



Mining Form MR-500

S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
DIVISION OF MINING AND SOLID WASTE MANAGEMENT
2600 Bull Street, Columbia, SC 29201
Telephone Number(803) 869-4261 Fax Number: (803) 896-4001

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
DIVISION OF MINING AND SOLID WASTE MANAGEMENT
2600 Bull Street; Columbia, SC 29201
Telephone Number (803) 896-4261 Fax Number (803) 896-4001

RECLAMATION PLAN
FORM MR-500 DATE VERSION ADOPTED: 7/1/94

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 reclamation plan for an operating permit only must be furnished to the local soil and water conservation district in which the mining operation is to be conducted. 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 must 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."

I. APPLICANT INFORMATION

1. Name of Company: RDA, LLC

2. Name of Proposed Mine: RDA Mine County: Williamsburg

3. Home Office Address: P.O. Box 527 910-385-4675
(Street and P.O. Box) (Telephone No.)

Newton Grove NC 28366 None
(City) (State) (Zip Code) (Fax. No.)

4. Local Office Address: Not Established
(Street and P.O. Box) (Telephone No.)

(City) (State) (Zip Code) (Fax. No.)

5. Designate to which office Official Mail is to be sent:
Home Office: x Local Office:

6. Name of company personnel and their title to be the contact for official business and
correspondence: Clark Wooten, Manager

II. ENVIRONMENTAL PROTECTION

1. Describe practices to protect adjacent resources such as roads, wildlife areas, woodland, cropland and others during mining and reclamation.

The mine permit area is located in a rural area with land cover consisting of hardwood and managed pine forests for timber. On land neighboring the mine permit area, the land uses include agricultural, managed timberlands, rural residential. Of the 968.4 acres of permitted land, undisturbed buffers are used to provide additional protections to adjacent properties, creeks and other sensitive areas. The nearest public road, Seaboard Road, fronts a relatively small area of the mine permit area to the south, will be buffered with a 200 foot wide undisturbed buffer.

Spotted turtle (*Clemmys guttata*)

A visual survey of Murray Swamp floodplain and associated wetland habitats will be conducted within the initial mine permit site prior to any land disturbance for the Spotted turtle. Experienced field biologists will look for spotted turtles within and near the proposed conveyor corridor across Murray Swamp. The work will be done over a period of two days in late winter (mid March) and two days in mid-spring (early May). If spotted turtles are located in the project area, mine operator will work with SCDNR to develop a project specific management plan including, but not limited to, collection and radio tracking, capture and relocation, or no further action. Mine staff will be trained to identify the spotted turtle. Staff will be directed to protect any identified turtle and take pictures if possible without disrupting the turtles activity. Upon confirmation of the turtle's identification by mine operator's contract biologist(s), the siting will be reported to SCDNR.

Carolina gopher frog (*Lithobates [Rana] capito*); eastern tiger salamander (*Ambystoma tigrinum*)

Annual surveys for the Carolina gopher frog and the eastern tiger salamander will be conducted for two years following the initial mining work. The survey will occur from mid-winter through spring locate and identify breeding adult or larval individuals. Vocalization surveys will also be conducted at night for gopher frog calls during the same time period. If either animal is identified, the mine operator will work with SCDNR to develop a project specific management plan including, but not limited to, collection and radio tracking, capture and relocation, or no further action. If none of the animals are identified during the two survey years, no additional work will be performed until such time, mining progresses toward any of the below identified wetlands. Prior to any land disturbance of the below identified wetlands, final on-site surveys will be conducted to search for the gopher frog and tiger salamander. The jurisdictional and non-jurisdictional wetlands subject to the surveys are identified as follows:

- Non-jurisdictional wetlands, #5 & #27 (segment 3)
- Non-jurisdictional wetlands, #1, #2, #3, & #13 (segment 4)
- Non-jurisdictional wetlands #15 & # 38 (segment 7)
- Non-jurisdictional wetland #11 (segment 2)
- Non-jurisdictional wetlands #12, & #18 (segment 1)
- Non-jurisdictional wetlands #39, #40, #41, #43, #44 & #45 (segment 10)

2. Describe proposed methods to limit significant adverse effects on adjacent surface water and groundwater resources.

Proper reclamation of the mine site will include stabilizing all overburden storage piles with vegetation, removal of mine equipment both mobile and stationary, clean up of any spillage of petroleum products, removal of scrap material. Once mining is terminated, groundwater levels will rebound to approximate original levels. The mining process will not use chemicals in the mining or processing of crushed stone; consequently, there is no potential for chemical contamination to groundwater resources. Additionally, vegetative filters of existing vegetation will provide redundancy to active sediment control measures to further protect adjacent surface water resources.

