III-D and III-E 880-X-8E-.06(1)(l)7(j)

HYDROLOGIC MONITORING PLAN

COMPANY NAME Riverview Development, LLC.

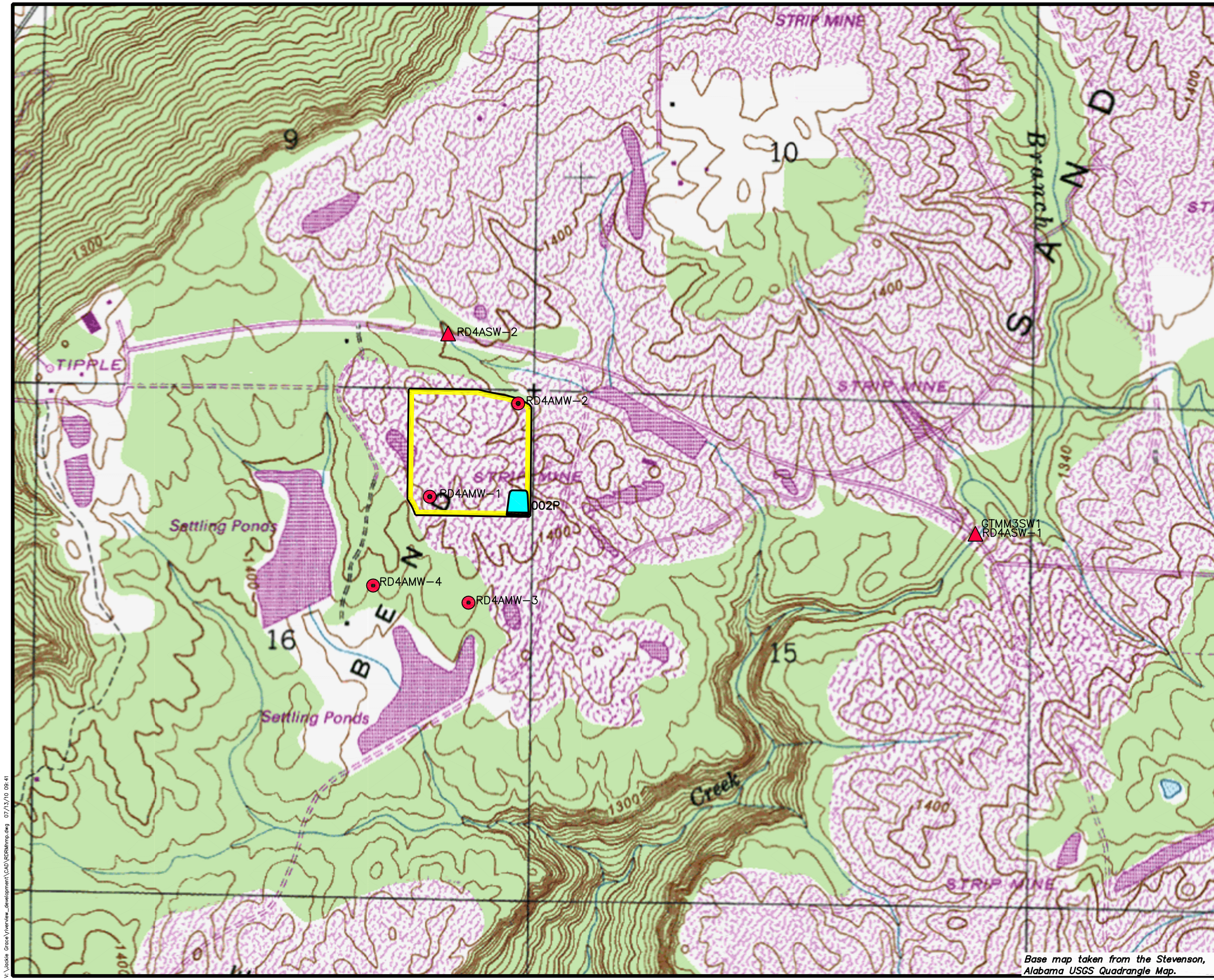
MINE NAME Riverview Mine COUNTY Jackson NPDES# (applied for)

*A MAP SHOWING ALL MONITORING POINTS MUST ACCOMPANY THIS PLAN

I.Surface Water Monitoring Program: (Discharge Points)

List each discharge point to be monitored and indicate type or source of discharge	List parameters to be sampled for each discharge point	List frequency of sampling for each discharge point	Duration of Monitoring
Basins: 002P	NPDES parameters	Twice monthly	Until joint approval by ASMC and ADEM. In no case sooner than ASMC approval of Phase II Bond release.

