



October 13, 2017

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

**Re: Oct. 5, 2017 Request for Additional Information
Updated MORP Rev.1, 2017
New Mexico Copper Corporation, Copper Flat Mine
Permit Tracking No. S1027RN**

Dear Mr. Ennis,

Pursuant to your request of October 5, 2017 New Mexico Copper Corporation (NMCC) hereby submits additional information as follows:

1. Enclosed is a Technical Memorandum from GeoSystems Analysis, Inc. (GSA) to NMCC that provides a literature review of wildlife use of mine pit walls. The enclosed memorandum supports NMCC's statement that the pit walls, post reclamation, will be suitable for achieving a self-sustaining ecosystem appropriate for the life zone of the surrounding area or proposed post-mining land use of steep-canyon wildlife habitat. The GSA memorandum notes that several agencies, including BLM and the US Forest Service, recognize pit walls as nesting and other habitat. Additionally, the GSA memorandum includes as Appendix A, a copy of the New Mexico Department of Game & Fish Habitat Guidance for Mine Operations and Reclamation, which clearly supports the use of pit walls as wildlife habitat. The NMG&F Guidance concludes that vertical habitat diversity is the single-most important factor contributing to avian species diversity and that pit highwalls can provide a vertical habitat feature that mimics natural cliffs or rimrock.
2. Enclosed is NMCC's proposed reclamation/revegetation plan for accessible portions of the dry open pit surface that do not rely on exclusively on self-vegetation. NMCC's plan will reclamation 55 acres of the 129 acre pit shell, and includes 35 acres of revegetated surface area.
3. The information you require to address Sections 19.10.6.602(D)(13)(g)(v)NMAC and 19.10.6.603.C(4) NMAC, i.e., probable hydrologic consequences and hydrologic balance, will be submitted to you under separate cover as soon as it becomes available.

Please contact me at with any questions.

Sincerely,

Jeff Smith
Chief Operating Officer
New Mexico Copper Corporation



TECHNICAL MEMORANDUM

September 25, 2017

TO: Katie Emmer, New Mexico Copper Company

FROM: William Widener, GeoSystems Analysis, Inc.

RE: Literature Review of Wildlife Use of Mine Pit Walls

Literature Review of Wildlife Use of Mine Pit Walls

Large cliff faces are well documented as providing habitat for wildlife species, specifically birds and raptors. Pit walls of reclaimed mine sites can provide similar substrates, and are also known to be used by some species, most notably Peregrine Falcons. For example, Bell (2001) compiled multiple documentations of Peregrine Falcon and other raptors utilizing high walls in rock quarries in Great Britain, Australia and Germany in looking to expand the practice into the lowlands of Western Washington. Ritchie et al. (1998) documented Peregrine Falcons nesting in quarry sites and road cut banks with a similar structure to hard rock pit walls in Alaska.

Dobra (2002) also documents that raptors have utilized high pit walls of at least one Nevada mine operation. Other raptors, such as red-tailed hawks have also been cited as utilizing open pit mines in New Mexico (Garber et al. 2005). The canyon walls of the Snake River in Idaho provide extensive nesting substrate for the densest concentration of noncolonial nesting raptors, with more than 1,500 raptors, consisting of up to 14 different species, nesting annually (Kochert and Pellant 1986). In New Mexico, the abundance of cliff walls of the Upper Rio Grande Gorge, the Orilla Verde Recreation Area, and the Rio San Antonio Gorge provide ideal nesting substrate for many raptor species, including Golden Eagle, Prairie Falcon, Peregrine Falcon, Red-tailed Hawk and Great Horned Owl (Hawks Aloft, Inc. 2011).

Bat use of abandoned underground mines is well documented. Tuttle & Taylor (1994) found that 30% to 80% of 8,000 mines surveyed across North America showed signs of bat use, though, not much information is available regarding specific bat use of pit walls, which could provide roosting habitat for many species, and more permanent habitat for non-colonial bat species.

Multiple federal agencies, including the United States Forest Service and Bureau of Land Management, recognizes that steep pit walls provide habitat for nesting raptors, other cliff dwellings birds, bats and that the associated talus could also be utilized by other rock dwelling animals, such as reptiles. This is often written into the Environmental Impact Statements for mines (USFS 1997, USFS 1997, BLM 1996). This is consistent with the Draft Environmental Impact Statement for the Copper Flat Copper Mine, which states that following reclamation, "the pit walls and benches would become Chihuahuan Desert wildlife habitat,

providing abundant rock outcroppings, which are regularly utilized by bats for day or night-roosting, or for cliff-dwelling bird species, such as raptors for nesting” (BLM 2015).

