER AREA

2.5.1 SLAG PILE

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.5.1.1	Perimeter Fence	550	LF	$ 22.77	$ 12,524
				ESTIMATED SUBTOTAL:	**$ 12,524**
				Overhead & Profit:	$ 626
				Detailed Engineering:	$ 501
				Construction Monitoring:	$ 376
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 10,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 COST DEVELOPMENT

2.5 SMELTER AREA

2.5.1 SLAG PILE

2.5.1.1 Perimeter Fence

Assumptions:

Install 6 ft chain link fencing around perimeter of highwalls.

Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Fencing **$ 22.77** **/LF**

Estimated Unit Cost: $ 22.77 /LF

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.6 DISPOSAL AREAS

COST SUMMARY

Item		Estimated Cost
2.6.1	DISPOSAL AREA	$ 30,000
	ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 30,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.6 DISPOSAL AREAS

2.6.1 DISPOSAL AREA

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.6.1.1	Local Cut to Fill	3,800	BCY	$ 1.61	$ 6,120
2.6.1.2	Uncompacted Cover from Stockpile No. 2	14,500	LCY	$ 0.21	$ 3,085
2.6.1.3	Revegetation	3.1	AC	$ 3,082	$ 9,555
2.6.1.4	Water for Dust Control	2	Days	$ 1,821	$ 3,642
2.6.1.5	Mobilization/Demobilization	1	LS	$ 672	$ 672
				ESTIMATED SUBTOTAL:	**$ 23,075**
				Overhead & Profit:	$ 1,154
				Detailed Engineering:	$ 923
				Construction Monitoring:	$ 692
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 30,000**

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.6 DISPOSAL AREAS

2.6.1 DISPOSAL AREA

2.6.1.1 Local Cut to Fill

Assumptions:

Estimated Quantity -	3,800	BCY
Estimated Production Rate -	214	BCY/hr
Estimated Duration -	18	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D9T SU Dozer Ripper	1	$ 188.92	18	$ 3,352
140H/M - 14' Blade/Ripper	1	$ 64.60	18	$ 1,146
			Equipment Subtotal:	$ 4,499

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	9	$ 379
Dozer Operator	1	$ 35.01	18	$ 621
Grader Operator	1	$ 35.01	18	$ 621
			Labor Subtotal:	$ 1,621

Subtotal: $ 6,120

Estimated Unit Cost: $ 1.61 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.6 DISPOSAL AREAS

2.6.1 DISPOSAL AREA

2.6.1.2 Uncompacted Cover from Stockpile No. 2

Assumptions:

Estimated Quantity -	14,500	LCY
Estimated Production Rate -	543	LCY/hr
Estimated Duration -	27	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D6N P.A.T. (6 way) Dozer/Ripper	1	$ 59.26	27	$ 1,582
			Equipment Subtotal:	$ 1,582

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	13	$ 569
Dozer Operator	1	$ 35.01	27	$ 934
			Labor Subtotal:	$ 1,504

Estimated Subtotal: $ 3,085

Estimated Unit Cost: $ 0.21 LCY

Estimated Unit Cost: $ 0.21 LCY

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.6 DISPOSAL AREAS

2.6.1 DISPOSAL AREA

2.6.1.3 Revegetation **Estimated Unit Cost: $ 3,082 /AC**

See Miscellaneous Unit Costs for cost basis.

2.6.1.4 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 44 Hours

Estimated Quantity - 2 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.7 SHAFTS, ADITS, AND TUNNELS

COST SUMMARY

Item		Estimated Cost
2.7.1	NEVERSWEAT TUNNEL	$ -
2.7.2	SHAFT NO. 6	$ 10,000
	ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 10,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.7 SHAFTS, ADITS, AND TUNNELS

2.7.1 NEVERSWEAT TUNNEL

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.6.1.1	Lock Gate	0	-	$ -	$ -
				ESTIMATED SUBTOTAL:	**$ -**
				Overhead & Profit:	$ -
				Detailed Engineering:	$ -
				Construction Monitoring:	$ -
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ -**

2.0 DEVELOPMENT OF COSTS

2.7 SHAFTS, ADITS, AND TUNNELS

2.7.1 NEVERSWEAT TUNNEL

2.6.1.1 Lock Gate

Assumptions:

West Plant Site entrance to the tunnel is equipped with steel doors that are capable of being locked to prevent access.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.7 SHAFTS, ADITS, AND TUNNELS

2.7.2 SHAFT NO. 6

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.6.2.1	Demolition	20,000	CF	$ 0.36	$ 7,200
2.6.2.2	Concrete Closure of Shaft Entrance	3.6	CY	$ 373.25	$ 1,334
2.6.2.5	Mobilization/Demobilization	1	LS	$ 256	$ 256
				ESTIMATED SUBTOTAL:	**$ 8,790**
				Overhead & Profit:	$ 440
				Detailed Engineering:	$ 352
				Construction Monitoring:	$ 264
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 10,000**

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.7 SHAFTS, ADITS, AND TUNNELS

2.7.2 SHAFT NO. 6

2.6.2.1 Demolition

Assumptions: Steel Buildings

Estimate developed from RS Means 2012: 02 41 16.13 Line 0500

Estimated Unit Cost: $ 0.36 /CF

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.7 SHAFTS, ADITS, AND TUNNELS

2.7.2 SHAFT NO. 6

2.6.2.2 Concrete Closure of Shaft Entrance

Assumptions: 12' x 12' x .67' =96.5CF 3.6 CY
Wall, freestanding (3000 psi), 8" thick, 8' high
Estimate developed from RS Means 2012 03 30 53.40 Line 4200

Estimated Unit Cost: $ 373.25 /CY

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.8 BUILDINGS AND STRUCTURES

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.8.1	NO. 3 HOIST HOUSE	360	LF	$ 22.77	$ 8,197
2.8.2	POWER PLANT	925	LF	$ 22.77	$ 21,062
2.8.3	MACHINE SHOP	0	LF	$ 22.77	$ -
2.8.4	ENGINE HOUSE	0	LF	$ 22.77	$ -
2.8.5	SMELTER OFFICE	240	LF	$ 22.77	$ 5,465
2.8.6	SMELTER WAREHOUSE	0	LF	$ 22.77	$ -
2.8.7	ADIT NO. 5 HOIST BUILDING	190	LF	$ 22.77	$ 4,326
2.8.8	ADIT NO. 5 PUMP HOUSE	280	LF	$ 22.77	$ 6,376
2.8.9	SWITCHING GEAR BUILDING	220	LF	$ 22.77	$ 5,009
2.8.10	SMELTER CONCRETE WATER STRUCTURE	135	LF	$ 408	$ 55,013
2.8.11	LOADOUT AND CONVEYOR PIT	1	LS	$ 45,203	$ 45,203
2.8.12	HISTORIC COOLING TOWER	360	LF	$ 22.77	$ 8,197
				ESTIMATED SUBTOTAL:	**$ 150,651**
				Overhead & Profit:	$ 7,533
				Detailed Engineering:	$ 6,026
				Construction Monitoring:	$ 4,520
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 170,000**

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.8 BUILDINGS AND STRUCTURES

2.8.1 NO. 3 HOIST HOUSE

Assumptions:

Install 6 ft chain link fencing around perimeter of building (10 ft offset).
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Fencing $ 22.77 /LF

Estimated Unit Cost: $ 22.77 /LF

2.8.2 POWER PLANT

Assumptions:

Install 6 ft chain link fencing around perimeter of buildings (10 ft offset).
Perimeter includes items: 2.8.3, 2.8.4, 2.8.6.
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Fencing $ 22.77 /LF

Estimated Unit Cost: $ 22.77 /LF

2.8.3 MACHINE SHOP

Assumptions:

Install 6 ft chain link fencing around perimeter of building (10 ft offset).
Included in perimeter calculations of item No. 2.8.2
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Fencing $ 22.77 /LF

Estimated Unit Cost: $ 22.77 /LF

2.8.4 ENGINE HOUSE

Assumptions:

Install 6 ft chain link fencing around perimeter of building (10 ft offset).
Included in perimeter calculations of item No. 2.8.2
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.8 BUILDINGS AND STRUCTURES

Fencing	$ 22.77	/LF

Estimated Unit Cost: $ 22.77 /LF

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.8 BUILDINGS AND STRUCTURES

2.8.5 SMELTER OFFICE

Assumptions:

Install 6 ft chain link fencing around perimeter of building (10 ft offset).
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Fencing $ 22.77 /LF

Estimated Unit Cost: $ 22.77 /LF

2.8.6 SMELTER WAREHOUSE

Assumptions:

Install 6 ft chain link fencing around perimeter of building (10 ft offset).
Included in perimeter calculations of item No. 2.8.2
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Fencing $ 22.77 /LF

Estimated Unit Cost: $ 22.77 /LF

2.8.7 ADIT NO. 5 HOIST BUILDING

Assumptions:

Install 6 ft chain link fencing around perimeter of building (10 ft offset).
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Fencing $ 22.77 /LF

Estimated Unit Cost: $ 22.77 /LF

2.8.8 ADIT NO. 5 PUMP HOUSE

Assumptions:

Install 6 ft chain link fencing around perimeter of building (10 ft offset).
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.8 BUILDINGS AND STRUCTURES

Estimated Cost:

Fencing **$ 22.77 /LF**

Estimated Unit Cost: $ 22.77 /LF

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.8 BUILDINGS AND STRUCTURES

2.8.9 SWITCHING GEAR BUILDING

Assumptions:

Install 6 ft chain link fencing around perimeter of building (10 ft offset).
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 1400

Estimated Cost:

Fencing **$ 22.77** **/LF**

Estimated Unit Cost: $ 22.77 /LF

2.8.10 SMELTER CONCRETE WATER STRUCTURE

Assumptions: Concrete Retaining Wall

Estimated Unit Cost: $ 407.50 /LF

Estimate developed from RS Means 2012: 02 41 13.90 Line 0700

2.8.11 LOADOUT AND CONVEYOR PIT

Assumptions: Equipment will break-up concrete structures and use as clean fill.

Estimated Production Rate - 10 Days
Estimated Duration - 100 hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D7R SU Dozer/Ripper	1	$ 106.78	100	$ 10,678
365C L 155,177lb	1	$ 179.29	100	$ 17,929
H160 7,500lb Hydraulic Hammer	1	$ 73.52	100	$ 7,352
			Equipment Subtotal:	$ 35,960

Labor:

Item	Estimated Quantity	Rate	Hours	Estimated Cost
Foreman	1	$ 42.67	50	$ 2,133
Dozer Operator	1	$ 35.01	100	$ 3,501
Excavator Operator	1	$ 36.09	100	$ 3,609
			Labor Subtotal:	$ 9,243

Estimated Subtotal: $ 45,203

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.8 BUILDINGS AND STRUCTURES

Estimated Unit Cost: $ 45,203 LS

2.8.12 HISTORIC COOLING TOWER

Assumptions:

Install 6 ft chain link fencing around perimeter of building.
Estimate developed from RS Means 2012 line 32 31 13.20 lines 0800 and 5060

Estimated Cost:

Fencing **$ 22.77** **/LF**

Estimated Unit Cost: $ 22.77 /LF

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.9.1.1	Excavation to TP-6	125,900	BCY	$ 3.86	$ -
2.9.1.2	Local Cut to Fill	4,000	BCY	$ 1.61	$ 6,442
2.9.1.3	Low Permeability Fill	15,150	CCY	$ 4.37	$ 66,176
2.9.1.4	Structural Fill (Berm and Spillway)	29,300	LCY	$ 4.49	$ 131,476
2.9.1.5	Riprap (Type III)	4,900	LCY	$ 55.37	$ 271,336
2.9.1.6	Riprap (Type II)	3,260	LCY	$ 43.85	$ 142,962
2.9.1.7	Outlet Pipes (24-inch diameter RCP)	520	LF	$ 26.59	$ 13,827
2.9.1.8	Culvert (Main Access Road 24 inch RCP)	120	LF	$ 26.59	$ 3,191
2.9.1.9	8x6 ft Concrete Box Culverts (2 barrels)	200	LF	$ 505.40	$ 101,081
2.9.1.10	8x6 ft Concrete Box Culverts (US HWY 60, 3 Barrels)	300	LF	$ 724.46	$ 217,339
2.9.1.11	Water for Dust Control	25	Days	$ 1,821	$ 45,525
2.9.1.12	Survey	1	LS	$ 10,835	$ 10,835
2.9.1.13	Mobilization/Demobilization	1	LS	$ -	$ -
				ESTIMATED SUBTOTAL:	**$ 1,010,190**
				Mobilization/Demobilization as a pecent of all other costs:	$ 30,306
				0	$ -
				Overhead & Profit:	$ 50,509
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 1,090,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

2.9.1.1 Excavation to TP-6

Assumptions:

Estimated Quantity -	125,900	BCY	
Estimated Production Rate -	335		0
Estimated Duration -	376	hours	

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
345C L 99,150lb	1	$ 129.62	376	$ 48,764
769/770 40 Ton	6	$ 128.37	376	$ 289,763
D7R SU Dozer/Ripper	1	$ 106.78	376	$ 40,173
			Equipment Subtotal:	$ 378,700

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	188	$ 8,025
Dozer Operator	1	$ 35.01	376	$ 13,171
Excavator Operator	1	$ 36.09	376	$ 13,577
Haul Truck Driver	6	$ 31.97	376	$ 72,158
			Labor Subtotal:	$ 106,932

Subtotal: $ 485,632

Estimated Unit Cost: $ 3.86 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

2.9.1.2 Local Cut to Fill

Assumptions:

Estimated Quantity -	4,000	BCY	
Estimated Production Rate -	214		0
Estimated Duration -	19	hours	

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D9T SU Dozer Ripper	1	$ 188.92	19	$ 3,529
140H/M - 14' Blade/Ripper	1	$ 64.60	19	$ 1,207
			Equipment Subtotal:	$ 4,736

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	9	$ 398
Dozer Operator	1	$ 35.01	19	$ 654
Grader Operator	1	$ 35.01	19	$ 654
			Labor Subtotal:	$ 1,706

Subtotal: $ 6,442

Estimated Unit Cost: $ 1.61 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

2.9.1.3 Low Permeability Fill

Assumptions:

Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 15,150 CCY
Estimated Production Rate - 304 LCY/hr
Estimated Duration - 50 hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D7R SU Dozer/Ripper	1	$ 106.78	50	$ 5,318
966H 5.25CY	1	$ 80.78	50	$ 4,023
769/770 40 Ton	4	$ 128.37	50	$ 25,570
D7R SU Dozer/Ripper	1	$ 106.78	50	$ 5,318
815F/G 44,200lb	1	$ 100.49	50	$ 5,004
621G 8,000 gal	1	$ 134.39	50	$ 6,692
			Equipment Subtotal:	$ 51,924

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	25	$ 1,062
Dozer Operator	2	$ 35.01	50	$ 3,487
Loader Operator	1	$ 36.09	-	$ -
Compactor Operator	1	$ 35.01	50	$ 1,743
Haul Truck Driver	5	$ 31.97	50	$ 7,959
			Labor Subtotal:	$ 14,252

Material:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Water (incr. moisture 10%)	305,969	gal	$ -	$ -
			Material Subtotal:	$ -
			Subtotal:	**$ 66,176**
			Estimated Unit Cost:	**$ 4.37 CCY**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

2.9.1.4 Structural Fill (Berm and Spillway)

Assumptions:

No drilling/blasting. Rip and push surface material at Able Earth Quarry.
Compacted cubic yard (CCY) equals bank cubic yard (BCY).

Estimated Quantity - 29,300 LCY
Estimated Production Rate - 543 0
Estimated Duration - 54 hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D9T SU Dozer Ripper	1	$ 188.92	54	$ 10,189
980G/H 7.5CY	1	$ 109.42	54	$ 5,901
769/770 40 Ton	10	$ 128.37	54	$ 69,233
D7R SU Dozer/Ripper	1	$ 106.78	54	$ 5,759
815F/G 44,200lb	1	$ 100.49	54	$ 5,420
621G 8,000 gal	1	$ 134.39	54	$ 7,248
			Equipment Subtotal:	$ 103,750

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	27	$ 1,151
Loader Operator	1	$ 36.09	54	$ 1,946
Dozer Operator	2	$ 35.01	54	$ 3,776
Compactor Operator	1	$ 35.01	54	$ 1,888
Haul Truck Driver	11	$ 31.97	54	$ 18,965
			Labor Subtotal:	$ 27,726

Material:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Water (incr. moisture 10%)	591,743	gal	$ -	$ -
			Material Subtotal:	$ -
			Subtotal:	**$ 131,476**

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

Estimated Unit Cost:	**$**	**4.49**	**LCY**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

2.9.1.5 Riprap (Type III)

Assumptions:

Riprap will be procured offsite and delivered to work area. Cost to procure riprap is based on CRC Cost Break Down for Tailings Pond 3-4 Closure. Assume riprap will be placed using small excavator with two laborers.

Estimated Quantity -	4,900	LCY
Estimated Production Rate -	319	LCY/hr
Estimated Duration -	15	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
950H 4.25CY	1	$ 60.29	15	$ 927
325D L 64,460lb	2	$ 76.83	15	$ 2,362
			Equipment Subtotal:	$ 3,289

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	8	$ 328
Loader Operator	1	$ 36.09	15	$ 555
Laborer	4	$ 21.96	15	$ 1,350
Excavator Operator	2	$ 36.09	15	$ 1,110
			Labor Subtotal:	$ 3,343

Material:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Riprap (Type III) FOB	4,900	CY	$ 44.02	$ 215,704
Deliver Riprap	4,900	CY	$ 10.00	$ 49,000
			Material Subtotal:	$ 264,704

Subtotal: $ 271,336

Estimated Unit Cost: $ 55.37 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

2.9.1.6 Riprap (Type II)

Assumptions:

Riprap will be procured offsite and delivered to work area. Cost to procure riprap is based on CRC Cost Break Down for Tailings Pond 3-4 Closure. Assume riprap will be placed using small excavator with two laborers.