See attached map for all monitoring site locations.
Note: Performance monitoring to commence no sooner than original opening of mine.



LEGEND

- Proposed Permit Boundary
- Sediment Basin
- Groundwater Monitoring Site
- Surface Water Monitoring Site

Scale 1" = 1000'

I, Timothy S. Thomas, a Registered Professional Engineer, hereby certify the foregoing to be a true and correct map to the best of my knowledge and belief.

Timothy S. Thomas, P.E.
AL Reg. #18830

Date

PERC ENGINEERING CO., INC.
1606 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 384–5553 Office (205) 295–3114 Fax

Riverview Development LLC.

Riverview Mine 40 Acre Tract

Hydrologic Monitoring Plan Map

DRAWN BY:	JNG	DATE:	7–13–10
DWG. NAME:	RDRMhmp		
APPROVED BY:	TST	SCALE:	1"=1000'

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HYDROLOGIC MONITORING PLAN (continued)

A. Reporting and Recording Specifications:

a) NPDES outfalls:

Reporting as required by NPDES permit to Alabama Department of Environmental Management plus a simultaneous Notice of Filing to ASMC containing the following:

1)Name of Company
2)Name of Mine
3)ASMC permit number
4)NPDES number
5)Sampling period covered by report
6)List of the discharge points sampled and analysis results

b)Other:

B. Non-Compliant Discharge Reporting:

Reporting as required by the NPDES permit to Alabama Department of Environmental Management plus simultaneous copy (indicating ASMC permit number) to ASMC.

HYDROLOGIC MONITORING PLAN (continued)

II. Other Surface Water Monitoring.

Bodies of water receiving discharges from the mine:

Warren Smith (Dry) Creek

List Monitoring Points and indicate type or describe location	List Parameters to be sampled	Frequency	Duration of Monitoring (minimum)
- to be determined (downstream) GTMM3SW2 (upstream)	Discharge pH Manganese Iron Total Suspended Solids Specific Conductance	Quarterly	Life of mine

HYDROLOGIC MONITORING PLAN (continued)

A. Reporting and Recording Specifications:

1) Frequency of Reporting: Quarterly

2) Contents of Report: Name of company, mine name, ASMC permit number and for all monitoring locations, the dates samples were taken and sample results for each parameter and who collected and analyzed the samples.

III. Monitoring requirements for removal of sediment ponds and other treatment facilities:

Monthly for 6 months prior to application for approval to remove facility. Monitoring data will be submitted to ASMC with application to remove the facility.
Monitoring sites shall be located to sample water entering the facility (i.e., untreated drainage).
Show proposed locations on the monitoring location map.
Parameters to be samples shall be those required by the NPDES permit.

HYDROLOGIC MONITORING PLAN (continued)

IV.
A.Monitoring requirements for Phase II bond release:

List Monitoring Sites	Parameters	Sample Frequency	Duration of Monitoring
inflow* into the following basins: 002P	NPDES parameters	Monthly	No less than monthly for previous 6 months prior to application for Phase II Bond release.

* If no inflow into basin, then a sample of basin discharge. If no basin discharge, then grab sample from basin itself.

B. Reporting:

Reports shall be submitted with application for Phase II Bond Release indicating Sample location number, monitoring period and analysis results and date for each sample, plus sampling and analytical data. A map showing location of the sample sites should be included.

HYDROLOGIC MONITORING PLAN (continued)

V. Groundwater Monitoring

List Monitoring Sites and indicate type of site	Parameters	Frequency (minimum)	Duration of Monitoring

Riverview Development , LLC. requests a groundwater monitoring waiver for this facility due to the fact that: 1) The entire mine site and surrounding areas have been previously disturbed prior to this operation, 2) no impact is anticipated as a result of this operation, and 3) no domestic groundwater use occurs within a ½ mile radius of the proposed mine site.

HYDROLOGIC MONITORING PLAN (continued)

A. Reporting and Recording

Reports to be filed with ASMC quarterly supplying the following information: Company name, mine name, permit number, and for each monitoring site, the date and sample results for each parameter. Include sampling and analytical information for all samples.

VI. Maintenance of records and Availability for Inspection:

a) Active Mining - copies of all monitoring records shall be maintained at office.

b) During periods of temporary cessation of operations and after active mining, all monitoring records will be kept at:

Riverview Development, LLC. (Office)

5395 Alabama Hwy 117 (Address)

Flat Rock, AL 35966 (City & State)

Sherri Lowery (Custodian of Records)

c) All monitoring records will be made available upon request to ASMC Personnel for inspection.

