COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

February 14, 2018

Dan Hartman
City of Golden
911 10th Street
Golden, CO 80401

RE: Empire Pit; DRMS File No. M-1977-534; Adequacy Review No. 1 (TR03)

Dear Mr. Hartman,

The Division of Reclamation, Mining and Safety (Division) received Technical Revision No. 3 for the Empire Pit on January 23, 2018 and filed the Application for review on February 1, 2018. The decision date for this Technical Revision is March 5, 2018. The Division has reviewed the Technical Revision Application and has the following comments:

1. As required by Rule 3.1.5(9)(c), please provide a signed affidavit certifying the imported soil will be clean and inert, as defined in Rule 1.1(20).

2. The Operator is proposing to excavate a minimum of 18" of topsoil and subsoil to elimate saline conditions within the reclaimed area. Please describe what field methods will be used to determine the depth of excavated material or otherwise describe how the Operator will ensure the soils are excavated to an appropriate depth.

3. Specify the timing of soil excavation and provide a schedule for reseeding the excavated areas.

4. In order to determine if the soil to be imported is of good quality and is appropriate for the post-mining land use of pastureland, the Division will require the Operator to sample and analyze both the subsoil and topsoil to be imported to the site. The soil samples must be analyzed at an accredited laboratory and the samples shall be analyzed for: macronutrients, pH, electrical conductivity, and organic matter. The results of the analyses shall be submitted for Division approval prior to the importation of topsoil. The Operator is encouraged to consult with the Division prior to collecting samples to ensure the samples are collected properly and the correct analytical methods are used.

5. Please commit to providing the Division with a minimum of two weeks written notice prior to conducting the excavation activities. Upon notification, the Division will determine if a monitoring inspection can be scheduled while excavation activities are occurring.

6. Identify the source(s) of imported topsoil and subsoil.

7. The Operator has stated the imported soil will be certified weed free. The Division is unfamiliar with a certification program for weed free soil. Please describe how the Operator will ensure the imported soil is weed free.

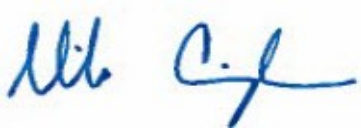
8. The Operator is proposing to remove, at a minimum, 1,611 CY of topsoil from the site. Please specify where this material will be disposed at.

9. The Operaor is proposing to replace the excavated soils with 12" of low permeability clay soils to be covered with 6" of topsoil. The Soils Report from Soil Conservation Service (copy enclosed), which was included in the original application, describes the subsoil as gravel sand loam. The Soils Report also indicates the effective rooting depth is approximately 60". Please provide a technical justification for replacing 12" of the subsoil with low permeability clay soils.

This concludes the Division's preliminary adequacy review of this Technical Revision. Please remember the decision date for this Technical Revision is March 5, 2018. If you are unable to provide satisfactory responses to any inadequacies prior to this date, it will be your responsibility to request an extension of time to allow for continued review of this Technical Revision. If there are still unresolved issues when the decision date arrives and no extension has been requested, the Technical Revision will be denied.

If you have any questions, please contact me at (303)866-3567 x8116.

Sincerely,



Michael A. Cunningham
Environmental Protection Specialist

Enclosure (1)