Estimated Quantity -	3,260	LCY
Estimated Production Rate -	319	LCY/hr
Estimated Duration -	10	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
950H 4.25CY	1	$ 60.29	10	$ 617
325D L 64,460lb	2	$ 76.83	10	$ 1,572
			Equipment Subtotal:	$ 2,188

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	5	$ 218
Loader Operator	1	$ 36.09	10	$ 369
Laborer	4	$ 21.96	10	$ 898
Excavator Operator	2	$ 36.09	10	$ 738
			Labor Subtotal:	$ 2,224

Material:

Item	Estimated Quantity	Unit	Estimated Hours	Estimated Cost
Riprap (Type II) FOB	3,260	CY	$ 32.50	$ 105,950
Deliver Riprap	3,260	CY	$ 10.00	$ 32,600
			Material Subtotal:	$ 138,550

Subtotal: $ 142,962

Estimated Unit Cost: $ 43.85 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

2.9.1.7 Outlet Pipes (24-inch diameter RCP)

Assumptions:

Trenching 4 feet wide by 4 feet deep in sand and gravel -2011 RSMeans G1030-807-1420.
Backfill with excavated material.
Furnishing and placing Class 5 RCP - quote from Jensen Precast in Casa Grande, AZ.

Estimated Cost:

Trenching and Backfilling:	$	7.35	/LF
Furnishing and installing culvert	$	19.24	/LF
Estimated Unit Cost:	**$**	**26.59**	**/LF**

2.9.1.8 Culvert (Main Access Road 24 inch RCP)

See 2.9.1.7

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

2.9.1.9 8x6 ft Concrete Box Culverts (2 barrels)

Assumptions:

Trenching 15 feet wide by 10 feet deep with 1:1 side slopes = 10 CY/LF.
Furnishing and placing 8ft x 6ft double barrel box culvert - quote from Jensen Precast in Casa Grande, AZ.

Estimated Quantity -	200	LF	
Estimated Excavation Quantity -	2,000	BCY	
Production Rate -	335		0
Estimated Excavation Duration -	6	hours	
Estimated Installation Duration -	32	hours	

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
345C L 99,150lb	1	$ 129.62	32	$ 4,148
Wacker Packer	2	$ 10.00	32	$ 640
			Equipment Subtotal:	$ 4,788

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	16	$ 683
Excavator Operator	1	$ 36.09	32	$ 1,155
Laborer	2	$ 21.96	32	$ 1,405
			Labor Subtotal:	$ 3,243

Material:

Item	Estimated Quantity	Unit	Estimated Unit Cost	Estimated Cost
Bedding Material, Delivered	75	CY	$ 30.00	$ 2,250
			Material Subtotal:	$ 2,250

Subtotal: $ 10,281

Estimated Earthworks Unit Cost: $ 51.40 /LF

Furnishing and Installing Culvert Unit Cost: $ 454.00 /LF

Estimated Unit Cost: $ 505.40 /LF

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

2.9.1.10 8x6 ft Concrete Box Culverts (US HWY 60, 3 Barrels)

Assumptions:

Trenching 15 feet wide by 10 feet deep with 1:1 side slopes = 10 CY/LF.
Furnishing and placing 8ft x 6ft double barrel box culvert - quote from Jensen Precast in Casa Grande, AZ.

Estimated Quantity	300	LF	
Estimated Excavation Quantity -	3,000	BCY	
Production Rate -	335		0
Estimated Excavation Duration -	9	hours	
Estimated Installation Duration -	40	hours	

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
345C L 99,150lb	1	$ 129.62	40	$ 5,185
Wacker Packer	2	$ 10.00	40	$ 800
			Equipment Subtotal:	$ 5,985

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Foreman	1	$ 42.67	20	$ 853
Excavator Operator	1	$ 36.09	40	$ 1,444
Laborer	2	$ 21.96	40	$ 1,757
			Labor Subtotal:	$ 4,054

Material:

Item	Estimated Quantity	Unit	Estimated Unit Cost	Estimated Cost
Bedding Material, Delivered	100	CY	$ 30.00	$ 3,000
				$ 3,000

Subtotal: $ 13,039

Estimated Earthworks Unit Cost: $ 43.46 /LF

Furnishing and Installing Culvert Unit Cost $ 681.00 /LF

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.9 STORMWATER MANAGEMENT

2.9.1 CP 105 BERM AND CHANNELS

Estimated Unit Cost: $ 724.46 /LF

2.9.1.11 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 596 Hours

Estimated Quantity - 25 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

2.9.1.12 Survey

Assumptions:

Estimated Days on Site: 10 Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day
Office Rate/Day on site:	$ 300	/Day
	$ 1,084	/Day

Estimated Unit Cost: $ 10,835 LS

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.10 RAILROADS

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.10.1	NEVERSWEAT TUNNEL TO LOADOUT	2,000	LF	$ 10.13	$ 20,253
				ESTIMATED SUBTOTAL:	**$ 20,253**
				Overhead & Profit:	$ 1,013
				Detailed Engineering:	$ 810
				Construction Monitoring:	$ 608
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 20,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.10 RAILROADS

2.10.1 NEVERSWEAT TUNNEL TO LOADOUT

Assumptions:

Railroad track removal, ties and track.

Estimate developed from RS Means 2012: 02 41 13.33 Line 3500

Estimated Unit Cost:	**$**	**8.56**	**/LF**

Ballast removal
Estimate developed from RS Means 2012: 02 41 13.33 Line 3600

Estimated Unit Cost:	**$**	**4.23**	**/CY**
	$	**0.16**	**/CF**
Ballast: 1-ft thick by 10-ft wide	**$**	**1.57**	**/LF**
1 LF = 10 CF			
Estimated Unit Cost:	**$**	**10.13**	**/LF**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.11 ROADS

2.11.1 ROADS WITH NO POST-MINING PURPOSE

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Extended Cost
2.11.1.1	Asphalt Roads	1,700	BCY	$ 3.86	$ 6,557
2.11.1.2	Open Drainages	1	LS	$ 10,000	$ 10,000
2.11.1.3	Prepared Surface	2,000	LCY	$ 0.21	$ 430
2.11.1.4	Install Water Bars	1	LS	$ 5,000	$ 5,000
2.11.1.5	Revegetation	2.0	AC	$ 3,082	$ 6,165
2.11.1.6	Water for Dust Control	4	Days	$ 1,821	$ 7,284
2.11.1.7	Survey	1	LS	$ 542	$ 542
2.11.1.8	Mobilization/Demobilization	1	LS	$ 1,079	$ 1,079
				ESTIMATED SUBTOTAL:	**$ 37,057**
				Overhead & Profit:	$ 1,853
				Detailed Engineering:	$ 1,482
				Construction Monitoring:	$ 1,112
				ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 40,000**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.11 ROADS

2.11.1 ROADS WITH NO POST-MINING PURPOSE

2.11.1.1 Asphalt Roads

Excavate & Haul Soils to Settling Pond 1

Assumptions:

Estimated Quantity -	1,700	BCY
Estimated Production Rate -	335	BCY/hr
Estimated Duration -	5.1	hours

Equipment:

Item	Quantity	Rate	Hours	Cost
345C L 99,150lb	1	$ 129.62	5.1	$ 658
769/770 40 Ton	6	$ 128.37	5.1	$ 3,913
D7R SU Dozer/Ripper	1	$ 106.78	5.1	$ 542
			Equipment Subtotal:	$ 5,114

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	2.5	$ 108
Dozer Operator	1	$ 35.01	5.1	$ 178
Excavator Operator	1	$ 36.09	5.1	$ 183
Haul Truck Driver	6	$ 31.97	5.1	$ 974
			Labor Subtotal:	$ 1,444

Subtotal: $ 6,557

Estimated Unit Cost: $ 3.86 BCY

Estimated Unit Cost: $ 6,561.25 BCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.11 ROADS

2.11.1 ROADS WITH NO POST-MINING PURPOSE

2.11.1.2 Open Drainages

Assumptions:

Remove existing culverts (if any) and rip and push material to open existing drainage path.

Estimated Number of Drainages: 10

Estimated Unit Cost: $ 1,000.00 / Drainage

Estimated Unit Cost: $ 10,000.00 LS

2.11.1.3 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push (Scarify) surface material.

Estimated Quantity - 2,000 LCY

Estimated Production Rate - 538 LCY/hr

Estimated Duration - 4 hours

Equipment:

Item	Quantity	Rate	Hours	Cost
D6N P.A.T. (6 way) Dozer/Ripper	1	$ 59.26	4	$ 220
			Equipment Subtotal:	$ 220

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	2	$ 79
Dozer Operator	1	$ 35.01	4	$ 130
			Labor Subtotal:	$ 210

Estimated Subtotal: $ 430

Estimated Unit Cost: $ 0.21

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.11 ROADS

2.11.1 ROADS WITH NO POST-MINING PURPOSE

2.11.1.4 Install Water Bars

Assumptions:

Install water bars along closed roadways, approximately 25 waterbars, 3 days to complete.

Estimated Unit Cost: $ 5,000.00 LS

2.11.7 Revegetation

Assumptions:

Estimated Quantity - 2.0 AC

Estimated Unit Cost: $ 3,082 /AC

See Miscellaneous Unit Cost for cost basis.

2.11.8 Water for Dust Control

Assumptions:

Duration assumes consecutive work sequence with one equipment spread.

Estimated Quantity - 4 Days

Estimated Unit Cost: $ 1,821 /Day

See Miscellaneous Unit Costs for cost basis.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.11 ROADS

2.11.1 ROADS WITH NO POST-MINING PURPOSE

2.11.9 Survey

Assumptions:

Estimated Days on Site:	0.5	Days

Estimated Cost:

Survey Crew Daily Rate:	$ 784	/Day	
Office Rate/Day on site:	$ 300	/Day	
	$ 1,084	/Day	
		Estimated Unit Cost:	**$ 542 LS**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 COST DEVELOPMENT

2.12 MISCELLANEOUS UNIT COSTS

COST SUMMARY

Item		Unit	Estimated Unit Cost
2.12.1	Drilling/Blasting/Crushing Estimated Unit Cost	LCY	$ 4.40
2.12.2	Survey	Day	See Below
2.12.3	Geotextile	SF	Varies - $0.25 - $0.55
2.12.4	Revegetation	AC	$ 3,082.40
2.12.5	Water for Dust Control	Day	$ 1,821.00

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 COST DEVELOPMENT

2.12 MISCELLANEOUS UNIT COSTS

2.12.1 Drilling/Blasting/Crushing Estimated Unit Cost

Assumptions:

Drilling/blasting/crushing Gila conglomerate at TP-3 and TP-6 for uncompacted cover.

Estimated Quantity -	906,000	LCY
Estimated Production Rate -	219	LCY/hr
Estimated Duration -	4,135	hours

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D9T SU Dozer Ripper	1	$ 188.92	4,135	$ 781,124
330D L 79,700lb	1	$ 102.83	4,135	$ 425,162
Crusher - Lokotrack LT106	1	$ 69.91	4,135	$ 289,055
980G/H 7.5CY	1	$ 109.42	4,135	$ 452,414
			Equipment Subtotal:	$ 1,947,754

Labor:

Item	Quantity	Rate	Hours	Estimated Cost
Foreman	1	$ 42.67	2,067	$ 88,204
Dozer Operator	1	$ 35.01	4,135	$ 144,757
Excavator Operator	1	$ 36.09	4,135	$ 149,222
Crusher Operator	1	$ 35.01	4,135	$ 144,757
Loader Operator	1	$ 36.09	4,135	$ 149,222
			Labor Subtotal:	$ 676,161

Subtotal: $ 2,623,915

Estimated Unit Cost: $ 2.90 LCY

Estimated Drilling/Blasting Cost: $ 1.50 LCY

Total Estimated Unit Cost: $ 4.40 LCY

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 COST DEVELOPMENT

2.12 MISCELLANEOUS UNIT COSTS

2.12.2 Survey

Assumptions:

Daily rate for one person survey crew in field with GPS.

2012 RS Means:

Estimated Unit Cost: $ 783.50 /Day

Daily rate for survey office work.

Estimated Unit Cost: $ 300.00 /Day

2.12.3 Geotextile

Assumptions:

12 ounce/square yard nonwoven geotextile
Cost includes furnishing and installing

Estimated Cost:

Less than 50,000 square feet	$	0.55
50,000 - 200,000 square feet	$	0.40
Greater than 200,000 square feet	$	0.25

Based on discussion with Ted Nantz, cost estimator for Texas Environmental Plastics, a liner installer. Cost variation due to shipping costs of different quantities.

2.12.4 Revegetation

Based on revised quote from Resolution Mining - 10-22-2013.

Estimated Unit Cost: $ 3,082 /AC

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 COST DEVELOPMENT

2.12 MISCELLANEOUS UNIT COSTS

2.12.5 Water for Dust Control

Assumptions:

8,000 gallon water truck will operate 8 hours per day and be filled 8 times.
A 12,000 gallon water tower will be used to fill truck - rented for $170/hr.
Cost for a daily rate.

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
621G 8,000 gal	1	$ 134.39	8	$ 1,075
Water Tower	1	$ 21.25	8	$ 170
			Equipment Subtotal:	$ 1,245

Labor:

Item	Quantity	Rate	Hours	Cost
Haul Truck Driver	1	$ 31.97	8	$ 256
			Labor Subtotal:	$ 256

Water:

Item	Quantity	Rate	Gallons	Cost
Water	1	$ 0.005	64,000	$ 320
			Labor Subtotal:	$ 320

Subtotal: $ 1,821

Estimated Unit Cost: $ 1,821 /Day

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

COST SUMMARY

Item		Estimated Cost [1]
2.13.1	ROADS	$ 50,000
2.13.2	CHANNELS	$ 40,000
2.13.3	COVERS AND VEGETATION	$ 100,000
2.13.4	FENCES & SIGNS	$ 10,000
	ESTIMATED TOTAL (rounded to nearest $10,000) :	**$ 200,000**

1. Estimated costs have been converted to present value.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.1 ROADS

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Overhead & Profit	Estimated Unit Cost (includes O&P)	Extended Cost	Extended Cost (Present Value)
2.13.1.1	Inspection	10	Years	$ 2,207	$ 110	$ 2,317	$ 23,169	$ 17,548
2.13.1.2	Maintenance	10	Years	$ 3,984	$ 159	$ 4,144	$ 41,439	$ 31,385
					ESTIMATED SUBTOTAL:			**$ 48,934**

Present Value Variables	
i	5.4%
n	10
(P/A , i% , n)	7.573913

ESTIMATED TOTAL (rounded to nearest $10,000) : $ 50,000

2.13.1.1 Inspection

Assumptions:

Level of effort will be the same for years 1-10.

Duration of Post-Closure Maintenance -	10	Years
Estimated Time -	40	hrs/year

Equipment:

Item	Quantity	Rate	Hours	Cost
Pick-Up truck, 4X4	1	$ 12.50	40.0	$ 500
		Equipment Subtotal:		$ 500

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	40.0	$ 1,707
		Labor Subtotal:		$ 1,707

Estimated Subtotal: $ 2,207

Estimated Unit Cost: $ 2,207 / year

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.1 ROADS

2.13.1.2 Maintenance

Assumptions:

Level of effort will be the same for years 1-10.

Duration of Post-Closure Maintenance -	10	Years
Estimated Time -	40	hrs/year

Equipment:

Item	Quantity	Rate	Hours	Cost
140H/M - 14' Blade/Ripper	1	$ 64.60	40.0	$ 2,584
			Equipment Subtotal:	$ 2,584

Labor:

Item	Quantity	Rate	Hours	Cost
Grader Operator	1	$ 35.01	40.0	$ 1,400
			Labor Subtotal:	$ 1,400
			Estimated Subtotal:	**$ 3,984**
			Estimated Unit Cost:	**$ 3,984 / year**

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.2 CHANNELS

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Overhead & Profit	Unit Cost (includes O&P)	Extended Cost	Extended Cost (Present Value)
2.13.2.1	Inspection Years 1-3	3	Years	$ 2,207	$ 110	$ 2,317	$ 6,951	$ 6,263
2.13.2.2	Channel Maintenance Years 1-3	3	Years	$ 5,395	$ 270	$ 5,665	$ 16,994	$ 15,312
2.13.2.3	Inspection Years 4-10	7	Years	$ 1,103	$ 55	$ 1,158	$ 8,109	$ 5,643
2.13.2.4	Channel Maintenance Years 4-10	7	Years	$ 2,698	$ 135	$ 2,832	$ 19,827	$ 13,796
				ESTIMATED SUBTOTAL:				**$ 41,013**

Present Value Variables			
i	5.4%	5.4%	5.4%
n	10	7	3
(P/A , i% , n)	7.573913	5.703420	2.702965
(P/F , i% , n)	0.591009	0.692015	0.854040

ESTIMATED TOTAL (rounded to nearest $10,000) : $ 40,000

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.2 CHANNELS

2.13.2.1 Inspection Years 1-3

Assumptions:

Level of effort will be higher for years 1-3.