VII. Describe how the data obtained from the performance monitoring may be used to determine the impacts of the operation upon the hydrologic balance. Describe how parameters to be monitored relate to the suitability of the surface and groundwater for current and approved postmining land use.

Surface water monitoring site ---------- is downstream of all mining at the proposed Riverview Mine. Results of analysis as outlined in the monitoring plan can be compared to results of analysis for surface water monitoring site RD4ASW-2 to determine impact to the receiving stream and confirm or deny the estimates of the PHC. A groundwater monitoring waiver has been requested for this facility. The proposed postmining land use is undeveloped or no current land use. Alabama Department of Environmental Management recommendations for water quality to support this land use on this stream classification are less stringent than those limitations currently in force for surface mine effluent, therefore the existing monitoring plan is adequate and no additional parameters are recommended.

VIII.Please NOTE: ALL PERFORMANCE MONITORING REPORTS should be submitted in duplicate. For companies with multiple permits, each permit should have a corresponding monitoring report. Sites serving multiple permits should be included in all pertinent monitoring reports.

IX. If a waiver is requested for a particular water-bearing stratum, give details. 880-X-8H-.06-(1)(h)(2)

Riverview Development , LLC. requests a groundwater monitoring waiver for this facility due to the fact that: 1) The entire mine site and surrounding areas have been previously disturbed prior to this operation, 2) no impact is anticipated as a result of this operation, and 3) no domestic groundwater use occurs within a ½ mile radius of the proposed mine site.

X. Plans For Recording and Reporting Data (779.13)

Describe how surface and groundwater quantity and quality data will be collected, recorded, and reported to the Regulatory Authority according to Section 816.52.

Surface water samples shall be taken by the 'grab method. Flowrate measurement of surface water samples shall be according to ASTM D3858 "Standard Practice for Open Channel Flow Measurement of Water by Velocity - Area Method" or other equally valid approved methods. Groundwater samples shall be taken according to Standard Methods 105 "Collection and Preservation of Samples" and 906A "Collection" or other equally valid approved methods. pH of all samples will be measured in the field. The sample will be stored in ice and all other parameters will be analyzed within their allowable holding times as specified by Standard Methods. Practices employed concerning the volume of groundwater extracted at groundwater monitoring sites prior to sampling is outlined as follows: Where recharge of groundwater is sufficient, three well volumes of groundwater (measured from the static depth) are pumped prior to sampling so the sample obtained is from recharge. Where recharge is slow, and three well volumes cannot be obtained within the monitoring cycle (usually monthly), only one well volume will be pumped. The well will then be allowed to recharge and a sample will be obtained after a volume equal to the volume of the pump line has been discharged. In infrequent instances where recharge is very limited, and the volume of water in the well is too small to be pumped to the surface, a 'bottom sampler' is employed to bail as much water as possible from the well. The well will then be allowed to recharge and the bottom sampler will be used to obtain a sample when ample groundwater is present to be collected. Sampling will be recorded and reported to the Regulatory Authority as outlined in Part III-D & E of this application.

RIVERVIEW DEVELOPMENT, LLC.

RIVERVIEW MINE

HYDROLOGIC

RECLAMATION PLAN

submitted by:

PERC Engineering Co., Inc.
P.O. Box 1712
Jasper, AL. 35502-1712

Hydrologic Reclamation Plan (880-X-8H-.06(1)(g)):

I. Steps to Minimize Hydrologic Balance Disturbance:

Surface mining and reclamation activities conducted on the Riverview Development , LLC. - Riverview Mine area will be conducted to minimize disturbance to the hydrologic balance. Several ways in which this will be accomplished are, but not limited to the following:

a. Monitoring and Reporting of sediment basin 002P at this mine site (where all runoff from the mine area will drain), and Surface Water Monitoring Sites --------- ------- and RD4ASW-2 as required by the Regulatory Authorities will be performed in accordance with the approved Hydrologic Monitoring Plan.

b. Physical and chemical treatment of the outfalls at this mine site as necessary to comply with State and Federal Water Quality Laws.

c. Upon completion of mining, and regrading, overburden materials will be sampled systematically and sent to the Auburn University Testing Laboratory, for analyses to determine type and amount of soil amendments necessary to maintain vegetative growth as reported in Part IV-C-1 of the permit application due to a topsoil variance being applied for at this facility. This sampling system should be adequate (see below).