CC: Wally Erickson, DRMS
Anne Beierle, City of Golden

INVENTORY AND EVALUATION
OF
EMPIRE PIT

SOILS AND VEGETATION

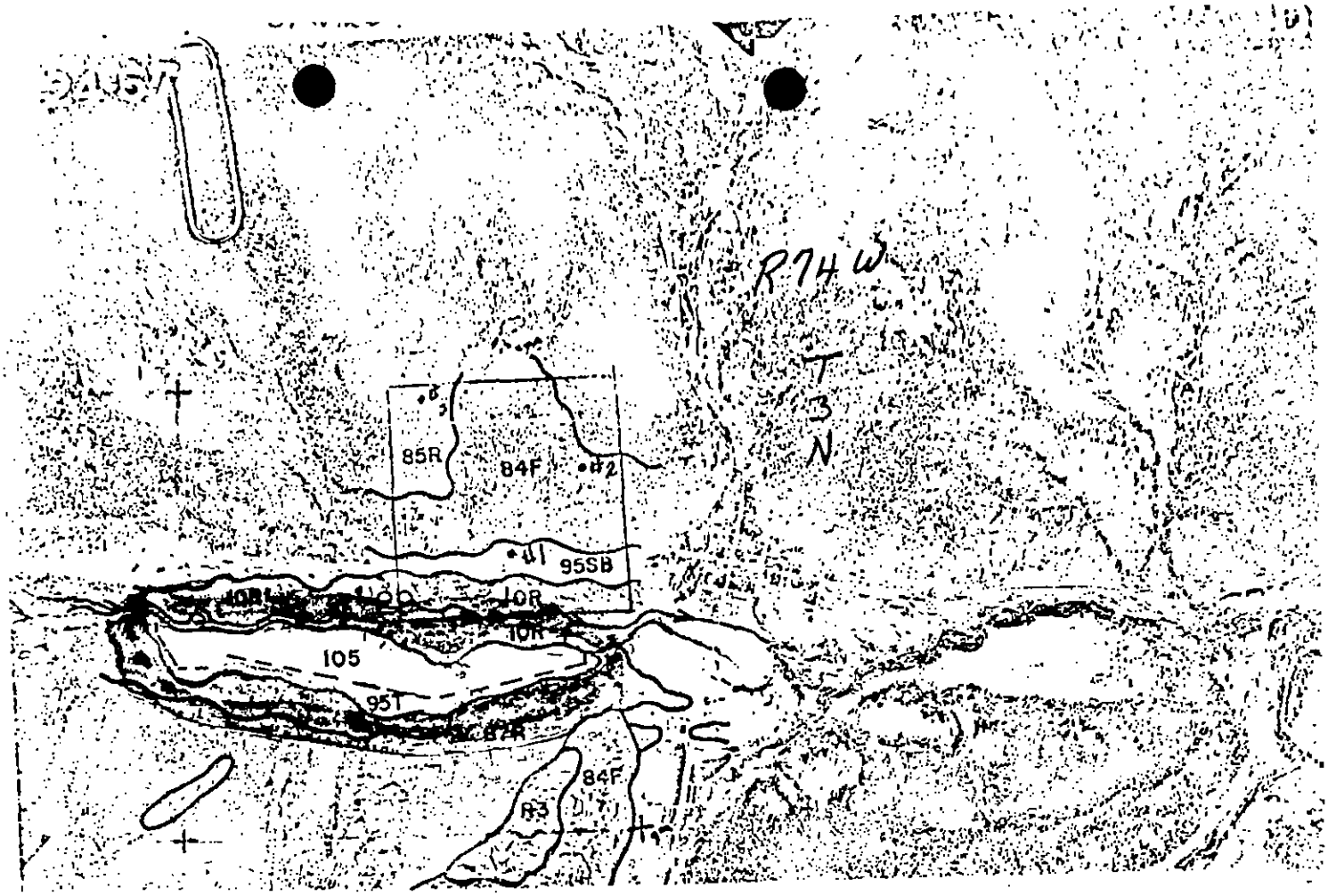
The soils as the pit were classified as they would have appeared before mining. For revegetation purposes adapted plant materials and availability of good topsoil will be the major considerations when reclamation begins. Due to the harshness of the site and short growing season, adapted grasses would probably best serve your purpose.

Soils at the Empire Pit

95T Unnamed (Empire) Gravelly Sandy Loam, 0-3% Slope

105 Borrow Area - Gravel, Cobbly and Sandy Soils Cold

For a more detailed Soils description, see the attached description. Neither of the two soils on this site are high in Ph or are they saline. The soils removed from the mine will need considerable work before revegetation can be accomplished.



SCS-CONS-15
OCTOBER 1974

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL MAP

Owner Mountain Aggregate Operator
County Clear Creek State Colorado
Soil survey sheet (s) or code nos. Approximate scale 1:24,000
Prepared by U. S. Department of Agriculture, Soil Conservation Service cooperating with Jefferson Soil Conservation District