In 2004, the New Mexico Department of Game and Fish (NMGF) issued habitat guidelines for mine operations and reclamation. In these guidelines, they recommend that the habitat value of high walls can be “enhanced by design features including an undulating profile, niches or ledges on the face, and placing rubble at the toe of the wall.” (NMGF 2004; Appendix A). Norman (1992) suggest the proper blasting of high walls to leave rough surfaces that provide habitat for birds, such as cliff swallows. The Wyoming Department of Environmental Quality/Land Quality Division’s Guideline No. 5 states that operators should develop high (pit) walls to simulate natural rimrocks, and Benson (2002) goes into detail on how the Buckskin Mine of Wyoming will incorporate microtopography, aspect, ledges and holes to maximize habitat identified for several raptor and other bird species identified as potentially utilizing reclamation areas.

The Federal Geographic Data Committee maintains a list of official datasets, including the U.S Geological Survey (USGS) Gap Analysis Species Distribution Models & USGS Survey Gap Analysis Program Species Ranges. The New Mexico Department of Game and Fish, with help from other supporting agencies, have developed the Biota Information System of New Mexico (BISON-M), which is an on-line database of wildlife species within New Mexico. BISON-M utilizes the USGS’s Gap data, which includes a habitat association category of “Barren: Mines & Quarries”. A BISON-M query, returned a total of 51 species in Sierra County that have either “Casual” or “Important” use of the “Barren: Mines & Quarries” habitat association during any season of the year. This includes eight reptiles, six birds, and 37 mammals, 16 of which are bat species (Table 1).

A baseline data report was conducted during the permitting processes at the Copper Flat mine site. Sixteen species, including four bird and 12 bat species were detected in and around the existing pit lake (Intera, 2012) (Table 2). In 2013, an addendum was produced to respond to various agency comments to the original report. Additional surveys were conducted to address agency comments, specifically, waterfowl and other general use of wildlife at the pit lake. An additional 30 bird species, and five mammal species were observed near the pit lake with these new survey efforts. Undoubtedly, many of these species were attracted by the water in the pit lake, and it cannot be ascertained which of these species were utilizing the pit walls. However, the text of the addendum states multiple observations of wildlife utilizing the rock walls surrounding the pit lake. On one occasion, a Great Horned Owl was heard calling from the hills west of the pit lake. Rock wrens, Northern mockingbirds, Northern flickers, Common ravens, Mourning Doves, White-winged doves and Gambel’s quail are stated to be the most active species during these additional surveys, and are noted as most frequently “heard calling from the hills surrounding the pit lake, typically from the higher tiers to the north of the lake”. Violet-green swallows were observed drinking from the lake before returning to the tiered cliff faces to the northwest of the lake. Chipping sparrows were observed in a bush on the top tier to the south of the pit lake. Additional observations of raptor “white wash” were made on the pit wall west of the lake, indicating raptors perching, though no nesting was confirmed (THEMAC 2013). The closure design will be in similar structure to the baseline conditions, and would expect a similar species composition following reclamation.

Table 1. BISON-M Query Results of Sierra County Wildlife Species Known to Use "Barren: Mines & Quarries" Habitat Association