   1. The chemical analyses will consist of the followings parameters: pH, % Sulfur, Phosphorus, Potassium, Magnesium, Calcium, Maximum Potential Acidity, Neutralizing Potential, NO3-N, and Recommendations for the amounts of Limestone, Nitrogen, P2O5, and K2O to be added to the soil.

   2. The physical analyses will consist of the following parameters: Sieve Analysis, % Sand, % Silt, % Clay, Textural Classification, and Available Water Capacity.

d. Husbandry practices will include, seeding spot areas within the Riverview Mine to increase cover and the addition of proper nutrients. Suitable mulch shall be used on all regraded and topsoiled areas to control erosion, promote germination of seeds and increase the moisture retention capacity of the soil. A maximum of 3 tons per acre of hay will be used as mulch.

e. With respect to the Hydrologic Balance, mining at this site is not expected to significantly affect the regional aquifer in the area, and as stated in Part II-H, an increase in storage is expected, (approximately 28.5% increase) and will result in an increased base flow. This change in storage should not be adverse to the hydrologic balance. No other adverse impacts are anticipated as a result of this operation.

II. Material Damage Outside the Permit Area:

All surface mining and reclamation activities within the Riverview Mine will be conducted to minimize and prevent material damage to the hydrologic balance. Several ways in which this will be accomplished are, but not limited to the following:

1. Observing the 300 ft. setbacks from occupied dwellings, unless acceptable waivers are submitted and approved by ASMC.

2. Mining within the permit boundary.

3. Observing and complying with all State and Federal Water Quality Limits.

4. Mine openings within the permit area (other than blast holes) will be eliminated in the following methods:

   A) Exploration Holes - Exploration holes will be backfilled with the drill cuttings and capped with two (2) feet of clay.

   B) Monitoring Wells - Groundwater monitoring wells will be sealed at the time of abandonment with a concrete cap (1.5'x1.5'x.5').

   C) Mine Openings - N/A

5. Timely regrading for drainage control.

6. On site sediment control to prevent sediment from entering ponds.

7. Timely revegetation of all disturbed areas.

III. Applicable State and Federal Water Quality Laws:

To meet the applicable State and Federal effluent limitation standards as set forth by the Environmental Protection Agency and the Alabama Department of Environmental Management, the applicant shall minimize potential water quality problems by properly handling and disposing of any acid or toxic forming materials and treating contaminated drainage. To assure water quality standards, periodic performance monitoring will be conducted as approved in the Hydrologic Monitoring Plan. Sediment

basins will be utilized as collection sites for surface water treatment when runoff from the mine site requires it. In the event quality problems should arise, the following procedures will be used :

1) Lime or caustic soda to raise a low pH.
2) Potassium permanginate to decrease manganese levels if the pH is too high.
3) Alum to decrease total suspended solid concentrations.

In the event alternative methods or chemicals are needed, the Regulatory Authority will be notified and new methods or chemicals will be approved prior to use.

IV. Rights of Present Water Users:

As stated in Part II-F, a well inventory conducted by PERC Engineering Co., Inc. on July 2nd of 2010 reveals that there is only one residence within a ½ mile radius of the proposed Riverview Mine and that residence utilizes municipal water from the North Jackson Water Authority, therefore no impact to any surrounding domestic groundwater user is anticipated.

V.A. Acid and Toxic Drainage:

Information provided in Section II-E revealed that the cover material overlying the coal fines (washer reject) is 0.781 (tons $CaCO_3$/1000 tons material) deficient in neutralization potential and had a medium pH of 3.99. This material basically consists of weathered mine spoils (with no significant amount of coarse fragments) and is the

material that will be excavated to uncover the coal fines (washer refuse) and also utilized during the reclamation phase of the project to reclaim the surface. Obviously, this material will need to be limed prior to revegetation. The amount of lime needed to neutralize *all* the excess acidity of this material is 200.77 tons of Calcitic Lime over 37 acres or approximately 5.43 tons per acre. The coal fines (washer refuse) had no appreciable neutralization potential and averaged 0.33 percent sulfur. As stated in Part II-E, this is the material that will be excavated and transported off-site to be processed (washed) to recover the coal contained therein. After the coal fines (washer reject) is excavated and removed from the proposed permit area, and the regraded cover material is limed (prior to revegetation), there should be no further danger of post mine acidic runoff. Currently, the in-place coal fines (washer reject) receives infiltration from precipitation because water migrates very quickly through spoil. When this infiltrated groundwater comes into contact with the coal fines (washer reject), it becomes contaminated in the form of a higher conductivity, increased mineralization, and increased sulfate concentrations. When the coal fines (washer reject) is removed, the contamination of precipitation should be terminated and post mine acidic seeps from this area should also be terminated. Coal fines stockpiles will be located (if needed) in such a manner whereas excess drainage may be diverted from coal stockpile areas. When the coal fines stockpile become no longer necessary it will be reclaimed by removing the coal which makes up the pad by truck, covering the pad area with four feet of the best available non-toxic, non-combustible material and revegetating in accordance with the approved Reclamation Plan (Part IV-C-5). The pit bottom will