Duration of Post-Closure Maintenance -	3	Years
Estimated Time -	40	hrs/year

Equipment:

Item	Quantity	Rate	Hours	Cost
Pick-Up truck, 4X4	1	$ 12.50	40.0	$ 500
		Equipment Subtotal:		$ 500

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	40.0	$ 1,707
		Labor Subtotal:		$ 1,707

Estimated Subtotal: $ 2,207

Estimated Unit Cost: $ 2,207 / year

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.2 CHANNELS

2.13.2.2 Channel Maintenance Years 1-3

Assumptions:

The majority of effort will be years 1-3

Duration of Post-Closure Maintenance -	3	Years
Estimated Time -	40	hrs/year

Equipment:

Item	Quantity	Rate	Hours	Cost
325D L 64,460lb	1	$ 76.83	40.0	$ 3,073
			Equipment Subtotal:	$ 3,073

Labor:

Item	Quantity	Rate	Hours	Cost
Excavator Operator	1	$ 36.09	40.0	$ 1,444
Laborer	1	$ 21.96	40.0	$ 878
			Labor Subtotal:	$ 2,322

Estimated Subtotal: $ 5,395

Estimated Unit Cost: $ 5,395 / year

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.2 CHANNELS

2.13.2.3 Inspection Years 4-10

Assumptions:

Level of effort will be lower for years 4-10.

Duration of Post-Closure Maintenance -	7	Years
Estimated Time -	20	hrs/year

Equipment:

Item	Quantity	Rate	Hours	Cost
Pick-Up truck, 4X4	1	$ 12.50	20.0	$ 250
		Equipment Subtotal:		$ 250

Labor:

Item	Quantity	Rate	Hours	Cost
Foreman	1	$ 42.67	20.0	$ 853
		Labor Subtotal:		$ 853

Estimated Subtotal: $ 1,103

Estimated Unit Cost: $ 1,103 / year

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.2 CHANNELS

2.13.2.4 Channel Maintenance Years 4-10

Assumptions:

Level of effort will be lower for years 4-10.

Duration of Post-Closure Maintenance -	7	Years
Estimated Time -	20	hrs/year

Equipment:

Item	Quantity	Rate	Hours	Cost
325D L 64,460lb	1	$ 76.83	20.0	$ 1,537
			Equipment Subtotal:	$ 1,537

Labor:

Item	Quantity	Rate	Hours	Cost
Excavator Operator	1	$ 36.09	20.0	$ 722
Laborer	1	$ 21.96	20.0	$ 439
			Labor Subtotal:	$ 1,161

Estimated Subtotal: $ 2,698

Estimated Unit Cost: $ 2,698 / year

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.3 COVERS AND VEGETATION

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost ($/Year)	Overhead & Profit	Estimated Unit Cost (includes O&P)	Extended Cost	Extended Cost (Present Value)
2.13.3.1	Inspection Years 1-3	3	Years	$ 1,378	$ 69	$ 1,447	$ 4,342	$ 3,912
2.13.3.2	Cover repair Years 1-3	3	Years	$ 5,672	$ 284	$ 5,955	$ 17,866	$ 16,097
2.13.3.3	Revegetation Years 1-3	3	Years	$ 28,149	$ 1,407	$ 29,556	$ 88,669	$ 79,889
				ESTIMATED SUBTOTAL:				**$ 99,898**

Present Value Variables			
i	5.4%	5.4%	5.4%
n	10	7	3
(P/A , i% , n)	7.573913	5.703420	2.702965
(P/F , i% , n)	0.591009	0.692015	0.854040

ESTIMATED TOTAL (rounded to nearest $10,000) : $ 100,000

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.3 COVERS AND VEGETATION

2.13.3.1 Inspection Years 1-3

Assumptions:

Level of effort will be the same for years 1-10.

Duration of Post-Closure Maintenance -	3	Years
Estimated Time -	40	hrs/year

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Pick-Up truck, 4X4	1	$ 12.50	40.0	$ 500
		Equipment Subtotal:		$ 500

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Laborer	1	$ 21.96	40.0	$ 878
		Labor Subtotal:		$ 878

Estimated Subtotal: $ 1,378

Estimated Unit Cost: $ 1,378 / year

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.3 COVERS AND VEGETATION

2.13.3.2 Cover repair Years 1-3

Assumptions:

Rip and push material to repair erosion.

Duration of Post-Closure Maintenance -	3	Years
Estimated Time -	40	hrs/year

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
D7R SU Dozer/Ripper	1	$ 106.78	40.0	$ 4,271
			Equipment Subtotal:	$ 4,271

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Dozer Operator	1	$ 35.01	40.0	$ 1,400
			Labor Subtotal:	$ 1,400

Estimated Subtotal: $ 5,672

Estimated Unit Cost: $ 5,672 / year

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.3 COVERS AND VEGETATION

2.13.3.3 Revegetation Years 1-3

Assumptions: 15% of total acreage will need reseeding for years 1-3.

Duration of Post-Closure Maintenance -	3	Years
Estimated Quantity (Site-wide Total) -	60.9	AC
Estimated Quantity -	9.1	AC

Estimated Unit Cost: $ 3,082 /AC

Estimated Unit Cost: $ 28,149 / year

See Miscellaneous Unit Cost for cost basis.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

2.0 DEVELOPMENT OF COSTS

2.13 MAINTENANCE

2.13.4 FENCES & SIGNS

COST SUMMARY

Item		Estimated Quantity	Unit	Estimated Unit Cost	Overhead & Profit	Unit Cost (includes O&P)	Extended Cost	Extended Cost (Present Value)
2.13.2.1	Inspection/Maintenar	10	Years	$ 1,378	$ 69	$ 1,447	$ 14,473	$ 10,961.88
			ESTIMATED SUBTOTAL:					**$ 10,962**

Present Value Variables	
i	5.4%
n	10
(P/A , i% , n)	7.573913

ESTIMATED TOTAL (rounded to nearest $10,000) : $ 10,000

2.13.2.1 Inspection/Maintenance

Assumptions:

Level of effort will be the same for years 1-10.

Duration of Post-Closure Maintenance -	10	Years
Estimated Time -	40	hrs/year

Equipment:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Pick-Up truck, 4X4	1	$ 12.50	40.0	$ 500
		Equipment Subtotal:		$ 500

Labor:

Item	Estimated Quantity	Rate	Estimated Hours	Estimated Cost
Laborer	1	$ 21.96	40.0	$ 878
		Labor Subtotal:		$ 878

Estimated Subtotal: $ 1,378

Estimated Unit Cost: $ 1,378 / year

Golder Associates

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.1 SHAFT NO. 8 STOCKPILE

3.2.1.1 Excavation to Wedge Flux Pit

Loading Assumptions:

345C Excavator Bank	335	BCY/hr	***Controls Production Rate***
Load Factor -	0.8	for wet clay (from CAT handbook)	
Loose Volume -	418	LCY/hr	

Hauling Assumptions:	769 40T Haul Truck	
Struck Capacity -	21.6	LCY
Haul Distance -	3,300	Feet (One way distance)
Haul Distance -	0.63	Miles (One way distance)
Average Velocity -	12	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	1.5	Minutes
Estimated Cycle Time -	6.15	Cycles/hr
Maximum Production -	133	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	110.3	LCY/hr
Number of Trucks -	4	

Placement Assumptions:

Placement costs calculated for each respective site that receives the borrow materials.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.1.2 Local Cut to Fill

Assumptions:

D7 Dozer Bank-300'	159	BCY/hr

3.2.1.3 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D6NLGP Dozer Spreading-50'	538	LCY/hr
D6NLGP Dozer Spreading-50'	538	LCY/hr
Sum:	1076	LCY/hr

3.2.1.4 Low Permeability Fill

Loading Assumptions:

Borrow source is the Former Able Earth Quarry.
Compacted volume is equivalent to bank volume.

D7R Dozer Bank-50'	478	BCY/hr
Load Factor -	0.8	for wet clay (from CAT handbook)
Loose Volume -	598	LCY/hr
966H 5.25CY Loader	380	LCY/hr
	304	CCY/hr ***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	5,200	Feet (One way distance)
Haul Distance -	0.98	Miles (One way distance)
Average Velocity -	15	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	1.5	Minutes
Estimated Cycle Time -	5.27	Cycles/hr
Maximum Production -	114	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	94.5	LCY/hr
Number of Trucks -	5	

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr
125% of production rate?	YES	

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3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.1 SHAFT NO. 8 STOCKPILE

3.2.1.6 Riprap (Type I)

Riprap will be purchased offsite and delivered to the work area.

Placement Assumptions:	159	LCY/hr	
325D Excavator Riprap	159	LCY/hr	***Controls Production***

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.2 COVER STOCKPILE 1

3.2.2.1 Excavation to Intermediate Rock Stockpile

Loading Assumptions:

No drilling/blasting. Rip and push surface material to IRS.

D9T Dozer Bank-50'	1,046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	300	Feet (One way distance)
Haul Distance -	0.06	Miles (One way distance)
Average Velocity -	5	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	11.19	Cycles/hr
Maximum Production -	242	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	200.6	LCY/hr
Number of Trucks -	3	

Placement Assumptions:

Placement costs calculated for each respective site that receives the borrow materials.

3.2.2.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D6NLGP Dozer Spreading-50'	538	LCY/hr
D6NLGP Dozer Spreading-50'	538	LCY/hr
Sum:	1076	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.3 COVER STOCKPILE 2

3.2.3.1 Excavation to Intermediate Rock Stockpile

Loading Assumptions:

No drilling/blasting. Rip and push surface material to IRS.

D9T Dozer Bank-50'	1,046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	775	Feet (One way distance)
Haul Distance -	0.15	Miles (One way distance)
Average Velocity -	5	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	7.98	Cycles/hr
Maximum Production -	172	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	143.0	LCY/hr
Number of Trucks -	4	

Placement Assumptions:

Placement costs calculated for each respective site that receives the borrow materials.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.3.2 Excavation to LoadOut Rock face

Loading Assumptions:

No drilling/blasting.

D9T Dozer Bank-50'	1,046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	1,730	Feet (One way distance)
Haul Distance -	0.33	Miles (One way distance)
Average Velocity -	10	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	7.56	Cycles/hr
Maximum Production -	163	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	135.6	LCY/hr
Number of Trucks -	5	

Placement Assumptions:

Placement costs calculated for each respective site that receives the borrow materials.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.3.3 Excavation to Adit #5

Loading Assumptions:

No drilling/blasting. Rip and push surface material to IRS.

D9T Dozer Bank-50'	1,046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	3,100	Feet (One way distance)
Haul Distance -	0.59	Miles (One way distance)
Average Velocity -	12	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	6.08	Cycles/hr
Maximum Production -	131	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	109.0	LCY/hr
Number of Trucks -	5	

Placement Assumptions:

Placement costs calculated for each respective site that receives the borrow materials.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.3.4 Excavation to Clay Pit

Loading Assumptions:

No drilling/blasting. Rip and push surface material to IRS.

D9T Dozer Bank-50'	1,046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	8,300	Feet (One way distance)
Haul Distance -	1.57	Miles (One way distance)
Average Velocity -	18	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	4.14	Cycles/hr
Maximum Production -	90	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	74.3	LCY/hr
Number of Trucks -	8	

Placement Assumptions:

Placement costs calculated for each respective site that receives the borrow materials.

3.2.3.5 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D7R Dozer Spreading-50'	710	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.4 COVER STOCKPILE 3

3.2.4.1 Excavation to Facilities Covered Under Separate Bonds

Loading Assumptions:

No drilling/blasting. Rip and push surface material to IRS.

D7R Dozer Bank-50'	478	BCY/hr
966H 5.25CY Loader	380	LCY/hr ***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	4,400	Feet (One way distance)
Haul Distance -	0.83	Miles (One way distance)
Average Velocity -	15	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	5.63	Cycles/hr
Maximum Production -	122	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	100.8	LCY/hr
Number of Trucks -	4	

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr
125% of production rate?	YES	

3.2.4.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D7R Dozer Spreading-50'	710	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.5 COVER STOCKPILE 4

3.2.5.1 Excavation to Clay Pit

Loading Assumptions:

No drilling/blasting. Rip and push surface material to IRS.

D7R Dozer Bank-50'	478	BCY/hr
966H 5.25CY Loader	380	LCY/hr ***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	3,400	Feet (One way distance)
Haul Distance -	0.64	Miles (One way distance)
Average Velocity -	12	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	5.75	Cycles/hr
Maximum Production -	124	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	103.0	LCY/hr
Number of Trucks -	4	

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr
125% of production rate?	YES	

3.2.5.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D7R Dozer Spreading-50'	710	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.6 MILL SANDS POND PAD

3.2.6.1 Local Cut to Fill

Assumptions:

D7 Dozer Bank-300'	159	BCY/hr

3.2.6.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D7R Dozer Spreading-50'	710	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.7 INTERMEDIATE ROCK STOCKPILE

3.2.7.1 Clean Fill from Cover Stockpile No.1

Loading Assumptions:

Loading and haulage estimates included from borrow source.

980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr

3.2.7.2 Uncompacted Cover from Stockpile No. 2

Loading Assumptions:

Drilling/blasting/crushing operations can keep up with loading rate.

D9T Dozer Bank-50'	1,046	BCY/hr	-
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	22	LCY
Haul Distance -	500	Feet (One way distance)
Haul Distance -	0	Miles (One way distance)
Average Velocity -	5	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	-	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	10	Cycles/hr
Maximum Production -	225	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	1	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	186	LCY/hr
Number of Trucks -	3	

Placement Assumptions:

D6NLGP Dozer Spreading-50'	538	LCY/hr
D6NLGP Dozer Spreading-50'	538	LCY/hr
Sum:	1,076	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.2.8 SHAFT NO. 4 PAD

3.2.8.1 Local Cut to Fill

Assumptions:

D7 Dozer Bank-300'	159	BCY/hr

3.2.8.1 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D7R Dozer Spreading-50'	710	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.3 BORROW AREAS AND QUARRIES

3.3.1 CLAY PIT

3.3.1.1 #REF!

Assumptions:

Loading and haulage estimates included with Slag Pile estimate.

3.3.1.2 Excavation to CP-105 Pond (Low Perm Fill)

Assumptions:

Loading and haulage estimates included with CP-105 estimate.

3.3.1.3 Clean Fill from Cover Stockpile No. 2

Loading Assumptions:

Loading and haulage estimates included from borrow source.

D9T Dozer Bank-50'	1,046	BCY/hr
980G/H 7.5CY Loader	543	LCY/hr ***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	8,300	Feet (One way distance)
Haul Distance -	1.57	Miles (One way distance)
Average Velocity -	18	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	4.14	Cycles/hr
Maximum Production -	90	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	74.3	LCY/hr
Number of Trucks -	8	

Placement Assumptions:

D8T Dozer Spreading-50'	1,046	LCY/hr
815F Compactor	974	CCY/hr
125% of production rate?	YES	

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.3 BORROW AREAS AND QUARRIES

3.3.1.4 Clean Fill from Cover Stockpile No. 4

Loading Assumptions:

Loading and haulage estimates included from borrow source.

D7R Dozer Bank-50'	478	BCY/hr	
966H 5.25CY Loader	380	LCY/hr	***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	3,400	Feet (One way distance)
Haul Distance -	0.64	Miles (One way distance)
Average Velocity -	12	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	5.75	Cycles/hr
Maximum Production -	124	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	103.0	LCY/hr
Number of Trucks -	4	

Placement Assumptions:

D8T Dozer Spreading-50'	1,046	LCY/hr
815F Compactor	974	CCY/hr
125% of production rate?	YES	

3.3.1.5 Local Cut to Fill

Assumptions:

D8T Dozer Spreading-50'	1046	LCY/hr	***Controls Production Rate***

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.3 BORROW AREAS AND QUARRIES

3.3.1.6 Prepared Surface

Loading Assumptions:

Loading and haulage estimates included from borrow source.

D9T Dozer Bank-50'	1,046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions:	769 40T Haul Truck	
Struck Capacity -	22	LCY
Haul Distance -	3,400	Feet (One way distance)
Haul Distance -	1	Miles (One way distance)
Average Velocity -	12	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	-	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	6	Cycles/hr
Maximum Production -	130	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	1	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	108	LCY/hr
Number of Trucks -	6	

Placement Assumptions:

D6NLGP Dozer Spreading-50'	538	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.3 BORROW AREAS AND QUARRIES

3.3.2 SILT RIDGE BORROW AREA

3.3.2.1 Local Cut to Fill

Assumptions:

D8T Dozer Spreading-50'	1046	LCY/hr	***Controls Production Rate***

3.3.2.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D6NLGP Dozer Spreading-50'	538	LCY/hr
D6NLGP Dozer Spreading-50'	538	LCY/hr
Sum:	1076	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.3 BORROW AREAS AND QUARRIES

3.3.3 TP 3/4 BORROW AREA

3.3.3.1 #REF!

Loading Assumptions:

Cost Included in Slag Pile estimate.

3.3.3.2 Excavation to Facilities Covered Under Separate Bonds

Loading Assumptions:

No drilling/blasting. Rip and push surface material to IRS.

D8T Dozer Bank-50'	697	BCY/hr	
345C Excavator Bank	335	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions:	769 40T Haul Truck	
Struck Capacity -	21.6	LCY
Haul Distance -	4,400	Feet (One way distance)
Haul Distance -	0.83	Miles (One way distance)
Average Velocity -	15	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	5.63	Cycles/hr
Maximum Production -	122	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	100.8	LCY/hr
Number of Trucks -	6	

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr
125% of production rate?	YES	

3.3.3.3 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D6NLGP Dozer Spreading-50'	538	LCY/hr
D6NLGP Dozer Spreading-50'	538	LCY/hr
Total:	1076	LCY/hr

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Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.3 BORROW AREAS AND QUARRIES

3.3.4 FORMER ABLE EARTH QUARRY

3.3.4.1 Excavation to CP-105 Pond

Loading Assumptions:

Cost Included in CP-105 Pond estimate.

