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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

Part III - Operation Plan

A. General Operation Information

1. Describe the type and method of coal mining procedures and major equipment to be used. (780.11)

See Attachment III-A-1

Major equipment to be used includes but may not be limited to:

- Backhoes
- Off Road Haulers
- Loaders
- Drills
- Service Trucks
- Dozers
- Track Backhoes
- Bulk Anfo Trucks

2. Describe the sequence and timing of increments to be mined (as shown on permit map) over the total life of the permit. (780.11)

The timing increments are as follows:

| Increment No. | Acres | From | Estimate Life |
|---------------|-------|---------------------|---------------|
| 1 | 35 | Issuance of Permit | 12 Months |
| 2 | 37 | End of Increment #1 | 12 Months |
| 3 | 13 | End of Increment #2 | 12 Months |
| 5 | 10 | End of Increment #3 | 12 Months |
| 4 | 25 | End of Increment #3 | 12 Months |

- 1) Construction of Sediment Control Structures
- 2) Clearing and Grubbing
- 3) Topsoil Removal (if required)
- 4) Overburden Drilling and Blasting
- 5) Overburden Removal
- 6) Coal Recovery
- 7) Re-Grading
- 8) Revegetation

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ATTACHMENT III-A-1

TYPE AND METHOD OF COAL MINING PROCEDURES

The area method of surface mining will be used. Preparation will consist of (a) timber removal (b) topsoil removal (if required) (c) drilling and blasting of overburden (if required) (d) overburden removal (e) coal removal (f) regrading and re-vegetation. Once the site has been re-graded and topsoiled (if required) soil samples will be analyzed (where required) and proper nutrients will be added before re-vegetation. Any problem that may arise will be handled by proper consulting personnel utilizing various support equipment and support personnel. All approved drainage controls will be implemented within their respective areas as per approved plans prior to disturbance there within.

The Carter Coal Seam is the only Coal Seam to be mined at this mine.

Cahaba Resources, LLC will have an office on site that serves as corporate headquarters that are located within the SE/SE of Section 34 South of Alabama Highway 216. These office will not be located within the permit boundary. See Permit Map and Operations Plan Map Attachment III-A-1 for the location of the office.

Mining within Increment No. 1 will commence just Northeast of Basin 002 in an area where pre-law surface mining occurred previously. This area was left ungraded and un-reclaimed and remains that way to the present. Pits will generally align in a North to South direction with advancement of mining to the East. This area was selectively mined by excavating to the Carter Seam in the tops of ridges where the overburden was of sufficient depth the Carter Coal Seam had not been affected by oxidation and percolation of water through the seam. Spoil material was placed to the sides over unmined Carter Coal Seam as well as below the outcrop.

Because the Carter Coal Seam remaining is under mine spoil, the mining process will consist of exploring for the Carter Coal Seam with the mining equipment and placing the mine spoil in areas where the Carter Seam was previously mined or in areas where the Carter Coal Seam has been recently mined by this operation. This exploration process will consist of digging test pits with track hoes, front end loaders, bull dozers, etc. to discover where the Carter Coal Seam still exist, "in place", under the pre-law mine spoil and natural ground. Then the areas containing the Carter Coal Seam will be excavated to recover the coal seam followed by loading the coal seam into trucks and hauling to stockpile or direct to end users. **The mine spoil from the excavation of the Carter Coal Seam will initially be placed in old pre-law pits or pre-law spoil areas to grade these areas back to A.O.C. within this Increment. The spoil from the following pits will be spoiled within subsequent**

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open pits or in the old un-reclaimed pre-law cuts in that vicinity.

This will be followed by grading to the approximate original contour and re-vegetation during the first available planting season. As mining progresses to the East this process of exploring, mining and re-grading to the approximate original contour will be repeated until mining reaches areas that were not previously disturbed in the East portion of Increment No.1. Once mining progresses to the East a sufficient distance, such as two cuts, a second mining "face" will begin just North of Basin 006. Cut alignment will be Northeast to Southwest with progress to the Northwest. Mining will occur "simultaneously" with the approximately 60,000 cubic yards of spoil from the mining area North of Basin 006 being trucked to this area Northeast of Basin 002 to be utilized to fill the pre-law pits and grade the area to the approximate original contour over the area between Basin 002 and the North Boundary & East Boundary of Increment No. 1 on the East side of Black Creek. This will require an area approximately 570' x 570' by 5' high or smaller if the depth is more in the old pre-law pits or pre-law spoil areas. See the Operations Plan Grading Plan Attachment III-A-1A for spoiling area identification to contain the 60,000 Cubic Yards from the West side of Black Creek. The three sites identified on Attachment III-A-1A Northeast of Basin 002 have a capacity of 82,000 cubic yards which is more than sufficient. The spoil material from the following pits West of Black Creek will be spoiled within subsequent open pits West of Black Creek. There will be one or any number of the following occurring at the locations within Increment No. 1 as Identified on the Operations Plan Map Attachment III-A-1, Clearing and Grubbing, Topsoil Removal (if required), Overburden Drilling and Blasting, Overburden Removal, Coal Recovery, Re-Grading, Re-vegetation . Finally mining within Increment No. 1, along the ridge between Basins 002 & 003, will occur simultaneously with Increment No.2. The mining cuts will begin at the Southwest tip of the ridge lying between Basins 002 & 003 with the cuts lying Northwest to Southeast with progress to the Northeast. The spoil material from the initial cut will be placed adjacent to the initial cut in the Southwest direction to the old spoil area and the Northeast direction into the old pit. The initial cut will generate approximately 50,000 cubic yards of spoil material while the old pit on the ridge has the capacity of 59,000 cubic yards with 30' of fill which is only a portion of the total capacity of the old pit not counting the old spoil area capacity adjacent to the old pit. The spoil from the following pits will be spoiled within subsequent open pits or in the old un-reclaimed pre-law cuts in that vicinity. Mining will continue in this manner until the limits of Increment No. 1 & No. 2 are reached at the Northeast end of the ridge between Basin 002 & 003.

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A request for a 24 month delay in contemporaneous reclamation has been submitted to the Director for the proposed final highwall along the East boundary of Increment No.1 to be located along the East boundary of the W 1/2 of the SE 1/4 of Section 34, Township 20 South, Range 8 West, Tuscaloosa County Alabama.

Mining within Increment No. 2, upon the completion of mining the ridge between Basin 002 & 003, will then move to the East in three possible locations, simultaneously or individually, East and Northeast of Basin 003. The cuts will align North to South with progress to the East. See the three Pit Alignment Arrows East of Basin 003 within Increment No.2 for the three locations. There will be one or any number of the following occurring at the three locations, Clearing and Grubbing, Topsoil Removal (if required), Overburden Drilling and Blasting, Overburden Removal, Coal Recovery, Re-Grading, Re-vegetation . The spoil material from the initial cuts will be placed adjacent to the cut in the area West of the mining location on the North side of Increment No. 2 or in the old un-reclaimed pre-law cuts in the vicinity of the other two locations. The spoil from the following pits will be spoiled within subsequent open pits or in the old un-reclaimed pre-law cuts in that vicinity. Mining will continue in this manner until the limits of Increment No. 2 are reached at the North and East boundary of the Increment. All three places are planned to be mined.

Mining within Increment No. 3 will be a continuation of operations of Increment No. 2 on the Northwest side of the Unnamed Tributary of Black Creek in the SE 1/4 of SE 1/4 of Section 34. Spoil material from the initial cuts will be spoiled within the last cuts of Increment No. 2. The spoil material from the following pits will be spoiled within subsequent pits. Pits will generally align in a North to South direction with advancement of mining to the East. Mining will continue in this manner until the limits of Increment No. 3 are reached on the Northwest side of said Unnamed Tributary. Additional mining in Increment No.3 will begin on the Southeast side of said Unnamed Tributary and on the East side of Basin 027. Pits will generally align in a North to South direction with advancement of mining to the East. Spoil material from the initial cuts will be spoiled just East and Northeast of Basin 027 in a manner so as not to block any drainage path to the basin. This area has been previously mined. This is located near the tip of the Arrow showing the mining progress direction on the Operations Map. The spoil material from the following pits will be spoiled within subsequent pits including the back stacking of the highwall on the Southern portion of Increment No. 3. Pits will generally align in a North to South direction with advancement of mining to the East. Mining will continue in this manner until the limits of Increment No. 3 are reached on the Southeast side of said Unnamed Tributary. There are two structures in Increment No. 3 that are not occupied dwellings however the owner wants a 50' setback from the structures

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so we have placed the Permit Boundary 50' from the structures.

Mining within Increment No. 4 will be a continuation of operations of Increment No. 1 near the West boundary of the NE 1/4 of SE 1/4 of Section 34. Spoil material from the initial cuts will be spoiled in the last cuts of Increment No.1. The spoil material from the following pits will be spoiled within subsequent pits. Pits will generally align in a north to south direction with advancement to the east. When spoil is placed in the previous cut the highwall on the North end will be back stacked to reclaim the highwall as mining progresses to the East. Mining will continue in this manner until the limits of Increment No. 4 are reached.

Mining within Increment No. 5 will be a continuation of operations of Increment No. 3 near the East boundary of the SE 1/4 of SE 1/4 of Section 34. Spoil material from the initial cuts will be spoiled in the last cuts of Increment No.3. The spoil material from the following pits will be spoiled within subsequent pits. Pits will generally align in a north to south direction with advancement to the east. Mining will continue in this manner until the limits of Increment No. 5 are reached.

See Attachment III.-A.-1. Operations Map for cut layout information.

See Attachment III.-A.-1A. Operations Plan Grading Plan for Spoil Placement for Initial Cuts in Increment No. 1 & No. 2.

See Attachment III.-A.-1. Request for Delay in Contemporaneous Reclamation.

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3. Attach a narrative explaining the construction modification, use, maintenance, and removal of the following facilities: (780.11)
- (a) Coal removal, handling, storage, cleaning and transportation structures and facilities;
 - (b) Spoil, coal processing waste and non-coal waste removal, handling, storage, transportation and disposal structures and facilities;
 - (c) Mine facilities; and
 - (d) Water pollution control facilities.

See Attachment III-A.-3.

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Attachment III-A-3

- 3.a) Crushing and screening of the coal to be mined will be performed utilizing a portable plant transported to the site by truck and erected on site. Regular maintenance will consist of routine lubrication, oil checking and changing as necessary, etc. and will be conducted during the period the crusher and/or screen is in use. When no longer needed the plant will be disassembled and transported offsite by trucks.

All haulage roads shall be designed to the following minimum criteria and/or prudent engineering practice for the design of haulroads, except where said haulroad is a public highway. See Part III-B-5 for primary and ancillary roads detailed design plans.

To the extent possible roads will be located on ridges or on the most stable available slopes to minimize erosion, downstream sedimentation and flooding in an effort to prevent adverse effects to fish, wildlife and related environmental values.

Prior to construction, the roadway areas shall be cleared, grubbed, and all topsoil shall be removed and stockpiled. Vegetation will not be cleared for more than the width necessary for the road and associated ditch construction.

Roads will be constructed by placing and compacting lifts of suitable subgrade material to a grade suitable for the intended use of the road. Drainage pipes will be placed in embankments or cuts as necessary to assure proper drainage. Once the desired grade of subgrade material has been attained and all drainage structures installed roads will be surfaced with available gravel, rock, chert or other suitable material as approved by the state regulatory agency sufficiently durable for the anticipated volume of traffic weight and speed of vehicles to be used. The surface will be compacted until a desirable grade and surface is attained. No toxic or acid forming substances will be used in this surface material. No sustained grade will exceed 10 percent unless deemed necessary, in which case appropriate sediment control facilities will be constructed. If grades of greater than 15 percent are required cross-over drains, ditch relief drains and road drainways will be located at a minimum of 300 foot intervals.

All roads will be constructed and maintained so as to have adequate drainage, using ditches, cross drains, and ditch relief drains. Drainage pipes will be placed in embankments or cuts as necessary to assure proper drainage and hay bale check dams and silt fences will be used at strategic locations when necessary to control sediment runoff. Natural drainage ways will not be altered unless otherwise approved by the ASMC. For stability the side slopes of the road embankments and/or cuts will be seeded with temporary and perennial type grasses and mulched to aid in preventing erosion and

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to enhance germination of the seed. No modifications are expected and only routine maintenance will be required to maintain the surface of roads such as periodic grading and resurfacing. Spot seeded and mulching will take place as necessary to improve coverage of vegetation on side slopes and embankments. Haulroads will be maintained with water and/or other materials to minimize fugitive dust emissions. Routine maintenance will be required to assure that all roads continually meets performance standards and will consist of periodic grading, resurfacing and dust suppression. Dust suppression will consist of the application of water, chemical binders and/or other dust suppressants. No oil will be utilized in this process. Maintenance of erosion control facilities will include periodic removal of sediment from structures and repairs of areas damaged due to weather, etc. Unless retention of the roads is approved for post-mining land use the following procedures will apply. When no longer needed the roadbeds will be ripped, plowed and scarified. All road surfacing materials will be removed and placed within an open pit within the permit area. The natural drainage patterns will be restored by cutting slopes and shaping to blend with the natural drainage of surrounding areas. If necessary cross drains, dikes and water bars will be constructed to minimize erosion. Terraces will be used as necessary to provide long term stability on cut and fill slopes and to minimize erosion. Road surfaces will then be revegetated according to the reclamation plan approved for this permit application, which includes planting a mixture of up to 100 lbs. or more of various legumes and grasses.

Coal stockpiles, if determined necessary, will be located within the permitted and bonded area such that drainage from the area will be routed through one or more of the sediment basins that are to be constructed. In general an area will be graded to a relatively level state. Upon completion of the subgrade, a relatively impervious pad or liner will be constructed to a minimum thickness of 12 inches. The pad or liner will be made of a clayey material possessing a maximum permeability coefficient of 1×10^{-6} centimeters per second. The material will be placed in 6 inch compacted lifts to 95 percent of the standard proctor density. A pad will be constructed of coal material over the relatively impervious pad or liner with material created by cleaning the coal in the pit. The only modification to the stockpile areas may be to enlarge them and this operation, if necessary, will be handled in the same manner as new construction. Small terraces and/or temporary diversions will be used as necessary to minimize surface runoff across the stockpile areas. These facilities will be maintained periodically along with the coal pad which will be maintained by grading and reshaping as necessary. After the stockpile area has served its useful purpose the pad material that can not meet market specifications will be buried within the permit area no closer than 30 feet from any remaining highwalls and 100 feet from any drainage courses and a minimum of 10 feet above the bottom of the lowest coal seam being mined and will be placed under a minimum of four feet of the best available non-acid and non-toxic

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forming and non-combustible material. Additional Best Management Practices (BMP's) consisting of Sumps along with silt fences, hay bales, rock check dams will be used for sediment control of runoff from coal stockpiles prior to entering sediment basins.

See Attachment III-A-3(a), BMP Typical.

- b) There is adequate spoil room available on site and excess spoil disposal facilities are not necessary. There will be no coal processing which generates waste so no coal waste disposal facilities are necessary. There will be no coal processing which generates waste so no coal waste disposal facilities are necessary. Any non-coal wastes will be disposed of within an offsite disposal area which meets all Federal, State and local laws and ordinances for permanent disposal of such materials.

- c) There will be no mine facilities at this site other than a portable office which will most probably be an office trailer or a converted mobile home and will be removed from the site soon after the end of the mining process. There is a possibility that during the life of the permit an equipment maintenance shop may be constructed at this site. If this decision is made the building will be located within the permitted and bonded area. Generally these buildings are constructed of sheet metal covering a wooden frame built around poles and are erected in a manner that will facilitate disassembly and relocation to another site after equipment is removed from the area. Any modification or addition to the structure would be of similar construction. Periodic maintenance including painting and winterizing will be done either by contractors or mine personnel. After mining is completed and the equipment is removed from the site, the building will be disassembled and the various structural components will be transported via truck to another location.

- d) Water pollution control facilities, sediment basins, berms, and drainage ditches shall be constructed prior to mine operation in a particular increment according to approved plans. These facilities will be used to control runoff from the mine and will be inspected and maintained until reclamation of the area is complete. Sediment basin construction and any subsequent modifications that may be required will be conducted under the general supervision of a qualified registered professional engineer and will be done in accordance with the approved design plans. The dam will be constructed of the best available soil material based on soil strength parameters and permeability. The dam core wall will bear on unyielding, relatively impermeable consolidated rock and the balance of the dam structure on the prepared compacted natural soil material present at the site. The dam will be built in horizontal lifts beginning at the lowest point of the foundation with each lift being thoroughly compacted. The drainage structure will be installed as outlined on the detailed design plans and shall be stabilized with respect to erosion using riprap, concrete paving,

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energy dissipaters, vegetation or otherwise. After construction of the basin, the dam and all areas disturbed by construction will be limed, fertilized, and seeded with an appropriate mixture of grasses and legumes, then mulched.

Routine maintenance of the sediment basins will consist of spot seeding, fertilization and mulching to insure that a good vegetative cover is maintained on the dam and areas around the pond, repair and stabilization of any rills and gullies which may develop, repairs to discharge structures and erosion protection structures as required, and removal of entrapped sediment from the basins prior to its reaching the maximum level indicated on the approved plans. All sediment basins will be inspected quarterly by the operator's personnel and annually by a registered professional engineer and any required maintenance will be completed at the earliest possible time by the operator.

All basins are proposed, no modification plans are required. If during the term of the permit basins require modifications, modification plans will be submitted to the Regulatory Authority for approval prior to any modifications. Upon modifying the basin, the basin will be certified to the Regulatory Authority.

Upon completion of mining, successful reclamation and effluent standards being met, each sediment basin not remaining as a permanent water impoundment will be dewatered in an environmentally safe manner (such as siphoning, pumping, etc.) and reclaimed to approximate original contours by the following procedure:

A permanent diversion channel (designed for a 10 yr. -6 hr. precipitation event) shall be cut along the outer edge of the basin to re-route drainage around the basin and back through the stabilized spillway to allow for the reclamation of the sediment basin. The diversion channel shall be designed and grassed as per enclosed information. (See permanent diversion channel for basin disposal) Upon completion of the diversion channel the embankment will be breached to the existing sediment level to prevent the impoundment of water. The breach will be graded to a minimum side slope of 2.5 to 1 and revegetated and/or riprapped as to prevent erosion and ensure the stability of the exposed breach. The remaining back slope of the embankment will be graded to a minimum 3 to 1 slope. The dewatered sediment basin will be seeded with some combination of the following: Fescue, bermuda, rye grass, canary grass, and willows. After seeding the area will be mulched. Any additional sediment or embankment material not used to meet approximate original contour, if nontoxic, will be spread in thin layers within the permit area and vegetated as stated in the reclamation plan. All toxic material encountered in the basin disposal will be buried and covered with 4 feet of nontoxic and noncombustible material and vegetated as stated in the reclamation plan.