have a much lower permeability than the spoil after mining, which should contain any acid or toxic drainage until the site is reclaimed and the drainage is allowed to filter into the buffering material and be neutralized. Any material such as oil, grease, rags, etc., that may present a fire hazard will be properly disposed of in an approved landfill. Any non-coal waste will be disposed of at approved off-site landfills which meet all applicable local, state and federal requirements.

V.B. Contribution of TSS to Streamflow:

Total Suspended Solids within the permit area will be controlled by utilizing sediment basin 002P to control runoff. The sediment basin will be designed to retain all settleable solids, skim and retain all floating solids and provide adequate detention volume and time to minimize the contribution of total suspended solids into the receiving stream. In the event that a problem arises with the TSS in the discharge of the sediment basin, Alum will be introduced into the basins to decrease total suspended solid concentrations. An alternative to Alum could be the construction of a floating silt fence to cause the solid to floc and settle to the bottom. Silt fences, hay filter dams, dust control on roads, lush vegetation, diversions ditches and other prudent practices will be utilized in controlling TSS.

V.C. Water Treatment Facilities:

The sediment basin will be the primary treatment facility to which chemical treatment may be introduced as needed to maintain effluent limits set forth by the Regulatory

Authority. Sediment basins will be constructed downstream of the permit area to control drainage and collect sediment from the disturbed area during surface mining and during the reclamation phase. In the event quality problems should arise, the following procedures will be used :

1) Lime or caustic soda to raise a low pH.
2) Potassium permanginate to decrease manganese levels if the pH is too high.
3) Alum to decrease total suspended solid concentrations.

In the event alternative methods or chemicals are needed, the Regulatory Authority will be notified and new methods or chemicals will be approved prior to use.

V.D. <u>Drainage Control:</u>

Sediment basin 002P will be constructed during mining operations to control drainage and collect sediment from the disturbed area during the construction phase and during the reclamation and restabilization phase. All surface and groundwater runoff will be controlled through the basin whose design is shown in Part III-B of the application. The basin will be constructed, prior to any disturbance in its drainage area, under the supervision of a qualified Registered Professional Engineer or be a qualified person under his direct supervision. Upon completion of construction, the basin will then be certified to the Regulatory Authority as having been constructed by bringing desirable material in and compacting it in lifts until the construction specifications are met. Drainage structure will be installed as per design plans with any necessary erosion control and/or stabilization procedures such as riprap, concrete, drop structures, energy

dissipaters, etc. being implemented as deemed necessary by the project engineer. Upon completion of construction the entire disturbed area will be revegetated in accordance with the approved Reclamation Plan (IV-C-5).