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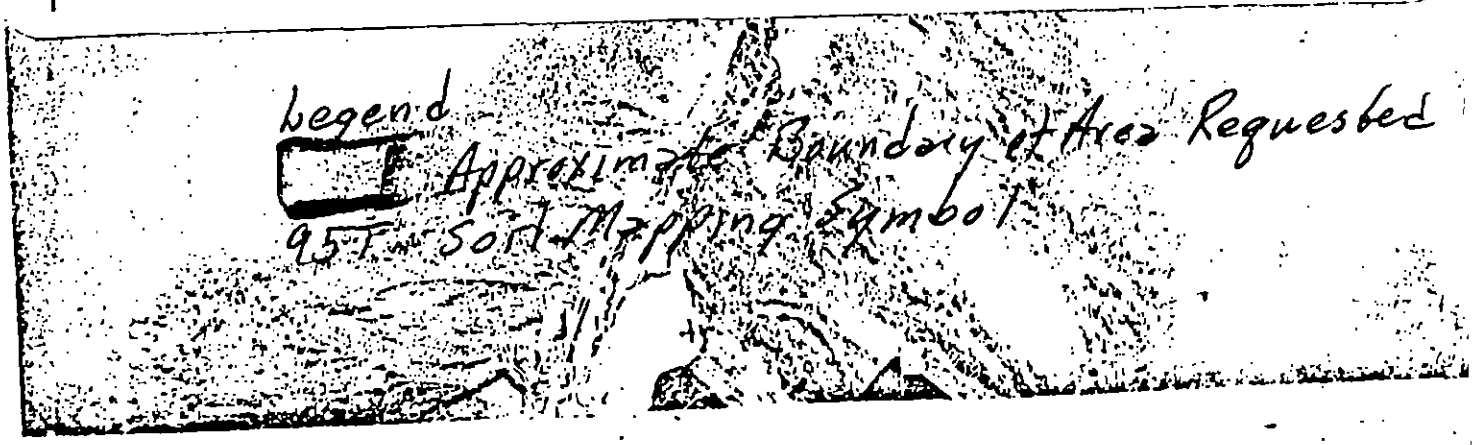

95T--Un (Empire) Gravelly Sandy Loam, 0 to 3 Percent Slopes

This is a deep, well drained soil on terraces and flood plains of the larger stream courses in the mountains and glacial outwash plains. It formed in noncalcareous very gravelly and cobbly sandy alluvial materials derived from schists, gneiss and grandi rocks of the adjoining steep slopes. The average annual precipitation ranges from 19 to 24 inches, average annual air temperature is 38° to 41° F., frost free season is less than 75 days and elevation ranges from 7600 to 9800 feet. Slopes are nearly level to gently sloping.

Included in this unit are small areas of soils with thicker surface and subsoils overlying sand and gravel at depths greater than 40 inches. Also fan-like areas of soils with cobbly stony surface layers originating from the steep mountain side slope drainage ways.

Typically the surface layer is a very dark grayish brown gravelly sandy loam about 3 inches thick. The subsoil is dark brown gravel sandy loam about 12 inches thick. The substratum is a pale brown cobbly coarse loamy sand extending to 60 inches and more. Coarse fragments in the substratum make up more than 50 percent of the volume with dominant size of 1/2 to 5 inches in diameter.

Permeability is moderately rapid, effective rooting depth is 60 inches or more, available water capacity is moderately low. Surface runoff is slow and erosion hazard is slight. Soils are slightly acid (pH 6.1-6.5). Some areas have a rare flooding hazard.

This soil is used for grazing, recreation, urban development and for sources of sand and gravel.

Plant Adaptation - The low available water holding capacity is the primary limitation concerning the establishment and maintenance of plants. Special supplemental watering practices at planting time and early stages of growth are essential. Plant climatically adapted plants.

Where areas have been used for sources of sand and gravel - grading sideslopes and planting with finer textured soils are essential for revegetation. (Refer to Borrow Area Map Unit)

Community Development - Where this soil is used for homesites and other urban and commercial development the primary limitations are excessive seepage and in some areas the flooding hazard from adjoining slopes. Special sewage systems are required to prevent contamination of ground water.

Land Capability Unit: V.
Loamy Park Range Site:
Plant Adaptability Group: M.
Hydrologic Group: B.

105--Borrow Area - Gravel, Cobbly and Sandy Soils - Cold

This unit consists of landscape that has been altered through gravel and sand excavations and leveling. The materials exposed on the cut floor are cobbly, gravelly and sandy. The depth of cut varies from 5 to 40 feet or more. The floors of these borrow areas are usually nearly level to gently sloping. The sideslopes are steep to nearly vertical and are easily eroded. Soil materials are neutral to mildly alkaline.

Average annual precipitation is 19 to 22 inches, mean annual air temperature ranges from 41 to 43° F., frost free season is less than 75 days and elevations are 7600 to 9600 feet.

Vegetation can be established and maintained by backfilling with fine textured soils to increase available water holding capacity and to provide a seed bed. Side slopes should also be graded.