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4. Describe the means to be used to maximize the use and conservation coal reserves in the permit area. (780.18, 816.59)
Some of the measures are:

- A) Mining the deepest seam that is economically feasible to mine.
- B) Rehandling overburden in order to maximize coal recovery that would normally be lost in the toe of the spoil.
- C) Processing and blending coal that in its "raw" condition would not have a market.

5. Describe measures to be taken to ensure that all debris, acid-forming and toxic-forming materials and materials constituting a fire hazard are disposed of in accordance with 816.89 and 816.103; include contingency plans to prevent sustained combustion of such material. (780.18)

All acid-forming, toxic-forming, and combustible materials will be disposed of by selectively placing these materials within the mine excavations. These disposal locations will be a minimum of 10 feet vertically above the pit floor of the lowest seam to be mined and 4 feet below the final reclaimed surface of the mined area. None of this material will be placed within 100 feet of a drainage course or 30 feet of a final mining highwall.

After placement, these materials will be covered with a minimum of 4 feet of the best available non-acid and non-toxic forming, and non-combustible material. The surface of this cover will be crowned or sloped to prevent infiltration of surface water into the disposed material.

All non-coal waste and debris which may be accumulated at the site (including paper and wood shipping containers, empty oil containers, worn out machine parts, etc.) will be confined in appropriate temporary containers or storage areas and periodically transported to an offsite, ADEM approved, disposal area which meets all Federal, State and local laws and ordinances for permanent disposal of such materials.

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6. Give a description, including appropriate cross-sections and maps, of measures to be used to seal or manage mine openings, bore holes, wells and other openings within the proposed permit area. (780.18, 816.13-816.15)

No mine openings exist in the area of this proposed permit. Bore holes, wells, and other openings will be backfilled with cuttings from the holes and capped with clay or other impervious material. Abandoned monitoring wells will be sealed with a concrete cap which is approximately 2'x 2'x 0.5'. See Attachment III-A-6 for typical illustration of methods to be used to seal and/or manage bore holes and wells.

Any abandoned plugged and unplugged gas and oil wells found during mining of the old works will be sealed as outlined by the Alabama Oil and Gas Board after all coal is removed from the vicinity of the well.

Plugged and abandoned wells will be squared up and a device will be used to detect the presence of gas. If gas is present, the area of flow will be sealed by placing concrete/grout or sacrete to a depth of 25 feet and a 3/8 inch steel plate welded across all casing stubs. If gas is not present, a 3/8" inch steel plate will be welded across all casing stubs. A written report of the resealing process used on each plugged and abandoned well will be submitted to the ASMC and Alabama Oil and Gas Board within 30 days.

Unplugged wells will be temporarily sealed and restored by the following process: the owner of the well will submit a temporary abandonment and restoration plan to the Alabama Oil and Gas Board for approval. The well will be sealed for temporary abandonment prior to mining through and restored in accordance with the approved plan to the Alabama Oil and Gas Board.

7. Give a description of steps to be taken to comply with applicable water quality laws, regulations and health and safety standards. (780.18)

Surface runoff will be routed through sediment control basins prior to being discharged from the permit area. Discharges from sediment basins will be monitored by in-house personnel or consultants, at the discretion of the permittee, as necessary to assure compliance with applicable State and Federal Laws and Regulations. Chemical treatment with aqueous sodium hydroxide solution will be used on water entering the drainage course of the existing basins if this is determined necessary to achieve compliance with State and Federal Laws. On occasion, a solution of chemically hydrated lime and water will be used in sediment basins for immediate correction of pH imbalances. With proper pH, the heavy metals will precipitate to the bottom of the basins and will not exit the discharge pipe or spillway. Alum may be

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used on occasion if necessary to facilitate flocculation and precipitation of suspended solids. A permit to discharge under the National Pollutant Discharge Elimination System has been applied for and discharges from the proposed basins will be monitored and results of that monitoring, both compliant and non-compliant, will be reported in accordance with the NPDES Permit and the hydrologic monitoring plan shown elsewhere in this permit application. A trained and qualified health and safety staff will be contracted to assure that all health and safety standards and MSHA regulations are complied with. Certification and training of all mine personnel will be current and will be updated as necessary by attending MSHA classes taught by certified personnel. All dust, noise and other required control tests will be current and will be performed as necessary by certified MSHA personnel. Records of all testing required will be kept at the mine and will be available for inspection by the Regulatory Authority. All necessary permits for field absorption systems for the office and similar facilities will be obtained prior to construction of these facilities. Haul roads will be maintained with water and/or other materials to minimize fugitive dust emissions.

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8. Is surface mining to be conducted within 500 feet of an underground mine? (780.27, 816.79) () Yes (XXX) No

If yes, describe measures to be used to comply with Section 816.79. Attach a map showing the location and extent of known workings in accordance with 780.14(a)(13). Attach a copy of MSHA approval.

No underground mines shown, in Section 34, Township 20 South, Range 8 West Tuscaloosa County, in the "Alabama Mine Map Repository, Directory of Underground Mine Maps". Dated 2013

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B. Engineering Plans

All cross-sections, maps and plans related to operations, reclamation and structures must comply with Section 780.10. Plans, appropriate calculations and conclusions shall be presented in a clear and logical sequence and shall take into account all applicable factors necessary to evaluate the proposed plan or design.

1. Existing Structures. (780.12, 786.21)

- (a) Describe each existing structure to be used, its location, current condition, approximate dates of construction and evidence (including relevant monitoring data) showing whether or not the structure meets the performance standards of Subchapter K or Subchapter B, whichever is more stringent and demonstrate whether or not the use of existing structures will pose a significant harm to the environment or public health or safety.

None.

- (b) If an existing structure requires modification or reconstruction to meet the performance standards, attach a compliance plan which includes design specifications, construction schedule, monitoring procedures, and evidence that the risk of harm to the environment or public health or safety is not significant during modification or reconstruction.

None.

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2. Ponds, impoundments, banks, dams and embankments. (780.25)

- (a) Submit a general plan which complies with Section 780.25(a)(1) for each proposed sedimentation pond, water impoundment, and coal processing waste bank, dam or embankment to be located within the proposed permit area.

See attachment III-B.-2.A

- (b) Submit detailed design plans which comply with Sections 780.25(a)(2 and 3) and 816.46 for each sedimentation pond to be constructed on the increment you currently propose to mine. If the sediment pond is to remain as a permanent water impoundment, design plans shall also comply with Section 816.49.

See attachment III-B.-2.A

- (c) Submit detailed design plans which comply with Sections 780.25(a)(2 and 3) and 816.49 for each temporary or permanent water impoundment to be constructed on the increment you currently propose to mine.

See attachment III-B.-2.A

- (d) Submit detailed design plans which comply with Sections 780.25(a)(2 and 3) and 816.81-816.85 for each coal processing waste bank to be constructed on the increment you currently propose to mine.

None proposed.

- (e) Submit detailed design plans which comply with Sections 780.25(a)(2 and 3) and 816.91-816.93 for each coal processing waste dam and embankment to be constructed on the increment which you currently propose to mine.

None proposed.

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Attachment III-B-2(a)

CERTIFICATION STATEMENT:

I hereby certify that Attachment III-B.-2.A prepared for Cahaba Resources, LLC.'s Carter Mine, are in accordance with the Regulations of the Alabama Surface Mining Commission as adopted by Act 81-435 of December 18, 1981 and amended to date, and are true and correct to the best of my knowledge, information and belief.

Leslie G. Stephens, P.L.S. & P.E.
AL Registration #14117-E

Date

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

Attachment III-B-2(a)

GENERAL PLAN

The general plan consists of constructing four (4) proposed sediment basins, Basins 002P, 003P, 006P, and 027P for the life of the mine. Detailed design plans for Basins 002P, 003P, 006P, and 027P will be submitted to the Regulatory Authority and upon written approval the basins will be constructed and certified to the Regulatory Authority, in accordance with the Approved Design Plans, prior to disturbance within their respective drainage areas. General design data is enclosed. Detailed design plans for Basins 002P and 006P are attached. Basins 002P, 003P, 006P, and 027P are to remain as permanent water impoundments, fish and wildlife habitat. Data to qualify the sediment basins as permanent water impoundments will be submitted to the Regulatory Authority prior to Phase II Bond Release. (See attached data and watershed map for basin location and preliminary hydrologic information).

The intent in the description below for the timing of construction for the Diversion Ditches is that the section of the Diversion Ditch within the Increment, where mining is to occur, will be constructed and certified to the Regulatory Authority, in accordance with the Approved Design Plans, by Station Numbers "from and to" in similarity to construction of a Primary Road in segments, prior to disturbance within its watershed.

Basin 002, along with the required segment of Diversion 1-2 to contain rainfall run-off from the disturbed area, will be constructed and certified to the Regulatory Authority, in accordance with the Approved Design Plans, prior to beginning mining operations in Increments No. 1. This will include Diversion 1-2 Station 7+81 to 25+85.1 initially within Increment No. 1. Then the remainder, 0+00 to 7+81 will be constructed as mining Increment No. 4 is Bonded and mining progresses to the East. Basin 006 and required diversions will be constructed and certified to the Regulatory Authority, in accordance with the Approved Design Plans, prior to beginning operations West of Black Creek in Increment No. 1. No Carter Coal Seam is anticipated to underlay the Basin 002 construction zone however if any is encountered it will be removed during construction. Also Diversion 1-2 Segment 0+00 to 7+81 and Diversion 3-4 Segment 0+00 to 7+26 will be constructed prior to mining operations breaking drainage in Increment No.5.

Basin 006 will be constructed and certified to the Regulatory Authority, in accordance with the Approved Design Plans, prior to beginning mining operations in the watershed of Basin 006. The basin and permit boundary on the West side of Black Creek will be located at a 50' offset from Black Creek. See Attachment III-B-2(a)

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

approval from the Director. However Basin 006 and required diversions will be the only disturbance between the 100' setback and the 50' setback from Black Creek. No coal removal can occur within the 100' setback from Black Creek. This Basin will be constructed in spoil material by excavating the pool & embankment area and removing any remaining Carter Seam coal within the Basin 006 construction area. The normal pool area of Basin 006 will be sloped and lined, up to the normal pool elevation, with 1.0 foot of clay material to minimize infiltration and to provide a stable pool level with the clay placed in 6" lifts compacted to 95% of the standard proctor density. The clay material will be obtained within the Permitted and Bonded area of the Carter Mine. With the completion of construction of Basin 006 it will be certified to the Regulatory Authority, in accordance with the Approved Design Plans. There will also be a Berm/Diversion Ditch structure West of Basin 006 constructed as a part of Basin 006 construction. It will be included in the original certification and will be annually re-certified as part of Basin 006. See the Basin 006 Detailed Design Plans for the Details of the Berm/Diversion and emergency spillway diversion ditch.

Basin 003 and Diversion 3-4 segment 23+07 to 48+39.57 will be constructed and certified to the Regulatory Authority, in accordance with the Approved Design Plans, prior to breaking drainage to the Diversion segment. Diversion 3-4 will not require construction with the initial mining West of Basin 003 but will be constructed prior to mining in the diversion watershed area.

Diversion 3-4 segment 12+35 to 23+07 will be constructed and certified to the Regulatory Authority, in accordance with the Approved Design Plans, prior to breaking drainage to the Diversion segment in Increment No. 3.

Diversion 3-4 segment 0+00 to 12+35 will be constructed and certified to the Regulatory Authority, in accordance with the Approved Design Plans, prior to breaking drainage to the Diversion segment in Increment No. 4.

Basin 027, Diversion 7-8 Segment 6+67 to 9+94.94 and Diversion 5-6 Segment 7+26 to 16+60.62 will be constructed and certified to the Regulatory Authority, in accordance with the Approved Design Plans, prior to beginning mining operations on the Southeast side of said Unnamed Tributary. Any Carter Seam coal underlying the construction limits of Basin 027 will be removed during the construction process. This will eliminate the need to mine through Basin 027. Also Diversion 7-8 Segment 0+00 to 6+67 and Diversion 5-6 Segment 0+00 to 7+26 will be constructed prior to mining operations breaking drainage in Increment No.5.

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

Note: Once construction begins on any Basin the Basin will be constructed and certified to the Regulatory Authority within 90 days unless an extension is granted by the Director.

All diversions shown on the watershed map, not addressed in detailed design plans, will be graded to provide positive drainage to the Basin shown and not allow any rainfall run-off or pumped water to exit the permit boundary without passing through a permitted and certified outfall, in accordance with the Approved Design Plans, 002P, 003P, 006P or 027P. The general configuration of the diversions are shown as Attachments III-B-3.

Primary roads 2P & 3P are permitted with the USACE and ADEM through a Nationwide (NWP)49 General Permit.

Geologic investigations of the area indicate layers of sandstone, shale and minor amounts of bituminous coal and underclay. The coal to be mined by Cahaba Resources, LLC. will be confined to the The Carter Coal Seam. The strata in the area is characterized by small scale normal faulting and gentle open folding.

All surface drainage from the proposed mining area flows into Black Creek which drain into Hurricane Creek. Hurricane Creek ultimately flows into the Black Warrior River.

All diversions are to be temporary and will be re-graded and revegetated. (See diversion ditch criteria).

See Attachment III-B-2(a), Watershed Map.

See Attachment III-B-2(a), Basin 002P Detailed Design Plans.

See Attachment III-B-2(a), Basin 006P Detailed Design Plans.

See Attachment III-B-2(a), 100' Setback Wavier from the Director.

See Attachment III-B-2(a), USACE SAM-2015-00745-CMS (NWP)49.

Applicant: Cahaba Resources, LLC.

Mine Name: Carter Mine

Permit Number: P-3986

Attachment III-B-2(a)

| <u>Basin No.</u> | <u>Location</u> | <u>Drainage Area (Acres)</u> |
|----------------------|-------------------|----------------------------------|
| 002P | SW/SE, Section 34 | 43.0 |
| 003P | SW/SE, Section 34 | 70.1 |
| 006P | NW/SE, Section 34 | 12.5 |
| 027P | SE/SE, Section 34 | 16.1 |

All basins are located in Township 20 South, Range 8 West, Tuscaloosa County, Alabama, as found on the Brookwood, Coaling, Cottondale, and Lake Nicol USGS Quadrangles.

Note: NPDES Permit AL0082414 was issued by ADEM, January 15, 2016. The effective date is February 1, 2016. See attached Issuance Document and Map.

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-</u> |

Attachment III-B-2(a)

Pond Construction Criteria

The embankment for sediment basins (temporary and permanent) shall be designed and built using the following as minimum criteria:

1. The top of the dam shall be no less than 12 feet wide.
2. See design sheet for maximum and minimum embankment slopes.
3. The foundation and abutments for the impounding structure shall be designed to be stable under all conditions of construction and operation of the impoundments, with a minimum static safety factor of 1.5 for the normal pool with steady seepage saturation conditions, and a seismic safety factor of at least 1.20.
4. The dam shall be constructed with a cutoff trench based upon prudent engineering practices for the site. The cutoff shall be located on the dam centerline and be of sufficient depth to extend into a relatively impervious material from which the core of the dam shall also be constructed.
5. The embankment foundation area shall be cleared of all organic matter, all surfaces sloped to no steeper than 1v:1h, and the entire foundation surface scarified.
6. The entire embankment and cutoff trench shall be compacted to 95 percent density, based on standard proctor as outlined in ASTM.
7. The material placed in the embankment shall be free of sod, roots, stones over 6 inches in diameter, and other objectionable materials. The fill material shall be placed and spread over the entire fill area, starting at the lowest point of the foundation, in layers not to exceed 12 inches in thickness. Construction of the fill shall be undertaken only at such times that the moisture content of the fill material will permit satisfactory compaction in accordance with paragraph 5.
8. The pool area of the basin will be cleared of timber and large undergrowth.
9. The primary decant system when consisting of a pipe shall be installed according to Class C pipe installation for embankment bedding.
10. The primary decant system shall be equipped with a device, or constructed, such as to insure that subsurface withdrawal is accomplished to prevent discharge of floating solids. If

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-</u> |

a channel is used as the primary decant a skimmer shall be installed to prevent floating solids from discharging.