3. Describe proposed methods to limit significant adverse effects on known significant cultural or historic sites within the proposed permitted area.

An intensive archaeological survey of the proposed permit area was conducted by Brockington and Associates. One archaeological site, 38WG185, was identified during the survey as being eligible for inclusion in the National Registry of Historic Place (NRHP). This 1.2 acre site will be "green spaced" and protected with a 50 foot undisturbed buffer around the site. Permanent markers will be established to locate and protect the site.

4. Describe method to prevent or eliminate conditions that could be hazardous to animal or fish life in or adjacent to the permitted area.

Proper reclamation of the mine site will include stabilizing all overburden storage piles with vegetation, removal of mine equipment both mobile and stationary, clean up of any spillage of petroleum products, removal of scrap material. Setbacks, established buffers and soil stabilization along stream banks will provide protection to fisheries in nearby streams. Establishing 3:1 slopes around the pit and overburden storage areas will remove hazardous conditions for the public and indigenous animal populations.

Vegetative filters will be established consisting of existing woodlands to provide redundant sediment control to protect wetlands and adjacent properties from mining activities.

5. Describe how applicant will comply with State air quality and water quality standards as established by the S.C. Department of Health and Environmental Control.

To operate the mine and processing plant, the mine operator will obtain the Air Quality Construction Permit and ultimately the Air Quality Operating Permit. These permits set the quantity of air particulates that can be emitted to be protective of air quality standards.

With the termination of mining all mobile mine equipment and processing plant equipment will be removed from site. Once the process plant equipment is removed from site, the Air Quality Operating Permit can be terminated. Stone stockpiles, fines and barren soils, potential sources of dust after mining, will be either removed (stone stockpiles) or stabilized with vegetation to eliminate windblown dust.

III. RECLAMATION OF AFFECTED AREA

6. State useful purpose(s) the affected land is being proposed to be reclaimed to. More than one purpose may be checked, but information should be submitted to support the feasibility for each proposed purpose.

- | | |
|---|--|
| a. Lake or pond <input checked="" type="checkbox"/> | f. Grassland <input checked="" type="checkbox"/> |
| b. Agriculture _____ | g. Recreation _____ |
| c. Woodlands _____ | h. Wetlands _____ |
| d. Residential _____ | i. Park _____ |
| e. Commercial _____ | j. Other _____ |

7. State the final maximum surface gradient(s) (slope) in soil, sand, or other unconsolidated materials on reclaimed land. Surface gradients steeper than 3H:1V (18 degrees or 33 percent) may be required to submit geotechnical data and studies to demonstrate that the steeper slopes will remain stable following final reclamation.

The final maximum surface gradient for slopes in overburden storage areas and slopes in overburden in the pit will be 3:1.

8. How will the final slopes in unconsolidated material be accomplished? If the slope will be by backfilling, demonstrate that there is adequate material to accomplish the stated final gradient. If gradient is to be achieved by bring in material from outside the permitted area, state the nature of the material and approximate quantities. If the gradient is to be achieved by grading, show that there is adequate area for grading to achieve gradient (ie. adequate distance between the property line and edge of highwall). Operator should show calculations or other appropriate information to demonstrate that there is adequate materials in backfilling and grading to meet the requirements for final slope.

The overburden stripped either will be placed in berms or backfilled into the pit. The primary post mine land use for the pit will be a lake with most, if not all of the backfill covered by water at depths greater than 4 feet.

9. Describe the plan for revegetation or other surface treatment of affected area(s). The revegetation plan shall include but not be limited to the following: (a) planned soil test; (b) site preparation and fertilization; (c) seed or plant selection; (d) rate of seeding or amount of planting per acre; (e) maintenance.

Soil test, seed bed preparation, seed mix selection, soil amendments (fertilizer, lime, growth stimulants, etc.), cover and seeding rates will be based upon SC DOT's *Supplemental Technical Specification (SC-M-810-2(04/11)) for Seeding*.