Life Form	Common Name	Scientific Name
Bird	Bank Swallow	<i>Riparia riparia</i>
Bird	Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Bird	Great Horned Owl	<i>Bubo virginianus</i>
Bird	N. Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Bird	Say's Phoebe	<i>Sayornis saya</i>
Bird	Turkey Vulture	<i>Cathartes aura</i>
Mammal	American Badger	<i>Taxidea taxus</i>
Mammal	Black Bear	<i>Ursus americanus</i>
Mammal	Bobcat	<i>Lynx rufus</i>
Mammal	Brush Mouse	<i>Peromyscus boylii</i>
Mammal	Collared Peccary	<i>Peccari tajacu sonoriensis; angulatus</i>
Mammal	Common Gray Fox	<i>Urocyon cinereoargenteus</i>
Mammal	Common Hog-nosed Skunk	<i>Conepatus leuconotus</i>
Mammal	Common Raccoon	<i>Procyon lotor</i>
Mammal	Coyote	<i>Canis latrans</i>
Mammal	Deer Mouse	<i>Peromyscus maniculatus</i>
Mammal	Desert Bighorn Sheep (delisted pops)	<i>Ovis canadensis mexicana</i>
Mammal	Mexican Wood Rat	<i>Neotoma mexicana mexicana</i>
Mammal	Northern Rock Mouse	<i>Peromyscus nasutus</i>
Mammal	Ringtail	<i>Bassariscus astutus</i>
Mammal	Rock Pocket Mouse	<i>Chaetodipus intermedius</i>
Mammal	Rock Squirrel	<i>Otospermophilus variegatus grammurus</i>
Mammal	Striped Skunk	<i>Mephitis mephitis</i>
Mammal	Texas Antelope Squirrel	<i>Ammospermophilus interpres</i>
Mammal	White-nosed Coati	<i>Nasua narica</i>
Mammal	White-throated Wood Rat	<i>Neotoma albigula</i>
Mammal	White-toothed woodrat	<i>Neotoma leucodon</i>
Mammal (Bat)	Allen's Big-eared Bat	<i>Idionycteris phyllotis</i>
Mammal (Bat)	Big Brown Bat	<i>Eptesicus fuscus</i>
Mammal (Bat)	Brazilian Free-tailed Bat	<i>Tadarida brasiliensis</i>
Mammal (Bat)	California Myotis	<i>Myotis californicus</i>
Mammal (Bat)	Canyon Bat	<i>Parastrellus hesperus</i>
Mammal (Bat)	Fringed Myotis	<i>Myotis thysanodes</i>
Mammal (Bat)	Hoary Bat	<i>Lasiurus cinereus</i>
Mammal (Bat)	Long-eared Myotis	<i>Myotis evotis</i>
Mammal (Bat)	Long-legged Myotis	<i>Myotis volans</i>
Mammal (Bat)	Pale Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>
Mammal (Bat)	Pallid Bat	<i>Antrozous pallidus</i>
Mammal (Bat)	Silver-haired Bat	<i>Lasionycteris noctivagans</i>
Mammal (Bat)	Southwestern Little Brown Myotis	<i>Myotis occultus</i>
Mammal (Bat)	Southwestern Myotis	<i>Myotis auriculus</i>
Mammal (Bat)	Western Small-footed Myotis	<i>Myotis ciliolabrum</i>
Mammal (Bat)	Yuma Myotis	<i>Myotis yumanensis</i>
Reptile	Crevice Spiny Lizard	<i>Sceloporus poinsettii</i>
Reptile	Eastern Black-tailed Rattlesnake	<i>Crotalus omatus</i>
Reptile	Eastern Collared Lizard	<i>Crotaphytus collaris</i>
Reptile	Great Plains Skink	<i>Plestiodon obsoletus</i>
Reptile	Northern Tree Lizard	<i>Urosaurus omatus</i>
Reptile	Prairie Rattlesnake	<i>Crotalus viridis</i>
Reptile	Twin-spotted Spiny Lizard	<i>Sceloporus bimaculosus</i>
Reptile	Western Diamond-backed Rattlesnake	<i>Crotalus atrox</i>

Table 2. Species around Pit Lake at Copper Flat as documented in BDR & Addendum Reports