11. A splash pad or riprap may be required under the discharge of the primary decant system where necessary to insure that the discharge does not erode the embankment.
12. The combination primary and secondary decant system shall be designed to safely carry the expected peak flow from a 25 year - 6 hour storm. The entire emergency overflow spillway channel will be a stabilized channel and will be stabilized upon completion of construction as specified within the detailed design plans using prudent engineering measures. These measures may consist of lining the spillway with concrete or a durable rock riprap, or the spillway being constructed in consolidated non-erodible material and planted with a mixture or both annual and perennial grasses, or a combination of any or all of the above.
13. Sediment basins using a single spillway system shall be an open channel of non-erodible construction consisting of concrete, durable rock riprap or its being constructed in consolidated non-erodible material as specified in the detailed design plans.
14. The settled embankment for temporary impoundments shall be a minimum of 1.0 foot above the maximum water elevation for the runoff from a 25 year - 6 hour, or a 10 year - 24 hour precipitation event (whichever has the greatest runoff). The settled embankment for permanent impoundments shall be a minimum of 1.0 foot above the maximum water elevation for the runoff from a 25 year - 6 hour, or a 10 year - 24 hour precipitation event (whichever has the greatest runoff).
15. If basins are built in series, then the combined decant system for each shall be designed to accommodate the entire contributing drainage area.
16. The dam and all disturbed areas shall be seeded with both perennial and annual grasses, fertilized and mulched in order to insure erosion is minimized. Hay bales or riprap may be placed at the toe of the dam immediately upon completion of construction.
17. The constructed height of the dam shall be increased a minimum of 5 percent over the design height to allow for settlement over the life of the embankment.
18. Final graded slopes of the entire permanent water impoundment area shall not exceed 2.5H-1.0V to provide for adequate safety and access for proposed water users.
19. Prior to Phase II bond release, additional data concerning

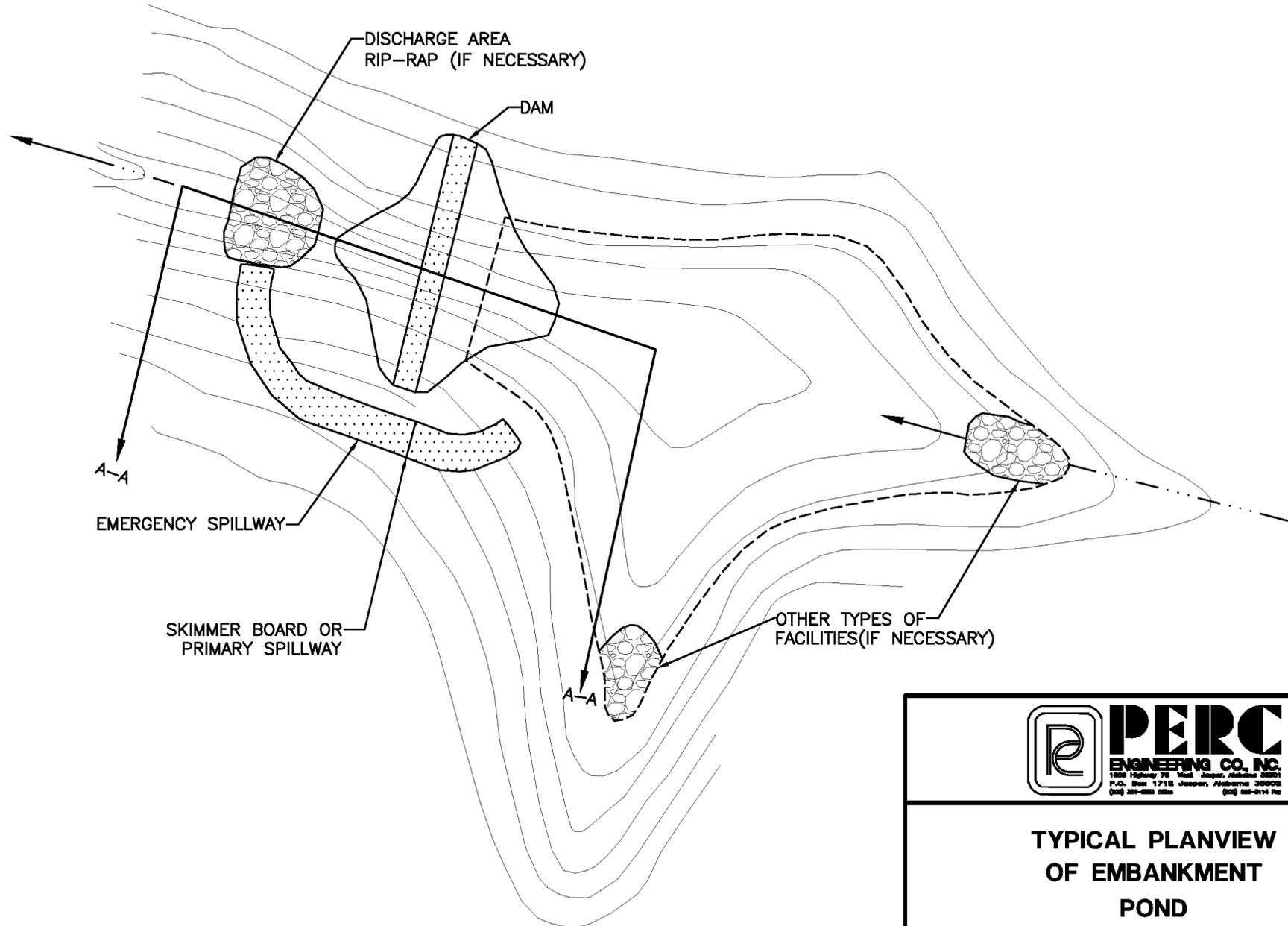
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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-</u> |

- water quality, water quantity, depth, size, configuration, postmining land use, etc., for each proposed permanent water impoundment, shall be submitted to the Regulatory Authority for permanent water impoundment approval.
20. All sediment basins will be inspected for stability, erosion, etc. two (2) times a month until removal of the structure or release of the reclamation bond.
 21. The embankment and spillway will be maintained by repairing any damage such as erosion, slope failure or spillway damage until removal of the structure or release of the performance bond.
 22. All ponds shall be examined quarterly for structural weakness, instability, erosion, or other hazardous conditions and maintenance performed as necessary. Formal inspections shall be made on an annual basis, including any reports or modifications, in accordance with 880-X-10C-.20[l(j)] of the Alabama Surface Mining Commission Regulations.
 23. Sediment will be removed from each pond when the accumulated sediment reaches the sediment storage volume as shown on the detailed design sheet.
 24. Upon completion of mining, successful reclamation and effluent standards being met, each sediment basin not remaining as a permanent water impoundment will be dewatered in an environmentally safe manner (such as siphoning, pumping, etc.) and reclaimed to approximate original contours by the following procedure: A permanent diversion channel (designed for a 10 year - 24 hour precipitation event) shall be cut along the outer edge of the basin to re-route drainage around the basin and back through the stabilized spillway to allow reclamation of the sediment basin. The diversion channel shall be designed and grassed as per enclosed information. (See permanent diversion for basin disposal). Upon completion of the diversion channel the back slope of the dam shall be graded to a minimum 3H to 1V slope. The dewatered sediment basin area shall be seeded with some combination of the following: Fescue, bermuda, rye grass, canary grass and willows. After seeding the area shall be mulched. Any additional sediment or embankment material not used to meet original contour, if non-toxic, shall be spread in thin layers within the permit area and vegetated as stated in the approved reclamation plan. All toxic material encountered in the basin disposal shall be buried and covered with 4 feet of non-toxic material and vegetated as stated in the approved reclamation plan.
 25. A qualified registered professional engineer or other

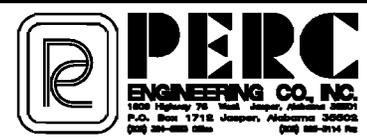
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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-</u> |

qualified professional specialist, under the direction of the professional engineer shall conduct regular inspections during construction and upon completion shall inspect each basin for certification purposes.

26. Point source discharge embankments shall be constructed and abutments keyed into desirable material if at all possible. In the event that undesirable material is encountered, additional design and construction criteria shall be submitted prior to certification.

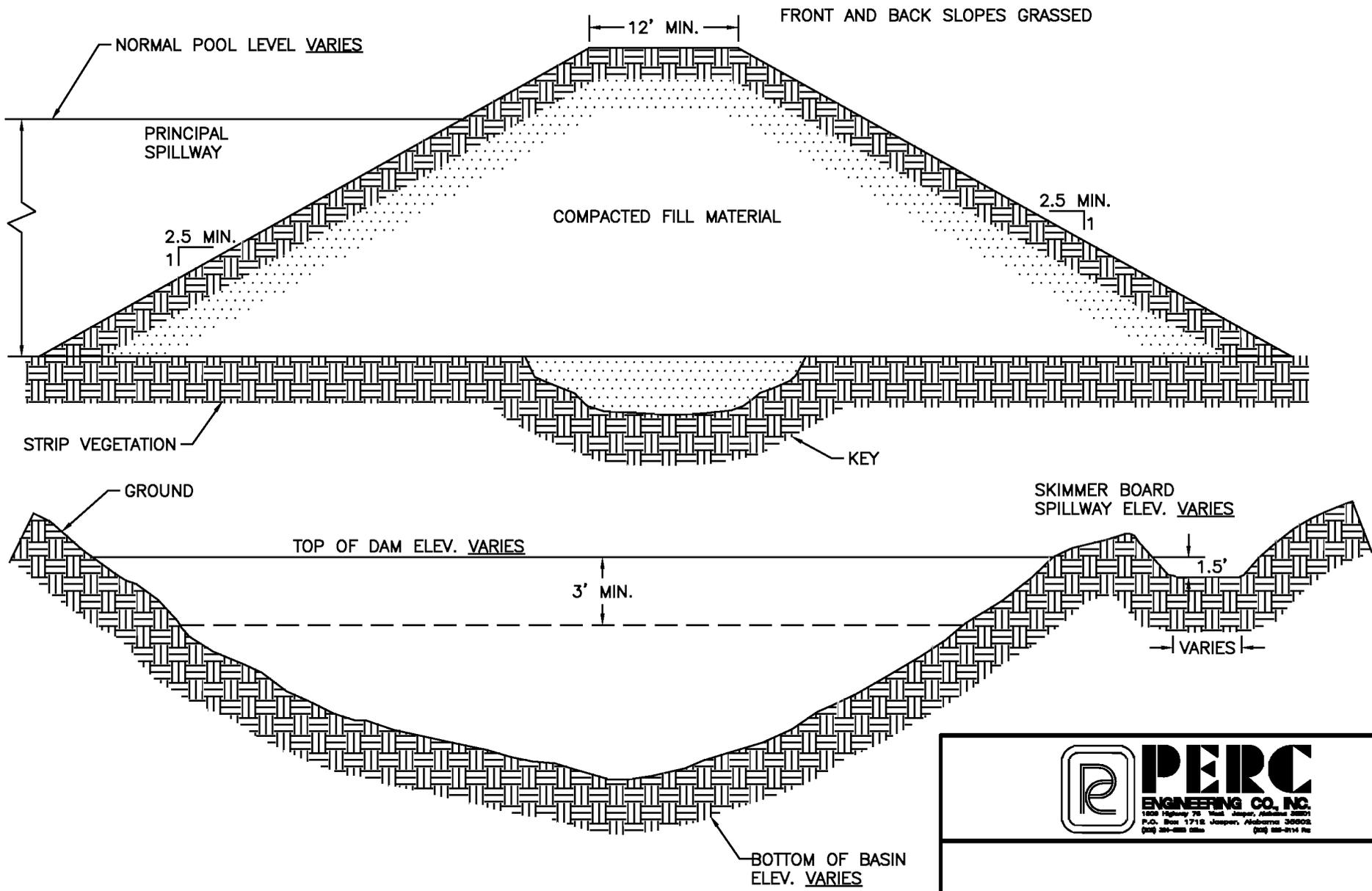


PLANVIEW OF EMBANKMENT POND



**TYPICAL PLANVIEW
 OF EMBANKMENT
 POND**

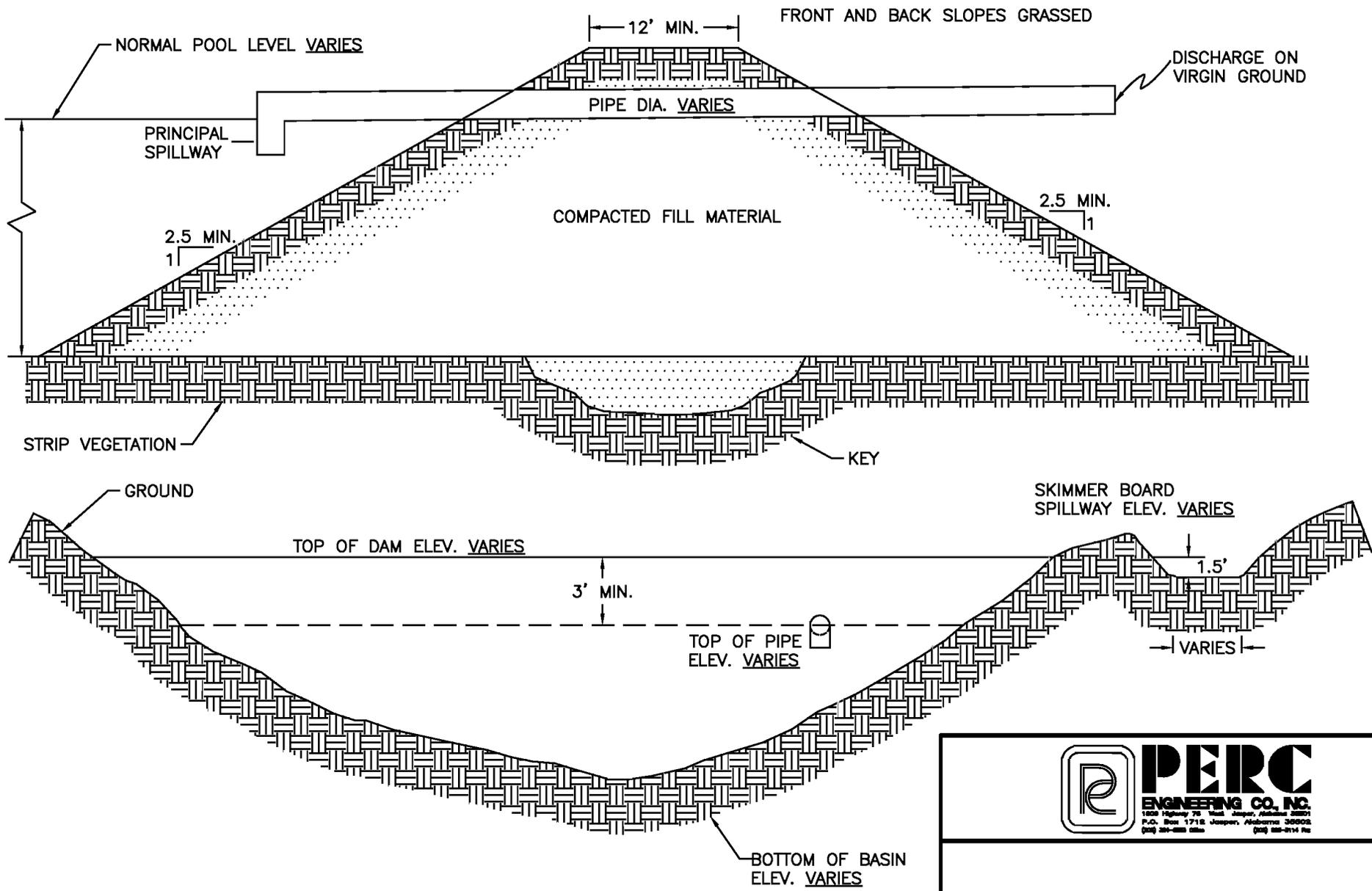
| | |
|---------------------|---------------|
| DRAWN BY: P.T.O. | DATE: 8-10-05 |
| DWG. NAME: TYPICALS | |
| APPROVED BY: W.K.M. | SCALE: NONE |



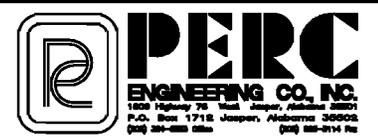
TYPICAL DAM DETAIL
NO SCALE

ATTACHMENT III-B-2-A

| | |
|---|---------------|
|  <p>PERC ENGINEERING CO., INC. 1828 Highway 70 West Jasper, Alabama 35901 P.O. Box 1718 Jasper, Alabama 35902 (205) 281-2222 (fax) (205) 281-2124 fax</p> | |
| TYPICAL DAM DETAIL | |
| DRAWN BY: P.T.O. | DATE: 8-10-05 |
| DWG. NAME: TYPICALS | |
| APPROVED BY: W.K.M. | SCALE: NONE |

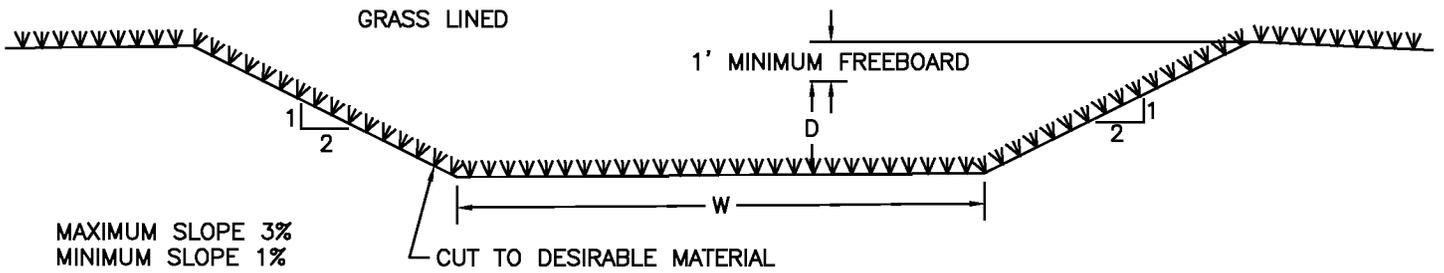


TYPICAL DAM DETAIL
NO SCALE



TYPICAL DAM DETAIL

| | |
|---------------------|---------------|
| DRAWN BY: P.T.O. | DATE: 8-10-05 |
| DWG. NAME: TYPICALS | |
| APPROVED BY: W.K.M. | SCALE: NONE |



$$Q = \frac{1.49}{N} A R^{2/3} S^{1/2}$$

$N(\text{LOOSE STONE OR GRASS LINED}) = 0.035$
 $A = \text{AREA}$
 $R = \text{AREA/WETTED PERIMETER}$
 $S = \text{SLOPE}$

* GRASS LINING: FESCUE, BERMUDA, RYE GRASS

| DIVERSION CHANNEL DEPTH (D) FOR WIDTH (W) 8.0 FT. | |
|--|-----------------|
| PEAK FLOW Q (CFS) | DEPTH D (FT) |
| 0-15 | 0.5 |
| 15-50 | 1.0 |
| 50-100 | 1.5 |
| 100-180 | 2.0 |
| 180-270 | 2.5 |

| DIVERSION CHANNEL DEPTH (D) FOR WIDTH (W) 10.0 FT. | |
|---|-----------------|
| PEAK FLOW Q (CFS) | DEPTH D (FT) |
| 0-15 | 0.5 |
| 15-60 | 1.0 |
| 60-120 | 1.5 |
| 120-210 | 2.0 |
| 210-320 | 2.5 |

| DIVERSION CHANNEL DEPTH (D) FOR WIDTH (W) 12.0 FT. | |
|---|-----------------|
| PEAK FLOW Q (CFS) | DEPTH D (FT) |
| 0-20 | 0.5 |
| 20-70 | 1.0 |
| 70-150 | 1.5 |
| 150-250 | 2.0 |
| 250-383 | 2.5 |

| DIVERSION CHANNEL DEPTH (D) FOR WIDTH (W) 15.0 FT. | |
|---|-----------------|
| PEAK FLOW Q (CFS) | DEPTH D (FT) |
| 0-25 | 0.5 |
| 25-90 | 1.0 |
| 90-180 | 1.5 |
| 180-300 | 2.0 |
| 300-450 | 2.5 |



TYPICAL PERMANENT DIVERSION FOR BASIN DISPOSAL

DRAWN BY: S.D.M.
DWG. NAME: TYPICALS

DATE: 1/4/2011

APPROVED BY: L.G.S.