Revegetated sites will be maintained with periodic inspections to detect areas with significant erosion, seed germination failure or significant plant die off. Site will be inspected after significant storm events to detect wash outs or gullies in planted areas. Damaged area will be repaired where necessary by fixing erosion damage and reseeding as necessary.

10. **Provide, as a separate document, a closure plan of the mine and permitted facilities to prevent a release of contaminants from being harmful to the environment. A closure plan is not necessary for all mines, but is required where the possibility exist for (a) acid rock drainage; (b) where the National Pollutant Discharge Elimination Systems (NPDES) Permit have discharge limitation parameters other than pH and Total Suspended Solids (TSS); (c) chemically treated tailings or stockpiles (excludes fertilizer or lime for revegetation purposes).**
Reclamation for the pit will not require a closure plan. A) The limestone does not oxidize to form acid and thus, create acid mine drainage. B) This mine qualifies for coverage under the *NPDES General Permit for Discharges Associated with Nonmetal Mineral Mining Facilities (SG-730000)* with no additional parameters other than pH and TSS. C) No chemicals will be used in the mining process.
11. **Method of control of contaminants and disposal of mine waste soil, rock, mineral, scrap, tailings, slimes, and other material directly connected with the mining, cleaning, and preparation of mineral substances mined and includes all waste materials deposited on or in the permit area from any source.**
Fines created from processing limestone are not "clay slime"; thus, they will not create an unstable sediment mass in settling ponds. These fines will accumulated in the clarification ponds of the wash circuit and periodically removed and either sold as a by-product or backfilled into the pit.
12. **Method of reclaiming settling and/or sediment ponds.**
Any process ponds associated with the process plant will be backfilled to original grade, topsoiled and revegetated.
13. **Describe method of restoration or establishment of stream channels, stream banks and site drainage to a condition minimizing erosion, siltation and other pollution.**
Appropriate setbacks and buffers will be established to protect the streams and wetlands that will be avoided by mining. Wetlands to be impacted by mining will be permitted by US Army Corps of Engineer's 404 permit or appropriate Nationwide permitting with appropriate mitigation measures utilized.
14. **What are the maintenance plans to insure that the reclamation practices established on the affected land will not deteriorate before released by the Department?**
Areas that have undergone final reclamation practices will be maintained through periodic inspections and conducting any necessary repairs in a timely manner.
15. **For final reclamation, submit information about practices to provide for safety to persons and to adjoining property in all excavations. Identify areas of potential danger (vertical walls, unstable slopes, unstable surface on clay slimes, etc.) and provide appropriate safety provisions. These provisions can include but are not limited to setbacks, fencing, signs, benching, guardrails and boulders.**
The following mine segments will be reclaimed to provide safety to persons and adjoining areas.
Highwalls – The relative shallow overburden will be sloped to a 3:1 gradient around the pit perimeter. With the sloped overburden and high water table, there will not be any exposed vertical highwalls.
Unstable Slopes – All overburden storage areas (i.e., berms) will be sloped to 3h:1v gradient and vegetated. Soils place to 3:1 gradients are stable and are not prone to landslides.
16. **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 a minimum water depth of four (4) feet on at least fifty percent (50%) of the pond surface area can be maintained.**
The final pit will be reclaimed as a lake and will meet the above referenced regulatory requirement for sufficient depth. Areas of the affected land not reclaimed to ponds will be properly graded to prevent unwanted pools of water from collecting and prevent foul water from forming.

17. Identify any structures (e.g. buildings, roads) that are proposed to remain as part of final reclamation. Provide justification for leaving any structures.

The office building and other support buildings may be left upon final reclamation. Also, some of the haul roads may be left to provide access to the property. All areas will be sloped and stabilized to prevent erosion and control sediment.

