

## EXHIBIT E – THE RECLAMATION PLAN

Prior to mining operations, general agriculture was the dominant use for the area now impacted. Irrigated pasture and crops still occur on adjacent lands. Increasing urbanization since the 1960's has resulted in a present-day mixed land use, on and off site, of residential and commercial/industrial uses. The proposed end uses for the property will be to retain the existing commercial/industrial uses on the pre-1973 areas, and areas 1; 2; and water storage, recreation (fishing and parks) and wildlife will dominate the remainder of the site.

Commercial/industrial uses for the areas defined above are appropriate because they have historically been used that way pre-1973 and will continue to be used that way after mining and reclamation. It should be understood that the operator has utilized areas 1 and 2 for office buildings, shop and plant facilities, and for stockpiling local and remote sources of gravel, prior to 1973. The operator will continue to utilize these areas as its Home Office for all of its interstate and intrastate operations. The operator will ask for release of these areas once mining is completed, since the end use for these portions of the permit area is well established by historical precedent and well supported future intent.

In contrast to a virgin permit, which can incorporate the most current trends in reclamation, the history of mining in this area prior to reclamation law, and during the formative days of regulatory control, limits some of the reclamation potential of this site given its current condition and available reclamation resources. In all fairness, some end uses negate the need for revegetation considerations. These areas include the following:

- Access roads as established and represented on Exhibits F1 and F2, will act as permanent access for the landowner subsequent to mining and reclamation operations.
- Areas 1 and 2 will remain commercial/industrial in use and will not be revegetated. Areas 1 and 2 were affected prior to 1973, and no soil was salvaged for reclamation during that time. Due to the historical use of these areas as commercial/industrial, and due to the lack of original reclamation resources, alternate revegetation plans are not proposed for areas 1 and 2.
- Pre-1973 areas are re-affected by new excavation and no reclamation will occur in these areas.
- Buildings, bridges, and other structures suitable for post mine uses will stand, and will not be disassembled or destroyed as part of reclamation. Abandoned buildings or structures will be secured from illegal entry.

- Areas V, will not be affected for the life of the mine, and therefore will not be reclaimed. Other non-specified lands which remain unaffected over the life of the mine will not be disturbed as part of reclamation, unless such disturbance is necessary to complete reclamation of affected lands.

Subsequently, reclamation will focus on the creation of water storage and suitable recreation and wildlife values over the affected lands, where a commercial/industrial use is inappropriate. Enhanced pond design and improved revegetation plans will be applied over all areas not specified above. Irregularity of pond shorelines and floors is increased over those originally approved, eliding greater potential edge effect and natural appearance to the resulting ponds remaining to be excavated. This will aid in enticing wildlife into the area, and for improvement of the overall aquatic habitat. Additionally, and improved native seed mixture and plantings of cattail, willow, and cottonwood, will facilitate and promote recovery of affected lands to a more natural and native habitat most suitable to the proposed end uses. Generally, reclamation will proceed as discussed below.

Generally, water levels will follow the existing contours created by the excavation limits for each pond segment. Approximate pond water elevations can be inferred from original elevations, utilizing a standard excavation depth of 15 feet. .

Open ponds not used for water storage will be reclaimed with 4h:1v slopes. Empirical evidence indicates that the 4h:1v slopes as proposed will not only tend to dissipate wave energy, but will allow for establishment of partially submerged vegetation, such as cattails. The partially submerged vegetation will act to break up wave energy and add to the shoreline irregularity and vegetation diversity. Shoreline irregularity and stability is also enhanced by selective placement of natural barriers, such as islands and peninsulas.

After a mine phase has been excavated and graded, as described above and under Exhibit D, reclamation will commence. Reclamation could commence prior to completion of a mine phase if the extent of finished slopes justifies the effort of mobilizing the necessary equipment, materials, and man-power at that time. This would buy time for the operator since reclamation must be completed within five years after the completion of a phase. Regardless, concurrent reclamation will be practiced aggressively at every opportunity. The reclamation timetable for the areas concerned is detailed under Table IV.