SCALE: NONE

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

3. Diversions. (780.29, 816.43, 816.44)

Are diversions of overland flow or stream channel diversions proposed?

(XXX) Yes () No

If yes, complete the following:

(a) Is the diversion to be permanent?

() Yes (XXX) No

- (b) Describe in detail the proposed diversion and include plans, maps and cross-sections which comply with 816.43 and 816.44.

Temporary diversions required for the Carter Mine are shown on the permit map and a typical section of proposed diversions is included in this application and described in the design and construction guidelines for diversions as prepared for Cahaba Resources, LLC.

Diversions 1-2, 3-4, 5-6 and 7-8 Detailed Design Plans are attached. See Attachment III-B-3 Detailed Design Plans

Should the need for diversions other than those shown become evident, they will be constructed under the same Guidelines within the area permitted and bonded.

After all mining and reclamation activities are complete the diversions will be reclaimed and revegetated.

See Attachment III-B-2(a) for Watershed Map.

- (c) If diversions are temporary, enclose plans for removal, including a timetable and plans for restoration of vegetation, channel characteristics, etc.

See Attachment III-B.-3.

- (d) Enclose approvals of other government agencies, where required.

None required.

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

Attachment III-B-3

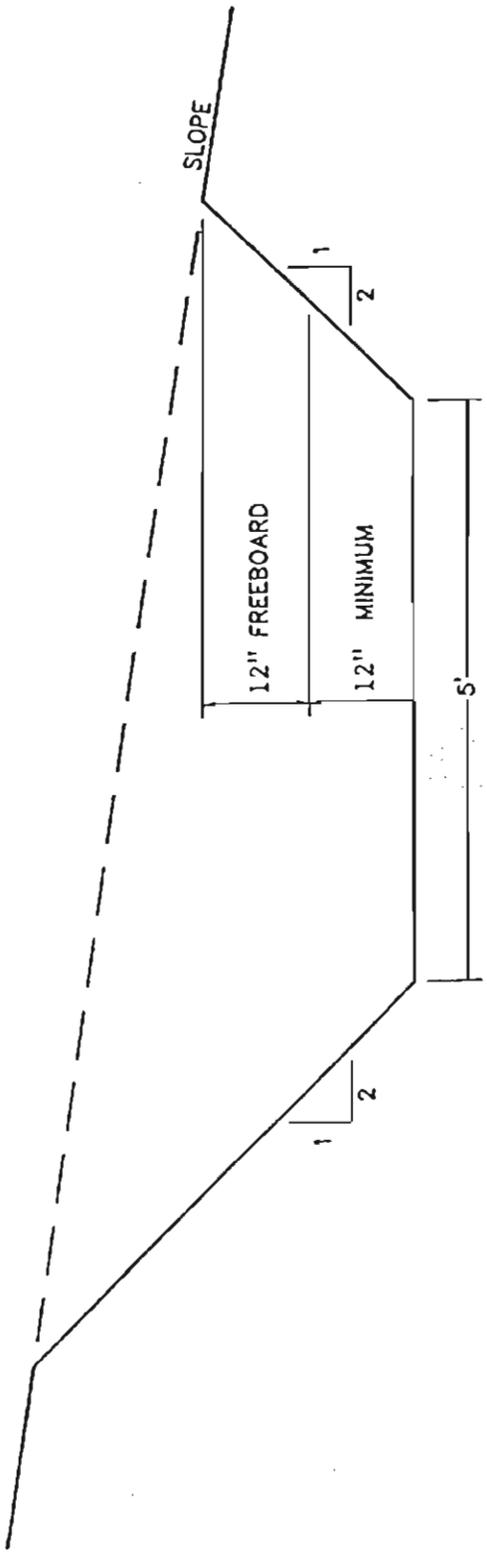
SPECIFICATIONS FOR DIVERSION CHANNELS
AND DIVERSION BERMS

1. Temporary diversions shall be constructed to pass safely the peak runoff from a 2-year, 6-hour precipitation event.
2. To protect fills and property and to avoid danger to public health and safety, permanent diversions shall be constructed to pass safely the peak runoff from a 10-year, 6-hour precipitation event. Permanent diversions shall be constructed with gently sloping banks that are stabilized by vegetation.
3. Diversions shall be designed, constructed, and maintained in a manner which prevents additional contributions of suspended solids to stream flow and to runoff outside the permit area, to the extent possible, using the best technology currently available. Appropriate sediment control measures for these diversions may include, but not be limited to, maintenance of appropriate gradients, channel lining, revegetation, roughness structures, and detention basins.
4. No diversion shall be located so as to increase the potential for land slides and no diversion shall be constructed on existing land slides.
5. When no longer needed, each temporary diversion shall be removed and the affected land regraded, topsoiled, and revegetated in accordance with Rules 880-X-10C-.10, 880-X-10C-.11, 880-X-10C-.52 - 880-X-10C-.58, 880-X-10C-.60, and 880-X-10C-.62.
6. Channel linings, when slopes are between 1-3 percent shall consist of both perennial and annual grasses and when slopes are greater than 3 percent, shall consist of riprap or be cut into non-erodible material.
7. Freeboard shall provide protection for transition of flows and for critical areas such as swales and curves along the entire channel length.
8. Energy dissipators shall be installed, when necessary, at discharge points where natural streams and exit velocity of the diversion ditch flow is greater than that of the receiving stream.
9. Excess excavated material not necessary for diversion channel geometry or regrading of the channel shall be disposed of in accordance with Rule 880-X-10C-.36.
10. Topsoil removed from the diversion excavations shall be

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| Applicant: <u>Cahaba Resources, LLC.</u> |
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handled in accordance with Rule 880-X-10C-.07 through 880-X-10C-.11.

11. Diversions shall not be constructed or operated to divert water into underground mines.
12. The embankment or berm foundation area shall be cleared of all organic matter, all surfaces sloped to no steeper than 1v:1h and the entire foundation surface scarified.
13. The entire embankment or berm shall be compacted to 95% density, based on standard proctor as outlined in ASTM.
14. The material placed in the berm shall be free of sod, roots, stones over 6 inches in diameter, and other objectionable materials. The fill material shall be placed and spread over the entire fill area, starting at the lowest point of the foundation, in layers not to exceed 12 inches in thickness. Construction of the fill shall be undertaken only at such times as the moisture content of the fill material will permit satisfactory compaction in accordance with paragraph 13.
15. The berm and all disturbed areas shall be seeded with both perennial and annual grasses in order to insure that erosion is minimized. Hay bales or riprap may be placed at the toe of the berm immediately upon completion of construction.
16. All berms shall be examined quarterly for structural weakness, instability, erosion, or other hazardous conditions and maintenance performed as necessary.



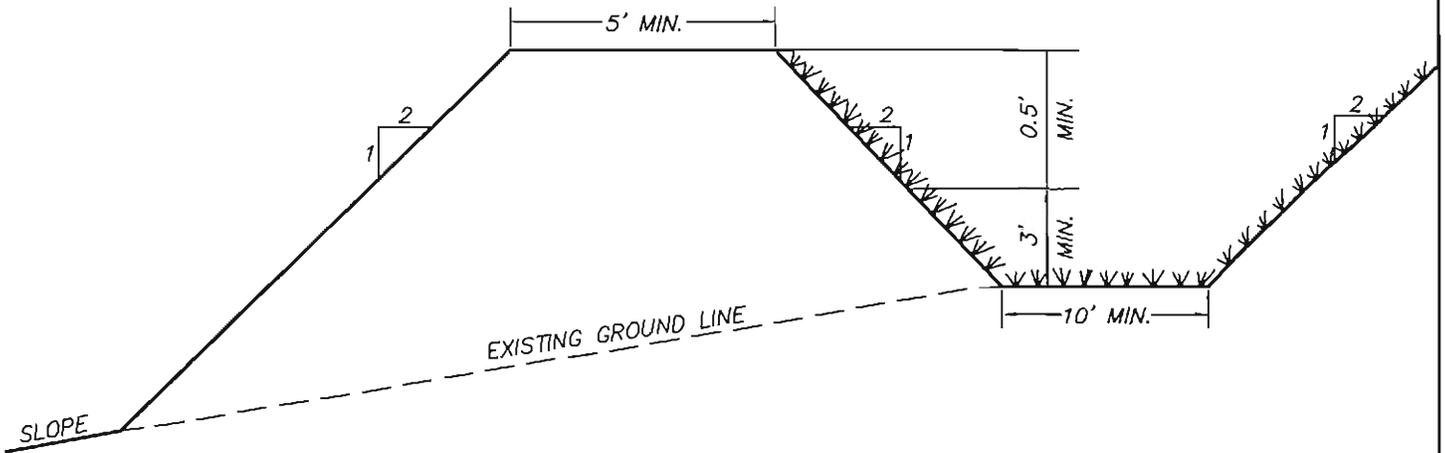
DIVERSION DITCH

TYPICAL DIVERSION CROSS-SECTION
NO SCALE

CHANNEL LINING TO CONSIST OF A MIXTURE OF FESCUE AND BERMU DA GRASS

DIVERSION/BERM DETAIL

DIVERSION A-A'



TYPICAL DIVERSION/BERM CROSS SECTION

CHANNEL LINING TO CONSIST OF A MIXTURE OF BERMUDA AND FESCUE GRASSES

Note: The berm material is to consist of a clay material. The Material will be placed in 6 inch lifts and compacted to 95% of the standard proctor density. The standard proctor density will be determined prior to the placement of the material.



Typical Diversion Berm Detail

DRAWN BY: J.J.H.
DWG. NAME: BRMTYP1

DATE: 1-23-97

APPROVED BY: S.R.I.

SCALE: NONE

| |
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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

4. Disposal of excess spoil. (780.35, 816.71)

Are excess spoil fills proposed?

() Yes (XXX) No

If yes, complete the following:

- (a) Show on a map the location of all proposed fills and provide cross-sections of the proposed site and the design of the disposal structures.
- (b) Include the results of the geotechnical investigation showing:
 - (1) A description of physical characteristics of bedrock and geological conditions in the disposal area; and
 - (2) A determination of possible adverse affects from subsidence due to past, present or future underground mining.
 - (3) Location of springs, seeps, or other ground water observed or anticipated in the disposal area.
 - (4) A technical description of the rock to be used in construction of rock chimney cores or rock drainage blankets, if applicable.
 - (5) Results of stability analyses including strength parameters, pore pressures and long term seepage conditions; and
 - (6) Engineering design assumptions, calculations, and any alternatives considered.
- (c) Describe the construction, operation, maintenance and removal (if applicable) of the structure.
- (d) Include a surface water drainage and control plan for the fill.
- (e) Are rock-toe buttresses or keyway cuts to be used?

() Yes (XXX) No

If yes, describe or show:

- (1) The number, location and depth of test borings or test pits used in describing subsurface conditions; and
- (2) Engineering specifications used in the design.

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

5. Transportation Facilities (780.33, 780.37)
- (a) Describe the measures to be taken to ensure the interest of the public and landowners affected are protected if disturbance within 100 feet of the right-of-way or relocation of a public road is proposed.
- 1) Safety berms will be constructed adjacent to roadways to be disturbed to contain traffic.
 - 2) Proper signs, informing the traveling public of the disturbance, will be posted along the road right-of-ways 500 feet from the beginning of the disturbance.
 - 3) All safety requirements of the appropriate public health and safety, will be followed.
- (b) Describe any unique design, feature, or structure which is necessary for the road to meet the performance standards of Subchapter K using any necessary maps, plans, or cross-sections.
- See Attachment III-B-5, Road Location Map.
The road North of Primary Road 1P is a paved access road from State Route 216 to the house at the end of the road South West of Primary Road 1P. It is completely contained within the R.O.W. of 216.
See Attachment III-B-5, Primary Road Design Plans
- (c) Describe, in detail, the measures to be taken during construction, maintenance and use of the transportation facilities to prevent damage to fish and wildlife and their habitat; public and private property; and erosion, siltation, and pollution of water.

Roads will be constructed with the required ditching for proper drainage. Roads will be maintained with a dozer and motor grader patrol as required. Water will be used to reduce erosion and dust emissions. Roads will be located on ridge tops where possible or on the most stable slopes to minimize erosion. Vegetation will not be cleared except as necessary for roadway and ditch construction. After construction of the roads is complete, vegetation will be established on cut and fill slopes that exist along the all roads. To the extent possible, roads will be located above the sediment basins to be constructed for the mining operation in an effort to control or prevent additional contributions of suspended solids to stream flow or runoff outside the permit area and to comply with State and Federal water quality standards applicable to receiving waters and avoid the alteration of the normal flow of water in streambeds or drainage channels while preventing or controlling damage to public or private property. Where it is not possible or is impractical to locate roads in this manner, sediment control devices such as silt fencing, hay bale check dams and rock filter check dams will be used as necessary to maintain water quality. Roads not required for fire and sediment basin access will be reclaimed. See Attachment III-B-5, Attachment III-B-5(b), and Specifications for the construction, maintenance, and reclamation of primary roads.

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

**SPECIFICATIONS FOR THE CONSTRUCTION, MAINTENANCE
AND RECLAMATION OF ANCILLARY ROADS**

1. To the extent possible, roads will be located on ridges or on the most stable available slopes to prevent or minimize erosion, downstream sedimentation and flooding in an effort to prevent adverse effects to fish, wildlife and related environmental values.
2. To the extent possible, roads will be located above the sediment basins to be constructed for the mining operation in an effort to control or prevent additional contributions of suspended solids to stream flow or runoff outside the permit area and to comply with State and Federal water quality standards applicable to receiving waters and avoid the alteration of the normal flow of water in streambeds or drainage channels while preventing or controlling damage to public or private property. Where it is not possible or is impractical to locate roads in this manner, sediment control devices such as silt fencing, hay bale check dams and rock filter check dams will be used as necessary to maintain water quality.
3. Prior to construction, the roadway will be cleared, grubbed and will have the topsoil removed. The clearing limits will be kept to the minimum necessary to accommodate the roadbed and associated ditch construction.
4. Roads will be constructed of suitable subgrade material compacted to ninety-five percent of the standard proctor density and will have a minimum width of ten feet and a maximum width necessary to accommodate the largest equipment traveling the road.
5. Roadbeds will be cut to consolidated non-erodible material or will be surfaced with durable non-toxic, non-acid forming substances. It is anticipated that durable sandstone overburden on site will be utilized as surfacing material. If there should not be adequate sandstone on site, then a durable sandstone material, chert, crushed limestone, crushed concrete, crushed asphalt, red rock, ironore refuse, gravel, or other durable non-toxic, non-acid forming material approved by the Regulatory Authority will be hauled in from off site and placed on the roadbed to a depth of two inches.
6. No sustained grades will exceed ten percent unless deemed necessary, in which case appropriate sediment control facilities will be constructed. If grades in excess of fifteen percent are required, cross drains, ditch relief drains and road drainways will be located at a minimum distance of three-hundred feet.

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

7. Roads will be constructed so as to have adequate drainage utilizing ditches, cross drains and ditch relief drains. Roads will not be located in the channel of an intermittent or perennial stream unless specifically approved by the Alabama Surface Mining Commission. Additionally, no relocation and/or alteration of an intermittent or perennial stream will be done unless specifically approved by the Alabama Surface Mining Commission. In the event that it becomes evident that any drainage structures including culverts, bridges and/or low water crossings will be required in order to cross an intermittent or perennial stream, the structure will be designed in accordance with Alabama Surface Mining Commission requirements and prudent engineering practice and the approval of the design(s) will be acquired prior to the commencement of construction. Hay bale check dams and silt fences will be used at strategic locations when necessary to control sediment runoff. Immediately upon completion of construction, the side slopes of the road embankments and/or cuts will be fertilized, seeded with annual and perennial grasses and mulch will be added to aid in the prevention of erosion and to enhance seed germination. The seed mix will consist of, but is not limited to, some combination of the following species: bermuda grass, fescue, lespedeza, rye grass, brown top millet, clover and vetch. The particular species to be planted will vary with the planting season at the time of seed application.
8. Routine maintenance will be required to assure that the road continually meets performance standards and will consist of periodic grading, resurfacing, dust suppression and maintenance of sediment control facilities. Dust suppression will consist of the application of water, chemical binders and/or other dust suppressants. No oil will be utilized in this process. Spot seeding, fertilizing and mulching will be performed as necessary to improve vegetative cover on roadway slopes. A road damaged by a catastrophic event shall be repaired as soon as practicable after the damage has occurred.
9. Roads not to be retained as part of the post mine land use shall be reclaimed in accordance with the approved reclamation plan for this permit as soon as practicable after they are no longer needed as part of the mining and reclamation operation, using the following procedures:
 - a. The road will be closed to traffic.
 - b. All bridges, culverts and other drainage structures not approved as part of the post mine land use will be removed.
 - c. All road surfacing materials that are not compatible with the post mine land use or revegetation requirements will be properly disposed of on-site or removed from the site for re-use.
 - d. Roadway cut and fill slopes shall be regraded and reshaped to be compatible with the post mine land use and to

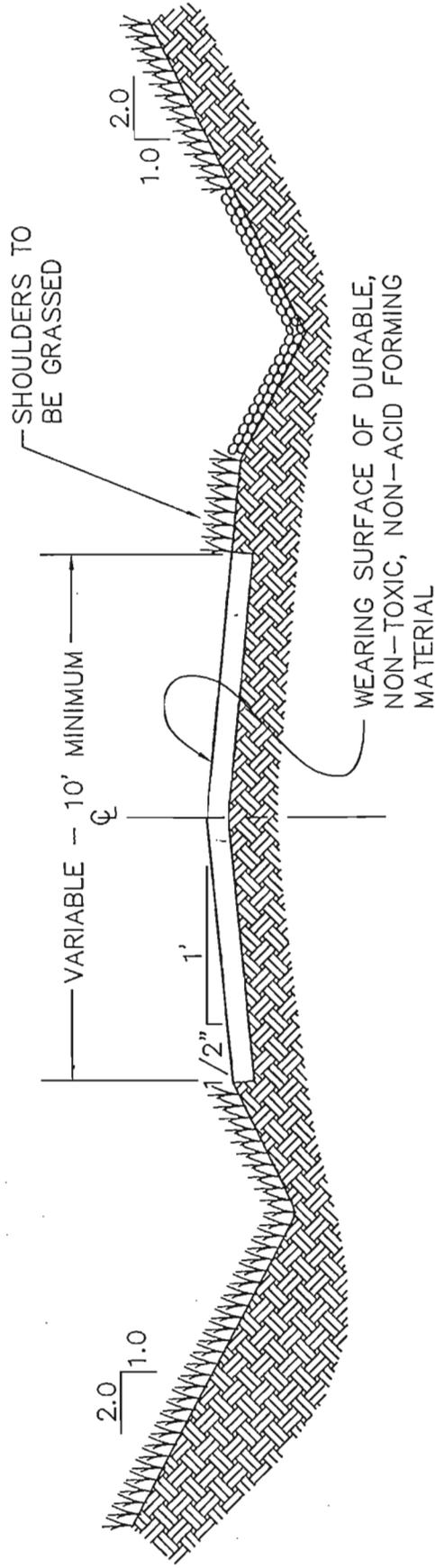
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|--|
| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

compliment the natural drainage pattern of the surrounding terrain.