18. Attach two (2) copies of a map of the area (referred to as the RECLAMATION MAP) that shows the reclamation practices and conservation practices to be implemented. The following should be shown:

- A. The outline of the proposed final limits of the excavation, during the number of years for which the permit is requested.
- B. The approximate final surface gradient(s) and contour(s) of the area to be reclaimed. This would include the sides and bottoms of mines reclaimed of ponds and lakes.
- C. The outline of the tailings disposal area.
- D. The outline of disposal areas for spoil and refuse (exclusive of tailings ponds).
- E. The approximate location of the mean shore line of any impoundment or water body and inlet and/or outlet structures which will remain upon final reclamation.
- F. The approximate locations of access roads, haul roads, ramps or buildings which will remain upon final reclamation.
- G. The approximate locations of various vegetative treatments.
- H. The proposed locations of re-established streams, ditches or drainage channels to provide for site drainage.
- I. The proposed locations of diversions, terraces, silt fences, brush barriers or other Best Management Practices to be used for preventing or controlling erosion and off-site siltation.
- J. Proposed locations of the measures to provide safety to persons and adjoining property.
- K. Segments of the mine that can be mined and reclaimed as an ongoing basis.
- L. The boundaries of the permitted area.
- M. The boundaries of the affected area for the anticipated life of the mine.
- N. The boundaries of the 100-year floodplain, where appropriate.
- O. Identify sections of mine where the final surface gradient will be achieved by grading and/or backfilling.
- P. A legend showing the name of the applicant, the name of the proposed mine, the north arrow, the county, the scale, the date of preparation and the name and title of the person who prepared the map.

THE REQUIRED RECLAMATION MAP SHALL HAVE A NEAT, LEGIBLE APPEARANCE AND BE OF SUFFICIENT SCALE TO CLEARLY SHOW THE REQUIRED INFORMATION LISTED ABOVE. THE BASE FOR THE MAP SHALL BE EITHER A SPECIALLY PREPARED LINE DRAWING, AERIAL PHOTOGRAPH, ENLARGED USGS TOPOGRAPHIC MAP OR A RECENTLY PREPARED PLAT. RECLAMATION MAP SHOULD BE THE SAME SCALE USED FOR THE SITE MAP.

IV. SCHEDULE FOR IMPLEMENTATION OF CONSERVATION AND RECLAMATION PRACTICES

19. As stated in Section 48-20-90 of the S.C. Mining Act, reclamation activities, to the extent feasible, must be conducted simultaneously with mining operations. Identify which areas or segments of the mine are not feasible to reclaim simultaneously with mining. Provide reasons why reclamation can not proceed simultaneously with mining in these areas.

Not applicable

20. 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

Conservation & Reclamation Practices	Segment or Area	Planned		*Applied		Notes
		Amount	Year	Amount	Month/Year	
Establish minimum 75' wide upland buffers for wetlands to be avoided along the access and haul roads in RDA-South	Access Road Process Plant & Murray Swamp Crossing	1,200 ft	2019			
Locate archaeological site 38WG185; mark site with two permanent marker post; establish 50' buffer around site.	38WG185	2.4 ac	2019			Prior to start of mining
Deploy silt fencing, Sediment traps and/or other sediment control BMPs	Process Plant	~2,400 ft	2019			
Excavate Sediment & Water Storage Pond	Process Plant	9.9 ac	2019			
Establish 50' wide upland buffers for wetlands to be avoided and mark buffers.	Wetland 10	200 ft	2019			Prior to constructing Berm 3
Mark 50' undisturbed buffer along property line.	Berm 3	1,300 ft	2019			Prior to constructing Berm 3
Deploy silt fencing and/or other sediment control BMPs	Berm 3	1,300 ft	2019			Prior to constructing Berm 3
Conduct Spotted Turtle Survey	Murray Swamp Area		2018		2018	
Conduct Annual Surveys for Gopher Frog & Eastern Tiger Salamander	Segs 1, 2, 3, 4, 7 & 10	Varies	2019 - 2020			Wetlands identified in item# 1, page 2 of this Reclamation Plan
Strip and stockpile topsoil need for reclamation	Seg 6	As needed	2019			
Strip overburden and mine limestone	Seg 6	53.2 ac	2019-2026			Use sloping & diversions and other appropriate BMPs
Route stormwater into pit	Seg 6		All times			
Backfill overburden in mine out section of pit	Seg 6	~3.5 ac.	2019 - 2026			
Spread topsoil, seed & fertilize as necessary in areas above the planned ultimate pool level lake surface water	Seg 6	As needed	When feasible			Concurrent reclamation with mining will occur as soon as feasible in each segment.
Strip and stockpile topsoil need for reclamation	Seg 5	As needed	TBD			
Strip overburden and mine limestone	Seg 5	45.0 ac	TBD			
Slope overburden to 3:1 slope along terminal pit wall	Seg 5	~ 2.0 ac	TBD			South side of Segment 5
Route stormwater into pit	Seg 5		All times			Use sloping & diversions and other appropriate BMPs
Spread topsoil, seed & fertilize as necessary in areas above the planned ultimate pool level lake surface water	Seg 5	As needed	When feasible			Concurrent reclamation with mining will occur as soon as feasible in each segment.