3.3.4.2 Excavation to Facilities Covered Under Separate Bonds

Loading Assumptions:

No drilling/blasting. Rip and push surface material to IRS.

D8T Dozer Bank-50'	697	BCY/hr	
345C Excavator Bank	335	BCY/hr	***Controls Production Rate***
966H 5.25CY Loader	380	LCY/hr	

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	4,400	Feet (One way distance)
Haul Distance -	0.83	Miles (One way distance)
Average Velocity -	15	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	5.63	Cycles/hr
Maximum Production -	122	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	100.8	LCY/hr
Number of Trucks -	4	

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr
125% of production rate?	YES	

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.3 BORROW AREAS AND QUARRIES

3.3.4.3 Local Cut to Fill

Assumptions:

D9T Dozer Bank-300'	214	BCY/hr

3.3.4.4 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D6NLGP Dozer Spreading-50'	538	LCY/hr
D6NLGP Dozer Spreading-50'	538	LCY/hr
Total:	1076	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.3 BORROW AREAS AND QUARRIES

3.3.5 SILICA FLUX PAD

3.3.5.1 Local Cut to Fill

Assumptions:

D8T Dozer Spreading-50'	1046	LCY/hr	***Controls Production Rate***

3.3.5.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D6NLGP Dozer Spreading-50'	538	LCY/hr
D6NLGP Dozer Spreading-50'	538	LCY/hr
Sum:	1076	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 BORROW AREAS AND QUARRIES

3.2.1 WEDGE FLUX PIT

3.2.1.1 Clean Fill from Shaft No. 8

Loading Assumptions:

Loading and haulage estimates included from borrow source.

345C Excavator Bank	335	BCY/hr	***Controls Production Rate***

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 BORROW AREAS AND QUARRIES

3.2.1.2 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push delivered surface material.

D6NLGP Dozer Spreading-50'	538	LCY/hr	***Controls Production Rate***

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.4.3 ADIT NO. 5 ROCK FACE

3.4.3.1 Clean Fill from Cover Stockpile No. 2

Loading Assumptions:

Loading and haulage estimates included from borrow source.

D9T Dozer Bank-50'	1046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.4.3.2 Local Cut to Fill

Assumptions:

D7 Dozer Bank-300'	159	BCY/hr

3.4.3.3 Prepared Surface

Loading Assumptions:

Loading and haulage estimates included from borrow source.

D9T Dozer Bank-50'	1,046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	22	LCY
Haul Distance -	500	Feet (One way distance)
Haul Distance -	0	Miles (One way distance)
Average Velocity -	5	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	-	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	10	Cycles/hr
Maximum Production -	225	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	1	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	186	LCY/hr
Number of Trucks -	3	

Placement Assumptions:

D6NLGP Dozer Spreading-50'	538	LCY/hr
125% of production rate?	NO	

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.4.4 LOADOUT ROCK FACE

3.4.4.1 Clean Fill from Cover Stockpile No.2

Loading Assumptions:

Loading and haulage estimates included from borrow source.

D9T Dozer Bank-50'	1046	BCY/hr	***Controls Production Rate***
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.2 STOCKPILES

3.4.4.2 Local Cut to Fill

Assumptions:

D7 Dozer Bank-300'	159	BCY/hr

3.4.4.3 Prepared Surface

Loading Assumptions:

Loading and haulage estimates included from borrow source.

D9T Dozer Bank-50'	1,046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	22	LCY
Haul Distance -	500	Feet (One way distance)
Haul Distance -	0	Miles (One way distance)
Average Velocity -	5	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	-	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	10	Cycles/hr
Maximum Production -	225	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	1	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	186	LCY/hr
Number of Trucks -	3	

Placement Assumptions:

D6NLGP Dozer Spreading-50'	538	LCY/hr
125% of production rate?	NO	

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.6 DISPOSAL AREAS

3.6.1 DISPOSAL AREA

3.6.1.1 Local Cut to Fill

Assumptions:

D9T Dozer Bank-300'	214	BCY/hr

3.6.1.2 Uncompacted Cover from Stockpile No. 2

Loading Assumptions:

Drilling/blasting/crushing operations can keep up with loading rate.

D8T Dozer Spreading-50'	1,046	LCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions:	769 40T Haul Truck	
Struck Capacity -	21.6	LCY
Haul Distance -	500	Feet (One way distance)
Haul Distance -	0.09	Miles (One way distance)
Average Velocity -	5	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	1.5	Minutes
Estimated Cycle Time -	10.39	Cycles/hr
Maximum Production -	225	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	186.3	LCY/hr
Number of Trucks -	3	

Placement Assumptions:

D6NLGP Dozer Spreading-50'	538	LCY/hr
D6NLGP Dozer Spreading-50'	538	LCY/hr
125% of production rate?	YES	

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.9 STORMWATER MANAGEMENT

3.9.1 CP 105 BERM AND CHANNELS

3.9.1.1 Excavation to TP-6

Loading Assumptions:

345C Excavator Bank	335	BCY/hr	***Controls Production Rate***
Load Factor -	0.8	for wet clay (from CAT handbook)	
Loose Volume -	418	LCY/hr	

Hauling Assumptions:	769 40T Haul Truck	
Struck Capacity -	21.6	LCY
Haul Distance -	7,500	Feet (One way distance)
Haul Distance -	1.42	Miles (One way distance)
Average Velocity -	18	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	1.5	Minutes
Estimated Cycle Time -	4.63	Cycles/hr
Maximum Production -	100	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	82.9	LCY/hr
Number of Trucks -	6	

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
125% of production rate?	YES	

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.9 STORMWATER MANAGEMENT

3.9.1 CP 105 BERM AND CHANNELS

3.9.1.2 Local Cut to Fill

Assumptions:

D9T Dozer Bank-300'	214	BCY/hr

3.9.1.3 Low Permeability Fill

Loading Assumptions:

Compacted volume is equivalent to bank volume.

D7R Dozer Bank-50'	478	BCY/hr
Load Factor -	0.8	for wet clay (from CAT handbook)
Loose Volume -	598	LCY/hr
966H 5.25CY Loader	380	LCY/hr
	304	CCY/hr ***Controls Production Rate***

Hauling Assumptions: 769 40T Haul Truck

Struck Capacity -	21.6	LCY
Haul Distance -	3,300	Feet (One way distance)
Haul Distance -	0.63	Miles (One way distance)
Average Velocity -	12	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	1.5	Minutes
Estimated Cycle Time -	6.15	Cycles/hr
Maximum Production -	133	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	110.3	LCY/hr
Number of Trucks -	4	

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr
125% of production rate?	YES	

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.9 STORMWATER MANAGEMENT

3.9.1 CP 105 BERM AND CHANNELS

3.9.1.4 Structural Fill (Berm and Spillway)

Loading Assumptions:

No drilling/blasting. Rip and push surface material at Able Earth Quarry.

D9T Dozer Bank-50'	1,046	BCY/hr	
980G/H 7.5CY Loader	543	LCY/hr	***Controls Production Rate***

Hauling Assumptions:	769 40T Haul Truck	
Struck Capacity -	21.6	LCY
Haul Distance -	11,000	Feet (One way distance)
Haul Distance -	2.08	Miles (One way distance)
Average Velocity -	18	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	2	Minutes
Estimated Cycle Time -	3.35	Cycles/hr
Maximum Production -	72	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	60.1	LCY/hr
Number of Trucks -	10	

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
815F Compactor	974	CCY/hr
125% of production rate?	YES	

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.9 STORMWATER MANAGEMENT

3.9.1 CP 105 BERM AND CHANNELS

3.9.1.5 Riprap (Type III)

Riprap will be purchased offsite and delivered to the work area.

Placement Assumptions:

950H 4.25CY Loader	279	LCY/hr	to assist with moving material
325D Excavator Riprap	159	LCY/hr	
325D Excavator Riprap	159	LCY/hr	
	319	LCY/hr	***Controls Production***

3.9.1.6 Riprap (Type II)

Riprap will be purchased offsite and delivered to the work area.

Placement Assumptions:

950H 4.25CY Loader	279	LCY/hr	to assist with moving material
325D Excavator Riprap	159	LCY/hr	
325D Excavator Riprap	159	LCY/hr	
	319	LCY/hr	***Controls Production***

3.9.1.9 8x6 ft Concrete Box Culverts (2 barrels)

Assumptions:

345C Excavator Bank	335	BCY/hr

3.9.1.10 8x6 ft Concrete Box Culverts (US HWY 60, 3 Barrels)

Assumptions:

345C Excavator Bank	335	BCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.11 ROADS

3.11.1 ROADS WITH NO POST-MINING PURPOSE

3.11.1.1 Asphalt Roads

Excavate & Haul Soils to Settling Pond 1

Loading Assumptions:

345C Excavator Bank	335	BCY/hr	***Controls Production Rate***
Load Factor -	0.8	for wet clay (from CAT handbook)	
Loose Volume -	418	LCY/hr	

Hauling Assumptions:	769 40T Haul Truck	
Struck Capacity -	21.6	LCY
Haul Distance -	7,900	Feet (One way distance)
Haul Distance -	1.50	Miles (One way distance)
Average Velocity -	18	Miles/hr
Approximate Loading Time -	2	Minutes
Truck Exchange -	0	Minutes (Maneuver time in loading area)
Maneuver and Dump Time -	1.5	Minutes
Estimated Cycle Time -	4.45	Cycles/hr
Maximum Production -	96	LCY/hr
Bed Fill Factor -	1	Percent of maximum bed capacity
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	79.8	LCY/hr
Number of Trucks -	6	

Placement Assumptions:

D7R Dozer Spreading-50'	710	LCY/hr
125% of production rate?	YES	

3.11.1.3 Prepared Surface

Assumptions:

No drilling/blasting. Rip and push surface material.

D6NLGP Dozer Spreading-50'	538	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

3.0 PRODUCTION RATE DEVELOPMENT

3.10 MISCELLANEOUS UNIT COSTS

3.10.1 Drilling/Blasting/Crushing Estimated Unit Cost

Assumptions:

Drilling/blasting operations can keep up with crushing rate.

Per Ken Lloyd, Wheeler CAT, expect actual crusher production rate to be 60% of max.

Stockpiling and Loading crusher

D9T Dozer Bank-50'	1,046	BCY/hr	
330D Excavator Riprap	219	LCY/hr	***Controls Production Rate***

Crusher production rate:

Crusher - Lokotrack LT106	440	tons/hr	
Rock Density:	1.5	tons/CY	Estimated based CAT Handbook
Crusher production rate:	293	CY/hr	
980G/H 7.5CY Loader	543	LCY/hr	

3.0 PRODUCTION RATE DEVELOPMENT

3.10 MISCELLANEOUS UNIT COSTS

3.10.2 Average Haul Speeds

	One Way Distance (feet)	Avg. Speed (mph)
Less than	1,500	5
Less than	2,500	10
Less than	4,000	12
Less than	6,000	15
Greater than	6,000	18

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

4.0 EQUIPMENT PRODUCTIVITY SUMMARY

4.1 TRACK-TYPE TRACTORS

4.1.1	D10T Dozer Slag-50'	1064	BCY/hr	
4.1.2	D9T Dozer Bank-50'	1046	BCY/hr	
4.1.3	D8T Dozer Bank-50'	697	BCY/hr	
4.1.4	D7R Dozer Bank-50'	478	BCY/hr	
4.1.5	D9T Dozer Bank-300'	214	BCY/hr	
4.1.6	D8T Dozer Bank-300'	149	BCY/hr	
4.1.7	D7 Dozer Bank-300'	159	BCY/hr	
4.1.8	D10T Dozer Downhill-300'	340	BCY/hr	
4.1.9	D9T Dozer Downhill-300'	236	BCY/hr	
4.1.10	D8T Dozer Downhill-300'	164	BCY/hr	
4.1.11	D9T Dozer Spreading-50'	1569	LCY/hr	
4.1.12	D8T Dozer Spreading-50'	1046	LCY/hr	
4.1.13	D7R Dozer Spreading-50'	710	LCY/hr	
4.1.14	D6NLGP Dozer Spreading-50'	538	LCY/hr	

4.2 EXCAVATORS

4.2.1	365C Excavator Slag	406	BCY/hr	
4.2.2	345C Excavator Bank	335	BCY/hr	
4.2.3	330D Excavator Bank	263	BCY/hr	
4.2.4	330D Excavator Riprap	219	LCY/hr	
4.2.5	325D Excavator Riprap	159	LCY/hr	

4.3 WHEEL LOADERS

4.3.1	988G/H 10CY Loader	664	LCY/hr	
4.3.2	980G/H 7.5CY Loader	543	LCY/hr	
4.3.3	966H 5.25CY Loader	380	LCY/hr	CANNOT LOAD 769
4.3.4	950H 4.25CY Loader	279	LCY/hr	CANNOT LOAD 735 or 769

4.4 COMPACTORS

4.4.1	815F Compactor	974	CCY/hr	

4.5 HAUL TRUCKS

4.5.1	735 Articulated 35T Haul Truck	19.2	LCY
4.5.2	769 40T Haul Truck	21.6	LCY
4.5.3	16.5 CY Highway Truck	16.5	LCY

4.6 CRUSHER

4.6.1	Crusher - Lokotrack LT106	440	tons/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

4.0 EQUIPMENT PRODUCTIVITY DEVELOPMENT

4.1 TRACK-TYPE TRACTORS

4.1.1 D10T Dozer Slag-50'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	50	ft.

Productivity and Correction Factors

Maximum Production -	2850	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	Assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.60	Assume very hard to cut
Slope -	1.00	Level
Production Rate -	1064	BCY/hr

4.1.2 D9T Dozer Bank-50'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	50	ft.

Productivity and Correction Factors

Maximum Production -	2100	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.80	Cutting bank material
Slope -	1.00	Level
Production Rate -	1046	BCY/hr

4.1.3 D8T Dozer Bank-50'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	50	ft.

Productivity and Correction Factors

Maximum Production -	1400	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.80	Cutting bank material
Slope -	1.00	Level
Production Rate -	697	BCY/hr

4.1 TRACK-TYPE TRACTORS

4.1.4 D7R Dozer Bank-50'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	50	ft.

Productivity and Correction Factors

Maximum Production -	960	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.80	Cutting bank material
Slope -	1.00	Level
Production Rate -	478	BCY/hr

4.1.5 D9T Dozer Bank-300'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	300	ft.

Productivity and Correction Factors

Maximum Production -	430	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.80	Cutting bank material
Slope -	1.00	Level
Production Rate -	214	BCY/hr

4.1.6 D8T Dozer Bank-300'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	300	ft.

Productivity and Correction Factors

Maximum Production -	300	BCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.80	Cutting bank material
Slope -	1.00	Level
Production Rate -	149	BCY/hr

4.1 TRACK-TYPE TRACTORS

4.1.7 D7 Dozer Bank-300'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	300	ft.

Productivity and Correction Factors

Maximum Production -	320	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.80	Cutting bank material
Slope -	1.00	Level
Production Rate -	159	BCY/hr

4.1.8 D10T Dozer Downhill-300'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	300	ft.

Productivity and Correction Factors

Maximum Production -	620	BCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.80	Cutting bank material
Slope -	1.10	Downhill 10+%
Production Rate -	340	BCY/hr

4.1.9 D9T Dozer Downhill-300'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	300	ft.

Productivity and Correction Factors

Maximum Production -	430	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.80	Cutting bank material
Slope -	1.10	Downhill 10+%
Production Rate -	236	BCY/hr

4.1 TRACK-TYPE TRACTORS

4.1.10 D8T Dozer Downhill-300'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	300	ft.

Productivity and Correction Factors

Maximum Production -	300	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	0.80	Cutting bank material
Slope -	1.10	Downhill 10+%
Production Rate -	164	BCY/hr

4.1.11 D9T Dozer Spreading-50'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	50	ft.

Productivity and Correction Factors

Maximum Production -	2100	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	1.20	Loose
Slope -	1.00	Flat
Production Rate -	1569	LCY/hr

4.1.12 D8T Dozer Spreading-50'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	50	ft.

Productivity and Correction Factors

Maximum Production -	1400	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	1.20	Loose
Slope -	1.00	Flat
Production Rate -	1046	LCY/hr

4.1 TRACK-TYPE TRACTORS

4.1.13 D7R Dozer Spreading-50'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	50	ft.

Productivity and Correction Factors

Maximum Production -	950	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	1.20	Loose
Slope -	1.00	Flat
Production Rate -	710	LCY/hr

4.1.14 D6NLGP Dozer Spreading-50'

Assumptions

Blade Type -	SU	
Maximum Push Distance -	50	ft.