- e. The natural drainage patterns shall be protected from surface runoff and erosion utilizing the installation of dikes and/or cross drains as necessary.
 - f. The roadbed shall be ripped or scarified as necessary, the topsoil or substitute or approved growing medium shall be replaced and revegetated in accordance with the approved reclamation plan for this permit.
10. The following drawings illustrate typical roadbed configurations for ancillary roads.

TYPICAL ANCILLARY ROAD CUT SECTION

NO SCALE



PERC
ENGINEERING CO., INC.
1000 Highway 78, Suite 100, Auburn, Alabama 36801
P.O. Box 1718, Jasper, Alabama 36026
205-684-1100 Fax 205-684-1101

TYPICAL CUT SECTION
ANCILLARY ROAD

DRAWN BY: S.W.L.
DWG. NAME: TypAncillaryRoad

DATE: 6-19-15

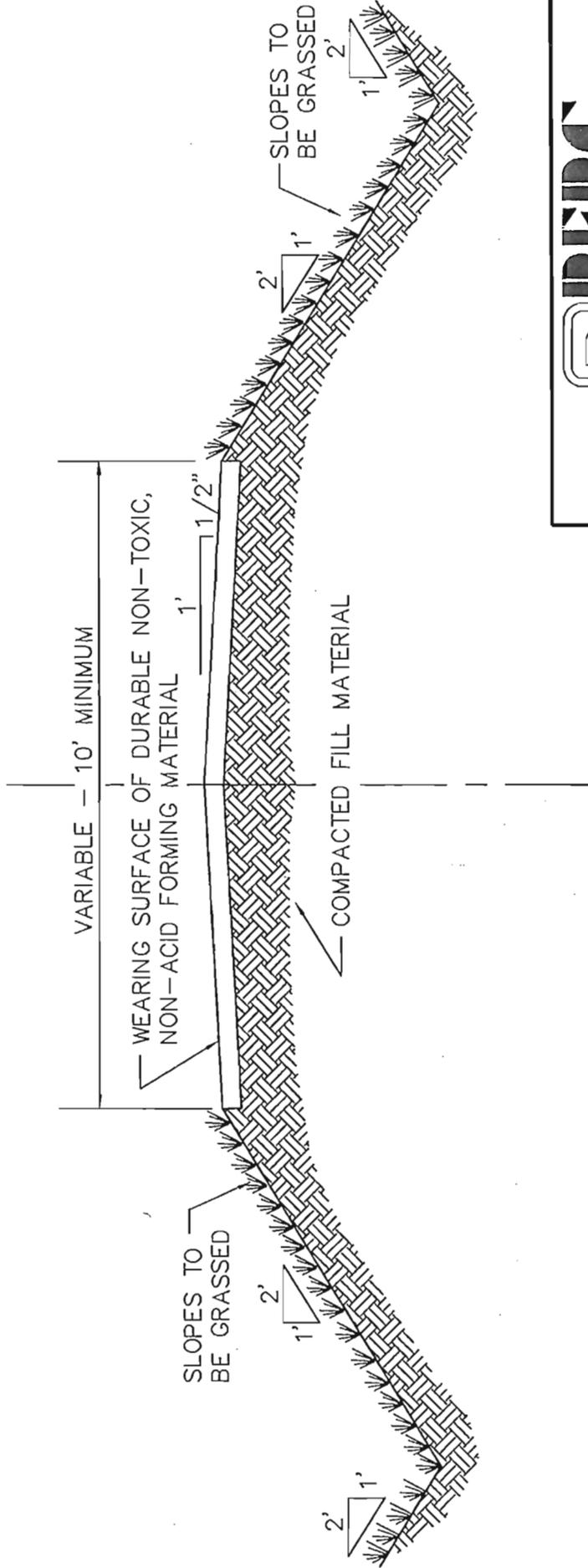
APPROVED BY: L.G.S.

SCALE: NONE

ATTACHMENT III - B. - 5.

TYPICAL ANCILLARY ROAD FILL SECTION

NO SCALE



TYPICAL FILL SECTION
ANCILLARY ROAD

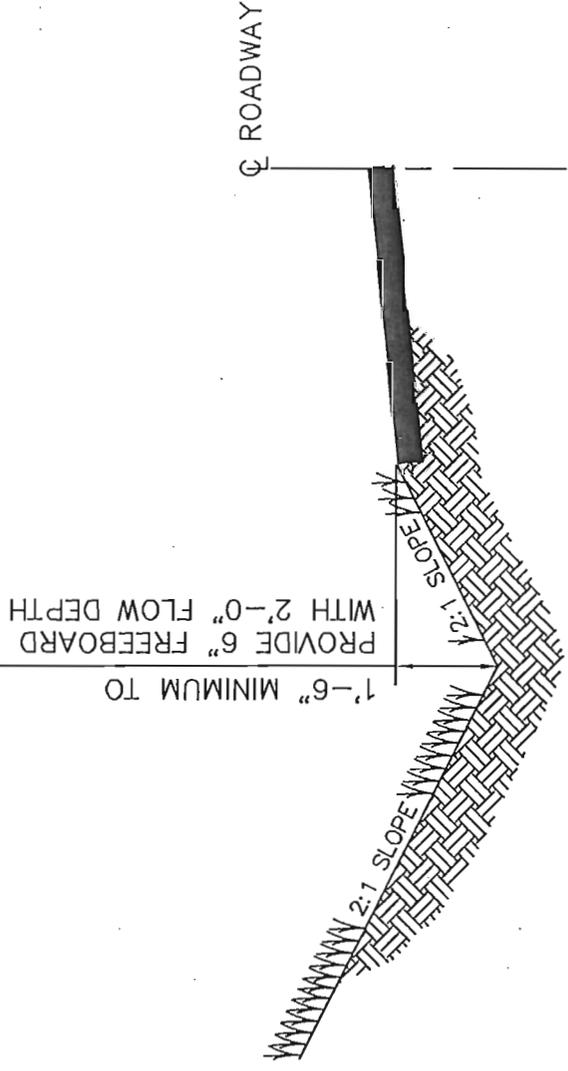
DRAWN BY: S.W.L.
DWG. NAME: TypAncillaryRoad

DATE: 6-19-15

APPROVED BY: L.G.S.

SCALE: NONE

ATTACHMENT III - B. - 5.



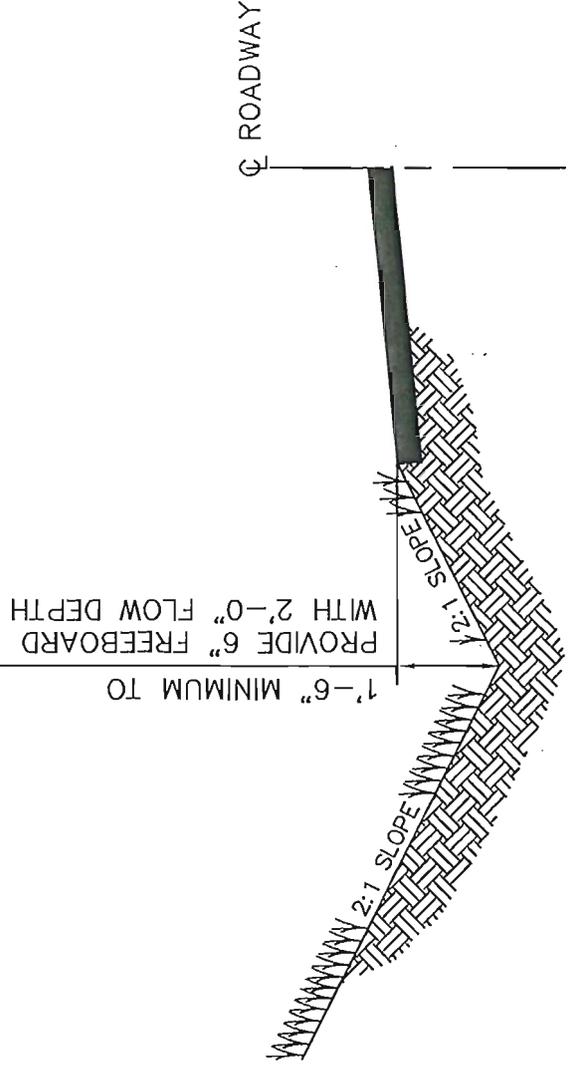
MINIMUM DITCH GRADIENT = 1%
 MAXIMUM DITCH GRADIENT = 5%

DITCH CHANNEL TO BE VEGETATED WITH
 A MIXTURE OF BERMUDA GRASS, FESCUE,
 AND LESPEDEZA TO CONFORM TO CLASS
 "D" RETARDANT CLASS.



TYPICAL ANCILLARY ROADWAY DITCH
 CROSS SECTION

| | |
|---|---------------|
| DRAWN BY: S.W.L. DWG. NAME: TypAncillaryRoad | DATE: 6-19-15 |
| APPROVED BY: L.G.S. | SCALE: NONE |



MINIMUM DITCH GRADIENT = 6%
 MAXIMUM DITCH GRADIENT = 10%

DITCH CHANNEL TO BE LINED WITH NON-ERODIBLE
 NON-TOXIC, NON-ACID FORMING SANDSTONE OR
 LIMESTONE RIP-RAP. THE RIP-RAP WILL BE "CLASS 1"
 RIP-RAP AND HAVE A MINIMUM THICKNESS OF 12".



TYPICAL ANCILLARY ROADWAY DITCH
 CROSS SECTION

| | |
|-----------------------------|---------------|
| DRAWN BY: S.W.L | DATE: 6-19-15 |
| DWG. NAME: TypAncillaryRoad | |
| APPROVED BY: L.G.S. | SCALE: NONE |

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|--|
| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

SPECIFICATIONS FOR THE CONSTRUCTION, MAINTENANCE
AND RECLAMATION OF PRIMARY ROADS

1. Primary roads shall be designed by or under the direction of a registered professional engineer in accordance with the Alabama Surface Mining Commission rules and regulations and prudent engineering practice.
2. Each roadway embankment will be designed and constructed so as to have a minimum static safety factor of 1.3.
3. To the extent possible, roads will be located on ridges or on the most stable available slopes to prevent or minimize erosion, downstream sedimentation and flooding in an effort to prevent adverse effects to fish, wildlife and related environmental values.
4. To the extent possible, roads will be located above the sediment basins to be constructed for the mining operation in an effort to control or prevent additional contributions of suspended solids to stream flow or runoff outside the permit area and to comply with State and Federal water quality standards applicable to receiving waters and avoid the alteration of the normal flow of water in streambeds or drainage channels while preventing or controlling damage to public or private property. Where it is not possible or is impractical to locate roads in this manner, sediment control devices such as silt fencing, hay bale check dams and rock filter check dams will be used as necessary to maintain water quality. No fording of intermittent or perennial streams will be conducted unless specifically approved by the Alabama Surface Mining Commission as temporary routes to be used during road construction.
5. Prior to construction, the roadway will be cleared, grubbed and will have the topsoil removed. The clearing limits will be kept to the minimum necessary to accommodate the roadbed and associated ditch construction.
6. Roads will be constructed of suitable compacted subgrade material and will have a minimum width of ten feet and a maximum width necessary to accommodate the largest equipment traveling the road.
7. Roadbeds will be cut to consolidated non-erodible material or will be surfaced with durable non-toxic, non-acid forming substances. The wearing surface will consist of durable sandstone, chert, crushed limestone, crushed concrete, crushed asphalt, red rock, ironore refuse, gravel, or other durable non-toxic, non-acid forming material approved by the Regulatory Authority. The wearing surface will be placed on the roadbed to a depth of four inches.

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

8. No sustained grades will exceed ten percent unless deemed necessary, in which case appropriate sediment control facilities will be constructed. If grades in excess of fifteen percent are required, cross drains, ditch relief drains and road drainways will be located at a minimum distance of three-hundred feet.

9. Roads will be constructed so as to have adequate drainage utilizing ditches, culverts, cross drains and ditch relief drains designed to safely pass the peak runoff from a ten year, six hour precipitation event. Drainage pipes and culverts shall be installed as designed and will be maintained in a free and operating condition to prevent and control erosion at inlets and outlets. Culverts have been designed to support the load of the heaviest equipment to travel the road and are based on the Handbook of Steel Drainage and Highway Construction Products by the American Iron and Steel Institute and the equipment specifications. Drainage ditches will be constructed and maintained in accordance with the approved design to prevent uncontrolled drainage over the road surface and embankment. Roads will not be located in the channel of an intermittent or perennial stream unless specifically approved by the Alabama Surface Mining Commission. Additionally, no relocation and/or alteration of an intermittent or perennial stream will be done unless specifically approved by the Alabama Surface Mining Commission. In the event that it becomes evident that any drainage structures including culverts, bridges and/or low water crossings will be required in order to cross an intermittent or perennial stream, the structure will be designed and constructed in accordance with Alabama Surface Mining Commission requirements and prudent engineering practice and the approval of the design(s) will be acquired prior to the commencement of construction. Hay bale check dams and silt fences will be used at strategic locations when necessary to control sediment runoff. Immediately upon completion of construction, the side slopes of the road embankments and/or cuts will be fertilized, seeded with annual and perennial grasses and mulch will be added to aid in the prevention of erosion and to enhance seed germination. The seed mix will consist of, but is not limited to, some combination of the following species: bermuda grass, fescue, lespedeza, rye grass, brown top millet, clover and vetch. The particular species to be planted will vary with the planting season at the time of seed application. Upon completion of construction of each phase of the roadway the construction will be certified to the Alabama Surface Mining Commission as having been done in accordance with the approved plans for the roadway and associated facilities.

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

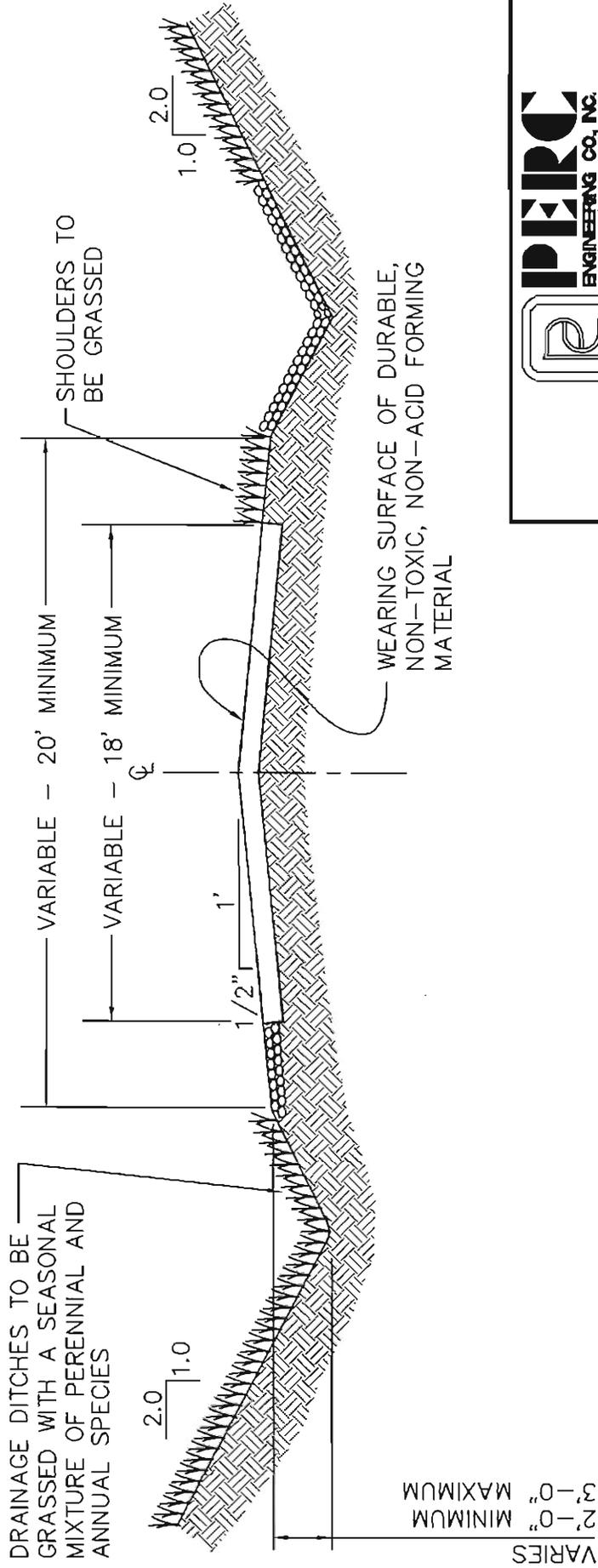
10. Routine maintenance will be required to assure that the road continually meets performance standards and will consist of periodic grading, resurfacing, dust suppression and maintenance of sediment control facilities. Dust suppression will consist of the application of water, chemical binders and/or other dust suppressants. No oil will be utilized in this process. Spot seeding, fertilizing and mulching will be performed as necessary to improve vegetative cover on roadway slopes. A road damaged by a catastrophic event shall be repaired as soon as practicable after the damage has occurred.