Life Form	Common Name	Scientific Name
Bird	American Widgeon	<i>Mareca americana</i>
Bird	Ash-Throated Flycatcher	<i>Myiarchus cinerascens</i>
Bird	Barn Swallow	<i>Hirundo rustica</i>
Bird	Black-Throated sparrow	<i>Amphispiza bilineata</i>
Bird	Blue-Winged Teal	<i>Spatula discors</i>
Bird	Cactus Wren	<i>Campylorhynchus brunneicapillus</i>
Bird	Canvasback	<i>Aythya valisineria</i>
Bird	Canyon Wren	<i>Catherpes mexicanus</i>
Bird	Chipping Sparrow	<i>Spizella passerina</i>
Bird	Cinnamon Teal	<i>Spatula cyanoptera</i>
Bird	Common Raven	<i>Corvus corax</i>
Bird	Crissal Thrasher	<i>Toxostoma crissale</i>
Bird	Eurasian Collared Dove	<i>Streptopelia decaocto</i>
Bird	Gambel's Quail	<i>Callipepla gambelii</i>
Bird	Great Blue Heron	<i>Ardea herodias</i>
Bird	Great Horned Owl	<i>Bubo virginianus</i>
Bird	Greater Roadrunner	<i>Geococcyx californianus</i>
Bird	Homed Lark	<i>Eremophila alpestris</i>
Bird	House Finch	<i>Haemorhous mexicanus</i>
Bird	Killdeer	<i>Charadrius vociferus</i>
Bird	Loggerhead Shrike	<i>Lanius ludovicianus</i>
Bird	Mourning Dove	<i>Zenaida macroura</i>
Bird	Northern Flicker	<i>Colaptes auratus</i>
Bird	Northern Mockingbird	<i>Mimus polyglottos</i>
Bird	Northern Shoveler	<i>Spatula clypeata</i>
Bird	Red-tailed hawk	<i>Buteo jamaicensis</i>
Bird	Rock Wren	<i>Salpinctes obsoletus</i>
Bird	Say's Phoebe	<i>Sayornis saya</i>
Bird	Spotted Sandpiper	<i>Actitis macularius</i>
Bird	Swainson's Hawk	<i>Buteo swainsoni</i>
Bird	Turkey Vulture	<i>Cathartes aura</i>
Bird	Violet-Green Swallow	<i>Tachycineta thalassina</i>
Bird	Western Scrub-Jay	<i>Aphelocoma californica</i>
Bird	White-winged Dove	<i>Zenaida macroura</i>
Mammal	Coyote	<i>Canis latrans</i>
Mammal	Gray Fox	<i>Urocyon cinereoargenteus</i>
Mammal	Mule Deer	<i>Odocoileus hemionus</i>
Mammal	Rock Squirrel	<i>Otospermophilus variegatus</i>
Mammal	Striped Skunk	<i>Mephitis mephitis</i>
Mammal (Bat)	Arizona Myotis	<i>Myotis occultus</i>
Mammal (Bat)	Big Brown Bat	<i>Eptesicus fuscus</i>
Mammal (Bat)	Brazilian Free-tailed Bat	<i>Tadarida brasiliensis</i>
Mammal (Bat)	California Myotis	<i>Myotis californicus</i>
Mammal (Bat)	Canyon Bat	<i>Parastrellus helperus</i>
Mammal (Bat)	Fringed Myotis	<i>Myotis thysanodes</i>
Mammal (Bat)	Pallid Bat	<i>Antrozus pallidus</i>
Mammal (Bat)	Silver-Haired Bat	<i>Lasionycteris noctivagans</i>
Mammal (Bat)	Southern Hoary Bat	<i>Lasiurus cinereus</i>
Mammal (Bat)	Townsend's Big-Eared Bat	<i>Corynorhinus townsendii</i>
Mammal (Bat)	Western Small-Footed Myotis	<i>Myotis ciliolabrum</i>
Mammal (Bat)	Yuma Myotis	<i>Myotis yumanensis</i>

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**APPENDIX A – New Mexico Department of Game and Fish Habitat
Guidelines for Mine Operations and Reclamation**

**HABITAT GUIDELINES FOR
MINE OPERATIONS AND RECLAMATION**

December 2004

New Mexico Department of Game and Fish

I. Regulation of Mining Impacts

The state Energy, Minerals and Natural Resources Department (EMNRD), Mining and Minerals Division, includes three mine regulation programs. The Coal Mine Reclamation Program administers requirements of the federal Surface Mining Control and Reclamation Act of 1977 (SMCRA). The Abandoned Mine Land Program, authorized by SMCRA, reclaims historic abandoned coal and non-coal mines. The Mining Act Reclamation Program administers requirements of the New Mexico Mining Act of 1994 (NMMA), which applies to hard rock mines. Hard rock mining refers to extraction of most solid minerals other than coal. Phosphate mines and sand and gravel pits are not regulated by EMNRD, although local county regulations may apply. The Bureau of Land Management requires a Mine Plan of Operations for mineral extraction activities on their surface, and the Forest Service issues Special Use Permits. New Mexico Environment Department Discharge Permits are required at all mine sites that may affect a groundwater aquifer. The purpose of the Discharge Permits is to ensure compliance with NM Water Quality Control Commission standards. Projects involving more than one acre surface disturbance are required to obtain National Pollutant Discharge Elimination System permits from US Environmental Protection Agency under the Clean Water Act.

The most extensive Department of Game and Fish (Department) involvement takes place on NMMA regulated hard rock operations. The Act requires EMNRD to consult with the Department on all permit approvals and modifications. We also frequently receive requests for consultation from other agencies for other types of mine projects.