Initially, soil will be reapplied to finished slopes between one and three months prior to revegetation efforts. At least one month is needed to allow the re-soiled areas to settle. Until mulch is applied to the soil, and vegetation establishes itself, the re-soiled areas are exposed to the raw forces of erosion. Applying the soil sooner than three months prior to revegetation efforts is inviting potentially high levels of soil loss from erosion. Erosion of untreated re-soiled areas will be minimized by keeping final surfaces rough, and chiseling the soil into the parent material, creating parallel contours on affected slopes. Soil will be applied to a depth as detailed under Exhibit I. Soil will only be applied in the summer and early fall when the stockpiled soil is in a friable condition. Wet soil would compact and create an adverse seedbed condition. Since the principal soil stockpiles are immediately adjacent to affected slopes, application will be a matter of pushing the soil onto the affected slope, thereby minimizing haul distances. While stockpiled, the soil will act as a visual buffer to the excavation, as well as a buffer to noise and dust.

Soil will remain exposed to the elements until seeding occurs. Fertilizer will be applied to the re-soiled areas in a manner that will encourage emergence and survival of the grasses without encouraging competition from weeds. Starter fertilizer will be applied before, or at the time of, seeding. Full fertilization will be applied after emergence. Fertilizer mixtures will be based upon soil tests made on samples taken from re-soiled areas prior to seeding.

Following seedbed preparation, seed will be drilled into treated areas. If slope, high rock content, or other obstacles prevent drill equipment from being utilized, those areas will be scarified by hand and the seed broadcast onto affected areas at twice the drill rate, and raked into the soil.

The U.S. Soil Conservation Service has recommended seven different seed mixtures for the four original permits, utilizing nearly 17 different grass species. The seed mixture has been simplified for this amendment, but improved. The new mixture utilizes all native grass species based upon diverse genetic characteristics that makes each one uniquely suited to the soils and climate of the permit area. Differences in and between warm and cool season grasses; bunch and turf forming grasses; and, short, mid, and tall grasses, adds to the genetic potential for the grasses to adapt to drastically altered edaphic conditions and unpredictable climatic factors. For example, drought cycles are difficult to anticipate, and can drastically

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affect revegetation success. Additionally, it must be remembered that disturbed soil as re-applied to affected lands is no longer a true soil since its structure has been destroyed, and mixing with different soil profile horizons is to some extent unavoidable. Therefore, re-soiled areas are not as predictable as insitu

soils with regard to plant-soil-water relations. A diverse genetic potential of the seed mixture will help even the odds. Once the grasses are established, soil rebuilding and restructuring will begin. Two seed mixtures are presented. One is for dry slopes and upland areas, while the other will be applied along and within ten feet of established ponds, where inundation is complete and final water levels and resulting shorelines have stabilized. Cottonwood plantings will occur regardless of dry or wet conditions; however, willow and cattail transplanting will only occur under wet conditions following inundation of an area.

The revised seed mixtures and rates are detailed in AM-3 for Area F-II and the 1990TR for the rest. Larimer County also requires the planting of native and ornamental trees and shrubs on the eastern boarder of area F-III in order to screen excavation of the area from Taft Hill Road. This requirement is listed under Table VII. Although it is out of character with the use of native species to be utilized over the remainder of the site, it is not out of character for areas bordering and along Taft Hill Road. Urbanization is gradually encroaching upon the surrounding land uses as well.

In addition to the native grasses, the operator will plant 100 trees per area of excavation of 1-1 stock Fremont cottonwood (*Populus fremontii*). The stock is in containerized tublings suitable for dibbling into the ground by inexperienced personnel with minimal instruction. Plantings will occur in clusters of five trees per cluster, or twenty clusters per area of excavation. Trees will be spaced two feet apart within each cluster. Clusters will be no closer than 25 feet from another, and placed at the toe of pond banks, but with adequate distance from the pond shoreline. *P. fremontii*, is full sun and heat tolerant according to Native Plants of Utah.

Willow, cottonwood, and cattail, invade inundated areas readily, however, inundation will not occur for some time on certain areas. Regardless, willow and cattail will be planted in or adjacent to shallows where inundation has occurred. Stock will be taken from areas on the site where willow and cattail are already established, and will be transplanted onto appropriate areas where shallows exist. Although no specific number of willow and cattail plantings are proposed, it is to the operator's advantage to stabilize pond banks with these plantings, and thus to establish adequate levels of stocking in order to accelerate willow and cattail establishment to an optimum cover. Beaver will be controlled from impacting tree plantings. Additionally, chemical repellent may be used to protect tree plantings of cottonwood and willow. Burlington Bio-medical & Scientific Corp's. Ropel, animal, rodent, and bird repellent are being evaluated at this time. Information will be submitted to the CMLRD via technical revision, for its approval prior to its use in the field.