V.E. **Restore Approximate Recharge Capacity:**

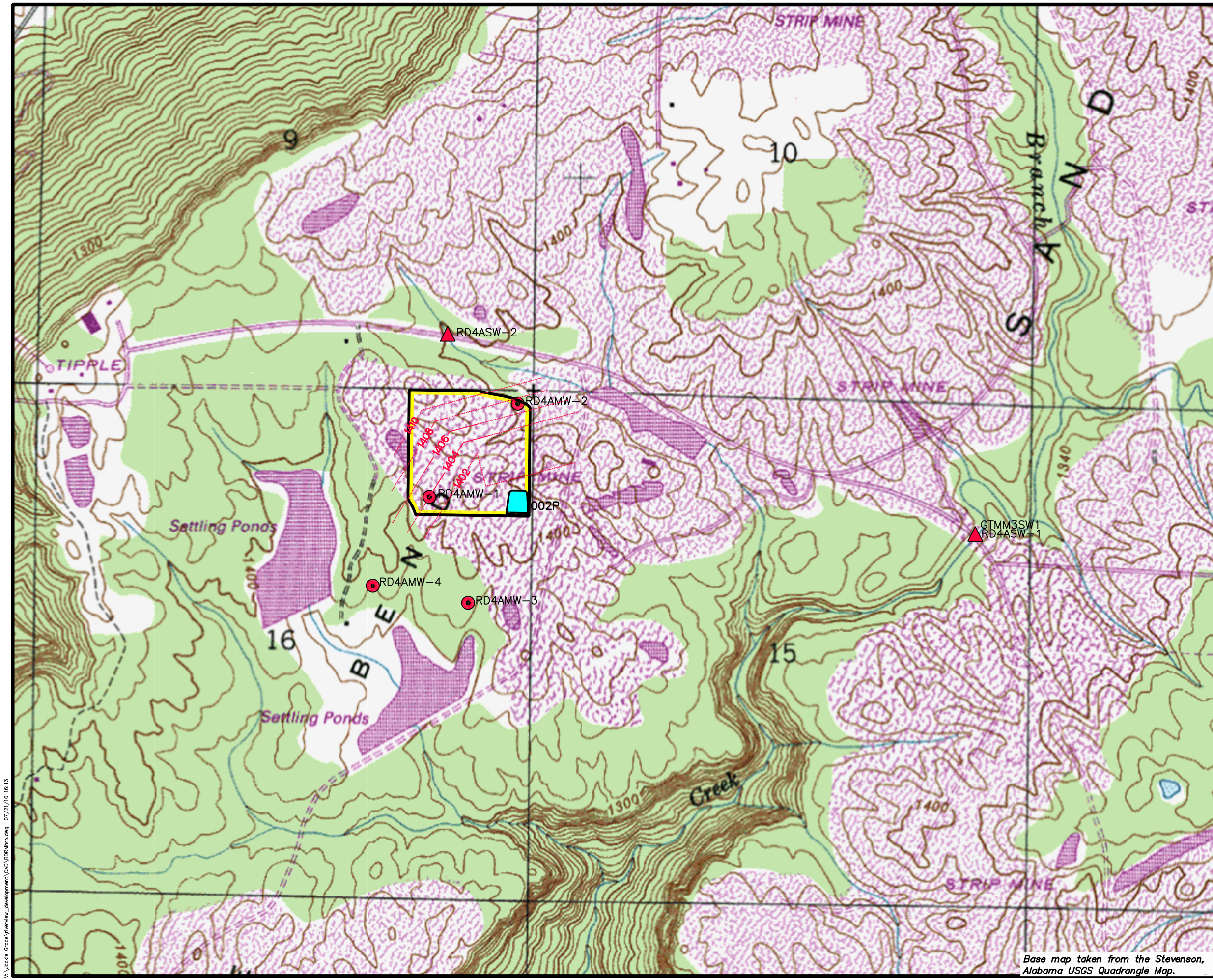
No significant affects are anticipated.

V.F. **Rights of Present Water Users:**

In the event that it is shown that mining by Riverview Development , LLC. has diminished the quality or quantity of any local well outside of the ½ mile radius (however unlikely), one of the following methods of replacing the domestic supply will be implemented: 1) an alternative source of groundwater for either shallow groundwater wells or wells with inadequate casing would involve drilling a new well in which the casing would penetrate an aquitard, such as shale below the target coal seam, and the well would also terminate below the aquitard in water-producing strata, such as sandstone, or 2) connect the residence to an existing municipal water supply, or 3) other methods which replace the groundwater users supply and is agreeable to both the user and the operator will be considered an alternative.

V.G. **Potential Adverse Consequences from PHC:**

None anticipated.



Base map taken from the Stevenson, Alabama USGS Quadrangle Map.

LEGEND

- Proposed Permit Boundary
- Elevation of Upper Cliff Pit Floor (dashed where inferred)
- Sediment Basin
- Groundwater Monitoring Site
- Surface Water Monitoring Site

Scale 1" = 1000'

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PERC ENGINEERING CO., INC.
1606 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
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Riverview Development LLC.

Riverview Mine 40 Acre Tract

Hydrologic Reclamation Plan Map

DRAWN BY:	JNG	DATE:	7–20–10
DWG. NAME:	RDRMhmp		
APPROVED BY:	TST	SCALE:	1"=1000'

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CERTIFICATION STATEMENT:

The preceding Hydrologic Reclamation Plan for Riverview Development , LLC. at the Riverview Mine was prepared by, or under the direction of, a professional engineer and I certify that it is true and correct to the best of my knowledge and belief.

_____ Date:_____

TIMOTHY S. THOMAS
PROFESSIONAL ENGINEER
REGISTRATION NO. 18830