• Impacts and Mitigation

Habitat Loss and Degradation. Proposed new mines, and modifications to existing mines, should be evaluated for their effect on wildlife habitat. Pre-disturbance surveys are useful to establish baseline data for reclamation. Potential effects on listed species of concern should be identified and mitigated. Special habitat values or features should be identified for replacement during reclamation. Stormwater run-off should be controlled to avoid adding sediment to streams. Excessive sediment load affects aquatic organisms by covering up substrate habitat, carrying toxic elements, alteration of water quality or direct fish kill. Mine-related habitat loss may be temporary where mitigated by adequate reclamation practices, or permanent if reclamation is not required or is not properly implemented. The Department encourages the practice of concurrent reclamation, whereby portions of the affected area no longer in use are reclaimed while active operations continue nearby.

Physical and chemical hazards.

Many mining and milling operations involve the use of chemicals or the contamination of water by acid generating drainage. Open water that may present a hazard to wildlife includes stormwater impoundments, tailings ponds, and pit lakes remaining after the cessation of mining. No pits should be located below the ordinary high water mark of any watercourse, lakebed, sinkhole, or playa lake, or in any wetland. Any open water in an arid environment will attract wildlife of all kinds. Wildlife need to be protected from contacting and ingesting harmful liquids.

Where ponds, pits or open-top tanks contain hazardous liquids, they should be netted, fenced or otherwise protected. The US Fish & Wildlife Service provides technical guidance on protective netting on the internet at <http://www.r6.fws.gov/contaminants/contaminants1c.htm>. Wildlife exclusion fencing may be appropriate for some situations. Exclusion fences must be a minimum eight feet in height, constructed of chain link or woven or welded wire mesh. They should be secured at the ground or preferably buried to prevent animals digging under, and should be wrapped around the base with a durable finer mesh material to deter small mammals and reptiles and amphibians. Fences which are intended to exclude livestock should be designed to minimize potential for causing injury or death to large wildlife attempting to cross over or under. The Department has fence specifications available for a variety of conditions.

Non-toxic ponds, pits and trenches may also present a trapping hazard for wildlife, if they are steep-sided and/or lined with smooth-surfaced material. Textured liner material is available which can be attached to create escape ramps. Depending on the configuration of the trapping hazard, earthen ramps, floating rafts and ladders may also be appropriate solutions. The Department can provide consultation and design specifications on the appropriate technology.

Chemicals stored in containers should be labeled, container integrity maintained in good condition, and secondary containment (berms or sumps) provided around tanks and at points of transfer. Machinery and infrastructure should be maintained in good condition to prevent leaks and spills, and appropriate spill response equipment and procedures should be identified prior to bringing chemicals on site.

Another mine feature which may present a hazard to wildlife is overhead electric supply lines. Please refer to the Department powerline habitat guideline for more information on that subject.

- **Reclamation.**

Cover and Revegetation. Traditional mine reclamation has included grading the reclaimed area to a uniform 3:1 slope for the purpose of minimizing erosion. The Department encourages incorporation of topographic variability reflecting the natural site surroundings and fluvial geomorphology where feasible. Vertical habitat diversity is the single most important factor contributing to avian species diversity. Where substrate integrity is sufficient to prevent erosion or slumping, highwalls may provide a vertical habitat feature that mimics natural cliffs or rimrock. The habitat value of highwalls can be enhanced by design features including an undulating profile, niches or ledges on the face, and placing rubble at the toe of the wall. Habitat enhancement features can also be added to a homogeneous slope to provide vertical diversity and opportunities to hide from predators. Features might include clumps or rows of planted shrubs, brush piles, rock piles or constructed perches or nest platforms. The Department is available to help determine optimal configuration of features given the setting and available materials.

The two main purposes of reclaimed mineland vegetation are to prevent surface erosion, and prevent infiltration of rainwater to the depth of buried material which may cause groundwater contamination. Surface preparation should at a minimum include placement of topsoil, either stockpiled from the site or borrowed from elsewhere, furrowing on contour, and mulching after seed is applied. Soil cover should be designed to minimize uptake of toxic materials by plant roots, and from there into the ecological food chain. Seed mixes are typically specified by the regulating agency and/or the surface owner. The Department encourages the use of native species exclusively. Seed lots and mulch should be weed-free and reclaimed areas should be monitored for noxious weed infestation. Plants which are of value to particular wildlife (for example, deer browse) may be recommended where appropriate.