11. Roads not to be retained as part of the post mine land use shall be reclaimed in accordance with the approved reclamation plan for this permit as soon as practicable after they are no longer needed as part of the mining and reclamation operation, using the following procedures:
 - a. The road will be closed to traffic.
 - b. All bridges, culverts and other drainage structures not approved as part of the post mine land use will be removed.
 - c. All road surfacing materials that are not compatible with the post mine land use or revegetation requirements will be properly disposed of on-site or removed from the site for re-use.
 - d. Roadway cut and fill slopes shall be regraded and reshaped to be compatible with the post mine land use and to compliment the natural drainage pattern of the surrounding terrain.
 - e. The natural drainage patterns shall be protected from surface runoff and erosion utilizing the installation of dikes and/or cross drains as necessary.
 - f. The roadbed shall be ripped or scarified as necessary, the topsoil or substitute or approved growing medium shall be replaced and revegetated in accordance with the approved reclamation plan for this permit.

12. The drawings and data contained in the specific design plans illustrate typical roadbed configurations for primary roads as well as site specific design of drainage structures, stability analysis and ditch sections.

TYPICAL HAUL ROAD CUT SECTION

NO SCALE



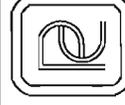
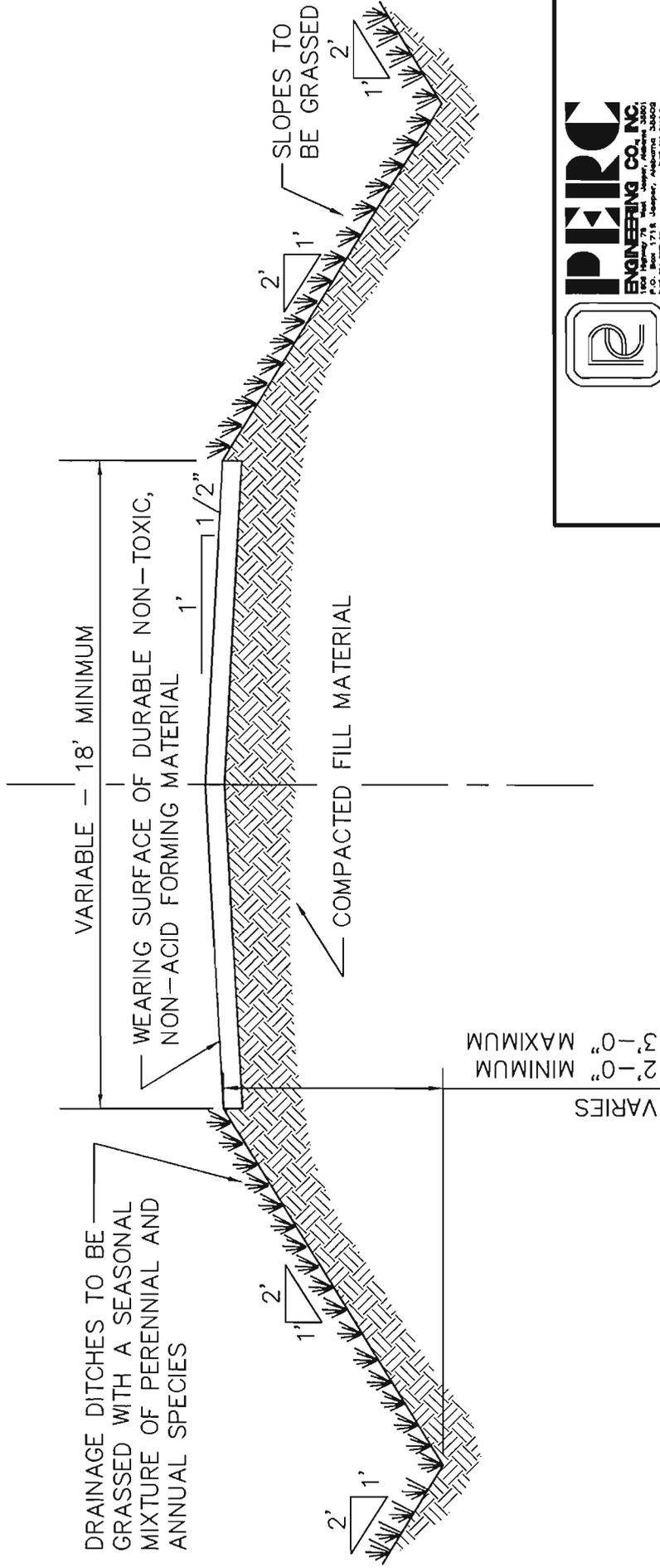
TYPICAL CUT SECTION PRIMARY HAUL ROAD

| | |
|---------------------|---------------|
| DRAWN BY: L.G.S. | DATE: 2-16-10 |
| DWG. NAME: TYPHAULC | |
| APPROVED BY: L.G.S. | SCALE: NONE |

ATTACHMENT III. - B. - 5.

TYPICAL HAUL ROAD FILL SECTION

NO SCALE



PERC
ENGINEERING CO., INC.
1000 Highway 78 West, Jasper, Arkansas 72071
P.O. Box 1718, Jasper, Arkansas 72072
601-682-6222 Fax 601-682-1176

TYPICAL FILL SECTION PRIMARY HAUL ROAD

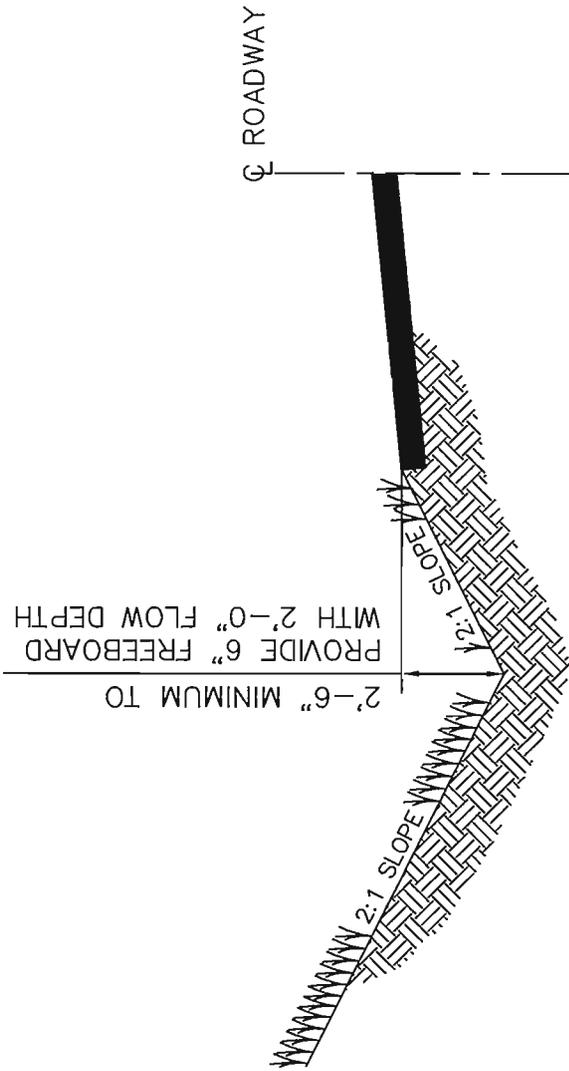
DRAWN BY: L.G.S.
DWG. NAME: TYPHAULF

DATE: 2-16-10

APPROVED BY: L.G.S.

SCALE: NONE

ATTACHMENT III.-B.-5.



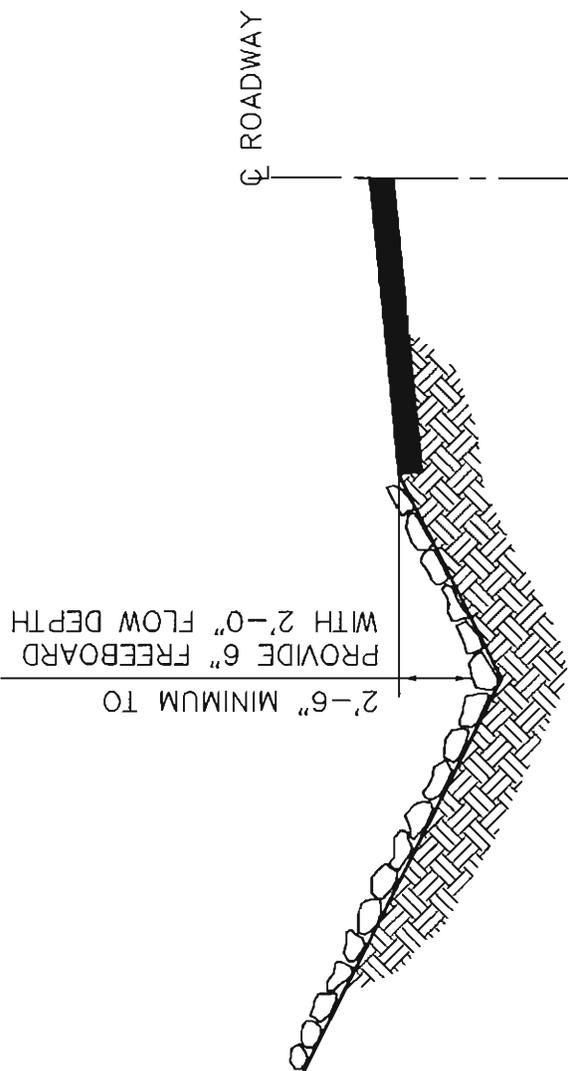
MINIMUM DITCH GRADIENT = 1%
 MAXIMUM DITCH GRADIENT = 5%

DITCH CHANNEL TO BE VEGETATED WITH
 A MIXTURE OF BERMUDA GRASS, FESCUE,
 AND LESPEDEZA TO CONFORM TO CLASS
 "D" RETARDANT CLASS.



**TYPICAL PRIMARY ROADWAY DITCH
 CROSS SECTION**

| | |
|---------------------|---------------|
| DRAWN BY: L.G.S. | DATE: 2-16-10 |
| DWG. NAME: PRIMROAD | |
| APPROVED BY: L.G.S. | SCALE: NONE |



DITCH GRADIENT 5% TO 10%

DITCH CHANNEL TO BE LINED WITH NON-ERODIBLE NON-TOXIC, NON-ACID FORMING SANDSTONE OR LIMESTONE RIP-RAP. THE RIP-RAP WILL BE "CLASS 1" RIP-RAP AND HAVE A MINIMUM THICKNESS OF 12".



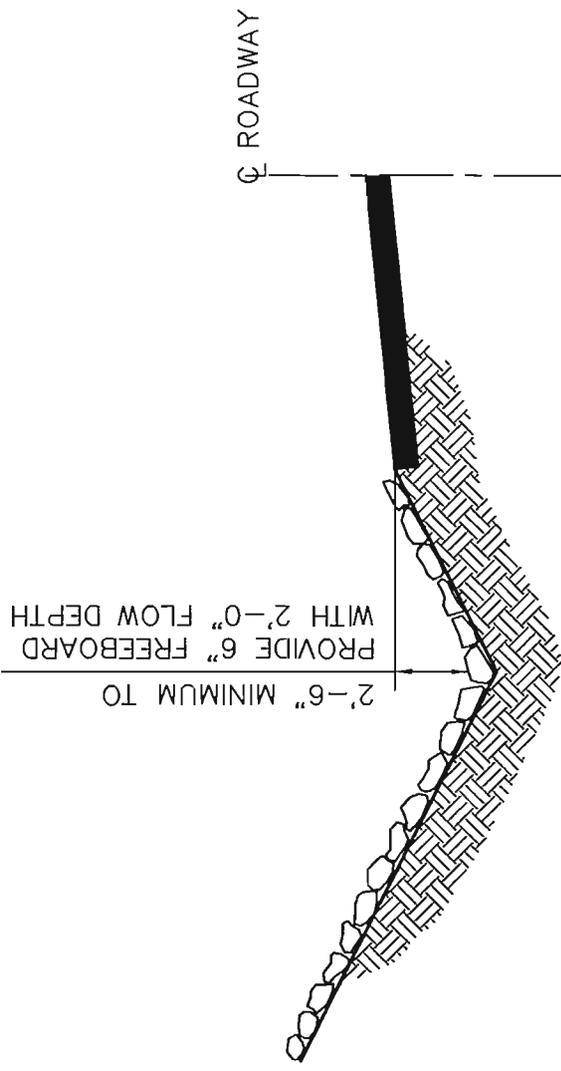
PERC
ENGINEERING CO. INC.
1200 Highway 78
P.O. Box 1718
Cordova, Alabama 36008
205-368-0800
205-368-3111 fax

**TYPICAL PRIMARY ROADWAY DITCH
CROSS SECTION**

DRAWN BY: L.G.S.
DWG. NAME: PRIMRD1
APPROVED BY: L.G.S.

DATE: 2-16-10

SCALE: NONE



DITCH GRADIENT 11% TO 17%

DITCH CHANNEL TO BE LINED WITH NON-ERODIBLE NON-TOXIC, NON-ACID FORMING SANDSTONE OR LIMESTONE RIP-RAP. THE RIP-RAP WILL BE "CLASS 2" RIP-RAP AND HAVE A MINIMUM THICKNESS OF 16".



TYPICAL PRIMARY ROADWAY DITCH CROSS SECTION

| | |
|---------------------|---------------|
| DRAWN BY: L.G.S. | DATE: 2-16-10 |
| DWG. NAME: PRIMRD2 | |
| APPROVED BY: L.G.S. | SCALE: NONE |

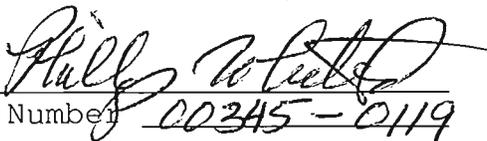
Applicant: Cahaba Resources, LLC.
Mine Name: Carter Mine
Permit Number: P-3986

PART III - OPERATION PLAN

Section C: Blasting Plan

Cahaba Resources, LLC.

Carter Mine


Alabama Certified Blaster Number 00345-0119

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|--|
| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

III. C. Blasting Plans

1. Ground vibrations and airblast control

(a) Check which of the following procedures will be used to limit ground vibration.

X Maximum Peak Particle Velocity

| Distance from Shot to Site | Maximum Peak Velocity |
|----------------------------|-----------------------|
| 0 - 300 feet | 1.25 Inches/Sec. |
| 301 - 5000 feet | 1.00 Inches/Sec. |
| 5001 - Beyond | 0.75 Inches/Sec. |

All shots must be seismographed.

X Scaled Distance Factor

| Distance from Shot to Site | SD Factor |
|----------------------------|-----------|
| 0 - 300 feet | 50 |
| 301 - 5000 feet | 55 |
| 5001 - Beyond | 65 |

Seismograph Monitoring is not required.

___ Modified Scale Distance Factor, approval from the Commission is required before this method can be used.

___ Blasting-level chart, approval from the Commission is required before this method can be used.

* Identify the structure used for measuring the scale distance.

Note: Cahaba Resources, LLC., will use the scaled distance factor method to limit ground vibrations caused by blasting operations at their Carter Mine. If for some reason the maximum peak particle velocity method is to be used, the Regulatory Authority will be notified and blast monitoring equipment as shown in Part III.-C-3(a) will be used. The Regulatory Authority will be notified as to the location of all blast monitoring sites. When blast operations are conducted within 500 feet of an occupied dwelling, seismographs will be used to monitor the blasts. See the permit map for the location of the occupied dwellings.

Applicant: Cahaba Resources, LLC.
Mine Name: Carter Mine
Permit Number: P-3986

(b) Check which of the following maximum levels and corresponding microphone lower frequency limitation will be used.

- 105 dB peak - c-weighted - slow response *
- 129 dB peak - 6 Hz or lower
- 133 dB peak - 2 Hz or lower
- 134 dB peak - 0.1 Hz or lower

Airblast monitoring will be on two consecutive blast starting with the first blast and will be performed on a two month spacing.

2. Describe what variations will be made in the blasting operations to control and correct adverse effects due to blasting.

Variations in burden, spacing, amount of explosives, delays, backfill and stemming will be made as necessary to correct adverse blasting effects. The stemming height and blasting schedule will also be adjusted, if necessary, to help reduce ground vibration. (See Attachment III.-C.-2. For additional variations).

3. Blast Monitoring.

(a) Describe the blast monitoring equipment to be used (make and model). Will it monitor ground vibrations, air blasts, or both?

| | | |
|----------------------------|----------|------|
| INSTANTEL - Mini Mate | 2-200 Hz | Both |
| INSTANTEL - Mini Mate Plus | 2-200 Hz | Both |

(b) How will monitoring equipment be installed and activated?

Equipment will be installed on a temporary basis for one individual shot or on a semi-permanent basis for 24 hour monitoring. The equipment will be activated by an individual or will be triggered by the ground vibrations or airblasts. - Transducers will be buried.

(c) Show the location of blast monitoring stations on the permit map or on a separate map with a scale of 1:24,000 or smaller.

See Attachment III-3-3(c).

* Only with the approval of the Commission.

Applicant: Cahaba Resources, LLC.

Mine Name: Carter Mine

Permit Number: P-3986

4. Is blasting proposed to be conducted within 500 feet of an active underground mine? () Yes (X) No

If yes, concurrence from MSHA is required.

5. Will blasting be conducted within 500 feet of an abandoned underground mine or within 1000 feet of an occupied dwelling, church, school, community or institutional building?
(XX) Yes () No

If yes, provide the following information, either as a part of the permit application or at a later date, but before reaching the distance given above. See Attachment III.-C.-5.

