

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
BUREAU OF LAND AND WASTE MANAGEMENT  
DIVISION OF MINING AND SOLID WASTE MANAGEMENT  
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**RECLAMATION PLAN for GENERAL MINE OPERATING PERMIT - GP1**  
**FORM MR-500GP1 DATE APPROVED 1/15/99**

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As required in Section 48-20-90 of the South Carolina Mining Act, "An operator shall submit with his application for an operating permit a proposed reclamation plan. The plan must include as a minimum each of the elements specified in the definition of 'reclamation plan' in Section 48-20-40 and information required by the department. The reclamation plan must provide that reclamation activities, particularly those relating to control of erosion, to the extent feasible, must be conducted simultaneously with mining operations and be initiated at the earliest practicable time after completion or termination of mining on a segment of the permitted land. The plan must provide that reclamation activities be completed within two years after completion or termination of mining on each segment of the area for which an operation permit is requested unless a longer period specifically is permitted by the department." This reclamation plan and regulation are the criteria for mine reclamation under the general mine operating permit.  
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**I. FINAL LAND USE RECLAMATION STANDARDS** The approved land use on final reclamation must meet the minimum standards as set in R89-330. The following are criteria for achieving suitable land uses in final reclamation under the general mine operating permit.

**Lake or Pond -**

- 1) In no event shall the operator allow small pools of water that are, or are likely to become, noxious, odious, or foul to collect or remain on the mined land. Lakes, ponds, wetlands or marshlands shall be considered adequately reclaimed lands when approved by the Department.
- 2) Suitable drainage ditches, conduits or surface gradient shall be constructed to avoid collection of noxious, odious or foul pools of water.
- 3) Those portions of the reclamation plan involving lakes and ponds shall be approved if:
  - a) A supply of water sufficient to maintain the approximate design pool elevation in accordance with the reclamation plan is available. In all cases, a sufficient water supply shall be available to maintain a minimum water depth of four (4) feet on at least fifty percent (50%) of the surface area of the lake or pond unless the lake or pond is to be used for aquaculture;
  - b) Side slopes no steeper than 3H:1V to the anticipated low water level; for safety, the 3:1 slope must extend beneath the expected low pool level of pond to a depth of four (4) feet;
  - c) Structures impounding a lake or pond conform to standards set forth in requirements promulgated under the Dams and Reservoirs Safety Act or designed by a professional engineer;
  - d) All waters shall conform to standards set forth by the South Carolina Department of Health and Environmental Control for surface waters in South Carolina.
  - e) Waters designated for fishing lakes shall have at least twenty percent (20%) of the total surface area less than six (6) feet deep, with an average minimum depth of three (3) feet;
  - f) Water designated for use in water contact sports shall meet the following conditions: all areas within five feet of the lowest expected water level shall be cleared of all stumps, logs, and other debris, and there shall be no sudden drop offs or deep holes. A three-foot deep shelf around the shore line is permissible for control of aquatic vegetation;
  - g) Water designated to be used as waterfowl areas shall have a means of controlling the water level so that at least fifty percent (50%) of the area can be either drained or flooded, unless otherwise approved by the Department;
  - h) Water areas designated for other uses, such as for aesthetics, irrigation, stock watering, aquaculture, marshlands, or wetlands, shall be considered adequately reclaimed upon approval by the Department.

**Grassland -** The operator shall establish on a continuing basis the vegetative cover and soil stability appropriate to the area. Conservation practices essential for controlling both on-site and off-site erosion and siltation must be established. A minimum of seventy-five percent (75%) vegetative ground cover, with no substantial bare spots, must be established and maintained into the second growing season.

**Agriculture -** Slopes and the condition of the surface must be such that commonly used farm machinery can cultivate, maintain and harvest the area safely. Conservation practices essential for controlling erosion and sediment must be established.

## I. FINAL LAND USE RECLAMATION STANDARDS (cont'd):

### Woodland -

- 1) The operator shall establish on a continuing basis the vegetative cover and soil stability appropriate to the area. Conservation practices essential for controlling both on-site and off-site erosion and siltation must be established.
- 2) Areas reclaimed to woodland must be planted or seeded with respect to species selection, spacing, and ground preparation, according to the recommendations of the South Carolina Forestry Commission or a registered forester.
  - a) Survival meeting the recommendations of the South Carolina Commission of Forestry or a registered forester with no substantial bare spots must be achieved through one full growing season;
  - b) Ground cover or other conservation practices shall be required in areas where erosion will be active until the trees or shrubs establish a ground cover from their own litter. Ground cover may be annual or perennial vegetation, or mulching. The requirement for ground cover may be omitted in sandy areas if the reclaimed area has a closed drainage system as long as temporary measures are used to prevent significant erosion and siltation within such areas.