Productivity and Correction Factors

Maximum Production -	720	LCY/hr
Operator Efficiency -	0.75	Average operator
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Material -	1.20	Loose
Slope -	1.00	Flat
Production Rate -	538	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

4.0 EQUIPMENT PRODUCTIVITY DEVELOPMENT

4.2 EXCAVATORS

LOADING OF BANK/RIPPED SLAG/POND MATERIAL

4.2.1 365C Excavator Slag

Assumptions				**Loading Height**	
Heaped Bucket Capacity -	4.25	BCY	clearance	22.6	ft
Estimated Cycle Time -	25	sec./cycle			
Productivity and Correction Factors					
Maximum Production -	612	BCY/hr			
Bucket Fill Factor -	0.80	Percent of maximum bucket capacity			
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)			
Production Rate -	406	BCY/hr			

4.2.2 345C Excavator Bank

Assumptions				**Loading Height**	
Heaped Bucket Capacity -	3.5	BCY	clearance	21.8	ft
Estimated Cycle Time -	25	sec./cycle			
Productivity and Correction Factors					
Maximum Production -	504	BCY/hr			
Bucket Fill Factor -	0.80	Percent of maximum bucket capacity			
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)			
Production Rate -	335	BCY/hr			

4.2 EXCAVATORS

LOADING OF BANK/RIPPED SLAG/POND MATERIAL

4.2.3 330D Excavator Bank					
Assumptions				**Loading Height**	
Heaped Bucket Capacity -	2.75	BCY	clearance	21.2	ft
Estimated Cycle Time -	25	sec./cycle			
Productivity and Correction Factors					
Maximum Production -	396	BCY/hr			
Bucket Fill Factor -	0.80	Percent of maximum bucket capacity			
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)			
Production Rate -	263	BCY/hr			

PLACING RIPRAP

4.2.4 330D Excavator Riprap		
Assumptions		
Heaped Bucket Capacity -	2.75	CY
Estimated Cycle Time -	30	sec./cycle - assume slow cycle time to allow for careful placement of riprap
		.
Productivity and Correction Factors		
Maximum Production -	330	LCY/hr
Bucket Fill Factor -	0.80	Percent of maximum bucket capacity
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	219	LCY/hr

4.2.5 325D Excavator Riprap		
Assumptions		
Heaped Bucket Capacity -	2	LCY
Estimated Cycle Time -	30	sec./cycle - assume slow cycle time to allow for careful placement of riprap
Productivity and Correction Factors		
Maximum Production -	240	LCY/hr
Bucket Fill Factor -	0.80	Percent of maximum bucket capacity
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	159	LCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

4.0 EQUIPMENT PRODUCTIVITY DEVELOPMENT

4.3 WHEEL LOADERS

Loading of Stockpiled Material:

4.3.1 988G/H 10CY Loader

Dump clearance height:	**13**	**feet**
Assumptions		
Heaped Bucket Capacity -	10	LCY
Estimated Cycle Time -	0.6	min./average loader cycle times
Productivity and Correction Factors		
Maximum Production -	1000	LCY/hr
Bucket Fill Factor -	0.80	Percent of maximum bucket capacity
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	**664**	LCY/hr

4.3.2 980G/H 7.5CY Loader

Dump clearance height:	**10.75**	**feet**
Assumptions		
Rated Bucket Capacity -	7.5	LCY
Estimated Cycle Time -	0.55	min./average loader cycle times
Productivity and Correction Factors		
Maximum Production -	818	LCY/hr
Bucket Fill Factor -	0.80	Percent of maximum bucket capacity
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	**543**	LCY/hr

4.3 WHEEL LOADERS

Loading of Stockpiled Material:

4.3.3	966H 5.25CY Loader		
	Dump clearance height:	**10.2**	**feet**
	CANNOT LOAD 769		
Assumptions			
	Heaped Bucket Capacity -	5.25	LCY
	Estimated Cycle Time -	0.55	min./average loader cycle times
Productivity and Correction Factors			
	Maximum Production -	573	LCY/hr
	Bucket Fill Factor -	0.80	Percent of maximum bucket capacity
	Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
	Production Rate -	**380**	LCY/hr

4.3.4	950H 4.25CY Loader		
	Dump clearance height:	**9.5**	**feet**
	CANNOT LOAD 735 OR 769		
Assumptions			
	Heaped Bucket Capacity -	3.5	CY for heavy duty general purpose bolt on edges
	Estimated Cycle Time -	0.5	min./average loader cycle times
Productivity and Correction Factors			
	Maximum Production -	420	LCY/hr
	Bucket Fill Factor -	0.80	Percent of maximum bucket capacity
	Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
	Production Rate -	**279**	LCY/hr

4.0 EQUIPMENT PRODUCTIVITY DEVELOPMENT

4.4 COMPACTORS

4.4.1 815F Compactor

Compaction Production Rates

Sheepsfoot compactor used to achieve compaction for soil and continuity between lifts.

Assumptions

Width per Pass -	12	Ft
Number of Passes -	4	Each
Thickness of Lift -	6	Inches
Average Spead of Compactor -	4.0	Miles/hr

Productivity and Correction Factors

Maximum Production -	1173.6	CCY/hr
Job Efficiency -	0.83	assume 50 min hour (warm up, breaks, and shutdown)
Production Rate -	974	CCY/hr

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

5.1 EQUIPMENT RATES

Assumptions:

Hourly Rental Rate =	176	Hours/Month
Fuel Cost =	$ 4.00	/gallon
Planned Maintenance	0%	of hourly rental rate

Equipment	Monthly Rental Rate	Hourly Rental Rate	Med/High Fuel Usage (gal/hr)	Fuel Cost (/hour)	PM	Hourly Cost
Track-Type Tractors						
D6N P.A.T. (6 way) Dozer/Ripper	$ 6,910	$ 39.26	5.0	$ 20.00	$ -	$ 59.26
D7R SU Dozer/Ripper	$ 12,810	$ 72.78	8.5	$ 34.00	$ -	$ 106.78
D8T SU Dozer Ripper	$ 19,750	$ 112.22	11.5	$ 46.00	$ -	$ 158.22
D9T SU Dozer Ripper	$ 22,760	$ 129.32	14.9	$ 59.60	$ -	$ 188.92
D10T SU Dozer Ripper	$ 27,990	$ 159.03	21.0	$ 84.00	$ -	$ 243.03
Motor Graders						
140H/M - 14' Blade/Ripper	$ 7,850	$ 44.60	5.0	$ 20.00	$ -	$ 64.60
Tracked Excavators						
325D L 64,460lb	$ 8,030	$ 45.63	7.8	$ 31.20	$ -	$ 76.83
330D L 79,700lb	$ 9,720	$ 55.23	11.9	$ 47.60	$ -	$ 102.83
H140 5,000lb Hydraulic Hammer	$ 9,810	$ 55.74				$ 55.74
345C L 99,150lb	$ 13,450	$ 76.42	13.3	$ 53.20	$ -	$ 129.62
345 Rock Ripping Bucket	$ 4,920	$ 27.95				$ 27.95
H160 7,500lb Hydraulic Hammer	$ 12,940	$ 73.52				$ 73.52
365C L 155,177lb	$ 20,080	$ 114.09	16.3	$ 65.20	$ -	$ 179.29
365 Rock Ripping Bucket	$ 5,190	$ 29.49				$ 29.49
Water Wagons						
613C 5,000 gal	$ 8,360	$ 47.50	7.3	$ 29.20	$ -	$ 76.70
621G 8,000 gal	$ 14,500	$ 82.39	13.0	$ 52.00	$ -	$ 134.39
Trucks						
735 35 Ton Articulated	$ 14,340	$ 81.48	8.6	$ 34.40	$ -	$ 115.88
769/770 40 Ton	$ 14,990	$ 85.17	10.8	$ 43.20	$ -	$ 128.37
16.5 CY highway dump truck	$ 3,828	$ 21.75		$ -	$ 64.60	$ 86.35
Compactors						
815F/G 44,200lb	$ 9,590	$ 54.49	11.5	$ 46.00	$ -	$ 100.49
Wheel Loaders						
950H 4.25CY	$ 7,020	$ 39.89	5.1	$ 20.40	$ -	$ 60.29
966H 5.25CY	$ 9,290	$ 52.78	7.0	$ 28.00	$ -	$ 80.78
980G/H 7.5CY	$ 12,640	$ 71.82	9.4	$ 37.60	$ -	$ 109.42
988G/H 10CY	$ 19,870	$ 112.90	17.1	$ 68.40	$ -	$ 181.30
Crusher - Lokotrack LT106	$ 2,800	$ 15.91	8.0	$ 32.00	$ 22.00	$ 69.91
Screen - Lokotrack ST358	$ 1,350	$ 7.67	5.0	$ 20.00	$ -	$ 27.67
Light Vehicles						
Pick-Up Truck, 4X4	$ 2,200	$ 12.50		$ -	$ -	$ 12.50

Notes:

1) Daily rental rates are from Empire CAT Rental (2008 Rental Rate Pocket Guide) in Apache Junction, AZ with the following exceptions: crusher, screening plant, highway dump truck. From 2011 RSMeans Crew 34B. Location factor not applied.
2) Fuel usage is from the Caterpillar Performance Handbook (Edition 37, 2007). The low number from the high load factor range is used.
3) Light vehicle charges assumed to be $100/day, no additional fuel charge is applied.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

5.2 LABOR RATES

Assumptions:

Factor for insurance, workman's comp:	1
Daily per diem	
Hours worked for per diem rate	8

Labor Category	Hourly Base Rate	Fringe	Hourly Rate
Equipment Operator			
Group 2			
Grader Operator	$ 25.22	$ 9.79	$ 35.01
Compactor Operator	$ 25.22	$ 9.79	$ 35.01
Dozer Operator	$ 25.22	$ 9.79	$ 35.01
Crusher Operator	$ 25.22	$ 9.79	$ 35.01
Group 3 (Excavator, Loader)			
Excavator Operator	$ 26.30	$ 9.79	$ 36.09
Loader Operator	$ 26.30	$ 9.79	$ 36.09
Truck Driver Group 7 (Off Highway Truck)			
Haul Truck Driver	$ 20.64	$ 11.33	$ 31.97
Foreman (Group 3 Equipment Operator plus 25%)			
Foreman	$ 32.88	$ 9.79	$ 42.67
Laborer			
Laborer	$ 17.61	$ 4.35	$ 21.96

Notes:

1) Hourly Base Rate and Fringe based on 8/12/2011 Davis-Bacon wage determinations for Heavy Dam Construction in Maricopa, Mohave, Pima, Pinal, and Yuma Counties.

2) The Hourly Rate includes a factor for insurance and daily per diem as identified in the assumptions.

Resolution Copper Mining
Reclamation Cost Estimate - West Plant Site
April 2014 Revision

5.3 MATERIALS

Superior Riprap Sizes						
Size	Type I	Type II	Type III	Type IV	Type V	Type VI
D_{10}	3	6	9	12	1	6
D_{50}	6	9	15	18	3	12
D_{100}	12	18	30	36	6	24

RIPRAP (From CRC Cost Breakdown - Tailings Pond 3-4 Closure)

Item	FOB Unit Cost	Unit	
Riprap (Type I) - 6-in. CRC cost	$ 16.39	ton	quote
Riprap (Type II) - 9-in	$ 20.00		
Riprap (Type III) - 15-in CRC cost	$ 27.09	ton	quote
Riprap (Type IV) - 18-in	$ 30.00		
Riprap (Type V) - 3-in CRC cost	$ 15.59	ton	quote
Riprap (Type VI) - 12-in	$ 24.00		

RIPRAP Quote from Gila

Item	FOB Unit Cost	Unit	FOB Unit Cost	Unit
Riprap (Type I) FOB	$ 16.39	ton	$ 26.63	cy
Riprap (Type II) FOB	$ 20.00	ton	$ 32.50	cy
Riprap (Type III) FOB	$ 27.09	ton	$ 44.02	cy
Riprap (Type IV) FOB	$ 30.00	ton	$ 48.75	cy
Riprap (Type V) FOB	$ 15.59	ton	$ 25.33	cy
Riprap (Type VI) FOB	$ 24.00	ton	$ 39.00	cy

For density assume dry pitrun gravel (RS Means Weight of Materials Table)

3,250	lb/cy	1.63	lb/cy
		0.62	cy/lb

ATTACHMENT B
SUPERIOR MINE EAST PLANT SITE RECLAMATION PLAN

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ATTACHMENT B

SUPERIOR MINE EAST PLANT SITE RECLAMATION PLAN

RESOLUTION COPPER MINING, LLC

APRIL 2014

ARCADIS

Michael Berry
Principal Mechanical Engineer
ARCADIS U.S., Inc.

Superior Mine East Plant Site Reclamation Plan

Superior Arizona

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April 2014

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Table of Contents

Tables

Figures

Appendices

1. Introduction

1.1 Objectives and Strategy

This Mined Land Reclamation Plan (MLRP) outlines Resolution Copper Mining, LLC's (RCML's) strategies for the reclamation and post-mining uses of lands disturbed by mining activities at the Superior Mine East Plant Site. Implementation of reclamation activities and processes described in this MLRP will effectively mitigate surface disturbances resulting from mining and associated activities, prepare the land for planned future uses, control erosion, and provide for stable final land surfaces and protection of the public.

1.2 Total Cost

The estimated MLRP cost of reclaiming the East Plant Site is $3.502 million

2. Project History and Overview

2.1 Location and History

The historic Magma Mine operated between 1914 and 1996 and was located in Pinal County, Arizona. Construction of East Plant Site facilities started in the late 1960's and included shaft and support facilities for the historic underground copper mining operation.

Beginning in 2004, East Plant Site operations resumed under Resolution Copper operations and continue to date. In addition to utilizing the historic infrastructure, current operations have expanded to include a second shaft (Shaft 10) and the requisite support structures and access roads. Table 2-1 below identifies the significant structures currently on site.

RCML holds patented and unpatented claims over the area of the Site. A portion of the property boundary is depicted on Figures 1, 2, and 3.

2.2 Site Description

East Plant Site surface disturbances are approximately 25 contiguous acres plus the access road. The surface disturbances consist of several graded pads surrounded by rugged terrain. There are neither open pit mining activities nor any surface expression

of underground mining activities on the East Plant Site. Facilities within the surface disturbances are listed in Table 2-1.

Table 2-1 East Plant Site

Facility	Description
No. 9 Shaft	Headframe, with hoist and winch houses
No 10 Shaft	Headframe with hoist and winch houses
Office / Administration Building	Block construction inclusive of mine dry
Warehouse	Industrial metal framed building
Electrical / Maintenance Shop	Heavy industrial metal framed building with overhead bridge crane
Compressor Building	Heavy industrial metal building with overhead bridge crane
Electrical Substation	-
Concrete Batch Plant	-
Laydown / Storage	General non-contained storage
Miscellaneous Tanks	Steel of various sizes
Cooling Tower and pipe banks	-
Miscellaneous minor structures and portable buildings	Portable construction trailers, etc.

2.2.1 Ancillary Buildings and Facilities

The East Plant Site includes both historic and newly constructed administrative and support facilities (see Figures 1, 2, and 3). These facilities were constructed of a variety of materials, including wood, brick, metal, stone and synthetic fabric.

2.2.2 Utility and Process Distribution Infrastructure

Off-Site utility providers supply water and electric power to the Site. Compressed air, chilled water, service water, and mine electrical service are distributed across the site via an above grade utility bank.

2.2.3 Roads

The East Plant Site is accessed from US Highway 60 by way of a secondary paved access road, Magma Mine Road. Other on-site dirt service roads provide access to various aspects of the facility.

2.2.4 Ponds and Ditches

The East Plant Site includes stormwater control drainages, but does not include any impoundments or ponds. Surface runoff from active disturbed areas is collected and discharged from two permitted outfalls.

2.2.5 Wastewater Treatment Plant

The East Plant Site includes a decommissioned packaged sewage wastewater treatment plant (WWTP). Polyethylene septic storage tanks are now contained in the decommissioned WWTP for holding and loading of site sewage for off-site treatment and disposal.

2.3 Environmental Setting

2.3.1 Climate

The East Plant Site is located within an interior chaparral shrub zone at elevations ranging from 4,100 to 4,300 feet above mean sea level (amsl). Annual precipitation for this area averages 26.7 inches. Precipitation patterns display a bimodal distribution, dominated by frontal type winter rains and snow and high-intensity summer monsoons. Spring and fall are typically periods of low precipitation.

2.3.2 Topography

The East Plant Site is separated from the Town of Superior by the Apache Leap, a nearly 2,000-foot escarpment bounding the eastern edge of the Town of Superior. The difference in elevation between the East Plant Site and Town of Superior produces notable contrasts in climate. Queen Creek Canyon divides the cliffs and is the principal drainage for off-site stormwater.

2.3.3 Geology

The boundary between the Apache Leap Tuff (ALT) and the alluvial basin is marked by the Concentrator Fault, a prominent north-northwest striking normal fault which has been mapped at the surface for a distance of approximately 12 miles. The Concentrator Fault is a Basin and Range-age fault which produced an offset of approximately 1,600 feet near the West Plant. It dips steeply to the west and forms the contact between recent (Quaternary) valley-fill deposits and the older Paleozoic- and

Precambrian-age rocks. The Main Fault, east of the Concentrator Fault, exhibits rotational displacement that terminates against the Concentrator Fault in the Queen Creek drainage. Offset along the Main Fault is approximately 900 feet near the Site. The majority of ore bodies within the area are in fissure veins associated with faulting that occurred during the Laramide Orogeny. The Magma Fault, which hosts the Magma vein deposit, is the largest east- west fault in the Superior region. It has been mapped underground for a distance of approximately 7,000 feet and varies in width from 1 foot to over 50 feet. Several en echelon steep angle transverse faults located east of the Main Fault displace the Magma vein. Approximately four or five of these faults are pervasive along the western edge of the ore body and form an almost continuous zone from the surface to the 4,400- foot level. With the exception of the faults along the western edge of the ore body, the majority of the faults offsetting the Magma vein do not extend more than 100 or 200 feet (Kuhn, 1942).