All grasses, shrubs, and trees to be utilized are based upon availability, and are presently available at the time of this amendment. If unavailability occurs, a technical revision to the proposed mixture would be submitted for approval.

Impacts to water resources are detailed under Exhibit G.

Impacts to wildlife are detailed under Exhibit H.

Impacts to soils, and soils management, is detailed under Exhibit J.

Climatic influences are detailed under Exhibit K.

Reclamation cost estimates are detailed under Exhibit L.

TABLE IV  
RECLAMATION TIMETABLE

Area W, X, Y– Pre-1973 Disturbance – No reclamation required

Area V – Unaffected Lands - No reclamation required

Area F-I - Completed

Area E-I – Reclamation 2027 through 2030

Area F-III– Completed

Area E-II and Area 5– Reclamation 2027 through 2030

Areas 3, 4 – Reclamation 2027 through 2030

Area G-1 – Reclamation 2018 through 2023

Area G Phase II – Reclamation 2022 through 2024

Area F-II – Reclamation 2022-2027

TABLE VII  
TREE AND SHRUB REQUIREMENT FOR TAFT HILL ROAD

Larimer County requires the planting of native and ornamental trees and shrubs along Taft Hill Road for Area F-III as specified below:

A repeating sequence is required that includes the use of deciduous trees planted at 20 to 50 foot intervals with interplanting of 3 to 5 Russian olive trees, followed by three plantings of pine and or spruce at 10 foot intervals, and then repeating the above sequence. Choices of species to be utilized for each sequence are as follows:

Deciduous Trees (1 ¾ caliper ) of one or a combination of:

Cottonless cottonwood

Green ash

Honey locust

Pine or Spruce Trees ( 5 feet in height) of one or a combination of:

Austrian pine

Ponderosa pine

Pinyon pine

Scotch pine

Blue spruce

Trees were previously planted for Area F-III and have since filled in nicely.

## **ADDENDUM – EXHIBIT E – THE RECLAMATION PLAN**

Response to the CMLRD letter of adequacy of 15 October 1987

7. As indicated on Exhibit D; Page 2, as excavation advances, grading of the perimeter will occur concurrently with mining. Therefore, much of the planned shoreline irregularity will occur as excavation advances over the site. Some backfilling should be anticipated to correct errors and to add selected enhancements where needed. Backfilling will occur both during and after inundation of proposed ponds, but for effectiveness, the intent of the operator is to complete backfilling prior to inundation and revegetation activities.

If dikes are implemented, construction will occur prior to inundation. Exact location and shape will be established via technical revision, however, while large radius curves on proposed dikes is desirable, availability of materials and expense to the operator should be a consideration as well. As part of this amendment, straight dikes with 5 to 20-foot undulations should be allowed as the approved minimum, with the intent that the operator will consider a large radius curve at the time of the technical revision. The intent of approval at this time should provide the shortest possible shore to shore contact for the proposed dikes as an approved and acceptable dike location.

8. The primary intent for Areas 1 and 2 is to maintain this as industrial in its end-use subsequent to mining at the Home Office Mine. Should the existing use of Areas 1 and 2 continue subsequent to the completion of mining, they should be released based upon continued industrial use and intent. This point of release of Areas 1 and 2 should be made part of this amendment approval, and will be considered as such unless specifically excluded by the CMLRD.

No additional topsoil was able to be salvaged from other Areas for Area 1 and Area 2.

### **2006 Amendment**

#### **EXHIBIT E: – Reclamation Plan for Stage F-II**

Previously, Parcel F-II was to be reclaimed to open water this amendment changes reclamation to silt storage Approximately 18 acres will be utilized for silt storage. If not needed for silt storage the remainder will be reclaimed to open water. A 12 foot wide berm running south to north on each side will separate the silt storage area from the open water are in Stage F-I and Stage F-III