Water. Wildlife may need protection from contaminated water sources, as detailed above, during and after reclamation. Conversely, provision of clean drinking water should be considered, to mitigate loss or degradation of natural water sources, or other habitat loss. Earthen tanks may be created where infiltration to contaminated subsurface layers is not a concern. Impermeable rainwater catchment drinkers may be a solution in other situations. The Department is available for consultation and specifications for providing wildlife watering facilities.

Underground Features. Many abandoned mine workings, and some active mine sites, have historic underground tunnels, shafts or adits. These features can cause injury or death to people who approach or attempt to enter, so they are often targeted for filling or plugging. However underground features are often used by bats, and some raptors, owls and snakes. Many of the bats are species of concern, because of population declines or simply because there is not enough information to determine their conservation status. Importance of a feature as habitat depends on factors including the particular species present, the type or seasonality of use, and surrounding habitat characteristics. Historic underground mine features should be evaluated by an expert in the field to decide the appropriate method of closure or guarding. Where appropriate, custom bat gates can be installed to protect public safety while maintaining bat access to the interior. In New Mexico, the EMNRD Abandoned Mine Land program has developed a high level of expertise about bat-friendly closures.

References

NM Mining Act Rules, NMAC Title 19 Chapter 10
http://www.nmcpr.state.nm.us/nmac/_title19/T19C010.htm

Coal Mine Reclamation Program Rules, NMAC Title 19, Chapter 8
http://www.nmcpr.state.nm.us/nmac/_title19/T19C008.htm

NM Water Quality Control Commission homepage
<http://www.nmenv.state.nm.us/Oots/wqcc.htm#Legislation>

**COPPER FLAT
OPEN PIT RECLAMATION/REVEGETATION PLAN
OCTOBER 2017**

INTRODUCTION

NMCC submitted its Mine Reclamation Plan for the Copper Flat Mine Project to the New Mexico Mining and Minerals Division (MMD) in July, 2017 (See Appendix E of MORP). Upon its review, on October 5, 2017 the MMD asked NMCC to provide a reclamation/revegetation plan for accessible portions of the open pit as a component of reclamation of the pit so that the NMCC reclamation plan does not rely exclusively on self-vegetation inside the open pit. This proposal is limited to proposed enhancement of the reclamation plan for the open pit to complement the MORP and Reclamation Plan submitted to the MMD in July 2107, including rapid-fill of the bottom of the open pit after mining ceases.

NMCC’s proposes to add revegetation of the following three areas within the open pit:

1. The haul road leading from the crest of the pit to the pit water body that will form post-mining as a result of rapid-fill of the pit as described in NMCC’s July 17, 2007 MORP Reclamation Plan (approximately 23 acres);
2. The expanded 4900 Catch Bench (approximately 2 acres); and
3. Several pit benches at the pit crest (approximately 10 acres);

Figure 1 illustrates the revised reclamation plan, including the previously described pit water body that NMCC will develop utilizing fresh water rapid fill, and the three areas listed above that will be covered and revegetated. As indicated in Table 1, with this amendment, a total of 55 acres or 43% of the 129 acre pit shell, will be covered (35 acres cover and revegetate, 20 acres rapid fill as described in NMCC’s MORP and Reclamation Plan). The remaining pit walls represent the steep-walled portion of the post-mining wildlife habitat (PMLU) that will be established as discussed in the MORP and Reclamation Plan.

TABLE 1		
PIT SHELL RECLAMATION/VEGETATION ACREAGE		
	ACRES	% OF FOTAL
PIT SHELL (Total acreage)	129	
PIT HAUL ROAD	23	18%
4900 EXPANDED CATCH BENCH	2	2%
PIT CREST	10	8%
PIT WATER BODY	20	15%
PIT SHELL RECLAMATION	55	43%

Following is a more detailed description of NMCC's proposed revegetation enhancements to reclamation of the pit shell.