**Solid Waste Disposal (Landfill)** - The operator must have secured the appropriate solid waste disposal permit.

**Development (Residential/ Commercial)** - At a minimum, the operator must secure, where applicable, zoning approval and building permit from local government, and applicable stormwater permits from SCDHEC. Once construction on building foundation begins, reclamation as mined land will be considered complete and the operator will be released from requirements under the general mine operating permit and reclamation plan. Construction activities will be regulated by applicable local ordinances and state stormwater permits.

## II. SAFETY AND ENVIRONMENTAL PROTECTION THROUGH RECLAMATION

### 1. Final maximum surface gradient (slope) on land mined under the general mine operating permit.

Final maximum surface gradients under the general mine operating permit will not be steeper than 3H:1V. If a 3:1 slope is not stable, the operator must reclaim the site to a more gentle slope to provide for stability at the completion of reclamation.

### 2. Methods to achieve revegetation or other surface treatment of affected area(s).

Operator shall establish perennial vegetation for final reclamation. Grass species, seeding, fertilizer and mulching rates should be as recommended by National Resource Conservation Service (NRCS), *Handbook of Conservation Practice of Mining Operations* or other appropriate technical manuals.

### 3. Method of reclaiming overburden stockpiles.

Due to the limited size and typically small amount of overburden associated with sand/clay and topsoil mining, any overburden shall be backfilled into the pit on final reclamation. No overburden stockpiles shall be left above the original (pre-mine) surface elevation.

### 4. Method of reclaiming settling and/or sediment ponds.

Sediment basins must remain functional until soil erosion and the potential for off-site sedimentation from the mine reclamation area is controlled. Sediment ponds or sediment traps used during mining under the General Mine Operating Permit must be completely removed, graded and revegetated according to the grassland and/ or woodland surface treatments requirements.

### 5. Method of restoration or establishment of stream channels, stream banks and site drainage to a condition minimizing erosion, siltation and other pollution.

Not applicable. Mining under this General Mine Operating Permit does not authorize mining through streams, ponds or natural drainage ways. As established in the general permit such areas are to be avoided and protected with proper setbacks from the mining operation.

### 6. Maintenance plans to insure that the reclamation practices established on the affected land will not deteriorate before released by the Department?

Areas of the mine under reclamation will be inspected periodically to ensure seed germination, growth and soil stability. Should seeds fail to germinate or soil erosion occurs, reseeding and/ or other corrective measures will be taken as quickly as feasibly possible. Such corrective measures may include but are not limited to the following: re-grading, reseeding, fertilizing and mulching.

Inspections of the site will be periodic. However, inspections will be conducted by the operator after severe rain storms or after prolonged dry spells that are more likely to damage re-vegetated areas.

## II. SAFETY AND ENVIRONMENTAL PROTECTION THROUGH RECLAMATION (cont):

### **7. For final reclamation what methods or practices are to be used to provide for safety to persons and to adjoining property in all excavations.**

Operator will slope the unconsolidated sand/clay to a slope no steeper than 3:1. No areas will be left with a vertical highwall requiring fencing as a safety measure. A 3:1 slope will provide stability for most soil types to prevent landslides. However, if the operator should encounter unstable soils at a 3:1 slope, the slope must be graded to a more gentle slope to achieve stability.

For safety in mines reclaimed to ponds, the 3:1 slope will extend beneath the expected low pool level of the pond to a depth of four (4) feet.

Sites reclaimed to commercial or residential development may have final slopes steeper than 3:1 if such slopes are: an integral part of the development; stable; approved by the local authority permitting the development of the commercial or residential property; and, the operator submits appropriate documentation, upon request, that such a slope will be stable.

### **8. What provisions will be taken to prevent noxious, odious, or foul pools of water from collecting and remaining on the mined area? For mines to be reclaimed as lakes or ponds, provide supporting information that it can be maintained.**

Mines reclaimed to a pond must meet the requirement of having a minimum water depth of four (4) feet on at least fifty percent (50%) of the pond surface area. Mines reclaimed to other land uses will be properly graded to allow for gravity drainage.

### **9. Structures (e.g., buildings, roads) allowed to remain after final reclamation.**

Temporary structures built or placed during mining operations will be removed from the site unless it is an integral part of the final reclamation of the site and meet local building codes and land use requirements.

Temporary access roads through U.S. Army Corps of Engineers jurisdictional wetlands must be removed at the end of mining and as final reclamation of the mine site. All fill material placed in the wetlands for the access road must be removed and the original pre-mine ground elevations re-established. All culverts or any other structures must be removed and disposed properly and the original hydrology re-established to pre-mine conditions. Access roads that have been properly permitted through the U.S. Army Corps of Engineers and OCRM may remain as permanent structures.

### **10. Methods to limit significant adverse effects on known significant cultural or historic sites within the proposed permitted area.**

Known significant cultural or historic sites are not authorized to be disturbed under the General Mine Operating Permit. Known sites must be avoided and a minimum fifty (50) feet undisturbed buffer zone must be established for protection.

### **11. Method to comply with State air quality and water quality standards as established by the S.C. Department of Health and Environmental Control.**

At final reclamation, air quality will be protected by establishing vegetation to prevent wind blown fugitive dust. No mineral processing that will create adverse air emissions is authorized under the general permit.