Erosion during the Basin and Range Extension produced thick basin deposits. The Superior area includes moderately to well consolidated conglomerates that are frequently overlain by finer-grained silts and sands, and in places are interbedded with lava flows or volcanic ash. In the Superior District, the Troy Quartzite is intruded by Precambrian diabase sills (Kuhn, 1942), and there are several small Cenozoic-age basalt dikes that are intruded into pre-existing north-south faults that do not exhibit any displacement.

2.3.4 Hydrology

The East Plant Site is located within the hydrogeologic region referred to as the Phoenix Active Management Area (AMA). The Mine Site is underlain by the ALT aquifer and a deeper groundwater system which are both fractured-rock aquifers with low primary permeability. Transmissivity in these systems is controlled by the extent and hydraulic connectivity of the fractures. The ALT aquifer is present throughout the Site and, at a larger scale, extends over roughly the same area as the ALT outcrop belt. In general, direction of groundwater movement in the ALT aquifer follows surface drainage patterns in the study area, with groundwater moving from areas of recharge near the watershed margins and along the principal drainage ways to areas of discharge at Shaft 9, along Devils Canyon, and along Mineral Creek. In the upper Queen Creek watershed, groundwater moves locally towards the principal ALT aquifer discharge point at Shaft 9.

Based on data obtained from the Arizona Department of Water Resources (ADWR), groundwater appears to be most shallow along the Queen Creek drainage and becomes deeper with increasing distance from Queen Creek.

2.3.5 Biological Resources

Vegetation at the East Plant Site consists mainly of scrub oak, manzanita, agaves, and perennial grasses, with few cacti. The East Plant Site provides habitat for small desert wildlife.

2.3.6 Cultural and Historic Resources

BHP Copper commissioned a study completed in March 1998 to identify historic resources associated with the East and West Plant areas. While ninety-four structures were found to meet age and integrity criteria for listing in the National Register, none of these structures were located at the East Plant Site.

3. Post-Mining Land Use Objectives

The Post-Mining Land Use (PMLU) objectives for the Site are designed to achieve the long-term goals of reclamation and return of disturbed areas to a condition suitable for the selected PMLU. For the foreseeable future, the East Plant Site will be used to support exploration and engineering studies for the Resolution Project. The Site will be reclaimed to support an industrial PMLU which will include future mineral exploration and grazing.

3.1 Future Mineral Exploration and Development

An active exploration program is underway using the facilities of the East Plant Site to continue characterizing the nature and extent of the ore resource with the intent to extract those resources with today's technologies and resource economics. Portions of the Site may be retained during reclamation for future mineral exploration and development based on emerging technologies or changing resource economics and consistent with an industrial PMLU.

3.2 Grazing

Portions of the Site have been historically used for grazing of domestic range animals. Reclaimed portions of the Site will include revegetated stable slopes and surfaces that

provide a suitable environment for incidental grazing and wildlife use. Figure 3 outlines areas of the Site that would be revegetated under this MLRP. Potential seed mixes to be used for revegetation are discussed in Section 7.6.

3.3 Historical Preservation

Currently the Site does not include any historic structures or facilities planned for preservation. The assessment of existing structures for historical preservation will be determined prior to reclamation of the Site.

3.4 Water Resources

Reclamation of the East Plant Site will include the re-construction of stormwater conveyance and control structures to manage stormwater runoff and precipitation on and proximal to the site as necessary to deliver stormwater to existing conveyances and control structures. Control of stormwater will minimize erosion and ensure the retention of soil to provide a growth medium for development of stable plant communities. Figure 2 shows a conceptual drainage plan for the East Plant Site, including primary and secondary drainages.

4. Public Safety

4.1 Physical Barriers and Warning Signs

Physical barriers or fencing will be placed in areas accessible to the public where final contours are not regraded to 3h:1v slopes or less. Weather-resistant warning signs will be placed at 400-foot intervals. All fencing will be constructed to account for local terrain.

4.2 Shaft and Adit Closure

Mine openings will be secured and made inaccessible to the public. Shaft and adit closure will include construction of bat-accessible structures where applicable. Other openings will be permanently closed; utilizing designs previously employed at other Arizona mine sites.

4.3 Stability Considerations

The reclamation plan, outlined in Section 5.0, proposes reducing the existing slopes to a final slope angle which will minimize erosion and will result in geotechnical stability for these features. Erosional stability may be enhanced through placement of erosion-resistant capping soils, establishment of vegetation, and use of gradient terrace channels to drain surface precipitation from reclaimed areas. For the purpose of this MLRP, 3h:1v slopes have been conceptually assumed to be sufficient to establish stable final slopes.

4.4 Buildings

Buildings at the Site which are not planned for incorporation into PMLUs will be demolished. Above grade structures will be removed and disposed of. Concrete foundations from demolished buildings or below- grade concrete work will be covered to a depth of 3 feet below ground surface (bgs) with surplus fill materials developed from site re-grading. Buried concrete foundations with the potential to hold or retain infiltrated surface water will be broken in place to prevent retention. Site buildings locations are visible as outlines in Figures 1, 2, and 3.

Any potentially hazardous materials encountered during demolition will be analyzed to determine appropriate remediation and disposal methods. Any hazardous materials will be handled and disposed or recycled in accordance with applicable state and federal regulations.

4.5 Debris Management

Incidental debris (trash, scrap metal, wood, etc.), generated as part of mine reclamation that poses a threat to public safety or creates a public nuisance consistent with the PMLU, will be disposed or recycled in accordance with applicable state and federal regulations.

5. Reclamation Plan

5.1 Site

The Site includes approximately 25 contiguous acres and consists of several terraces surrounded by rugged terrain. The conceptual regrading plan for the East Plant Site is shown on Figure 1. The purpose of the conceptual re-grading plan is to show a cut

and fill mass balance can be achieved for cost estimating and indicates that sufficient fill materials will be available to meet the overall reclamation objectives of this MLRP. Final grading plans will be developed at reclamation. In order to minimize erosion, the following erosion control measures are planned:

1. Slopes of unconsolidated material will be graded to a slope of 3:1 or less. Native rock formations will be left in their original configuration and incorporated into the landscape.
2. Catchment channel protection will be placed along slope crests or where natural, undisturbed slopes meet flat or gently sloping reclaimed materials. These features are intended to eliminate the formation of nick points along the slope crests and along native slope toes. Where appropriate, riprap will be utilized to protect the slopes of these channels and other drainage structures.
3. Vegetated terrace channels will be constructed at approximately 100-foot intervals down the slope using a 2 percent grade. These features are intended to minimize slope runoff, thus minimizing sheet erosion.
4. The catchment and gradient terrace channels will intersect regularly spaced, slope-face collection channels. These channels are intended to concentrate and convey water off the slopes, thus controlling downcutting.

5.2 Stormwater Management

Figure 2 shows the conceptual post-reclamation drainage plan for the Site. The regional drainage basin is Queen Creek. Several major tributary washes of Queen Creek cross the Site. Mining activities have diverted and obstructed the natural courses of these washes.

To provide flood and erosion control, the reclamation plan proposes to restore, as closely as possible, the natural drainage pattern for the Site. Using existing and pre-mining topography maps, the natural courses of the washes were identified. As shown on Figure 2, where the washes enter the Site from natural areas (canyons, slopes), drainage channels will be constructed to capture the runoff and discharge it from the Site. The site will be graded to capture the runoff and effectively discharge it from site without retention on site. These drainage channels will also receive runoff from disturbed and reclaimed areas. Where the drainage channels cross reclaimed features, riprap will be installed as necessary for channel erosional stability protection. All channels will be designed to pass the 100-year, 24-hour peak flow.

5.3 Underground Workings

With the exception of the removal of equipment for salvage, all underground workings will remain in as-is condition. No filling of existing tunnels and shafts is planned. For safety purposes, all mine openings will be covered or made inaccessible to the public and bat-accessible structures will be constructed where applicable.

5.4 Ancillary Buildings and Facilities

Ancillary buildings and facilities at the East Plant Site which supported the former mining and exploration operations will be demolished during reclamation or incorporated into PMLUs. Concrete foundations from demolished buildings or below-grade concrete work will be covered to a depth of 3 feet below ground surface (bgs) with fill materials developed from site re-grading to enhance stability. Buried concrete foundations with the potential to hold or retain infiltrated surface water will be broken in place to prevent retention. Site buildings locations are visible as outlines in Figures 1 2, and 3

5.5 Utility and Process Distribution Infrastructure

The electrical system infrastructure includes overhead transmission lines serving the East Plant Site, substations, and power lines serving numerous operations. Transmission lines and substations owned by electric utilities will be left in place or removed at the discretion of the utility provider. Transmission lines on the Site which are owned by Resolution Copper will be removed during facility demolition activities.

5.6 Roads

The existing road network will be utilized during reclamation to provide equipment access between work areas. Following reclamation, the majority of on-site roads will be reclaimed and incorporated into the Site regrading plan. At a minimum, the roads will be scarified to loosen the compacted material and revegetated. All asphaltic paving will be disposed of in accordance with state and federal regulations. Culverts will be removed or replaced as necessary to convey stormwater as shown in the regrading plan.

Roads that remain following reclamation will be those required as part of the PMLUs and for Site monitoring. The primary access road to the Site, Magma Mine Road,

resides on Forest Service land and will be left intact for access and recreational purposes.

5.7 Domestic Waste Disposal Facilities

The small unitized domestic sewage treatment plant is a below-grade concrete structure that has been previously decommissioned on site and replaced by polyethylene tanks within the concrete structure of the decommissioned facility. The plant and septic storage tanks will be cleaned according to applicable standards and dismantled and demolished as applicable. Any remaining mechanical components will either be salvaged or taken to an appropriate solid waste facility. The concrete structure will be covered to a depth of 3 feet below ground surface (bgs) with surplus fill materials developed for the site stability re-grading. Buried structure with the potential to hold or retain infiltrated surface water will be broken in place to prevent retention.

5.8 Mining Unit Definition

The mining units at the East Plant Site were evaluated to determine which of them are not subject to the requirements of A.R.S. §§ 27-901 through 27-997 and A.A.C. §§ R11-2-101 through R11-2-822 because they are:

- Inactive mining units, A.R.S. §§ 27-901(5), 27-924(B)
- Smelting, refining, fabricating or other metals process facilities or materials associated with such facilities, A.R.S. § 27-901(9)
- Subject to ADEQ individual or general aquifer protection permit requirements, individual or general pollutant discharge elimination system permit requirements, solid waste program requirements, or voluntary remediation program requirements, which would make the application of mined land reclamation requirements to them redundant, inconsistent or contradictory, A.R.S. §§ 27-902(B), 27-902(C), 27-924(A), 27-994
- Previously reclaimed in accordance with applicable mined land reclamation requirements
- Slated for incorporation in the post-mining land use, e.g., A.R.S. § 27-992(C)(2), A.A.C. § R11-2-603(A)

Table 5-1 summarizes the mining units that fall within one or more of the five criteria listed above. The mining units that remain are subject to mined land reclamation requirements, including those RCML has selected to remain with public protection measures (A.R.S. § 27-995[A], [B], and [C]).

Table 5-1 East Plant Site

General Type of Mining Unit	Surface Disturbance / Mining Unit	Criteria for Exclusion from the MLRA Financial Assurance Requirements					Features Selected by RCML to Remain with Public Protection Measures (A.R.S. §27-975(A), (B), and (C))	Mining Units Subject to the MLRA Financial Assurance Requirements
		Inactive Units (A.R.S. §§27-901(5), 27-924(B))	Related to Smelting, Refining, Fabricating, or Other Metals Process Facilities or Materials Associated with Such Facilities (A.R.S. §27-901(9)	Subject to Other ADEQ Permits[a] or VRP Requirements Which Make the MLRA Requirements Redundant, Inconsistent, or Contradictory (A.R.S.§§27-902(B), 27-902(C), 27-924(A), 27-994)	Previously Reclaimed in Accordance with MLRA Requirements	Slated for Incorporation in the Post-Mining Land Use (A.R.S. §27-992(C)(2), A.A.C. §R11-2-603(A))		
Shafts, Adits, Tunnels	No. 9 Shaft					No		Yes
	No 10 Shaft					No		Yes
Buildings and Structures	Office / Administration Building					No		Yes
	Warehouse					No		Yes
	Electrical / Maintenance Shop					No		Yes
	Compressor Building					No		Yes
	Electrical Substation					No		Yes
	Concrete Batch Plant					No		Yes
	Laydown / Storage					No		Yes
	Miscellaneous minor structures and portable buildings					No		Yes
Infrastructure	Miscellaneous Tanks					No		Yes
	Cooling Tower and pipe banks, existing					No		Yes
	Cooling Tower and pipe banks, new in 2013					No		Yes
Roads	On-site roads					No		Yes
	Magma Mine Road					Yes		No

[a] Individual or General Aquifer Protection Permits; Individual or General Pollutant Discharge Elimination System Permits; Solid Waste Program Permits
[b] Units are partially excluded because a portion of the closure activity has duplicate financial assurance (A.R.S. §27-994)
X = Open area, rock face, or subsidence area to be fenced for public protection because reclamation is impractical
XX = Building to remain with fencing for public protection
MLRA = Mined Land Reclamation Act
A.R.S. = Arizona Revised Statutes
ADEQ = Arizona Department of Environmental Quality
VRP = Voluntary Remediation Program
A.A.C = Arizona Administrative Code
RCML = Resolution Copper Mining LLC

6. Soils

6.1 Description of Existing Soils

The native soil of the East Plant Site is a weathering product of the underlying, moderately welded, dacitic, crystal-lithic Apache Leap Tuff. Native soils in this area are limited in depth. Much of the sediment that defines the pad or material that will be used for cut/fill is a mix of native soils, mechanically reduced Apache Leap Tuff, or inert formation rock excavated during shaft construction. This material is typically coarse in nature and contains a significant portion of fines suitable for final cover material

6.2 Redistribution of Soils

No significant stockpiles of soil exist for use in amending or covering disturbed areas.

7. Revegetation

7.1 Methods

As described in the following sections, revegetation efforts will include the following tasks: creation of a growth medium that will promote long-term success of vegetative cover; seeding and fertilization programs to prevent loss of applied seed and enhance germination; and, application of moisture retention and erosion control materials to protect the growth medium until vegetation can become established.

7.2 Development of Growth Media and Surface Preparation

After regrading is complete, the surface will be cross-ripped along slope contours for erosion control and then prepared for seeding by amending with mulches, fertilizers, and other soil conditioners when necessary to create a suitable growth medium. Additional seedbed preparation may be completed by discing and/or chaining the growth medium to loosen and roughen the surface.

7.3 Inorganic and Organic Soil Amendments

Soil amendments may include organic and inorganic fertilizers, organic animal waste (manure), composted green wastes, and/or crop residues, as deemed appropriate. Although not anticipated, if any acid- generating materials are encountered and are to be amended in place, other chemical amendments, such as lime or limestone, may be

added prior to seed bed preparation. The quantities to be added for any of the amendment materials would be determined based on analyses at the time of reclamation. Commercial non- toxic soil stabilizers may be used to bind the soil particles and reduce erosion.

7.4 Mulches

Mulch covers may be used as necessary to assist in maintaining soil temperatures to promote soil moisture retention, to reduce potential wind and water erosion, and, in the case of organic mulches, to enhance revegetation potential by introducing limited quantities of organic supplements and nutrients to the final prepared seed bed. Some mulch covers may be applied by hydromulching, which may be conducted in conjunction with the hydroseed applications or drilled into the soil through straw crimping. Mulch may be necessary on steeper slopes as an erosion prevention measure and to prevent loss of seed during runoff.

7.5 Description of Native Vegetation

The vegetation at the East Plant Site is classified as the Inland Chaparral Scrubland, which is predominantly a shrub live oak/manzanita association comprised of shrub live oak, manzanita, and rabbitbush. The herbaceous vegetation at the East Plant Site consists of a mixture of annual and perennial plant and grass species.

Table 7-1 shows the most common plant species identified at the East Plant Site, based on limited vegetation surveys and visual observations.

Table 7-1 Common Native Plants at the East Plant Site

Common Name	Scientific Name	Location
Pointleaf Manzanita	Arctostaphylos pungens	Shaft No. 9
Birdsfoot Trefoil	Lotus corniculatus	Shaft No. 9
Globe Mallow	Sphaeralcea parvifolia	Shaft No. 9
Shrub Live Oak	Quercus terbinella	Shaft No. 9
Squaw Bush	Rhus trilobata	Shaft No. 9

7.6 Seeding Program

Table 7-2 list the proposed reclamation seed mix and application rate for the East Plant Site . The seed mix (Seed Mix No. 3) was developed in cooperation with reclamation

personnel from other regional operations and with assistance from local seed suppliers and Boyce Thompson Arboretum State Park horticulturists. The proposed mix is composed primarily of species native to the region that are adapted to higher elevations, are less drought-tolerant, are better suited to the higher precipitation associated with the East Plant Site, and are cold tolerant. The proposed mix will contain a complement of grasses and herbaceous plants, and if possible, shrubs and trees to provide for re-establishment of a more biodiverse plant community within the revegetated areas. In addition, the mix was developed for the typically shallow, heterogeneous soil conditions (soil textures ranging from coarse, well-drained materials to clay-loam materials) associated with reclamation of disturbed soils.

The proposed seed mix assume an average application rate of 11 pounds of pure live seed (PLS) per acre of reclaimed area for drill seed application, or 66 pounds of pure live seed per acre for broadcast seed. Application rates will allow adequate revegetation establishment within the annual moisture regime of approximately 18 to 27 inches per year. The seed mix and application rate is subject to modification as a result of ongoing reclamation monitoring and refinement of the reclamation program.