PIT HAUL ROAD

The open pit will be mined in benches over a 12 year period, creating a terraced pit wall. As shown in Figure 1 (and Drawing C-014 of Appendix E Reclamation Plan), access into the open pit during mining will be via a 90 foot wide mine haul road left in the pit wall, which will be constructed as mining advances. Also shown in Figure 1 are the locations of several surface water conveyance channels which will be constructed around the northern and eastern pit perimeter, perimeter channel PC-1 which will direct surface runoff from north of the pit shell, haul road channel HC-3 which will direct surface runoff from the reclaimed Waste Rock Stockpile no. 1 (WRSP-1), and Top Surface Channel TSC-2, which will direct surface runoff from reclaimed Existing Waste Rock Stockpile No. 4 (EWRSP-4) into the open pit. The surface water runoff collected by these channels will be routed into the pit through haul road channel HC-5, which will follow the alignment of the open pit haul road as shown in Figure 1.

For reclamation, and where practicable, the haul road will be ripped to a minimum depth of 12 inches and covered with 6 inches of growth media material. In areas where ripping to a 12-inch depth cannot be accomplished, an 18 inch growth media cover will be placed. The reclaimed haul road will include the storm water conveyance ditch and single vehicle access to the bottom of the pit for monitoring.

After grading and contouring to maintain proper drainage and erosion protection, the haul road will be seeded with a seed mix approved by the BLM and MMD. Assistance from the New Mexico Department of Game & Fish (NMDG&F) may also be sought in establishing revegetation in the pit shell in order to take advantage of NMDG&F expertise in establishing appropriate wildlife habitat. The revegetated haul road area represented in Figure 1 is approximately 23 acres in size and includes sections of catch benches on either side of the road that can be safely accessed from the road.

EXPANDED 4900 CATCH BENCH

As shown in Figure 1 (and Drawing C-0013 on Appendix E), the 4900 elevation catch bench will be expanded to approximately 2 acres in size in the northwest corner of the pit. This area will remain above water after rapid-fill is complete.

At closure, and before beginning rapid-fill of the pit, NMCC will construct a ramp from the haul road to access the step-out for revegetation activities. The surface will be ripped to a depth of 12 inches and a 6 inch growth media cover placed or alternatively an 18 inch growth media cover if the bench cannot be ripped. The growth media cover will then be seeded with a seed mix approved by the BLM and MMD. Assistance from the NMDG&F may also be sought in establishing revegetation in the pit shell in order to take advantage of its expertise in establishing appropriate wildlife habitat. The revegetated catch bench area is approximately 2 acres in size.

PIT CREST

Figure 1 identifies areas around the crest of the pit shell that will also be revegetated. These upper benches will be laid back at an approximate 2:1 slope angle at the end of the mine operations in order “soften” the pit edge and to accommodate revegetation. NMCC assumes these benches will require drilling and blasting to accomplish the desired lay back. This area will be blended into the surrounding reclaimed pit perimeter area described in the MORP and Reclamation Plan. Revegetation will be accomplished by ripping the area to a depth of 12 inches and a 6 inch growth media cover placed and re-contoured to blend with reclamation of the pit perimeter area described in the Reclamation Plan. An 18 inch growth media cover will be placed over areas that cannot be ripped. The area will be seeded with a seed mix approved by the BLM and MMD. Assistance from the NMDG&F may also be sought in establishing revegetation in the pit shell in order to take advantage of its expertise in establishing appropriate wildlife habitat. The revegetated area at the pit crest is approximately 10 acres in size. Figure 1 was prepared from Drawing C-014 of the Reclamation Plan. The 10 acres of crest reclamation shown in Figure 1 represents proposed reclamation in addition to the pit perimeter reclamation described in the Reclamation Plan.

PIT SHELL REVEGETATION SUCCESS

This amendment adds a pit revegetation component to its Reclamation Plan in response to MMD’s request for further enhancing the wildlife PMLU of the pit. As noted in Section 5.7 of the Reclamation Plan, NMCC proposes to work with the MMD and the BLM to develop appropriate, reasonable and attainable standards applicable to the pit shell. These standards will be in conformance with 19.10.6.603.G.2(c) NMAC.

PIT SHELL POST-MINING LAND USE

As stated in Appendix E of NMCC’s Reclamation Plan, the open pit area will be reclaimed to establish a wildlife habitat post-mining land use. NMCC has taken the MMD’s comments regarding reclamation into account in preparing the revisions to its Reclamation Plan in order to further enhance the success of the wildlife PMLU for the pit shell by proposing the revegetation component described herein. NMCC believes that this proposed revision, when considered along with the overall Mine Reclamation Plan in the MORP Appendix E, addresses the MMD’s concerns and completes a technically approvable Reclamation Plan for Copper Flat.