Water quality at final reclamation will be protected by: 1) the establishment of vegetation on a continuous basis to stabilize the soil to prevent erosion; 2) the removal of all mine related refuse and debris; and, 3) any soils contaminated by fuel or other petroleum products will be removed and disposed in an appropriate solid waste disposal site.

### **12. Practices used to protect adjacent resources such as roads, wildlife areas, woodland, cropland and others resources after mining.**

Operator will use accepted conservation practices to reclaim the mine land in a manner to eliminate pollution that could affect surrounding resources. The operator must grade the mined land to an stable slope for safety and suitable future land uses and stabilize the soil with vegetation to prevent erosion and off-site sedimentation.

### **13. Methods to limit significant adverse effects on adjacent surface water and groundwater resources.**

The primary potential sources of pollutants from sand/clay mining are petroleum products and sediment. Consequently, the operator will always handle fuel for equipment and lubrication products in an acceptable manner to prevent contamination of soils and surface water or groundwater resources. On final reclamation all debris and scrap equipment must be removed and properly disposed in a permitted solid waste facility. Any petroleum contaminated soils must be removed from the site and treated or disposed in a permitted facility. Revegetation of the mined land according to minimum standards will stabilize the soil to prevent off-site sedimentation.

Temporary or permanent placement of refuse and debris from off-site locations is prohibited. Topsoil, free of debris and contaminants and as defined in Regulation 89-10D, may be brought in from off-site sources, but only for the purposes of mine land reclamation.

### **14. Method to prevent or eliminate conditions that could be hazardous to animal or fish life in or adjacent to the permitted area after mining is terminated.**

The greatest hazard to fish or other aquatic animals from a mine permitted under the general mine operating permit is sedimentation in neighboring water bodies caused by erosion on the mine site. To prevent this hazard, the operator will establish appropriate permanent vegetation on a continuous basis to prevent erosion and off site sedimentation.

Terrestrial wildlife will be protected by the 3:1 sloping requirements. Grade to remove vertical walls and sudden drops; therefore, eliminating a primary hazard.

15. Section 48-20-40(16)(l) of the S.C. Mining Act requires a, "time schedule, including the anticipated years for completion of reclamation by segments." This time schedule should meet the requirements of Section 48-20-90 of the Mining Act.

**SCHEDULE FOR IMPLEMENTING CONSERVATION AND RECLAMATION PRACTICES**

<i>Conservation and Reclamation Practices</i>	<i>Segment or Area</i>	<i>Planned Amount</i>	<i>Planned Year</i>	<i>Applied Amount</i>	<i>Applied Year</i>	<i>Notes</i>
Construct haul road	Haul road					See Note #1
Establish mud mat at entrance of access road to public road.	Mine entrance	50' long				Prior to mining; maintain while active
Construct sediment trap	As necessary					
Stockpile topsoil (TS)	Within 5 ac disturbance					During mining
Grade/ TS/ fert./ seed	Install spot sediment control	Where necessary				See Note #1
Submit ARR, AOF						See Note #2
Sediment removal	Sediment trap					See Note 3
Notice Department once mining has ceased	All		End of mining			<i>Termination of Mining Notification; see Part VI of GP1</i>
Grade/ TS/ fert./ seed	Pit area					See Note 4
Grade/ TS/ fert./ seed	Sediment trap		End of mining			
Grade/ TS/ fert./ seed	Access road		End of mining			
Remove access road to mine	Access road	In wetlands	End of mining			Temporary access; see Note #5
Notice Department once reclamation practices are in place			End of active Recl.			<i>Final Reclamation Notification; see Part VI of GP1</i>
Maintain reclamation work by repairing erosion damage, reseed when necessary	All		Until accepted by DHEC			

- Note #1** Where necessary, spot sediment control structures (e.g., silt fences, brush barriers, stone rip rap, etc.) will be used to control erosion and off-site sediment.
- Note #2** Annual Reclamation Reports and Annual Operating Fees are required until GP1 is cancelled by the Department (Part VI of GP1)
- Note #3** Accumulated sediment in the sediment trap shall be removed when 50 % of the capacity, by volume, has diminished.
- Note #4** Reclamation on each segment may begin at an earlier date if mining proceeds at a rate faster than anticipated. The grading/ topsoil/ fertilize/ seed refers to side slopes of the pit when final reclamation of the pit is to a pond.
- Note #5** Permanent Access road in wetlands must be permitted through the Army Corps of Engineers.

TS - topsoil      Fert - fertilize      Recl. - reclamation      ARR - Annual Reclamation Report      AOF - Annual Operating Fee

**YOU ARE HEREBY NOTIFIED:**

If at any time the Department determines the activities under the reclamation plan are failing to achieve the purposes and requirements of the S.C. Mining Act, the Department may modify the RECLAMATION PLAN in accordance to Section 48-20-150.