Species selected from the proposed seed mix will be applied to reclaimed areas of the Site as shown on Figure 3.

Table 7-2 Representative Seed Selection List for Revegetation of East Plant Site

Seed Mix No. 3 – Native Soil Areas Shaft No. 9		
Common Name	**Scientific Name**	**PLS pounds per acre**
Grass Species		
Sideoats grama	Bouteloua curtipendula	3
Arizona fescue	Festuca arizonica	3
Western Wheat grass	Agropyron smithii	3
Blue panicgrass	Panicum antidotale	5
Bluebunch wheatgrass	Pseudorogneria spicata spp. spicata	6
Shrub and Tree Species		
Rubber rabbitbush	Chrysothamnus nauseosus	1
Birch-leaf mountain mahogany	Cercocarpus ledifolius	1.5
Squawbush	Rhus trilobata	1
Flat top buckwheat	Eriogonum fasciculatum	1
Forb Species		
Desert Globemallow	Sphaeralcea ambigua	0.5
Desert Indian wheat	Plantago insularis	2
Birdsfoot trefoil	Lotus corniculatus	1
Parry penstemon	Penstemon parryii	1
Cicer milkvetch	Astragalaus cicer	1

7.7 Seed Application Methods

Seed distribution at the East Plant Site may be accomplished using hydroseed, drill seed, or broadcast seed applications. A combination of drill methods, chisel plows, and/or other conventional agricultural seeding techniques may be used. Hydroseeding will be used in most cases because this method not only applies the seed, but also includes fertilizer, biological amendments, organic matter/mulch, and provides the initial water to the soil (decreasing the need for initial irrigation).

7.8 Season of Planting

Due to the seasonal availability of precipitation, East Plant Site seeding will occur when climatic conditions are favorable for germination, emergence, and seedling survival (during September and October, or in March and April). Conducting the seeding of the

reclaimed areas in the fall is preferable, since it will make the most use of the winter precipitation and ensure that germination and plant establishment occurs prior to the late spring drought period.

7.9 Irrigation

A dry farm revegetation program is planned for revegetation of the Site and will depend upon winter and/or summer rains for success. Planting will occur prior to the rains; germination normally occurs within 2 to 3 weeks following the first substantial rain event.

8. Financial Assurance

8.1 Introduction

This reclamation cost estimate was constructed using a combination of historical, regional, and industry- accepted data, and is intended to estimate costs for the closure of the Site based on the conceptual closure criteria included in this MLRP. Appendix 1 contains the reclamation cost estimate.

8.2 Cost Estimate Process, Assumptions, and Basis

A computer aided modeling comparison of both current and planned post-reclamation topography was used to quantitatively determine the disturbed areas for revegetation and material volumes associated with the regrading plans to enhance stability. Site topographic maps were utilized in determination that a combination of short hauling and dozing methods are likely to be employed to regrade the Site. An average regional bulk earthworks unit cost was used on the total calculated regrading volume and includes a 10% material handle swell factor. An assessment at closure of existing site materials will be evaluated to determine the best location for their final placement. Detailed grading plans will be prepared to coordinate the placement of materials pursuant to the evaluation of the site materials. Specific hauling and dozing labor, equipment, and supervision cost will be developed at closure based on the detailed grading plans.

Demolition of site structures and building was based on estimated building volumes, weight calculations and assumed methods of constructions. Applicable historical and regional unit costs were applied to the demolition units.

The cost estimate provides a basis for understanding projected costs for closure of the East Plant Site. The estimate will aid in developing an understanding of the components of the project as well as the magnitude of both work and cost associated with achieving closure of the Site. Cost estimates with a detailed breakdown of equipment, labor, and supervision will be developed at closure.

9. Long-Term Maintenance

It is expected that post-closure maintenance of Site facilities may be necessary for a limited period following initial reclamation and that time has been estimated and accounted for in the planning. For the purpose of this MLRP it has been assumed that the initial three years of maintenance will be more rigorous than the following 7 years. After 10 years, it is estimated that stable vegetated areas will have matured and continued care will not be needed.

9.1 Buildings and Structures

If any buildings and structures remain after Site closure, they will be maintained in a manner consistent with the long-term PMLU. Although it is recognized that some structures may remain, the reclamation cost estimate accounts for demolition of all buildings and structures.

9.2 Utility and Process Distribution Infrastructure

Potable water distribution pipelines, telephones, and electricity will be needed at the Site for those facilities that will remain open during closure activities. Facilities that will need power include buildings, wells, water and sewage treatment pumps, etc. All electrical distribution facilities will be decommissioned unless they are necessary for PMLU objectives.

9.3 Roads

Required access roads will be maintained after closure by RCML as required for post-reclamation maintenance.

9.4 Fences

Maintenance of all fences will be performed on an as-needed basis.

10. Proposed Reclamation Schedule

Due to continuing activity at the East Plant Site, the quantity and cost of reclamation can only be estimated. Variation in the quantity of reclamation will also affect the schedule for reclamation. Based on current plans, it is anticipated that approximately 24 to 30 months will be required for substantial completion of reclamation activities. Substantial completion will be followed by approximately 3 years of more rigorous initial maintenance and monitoring and 7 subsequent years of routine maintenance and monitoring.

11. References

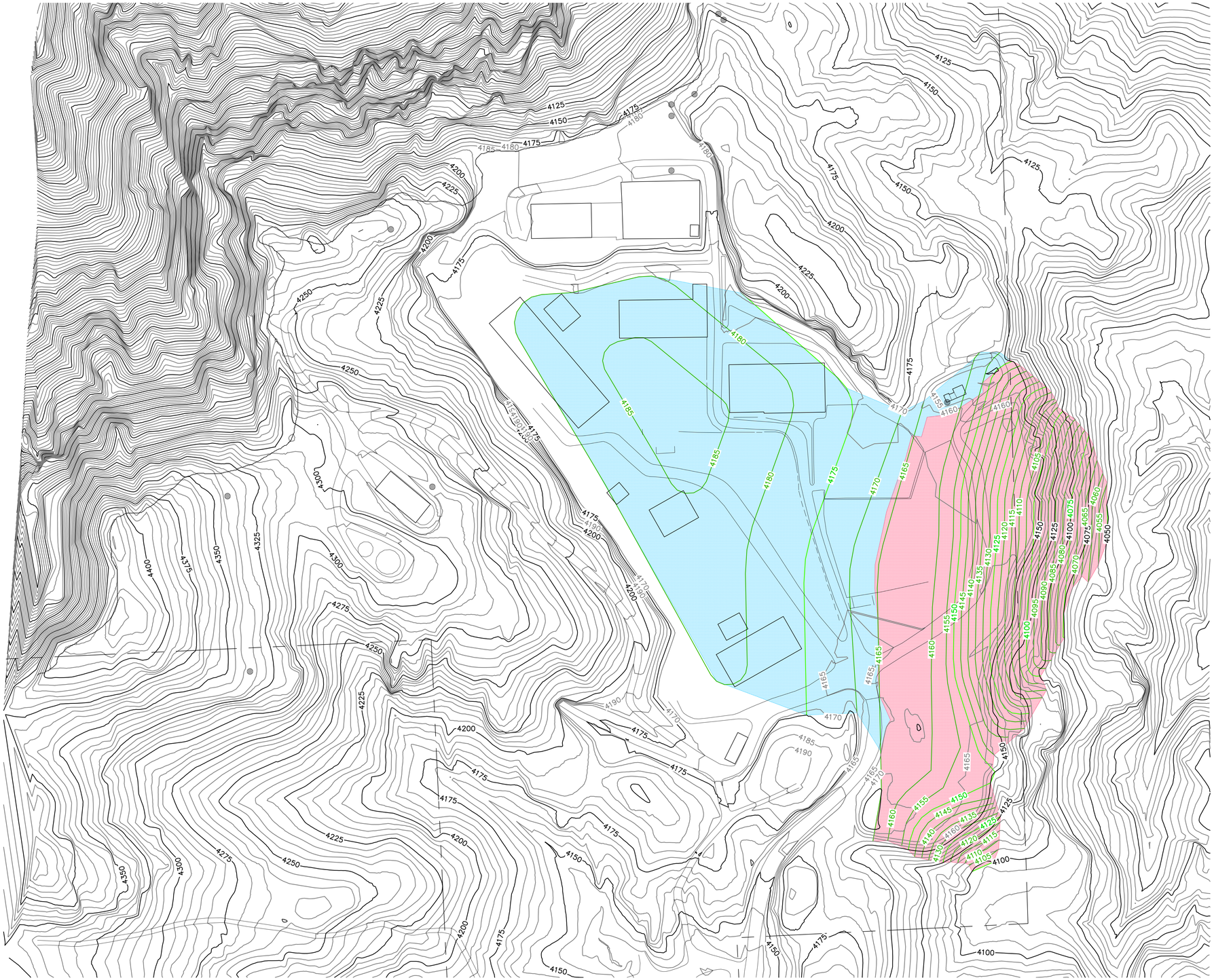
Alliance Architects, LLC. A Historical Resource Survey of BHP Superior, West Plant Site, Superior, Arizona. March 1998.

Brown and Caldwell. Mine Materials Characterization, BHP Superior Operations. 1997.

Kuhn, Truman H. Geological Report of the Properties of the Magma Copper Company, Superior, Arizona. Unpublished Report. 1942.

Short, M.N., et al. Geology and Ore Deposits of the Superior Mining Area, Arizona. University of Arizona

Bulletin, Vol. XIV, No. 4. Arizona Bureau of Mines, Geological Series No. 16, Bulletin No. 151. 1943. Brown and Caldwell. Mine Reclamation Plan, BHP Superior Operations. 1999.



EARTHWORK CALCULATIONS:

TOTAL CUT:	207,000	CY
TOTAL FILL:	211,000	CY
NET FILL:	4,000	CY

REV.	ISSUED	DATE	DESCRIPTION
-	-	-	-
-	-	-	-

KEYPLAN

SEAL

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Suite 1250
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Cleveland, Ohio 44114
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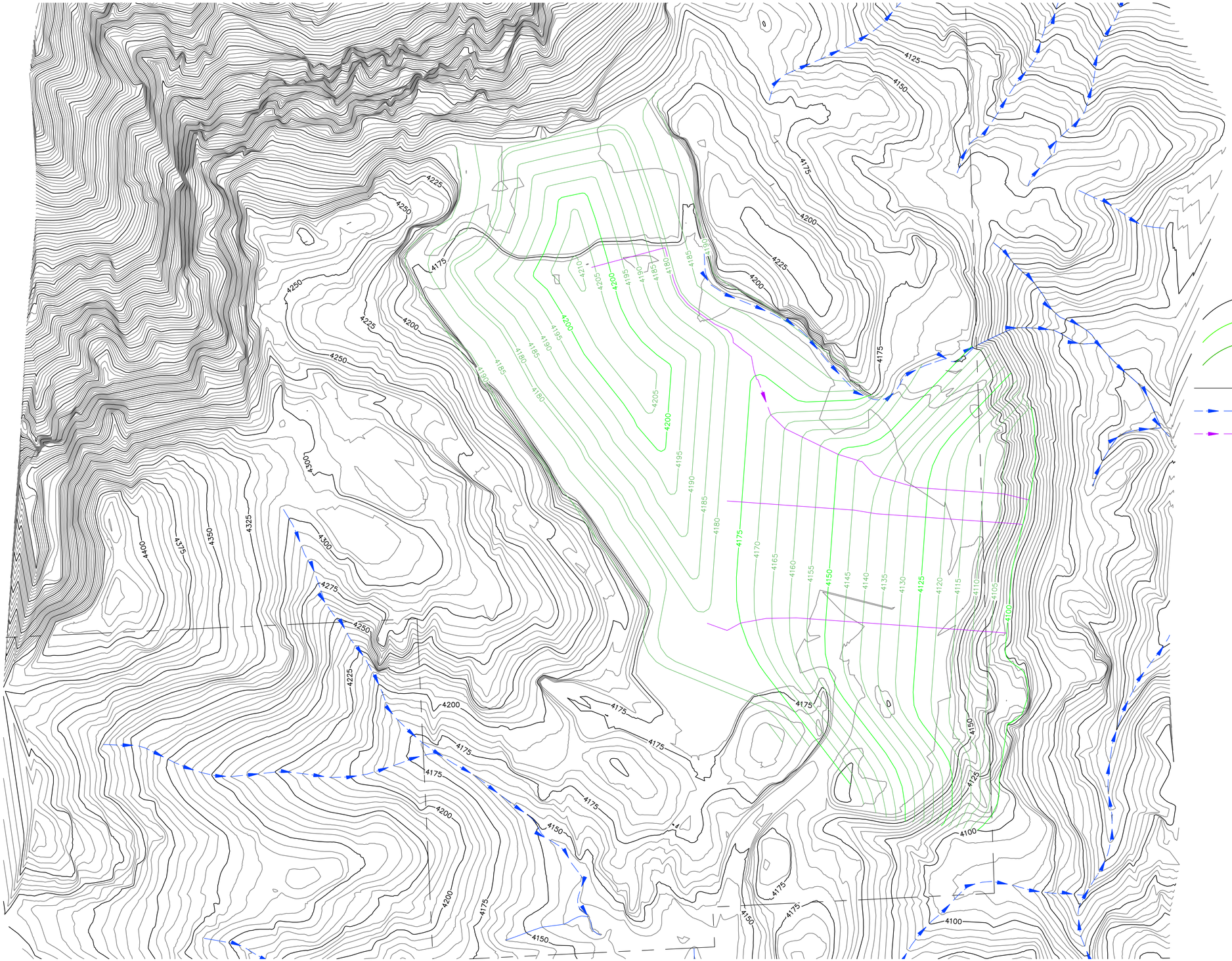
PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
M BERRY		J PRIOR	M BERRY

SHEET TITLE
EAST PLANT (SHAFT NO. 9)
FIGURE 1
MRP CONCEPTUAL REGRADING PLAN
SUPERIOR, ARIZONA

TASK/PHASE NUMBER	DRAWN BY
0007	J PRIOR

PROJECT NUMBER	DRAWING NUMBER
AZ001210	GRADING

SHEET 1 OF 1



REV.	ISSUED DATE	DESCRIPTION
-	-	-
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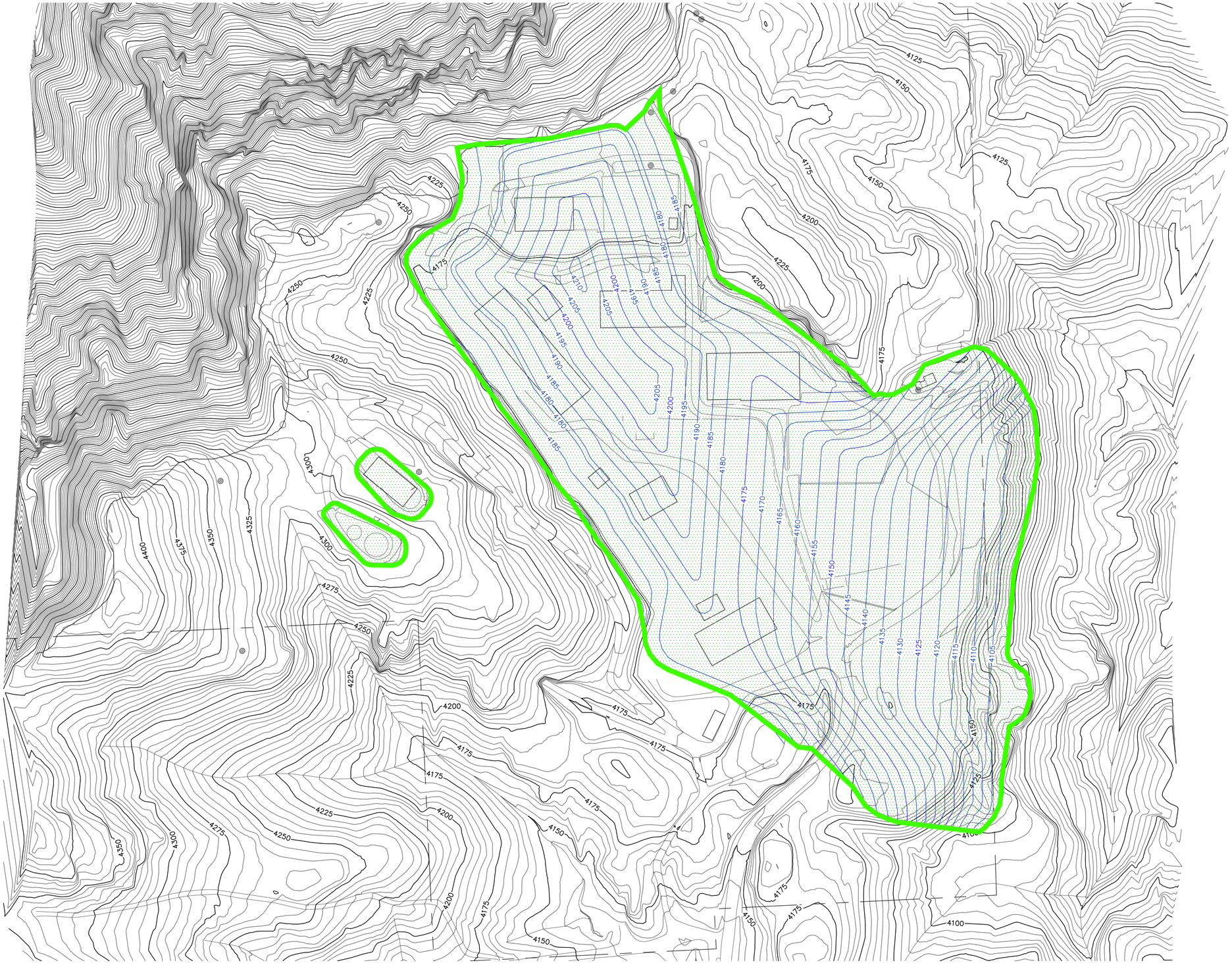
M BERRY		J PRIOR	M BERRY

SHEET TITLE
EAST PLANT (SHAFT NO. 9)
FIGURE 2
POST RECLAMATION DRAINAGE PLAN
SUPERIOR, ARIZONA

TASK/PHASE NUMBER	DRAWN BY
0007	J PRIOR

PROJECT NUMBER	DRAWING NUMBER
AZ001210	DRAINAGE

SHEET 1 OF 1



N.