AA – Affected Area; BMPs – Best Management Practices; Fert. – Fertilize; PL – Property Line; SB – Sediment Basin; ST – Sediment Traps SW – Stormwater; TS – Topsoil; WL – Wetlands;

NOTE: The year and amount for deployment of conservation & reclamation practices are estimates and subject to change depending on market conditions and rate of mining.

* Completed by the Department

SCHEDULE FOR IMPLEMENTING CONSERVATION AND RECLAMATION PRACTICES

Conservation & Reclamation Practices	Segment or Area	Planned		*Applied		Notes
		Amount	Year	Amount	Month/Year	
Follow-up survey for Gopher Frog & Eastern Tiger Salamander	Segs 1, 2, 3, 4, 7 & 10	Varies	TBD			Prior to land disturbance of identified wetlands in these segments. Wetlands identified in item# 1, page 2 of this Reclamation Plan
Establish 50' wide upland buffers for wetlands to be avoided and mark buffers.	Other mine segments and berms	TBD	TBD			Establishing dates and amount of conservation & reclamation practices will depend on market conditions and rate of mining.
Mark 250' property line blasting setback		TBD	TBD			
Mark 50' undisturbed buffer along property line.		TBD	TBD			
Deploy silt fencing and/or other sediment control BMPs		TBD	TBD			
Strip and stockpile topsoil need for reclamation		TBD	TBD			
Strip overburden and mine limestone		TBD	TBD			
Route stormwater into pit		TBD	TBD			
Slope overburden to 3:1 slope along terminal pit wall		TBD	TBD			
Spread topsoil, seed & fertilize as necessary in areas above the planned ultimate pool level lake surface water		TBD	TBD			
Remove mine equipment, process plant equipment, and stone stockpiles	All areas	TBD	TBD			At end of mining and final reclamation
Stabilize barren soils by sloping to minimum 3:1 slope and establishing vegetation						Concurrent reclamation with mining will occur as soon as feasible in each segment.
Cease pumping of groundwater to fill last pit to final pool elevation						
Monitor vegetation to establish 75% coverage over two growing seasons. Inspect vegetation and repair as necessary.	All non-water areas					During active mining and reclamation activities.

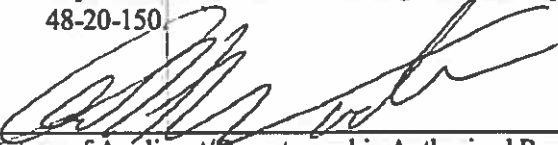
AA – Affected Area BMPs – Best Management Practices Fert. – Fertilize PL – Property Line SB – Sediment Basin ST – Sediment Traps SW – Stormwater TS – Topsoil WL – Wetlands

NOTE: The year and amount for deployment of conservation & reclamation practices are estimates and subject to change depending on market conditions and rate of mining.

* Completed by the Department

YOU ARE NOTIFIED THAT:

- 1) you, the operator, must file an application to modify the reclamation plan in the event actual reclamation varies from the set forth hereinabove, and
- 2) if at any time it appears to the Department that 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.



Signature of Applicant/Operator or his Authorized Representative

Mark H. Wootten

Printed Name of Applicant/Operator or his Authorized Representative

MANAGER

Title

10-19-18

Date

Department Use Only

Permit No. 2171 Date Application Approved 3-25-19 Date Bond Rec'd 3-25-19
Bond Amount \$330,994 Blanket or Single Bond Permit Issuance Date 3-25-19

ACTION TAKEN ON THIS RECLAMATION PLAN

Approved Denied Approved with Additional Terms and Conditions

By: Joe Korn

~~DIVISION DIRECTOR~~
Section manager

Date: 3-25-19