- (a) A sketch showing the drill patterns to be used; See Attachment III.-C.-5.
- (b) Critical dimensions, i.e., burden, spacing, stemming, drill hole diameter, etc.; See Attachment III.-C.-5.
- (c) Delay periods; See Attachment III.-C.-5.
- (d) Amount of decking; See Attachment III.-C.-5.
- (e) Type and amount of explosives to be used, including the loading weight (lbs. per foot of drill hole); See Attachment III.-C.-5.
- (f) Location and general description of the structures to be protected; The structures to be protected are those to the southwest and northwest of the permit area (See Permit Map). The structures include mobile homes, wood frame structures and brick veneer structures and concrete block structures.
- (g) Discuss the measures to be used in the blasting operations to protect the public from the adverse effects of blasting; Airblasts will be controlled by maintaining sufficient stemming. Prior to detonation of blasts the blast area will be patrolled, regulated and blocked off by employees to prevent unauthorized entry. Blast warnings will be given prior to each blast and all clear signals will be given after the blast when the blaster in charge determines that to be the case. See Attachment III.-C.-5.- (g)
- (h) The plans are to be prepared and signed by a Certified Blaster. See the sheet preceding the blasting plan.

6. At what times will blasting operations be conducted?

Blasting will be conducted between sunrise and sunset, Monday through Saturday of each week. This schedule will be valid for the year following its advertisement in a newspaper of local circulation.

7. Will blasting operations be conducted within 300 feet of an occupied dwelling, church, school, community or institutional building?
() Yes (XX) No

| |
|--|
| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

Attachment III.-C.-5.-(g)

Measures to be employed in an effort to protect the public from adverse affects due to blasting will include the following:

Airblasts will be minimized by (1) Covering all surface detonating cords with earthen material to confine their blasts. (2) By maintaining a stemming of a minimum of twelve (12) feet. The stemming material will consist of the cuttings from the borehole. Where the twelve (12) foot minimum can not be maintained, stemming material will be changed to crushed stone ranging in diameter from no less than 1/4 to 1/2 inch, and the Ash Formula (.7 X burden) used as the minimum stemming distance. (3) Burden distance will be maintained as designed to ensure no face blowouts occur causing airblasts. (4) Drill patterns will be drilled accurately ensuring that the proper burden and spacing is maintained. (5) Blasting during times of temperature inversions such as early morning and late afternoon will be limited. (6) Delays will be varied to allow for longer delays between the rows than holes.

Ground vibrations will be minimized by (1) Maintaining the designed blasthole patterns. (2) Limiting the charge weight by the scaled distance factor or through the data obtained from the seismograph. (3) Maintaining the proper delays between rows and blastholes in the rows. (4) The delay sequence will be adjusted as needed to control ground vibrations.

Fly rock from a blast will be minimized by (1) Maintaining the stemming of a blasthole at a minimum of twelve (12) feet. When possible the stemming material will consist of the cuttings from the borehole. Where the twelve (12) foot minimum can not be maintained, stemming material will be changed to crushed stone ranging in diameter from no less than 1/4 to 1/2 inch, and the Ash Formula (.7 X burden) used as the minimum stemming distance. (2) Burden distance will be maintained to the designed amount to prevent face blowout due to the burden distance being too small and to prevent blasthole blowout due to the burden distance being too great. (3) Prior to drilling a blast pattern, the bench will be inspected to determine if any geologic inconsistencies are present which could result in weaker zones which might cause a blowout and flyrock. The drill pattern will be altered as needed to avoid such zones if they are present. (4) Prior to the charging of a blast pattern, the drill operator will be consulted to determine if any inconsistencies were encountered during the drilling of the blast pattern. If inconsistencies are found, the charging sequence will be varied to stem through these inconsistencies to prevent blowouts. (5) The charge column of the blasthole will be closely monitored to ensure that the amount of blasting agents are not in excess of the allowable design maximum. (6) The delay sequence will be adjusted as needed to control flyrock. (7) Prior to detonation of blasts the blast area will be patrolled, regulated and blocked off by employees to prevent unauthorized entry.

Applicant: Cahaba Resources, LLC.

Mine Name: Carter Mine

Permit Number: P-3986

Blasts occurring near a public road will require that traffic on the road be stopped prior to the blast, a minimum distance of 1000 feet from the blast site, and held during detonation of the blast and until the all clear signal is sounded. Likewise, people occupying houses near a blast pattern will be given verbal warning, in addition to the normal audible warning, well in advance of detonation of a blast and will be asked to vacate to a safe location until the all clear signal is given. Blast warnings will be given prior to each blast and all clear signals will be given after the blast when the blaster in charge determines that to be the case. Each blast will be visibly monitored to determine whether or not flyrock occurred.

Should it become necessary to switch from the scale distance method of compliance to the maximum peak particle velocity method, the scale distance factor 55 shall be used as the departure point for graduated changes in the charge weight to distance ratio as allowed by the ground response (particle velocity of ground vibrations).

Where this relationship is utilized to determine weight charge per delay within 500 hundred feet of a residence all blasts will be monitored utilizing a seismograph and charge weights will be adjusted based on blast efficiency and ground vibrations to achieve the desired results while remaining within the limitations established by the regulatory authorities.

The closest that any blasting will occur to an occupied dwelling is 500 ft.

The general orientation of pits and the directions of mining of each increment at The Carter Mine are as follows:

Mining within Increment No. 1 will commence just Northeast of Basin 002 in an area where pre-law surface mining occurred previously. This area was left ungraded and un-reclaimed and remains that way to the present. Pits will generally align in a North to South direction with advancement of mining to the East. This area was selectively mined by excavating to the Carter Seam in the tops of ridges where the overburden was of sufficient depth the Carter Coal Seam had not been affected by oxidation and percolation of water through the seam. Spoil material was placed to the sides over unmined Carter Coal Seam as well as below the outcrop.

Because the Carter Coal Seam remaining is under mine spoil, the mining process will consist of exploring for the Carter Coal Seam with the mining equipment and placing the mine spoil in areas where the Carter Seam was previously mined or in areas where the Carter Coal Seam has been recently mined by this operation. This exploration process will consist of digging test pits with track hoes, front end loaders, bull dozers, etc. to discover where the Carter Coal Seam still exist, "in place", under the pre-law mine spoil and natural ground. Then the areas containing the Carter Coal Seam will be excavated to recover the coal seam followed by loading the coal seam into trucks and hauling to stockpile or direct to end

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users. The mine spoil from the excavation of the Carter Coal Seam will initially be placed in old pre-law pits or pre-law spoil areas to grade these areas back to A.O.C. within this Increment. The spoil from the following pits will be spoiled within subsequent open pits or in the old un-reclaimed pre-law cuts in that vicinity. This will be followed by grading to the approximate original contour and re-vegetation during the first available planting season. As mining progresses to the East this process of exploring, mining and re-grading to the approximate original contour will be repeated until mining reaches areas that were not previously disturbed in the East portion of Increment No.1. Once mining progresses to the East a sufficient distance, such as two cuts, a second mining "face" will begin just North of Basin 006. Cut alignment will be Northeast to Southwest with progress to the Northwest. Mining will occur "simultaneously" with the approximately 60,000 cubic yards of spoil from the mining area North of Basin 006 being trucked to this area Northeast of Basin 002 to be utilized to fill the pre-law pits and grade the area to the approximate original contour over the area between Basin 002 and the North Boundary & East Boundary of Increment No. 1 on the East side of Black Creek. This will require an area approximately 570' x 570' by 5' high or smaller if the depth is more in the old pre-law pits or pre-law spoil areas. See the Operations Plan Grading Plan Attachment III-A-1A for spoiling area identification to contain the 60,000 Cubic Yards from the West side of Black Creek. The three sites identified on Attachment III-A-1A Northeast of Basin 002 have a capacity of 82,000 cubic yards which is more than sufficient. The spoil material from the following pits West of Black Creek will be spoiled within subsequent open pits West of Black Creek. There will be one or any number of the following occurring at the locations within Increment No. 1 as Identified on the Operations Plan Map Attachment III-A-1, Clearing and Grubbing, Topsoil Removal (if required), Overburden Drilling and Blasting, Overburden Removal, Coal Recovery, Re-Grading, Re-vegetation . Finally mining within Increment No. 1, along the ridge between Basins 002 & 003, will occur simultaneously with Increment No.2. The mining cuts will begin at the Southwest tip of the ridge lying between Basins 002 & 003 with the cuts lying Northwest to Southeast with progress to the Northeast. The spoil material from the initial cut will be placed adjacent to the initial cut in the Southwest direction to the old spoil area and the Northeast direction into the old pit. The initial cut will generate approximately 50,000 cubic yards of spoil material while the old pit on the ridge has the capacity of 59,000 cubic yards with 30' of fill which is only a portion of the total capacity of the old pit not counting the old spoil area capacity adjacent to the old pit. The spoil from the following pits will be spoiled within subsequent open pits or in the old un-reclaimed pre-law cuts in that vicinity. Mining will continue in this manner until the limits of Increment No. 1 & No. 2 are reached at the Northeast end of the ridge between Basin 002 & 003.

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A request for a 24 month delay in contemporaneous reclamation has been submitted to the Director for the proposed final highwall along the East boundary of Increment No.1 to be located along the East boundary of the W 1/2 of the SE 1/4 of Section 34, Township 20 South, Range 8 West, Tuscaloosa County Alabama.

Mining within Increment No. 2, upon the completion of mining the ridge between Basin 002 & 003, will then move to the East in three possible locations, simultaneously or individually, East and Northeast of Basin 003. The cuts will align North to South with progress to the East. See the three Pit Alignment Arrows East of Basin 003 within Increment No.2 for the three locations. There will be one or any number of the following occurring at the three locations, Clearing and Grubbing, Topsoil Removal (if required), Overburden Drilling and Blasting, Overburden Removal, Coal Recovery, Re-Grading, Re-vegetation . The spoil material from the initial cuts will be placed adjacent to the cut in the area West of the mining location on the North side of Increment No. 2 or in the old un-reclaimed pre-law cuts in the vicinity of the other two locations. The spoil from the following pits will be spoiled within subsequent open pits or in the old un-reclaimed pre-law cuts in that vicinity. Mining will continue in this manner until the limits of Increment No. 2 are reached at the North and East boundary of the Increment. All three places are planed to be mined.

Mining within Increment No. 3 will be a continuation of operations of Increment No. 2 on the Northwest side of the Unnamed Tributary of Black Creek in the SE 1/4 of SE 1/4 of Section 34. Spoil material from the initial cuts will be spoiled within the last cuts of Increment No. 2. The spoil material from the following pits will be spoiled within subsequent pits. Pits will generally align in a North to South direction with advancement of mining to the East. Mining will continue in this manner until the limits of Increment No. 3 are reached on the Northwest side of said Unnamed Tributary. Additional mining in Increment No.3 will begin on the Southeast side of said Unnamed Tributary and on the East side of Basin 027. Pits will generally align in a North to South direction with advancement of mining to the East. Spoil material from the initial cuts will be spoiled just East and Northeast of Basin 027 in a manner so as not to block any drainage path to the basin. This area has been previously mined. This is located near the tip of the Arrow showing the mining progress direction on the Operations Map. The spoil material from the following pits will be spoiled within subsequent pits including the back stacking of the highwall on the Southern portion of Increment No. 3. Pits will generally align in a North to South direction with advancement of mining to the East. Mining will continue in this manner until the limits of Increment No. 3 are reached on the Southeast side of said Unnamed Tributary. There are two structures in Increment No. 3 that are not occupied dwellings however the owner wants a 50' setback from the structures so we have placed the Permit Boundary 50' from the structures.

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| Applicant: <u>Cahaba Resources, LLC.</u> |
| Mine Name: <u>Carter Mine</u> |
| Permit Number: <u>P-3986</u> |

Mining within Increment No. 4 will be a continuation of operations of Increment No. 1 near the West boundary of the NE 1/4 of SE 1/4 of Section 34. Spoil material from the initial cuts will be spoiled in the last cuts of Increment No.1. The spoil material from the following pits will be spoiled within subsequent pits. Pits will generally align in a north to south direction with advancement to the east. When spoil is placed in the previous cut the highwall on the North end will be back stacked to reclaim the highwall as mining progresses to the East. Mining will continue in this manner until the limits of Increment No. 4 are reached.

Mining within Increment No. 5 will be a continuation of operations of Increment No. 3 near the East boundary of the SE 1/4 of SE 1/4 of Section 34. Spoil material from the initial cuts will be spoiled in the last cuts of Increment No.3. The spoil material from the following pits will be spoiled within subsequent pits. Pits will generally align in a north to south direction with advancement to the east. Mining will continue in this manner until the limits of Increment No. 5 are reached.

See Attachment III.-A.-1. Operations Map for cut layout information.

CAHABA RESOURCES CARTER MINE

BURDEN WILL RANGE FROM 12 TO 20 FT AND SPACING WILL RANGE FROM 1.2 TO 24 FT.

STEMMING WILL RANGE FROM 7 TO 25 FT.

DRILL HOLES WILL RANGE FROM 5.75 TO 7.875 INCHES WITH THE STANDARD BEING 7.875 INCHES

DELAY PERIODS WILL BE NON-ELECTRIC WITH 500 MS IN HOLE DELAY WITH 17,25 AND 42 MS SURFACE DELAYS.

DECKING WILL BE USED WHEN NECESSARY TO CONFORM TO SCALE DISTANCE AND MINIMUM OF 6 FT OF INERT MATERIAL WOULD BE USED.

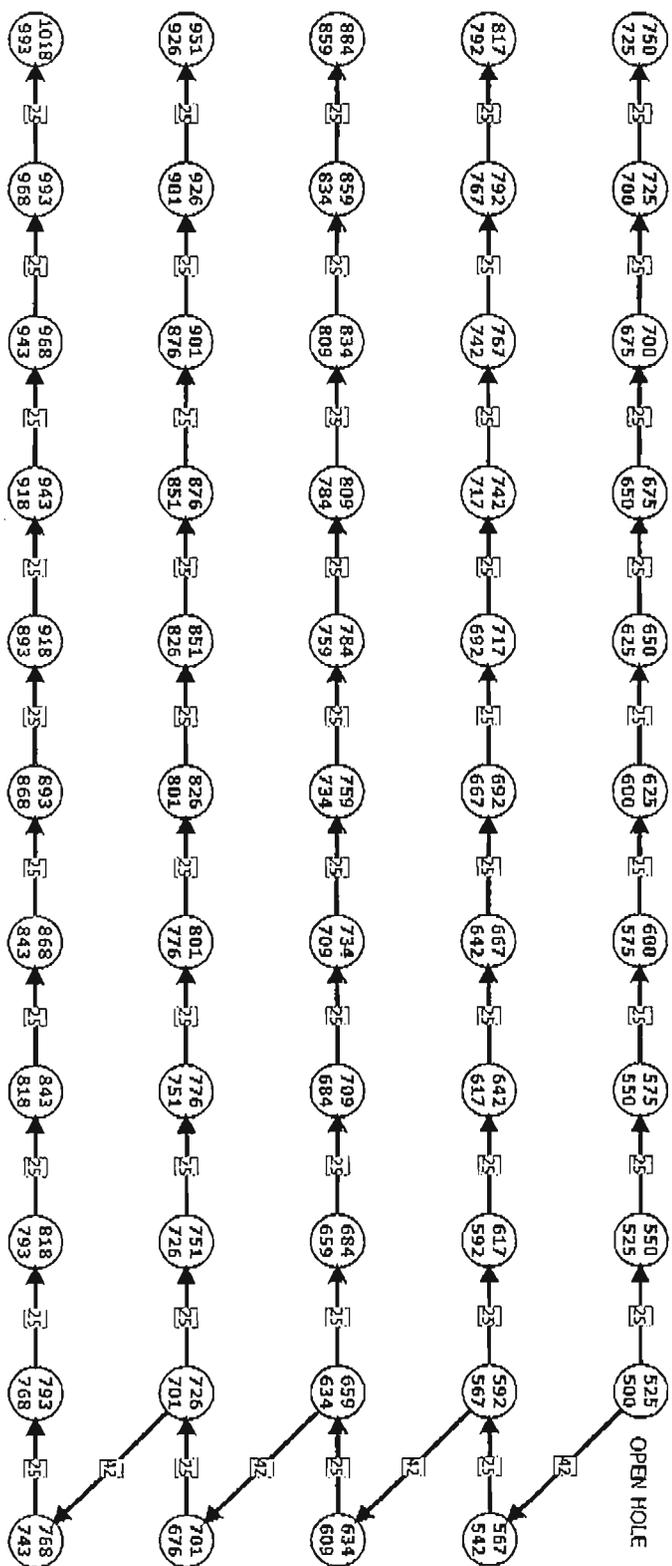
BULK ANFO AND HEET WILL BE USED WITH THE FOLLOWING LBS PER FOOT

7.875 INCH BOREHOLE WOULD BE ANFO WOULD BE 17.95 LBS. PER FOOT

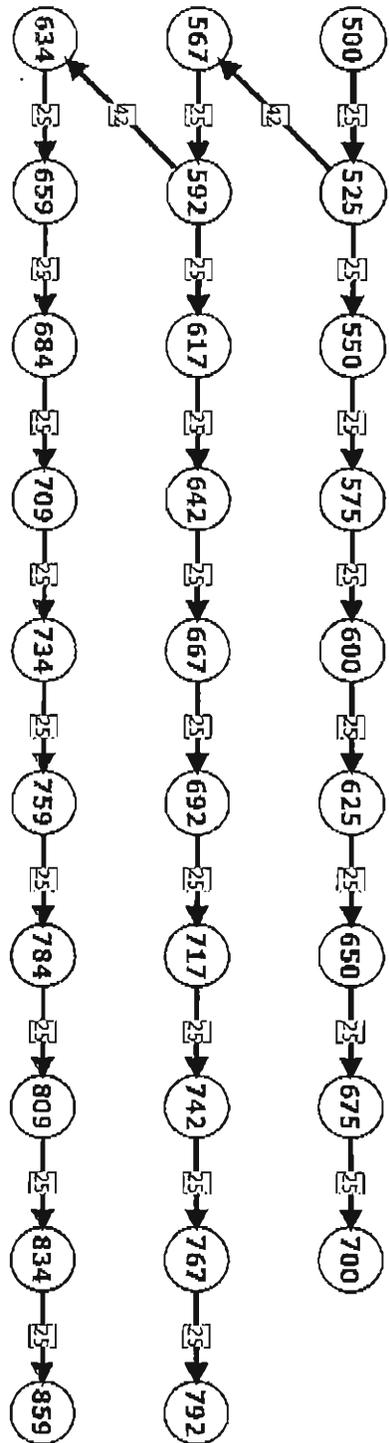
| | | |
|--------------------|--------------|--------------------|
| | HEET (BLEND) | 25.34 LBS PER FOOT |
| 6.75 INCH BOREHOLE | ANFO | 13.20 LBS PER FOOT |
| | HEET (BLEND) | 18.62 LBS PER FOOT |
| 5.75 INCH BOREHOLE | ANFO | 9.60 LBS PER FOOT |
| | HEET (BLEND) | 13.52 LBS PER FOOT |

PLANS TO PROTECT THE PUBLIC WOULD BE AS FOLLOWS AND WOULD RESULT IN ONE OR MORE OF THE FOLLOWING DECKING, STEMMING LENGTHS, TIMING, HOLE SIZE, PATTERNS AND ELECTRONICS.