50 0 50 100

SCALE: 1" = 100'

LEGEND:

- EXISTING 25–FOOT CONTOUR
- EXISTING 5–FOOT CONTOUR
- PROPOSED 25–FOOT CONTOUR
- PROPOSED 5–FOOT CONTOUR
- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE LIMITS OF REVEGETATION
- REVEGETATED AREA

REVEGETATED AREA:

APPROXIMATE REVEGETATED AREA – 25.0 ACRES

Acad Version : R18.1s (LMS Tech)
User Name : Prior

Date\Time : Thu, 16 Feb 2012 - 5:03pm
Path\Name : C:\Local.prior\3196213 Resolution Copper\Cadd\Exhibits\Revegetation.dwg

Current Plotstyle : ByColor
Layout Tab: Blank

REV.	ISSUED DATE	DESCRIPTION
-	-	-
-	-	-

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PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
M BERRY		J PRIOR	M BERRY

SHEET TITLE
EAST PLANT (SHAFT NO. 9)
FIGURE 3
REVEGETATION EXTENT
SUPERIOR, ARIZONA

TASK/PHASE NUMBER	DRAWN BY
0007	J PRIOR
PROJECT NUMBER	DRAWING NUMBER
AZ001210	REVEGETATION

SHEET 1 OF 1

Appendix 1

Closure Cost Estimate
and Supporting Back-up

Cost Summary **Superior Mine East Plant Site**

Direct Cost				
Demolition & Disposal			$	1,741,318
Earthwork & Reclamation			$	1,303,625
Direct Cost Subtotal			$	3,044,942

Indirect Cost				
Reclamation Management (EPCM)		15%	$	456,741
Quality Assurance / Quality Control			included in EPCM	
Indirect Cost Subtotal			$	456,741

PROJECT TOTAL	**$**	**3,501,684**

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General Notes and Quantities Mine Reclamation Plan
East Plant Site Superior, Arizona

Description		Dimensions, Quantities, and Volumes						General Debris				Concrete		Structural Steel		Demolition description
Location	Item	Plan Dimensions		Eave Height or Width	Quantity	Demolition Area	Demolition Volume	Wall Thickness	Volume	Partition factor	Disposal Volume	Thickness	Volume	#/sf	pounds	
No. 10 Hoist House	**Sprung Structure, hoist**	150	75	24		11250	270000		0	1	0					Salvage, breakeven
No. 10 Winch House	**Sprung Structure**	50	40	16		2000	32000		0	1	0					Salvage, breakeven
No. 10 Headrame	**-**														600000	Heavy Structrual Steel Demo
Batch Plant Admixture Storage	**Pole barn on gabian retaining wall**	60	20	15		1200	18000	0.1	13	1	13					General Building Demo
Batch Plant	**-**				5 load plant											3 days decommission, 5 loads haulout at 8 hours per trip
Subcollar Access Portal	**Portal Closure**		20	20	-											Specialize construction
Subcollar Staging	**Pole barn, Wood**	40	20	12	5 load plant	800	9600	0.1	8	1	8					General Building Demo
Warehouse	**Pre-engineering Metal Building**	75	60	16		4500	72000	0.5	163	1	163			8	36000	General Building Demo
Assembly / Staging Structure	**Portable Wood A-frame**	30	30	30		900	27000	0.5	83	1	83			-		General Building Demo
Admin/Office/Dry	**Brick, two story section**	75	100	22		7500	165000	0.66	372	3	1115			1	7500	General Building Demo
	Brick, single story section	105	100	16		10500	168000	0.66	417	3	1251		0	1	10500	General Building Demo
No. 9 Hoist House	**Metal Building, Bridge Crane, Hoist**	170	75	40		12750	510000	0.5	599	1	599			15	191250	General Building Demo with structural steel
	Metal Building,	25	30	24		750	18000	0.5	63	1	63			8	6000	General Building Demo
No. 9 Winch House	**Pre-engineering Metal Building**	60	45	16		2700	43200	0.5	112	1	112			8	21600	General Building Demo
No. 9 Headframe	**-**														560000	Heavy Structrual Steel Demo
Electric and Maintenance Shop	**Metal Building, Bridge Crane**	260	80	24		20800	499200	0.5	687	1	687			15	312000	General Building Demo with structural steel
Compressor Building	**Metal Building, Bridge Crane**	115	70	24		8050	193200	0.5	314	1	314		0	15	120750	General Building Demo with structural steel
Cooling Towers	**-**	100	50	20		5000	100000	0.5	204	1	204		0			General Building Demo
Substation	**-**												0			General demolition for scape salvage
Water Tanks	**30 ft dia by 30**					804										General demolition for scape salvage
	50 ft dia by 30					2124										General demolition for scape salvage
	12 ft dia by 30					154										General demolition for scape salvage
Pipe Rack	**a/g pipe rack**				1200											Assumed 8 - 8Inch pipes
Access Road	**Paved**				6000											Assumed 24 ft width, leave in place
Site clean-up	**Salvage**				5											Misc. clean up
	Disposal				15											Misc. clean up
Mine Openings	**No. 9, No. 10, and Subcollar Portal**															Foam/concrete plug
WWTP	**-**															Septic holding replaced original
Cryderman Training Tower	**Steel Lattice, temporary**															General Building Demo

Demolition & Disposal Cost Summary
East Plant Site Superior, Arizona

Ref	Location	Item	Demolition				Haulage of Landfill Debris			Structural Steel Salvage			Specialty Demo/Salvage				Demolition Item Total
			Unit Cost	Quantity	Units	Demolition	Unit Cost	Quantity	Haulage	Unit Cost	Quantity	SS Salvage	Unit Cost	Quantity	Units	Specialty/ Salvage Subtotal	
			$/unit			Subtotal	$/cy	cy	Subtotal	$/ton	lb	Subtotal	$/unit				
1	No. 10 Hoist House	Sprung Structure, hoist	0.33	270,000	cubic ft	$89,100	9.96	0	$0		0	$0	7,500	7	days	$52,500	$141,600
2	No. 10 Winch House	Sprung Structure	0.33	32,000	cubic ft	$10,560	9.96	0	$0		0	$0	5,000	4	days	$20,000	$30,560
3	No. 10 Headframe	-				$0		0	$0	200	600000	$60,000	60,000	1	ls	$60,000	$120,000
4	Batch Plant Admixture Storage	Pole barn on gabian retaining wall	0.33	18,000	cubic ft	$5,940	9.96	13	$133		0	$0				$0	$6,073
5	Batch Plant	-				$0		0	$0		0	$0	15,850	1	ls	$15,850	$15,850
6	Subcollar Access Portal	Portal Closure				$0		0	$0		0	$0				$0	$0
7	Subcollar Staging	Pole barn, Wood	0.33	9,600	cubic ft	$3,168	9.96	8	$83		0	$0				$0	$3,251
8	Warehouse	Pre-engineering Metal Building	0.33	72,000	cubic ft	$23,760	9.96	163	$1,627	100	36000	$1,800				$0	$27,187
9	Assembly / Staging Structure	Portable Wood A-frame	0.33	27,000	cubic ft	$8,910	9.96	83	$830		0	$0				$0	$9,740
10	Admin/Office/Dry	Brick, two story section	0.33	165,000	cubic ft	$54,450	9.96	1115	$11,103	100	7500	$375				$0	$65,928
11		Brick, single story section	0.33	168,000	cubic ft	$55,440	9.96	1251	$12,462	100	10500	$525				$0	$68,427
12	No. 9 Hoist House	Metal Building, Bridge Crane, Hoist	0.33	510,000	cubic ft	$168,300	9.96	599	$5,967	100	191250	$9,563	7,500	20	days	$150,000	$333,830
13		Metal Building,	0.33	18,000	cubic ft	$5,940	9.96	63	$625	100	6000	$300				$0	$6,865
14	No. 9 Winch House	Pre-engineering Metal Building	0.33	43,200	cubic ft	$14,256	9.96	112	$1,118	100	21600	$1,080	5,000	2	days	$10,000	$26,454
15	No. 9 Headframe	-				$0		0	$0	200	560000	$56,000	56,000	1	ls	$56,000	$112,000
16	Electic and Maintenance Shop	Metal Building, Bridge Crane	0.33	499,200	cubic ft	$164,736	9.96	687	$6,847	100	312000	$15,600	5,000	2	days	$10,000	$197,183
17	Compressor Building	Metal Building, Bridge Crane	0.33	193,200	cubic ft	$63,756	9.96	314	$3,123	100	120750	$6,038	5,000	3	days	$15,000	$87,916
18	Cooling Towers	-	0.33	100,000	cubic ft	$33,000	9.96	204	$2,029		0	$0				$0	$35,029
19	Substation	-				$0		0	$0		0	$0	200	150	tons	$30,000	$30,000
20	Water Tanks	30 ft dia by 30		-		$0		0	$0		0	$0	100	109	tons	$10,911	$10,911
21		50 ft dia by 30		-		$0		0	$0		0	$0	100	302	tons	$30,202	$30,202
22		12 ft dia by 30				$0		0	$0		0	$0	100	18	tons	$1,769	$1,769
23	Pipe Rack	a/g pipe rack				$0		0	$0		0	$0	100	139	tons	$13,920	$13,920
24	Access Road	Paved	5	-	square yd	$0	9.96	0	$0		0	$0				$0	$0
25	Site clean-up	Salvage				$0		0	$0		0	$0	5,000	2	days	$10,000	$10,000
26		Disposal				$0		0	$0		0	$0	5,000	5	days	$25,000	$25,000
27	Mine Openings	No. 9, No. 10, and Subcollar Portal				$0		0	$0		0	$0	25,000	3	each	$75,000	$75,000
28	WWTP	-				$0		0	$0		0	$0	5,000	5	days	$25,000	$25,000
29	Cryderman Training Tower	Steel Latice, temporary				$0			$0				5,000	2	days	$10,000	$10,000
30	Cooling Tower, New 2013	2014 Update, individual estimate				$0			$0				148,887	1	ls	$148,887	$148,887
31	Cooling Tower, Glycol System	2014 Update, individual estimate				$0		0	$0		0	$0	72,736	1	ls	$72,736	$72,736
		Subtotals				**$701,316**			**$45,947**			**$151,280**				**$842,775**	

TOTAL	**$1,741,318**

Notes

1 Building Demolition unit cost source - RS Means
2 Debris Haulage assumes $85/hour truck, 1.5 round trip travel, 16 cy/load, no dump fees
3 Structural steel unit cost source - local contractor based on similar historic costs
4 Specialty demo / Salvage - conservative allowances due to unique equipment and structures.

ls = lump sum

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Earthwork and Reclamation Cost Summary Mine Reclamation Plan
East Plant Site Superior, Arizona

Task Description	Duration	Quantity	Units	Annual Factor	Unit Cost	Task Total	Notes
Cut and fill	-	232,100	LCY		$2.50	$580,250	Includes 10% swell factor, no blasting or material classification, self-performance
Access roads	-		days	-	$5,000	$-	Estimated days to remove and regrade culverts, local contractor unit day rate for general demolish crew with supervision
Break concrete foundations in place	-	1757	CY	-	$8.84	$15,530	Assumes average 1ft thickness, 30 cy/hr, $266/hr crew with equipment, productivity and unit rate source RS Means
Revegetation, Plant area Initial	-	25.1	acres	-	$4,703	$118,045	Current West Plant methods and unit cost
Revegetation, Access road Initial	-		acres	-	$4,703	$-	Current West Plant methods and unit cost
Revg & Erosion Maintenance, years 1-3	3	3.8	acres	15%	$27,707	$312,948	Two days earthwork repairs plus revegetation, source combination of above items
Revegetation Maintenance, years 4-10	7	1.3	acres	5%	$5,902	$51,851	Source annualized combination of above items
Monitoring,	10	-	-	-	$22,500	$225,000	150 hours annually at $150/hr
Earthwork and Reclamation Tasks Total						**$1,303,625**	

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					SUMMARY - UNIFORMAT	**3/24/2014**
Project:	**Resolution Copper Mine Condenser Cooling Removal**				Site Area:	ACRE
	Superior, Arizona				Renovation	SF
	Demolition of (E) Cooling Towers and Gylcol tanks				Addition	SF
					Total Area:	SF
					TOTAL	
		Assumed WT		**$/TON**		
	DEMOL - COOLING TOWER	400.00	TONS	372.22	$148,887	
	DEMOL - GYLCOL TANKS	160.00	TONS	454.60	$72,736	

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Project:	**Resolution Copper Mine Condenser Cooling Removal**					**Rev Date:**	**3/24/2014**
						TYPE OF	
	Superior, Arizona					**ESTIMATE:**	**Schematic**
	Demolition of (E) Cooling Towers						
Detail:	**Remove (E) Cooling towers**						
	Description	**Quantity**	**Unit**	**Rate**	**Amount**	**Subtotal**	**Total**
	SELECTIVE DEMOLITION						
	Mobilization/Demob	1	LS	$4,400	$4,400		
	Safety training	120	MH	$45	$5,400		
	Remove (E) water tank 10,000 gal	1	EA	$2,700	$2,700		
	Remove (E) piping and valves, up to 16"	350	LF	$12	$4,210		
	Remove (E) piping and valves, up to 30"	263	LF	$23	$5,906		
	Remove (E) misc. steel, cat walk and guardrails	130	LF	$56	$7,313		
	Remove (E) misc. steel, stairs	50	LF	$11	$563		
	Remove (E) cooling towers	10	EA	$900	$9,000		
	Remove (E) pumps	4	EA	$540	$2,160		
	Disconnect all wiring and power	4	EA	$90	$360		
	Equipment - backhoe and loader	80	EH	$400	$32,000		
	Haul and dispose - assume Phoenix - (Includes cost of scrap metal)	400	TONS	$50	$20,000		
	SUBTOTAL - SELECTIVE DEMOLITION	400	TONS	$235		**$94,011**	
	Subtotal - Demolition - Existing Conditions						**$94,011**
	Mark-ups						
	General Conditions	**15.00%**					**$14,102**
	Subtotal						**$108,113**
	Overhead and Profit	**10.00%**					**$10,811**
	Subtotal						**$118,924**
	Insurance and bonds	**3%**					**$3,330**
	Subtotal						**$122,254**
	Contingency	**15%**					**$18,338**
	Subtotal						**$140,592**
	AZ Tax	**6%**					**$8,295**
	TOTAL - DEMO OF COOLING TOWERS	**400**	TONS				**$148,887**
	TOTAL DIVISION 2						

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Project:	**Resolution Copper Mine Condenser Cooling Removal**					**Rev Date:**	**3/24/2014**
	Superior, Arizona					**TYPE OF ESTIMATE:**	**Schematic**
	Demolition of (E) Cooling Towers			**SITE AREA**	**1.00**	**AC**	
Detail:	**Remove (E) Gylcol tanks and pumps**			**BUILDING AREA:**		**SF**	
	Description	**Quantity**	**Unit**	**Rate**	**Amount**	**Subtotal**	**Total**
	SELECTIVE DEMOLITION						
	Mobilization/Demob	1	LS	$4,400	Incl		
	Safety training	120	MH	$45	Incl		
	Remove (E) tank s 30,000 gal	2	EA	$5,400	$10,800		
	Remove (E) piping and valves, up to 16"	250	LF	$12	$3,004		
	Remove (E) piping and valves, up to 30"	150	LF	$23	$3,375		
	Remove (E) misc. steel, cat walk and guardrails	0	LF	$56	$0		
	Remove (E) misc. steel, stairs	84	LF	$11	$945		
	Remove (E) High pressure pumps	3	EA	$540	$1,620		
	Remove (E) low pressure pumps	5	EA	$360	$1,800		
	Disconnect all wiring and power	8	EA	$90	$720		
	Equipment - backhoe and loader	40	EH	$400	$16,000		
	Haul and dispose - assume Phoenix - (Includes cost of scrap metal)	160	TONS	$50	$8,000		
	SUBTOTAL - SELECTIVE DEMOLITION	160	TONS	$289		**$46,264**	
	Subtotal - Demolition - Existing Conditions						**$46,264**
	Mark-ups						
	General Conditions	**15.00%**					**$6,940**
	Subtotal						**$53,203**
	Overhead and Profit	**10.00%**					**$5,320**
	Subtotal						**$58,524**
	Insurance and bonds	**2.80%**					**$1,639**
	Subtotal						**$60,162**
	Contingency	**15.00%**					**$9,024**
	AZ Tax	**5.90%**					**$3,550**
	TOTAL - DEMO OF GYLCOL TANKS	**160**	TONS				**$72,736**
	TOTAL DIVISION 2						