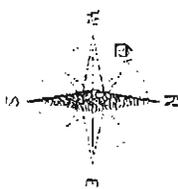
Hole Label Mode: Cumulative In-Hole Delays

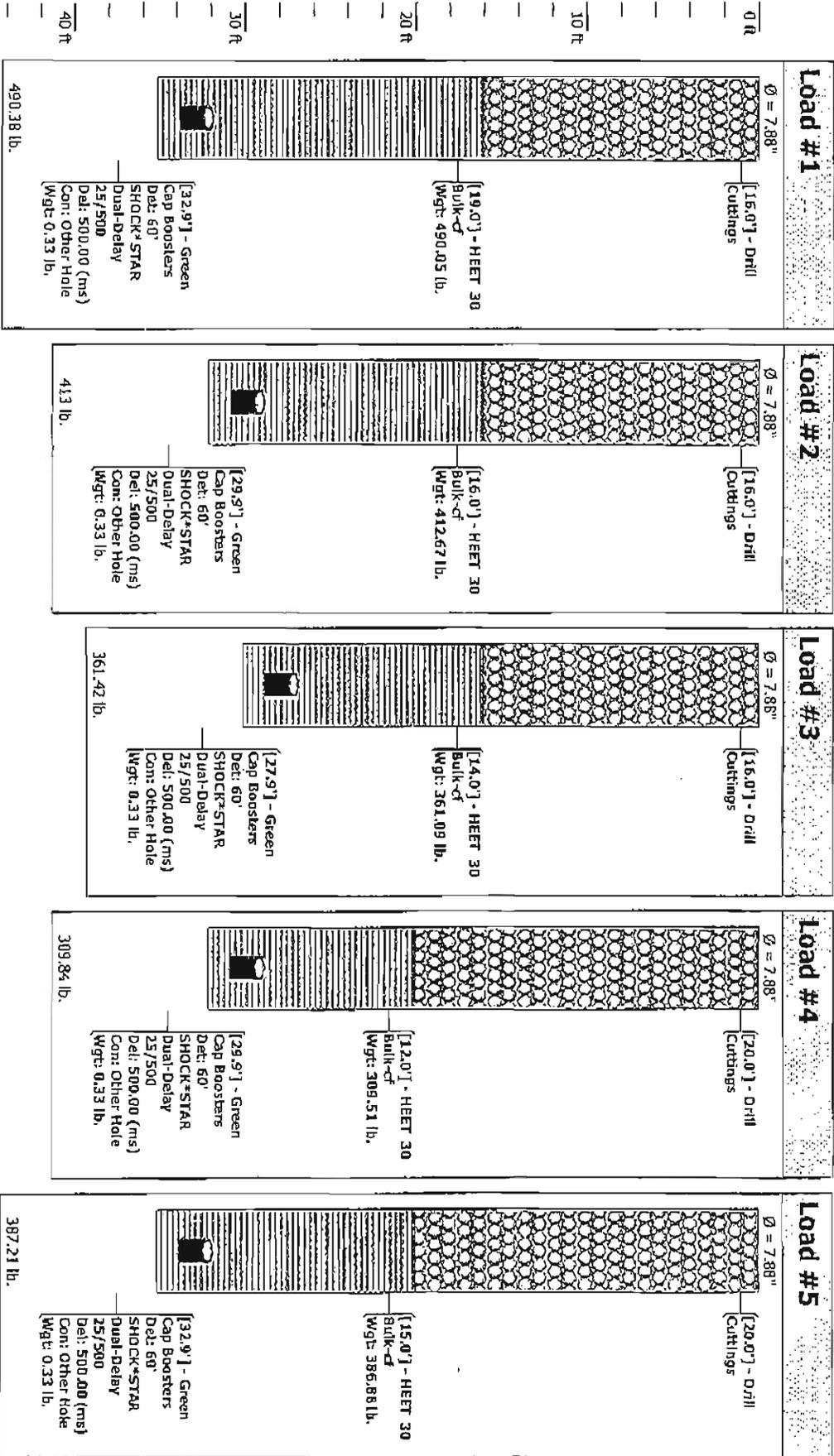


OPEN HOLE

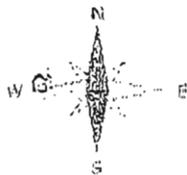
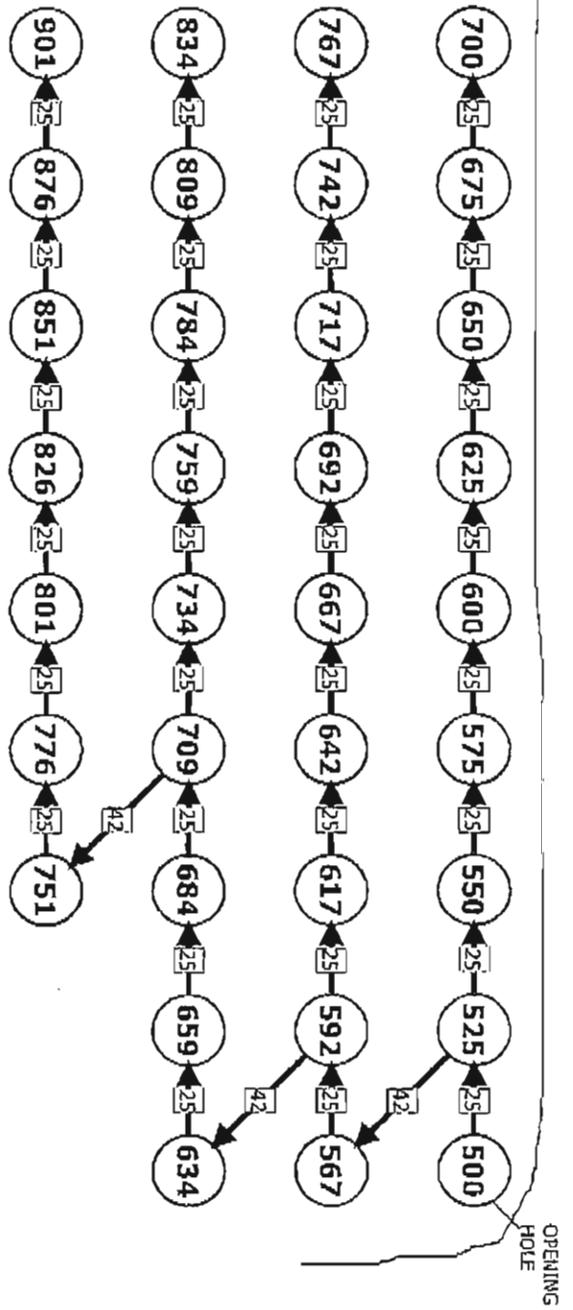


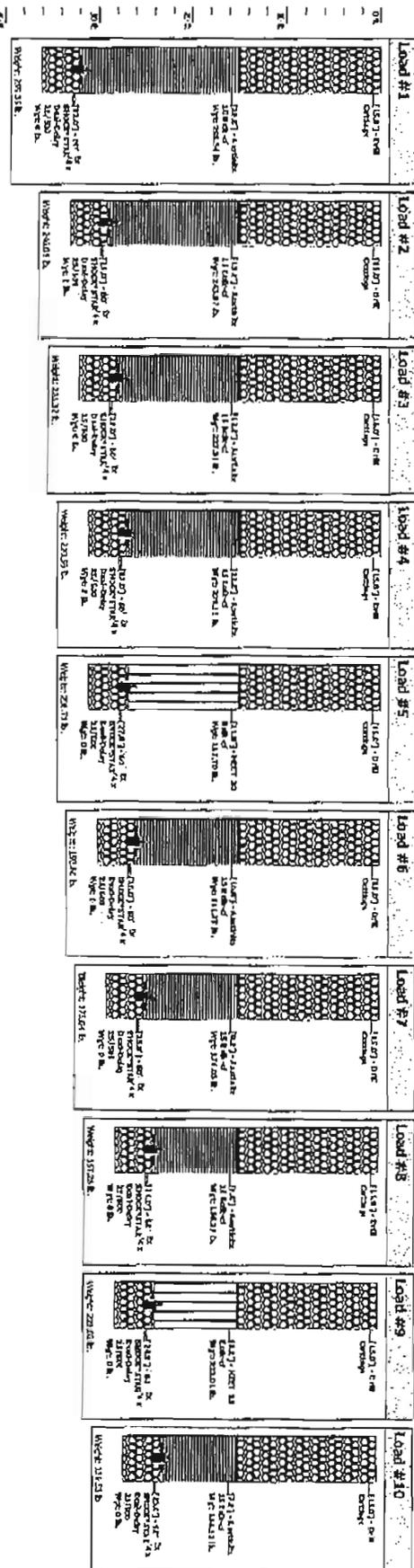
Scale: 1" = 100'



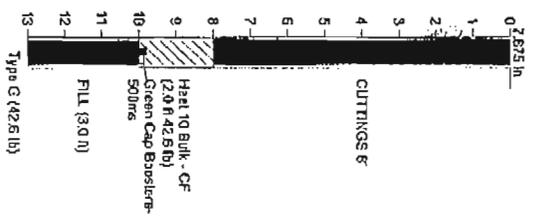
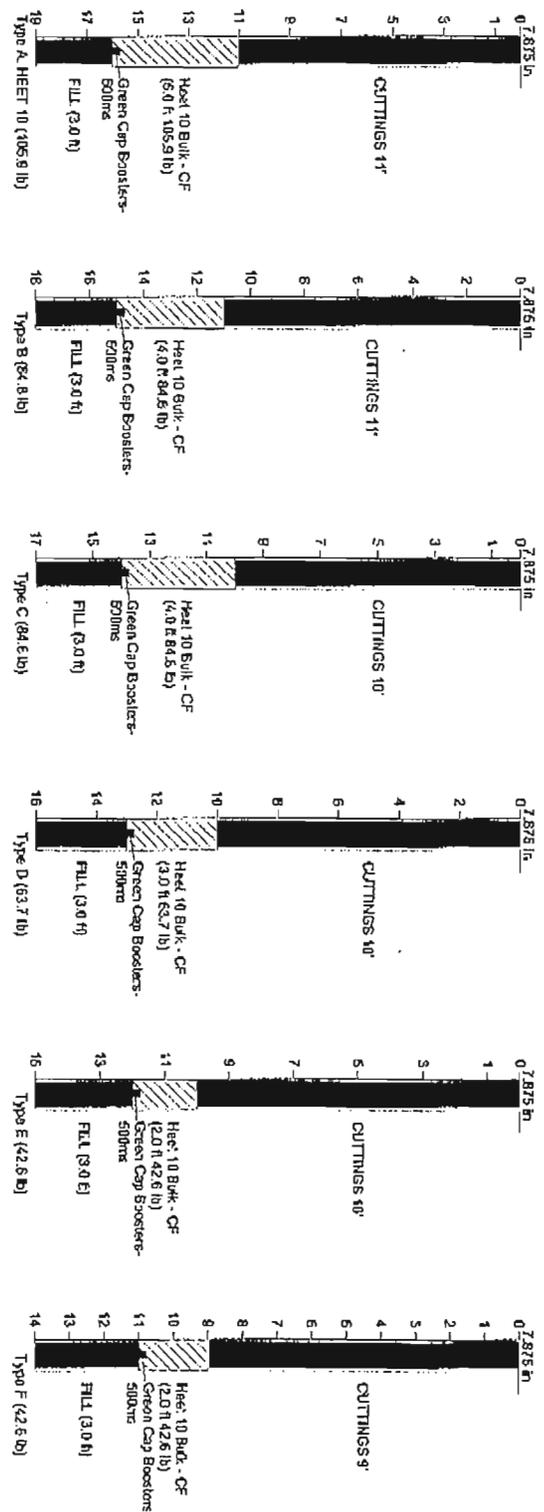


Scale 1/4"=100'

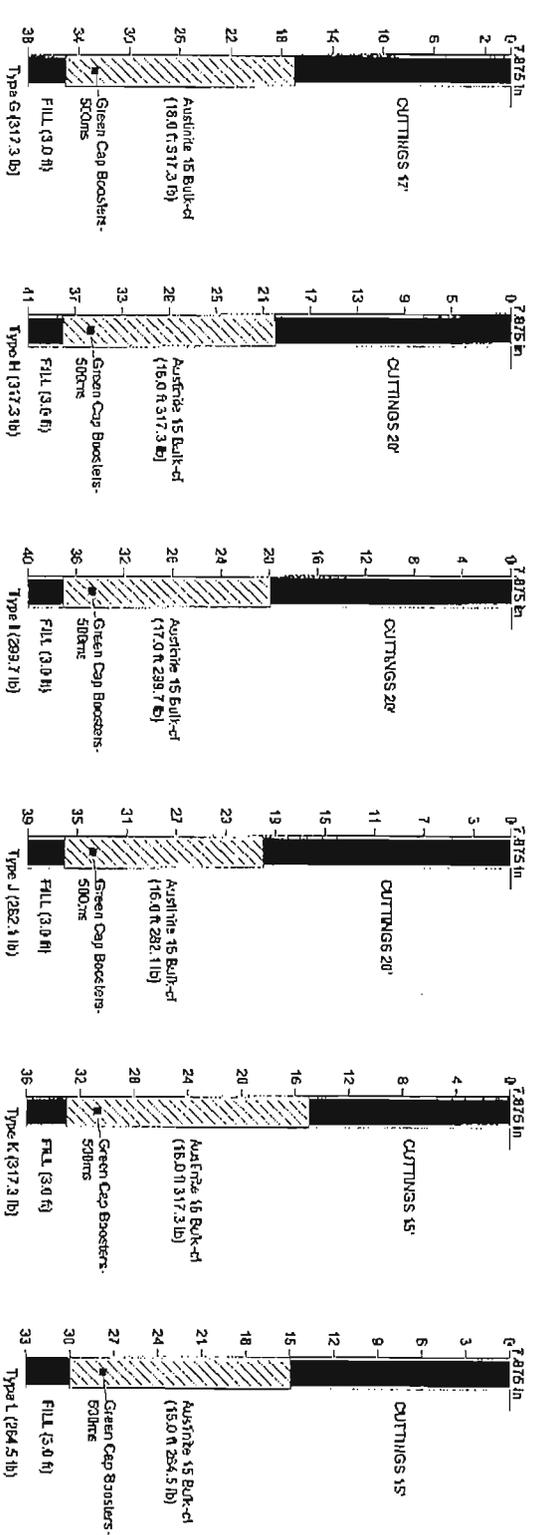
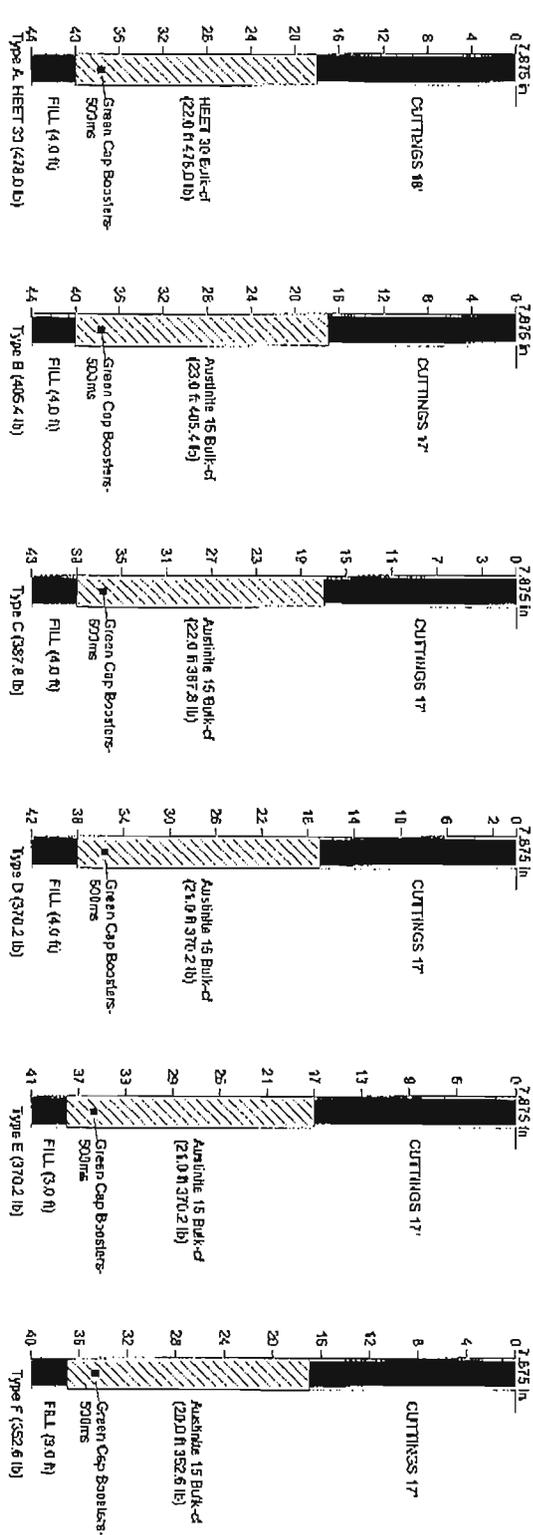




Blank C31813W Date: 03/10/13 16:57 Type: Overunder/Shirting Company: CAHARA RESOURCES, LLC - MINE #1 P/B Permit: DEERLUCK SHOT SERVICE Location: CARTER SEMA, AUSA Location: AP Summit, AL



Blas: M101813V Date: 02/18/15 16:15 Type: Construction/Shipping Company: CAHABA RESOURCES, LLC - NINE #1 Permit: DEBIL LK SHOT SERVICE Location: YALLOKE SSAIL Austin Location: AP Summit, AL



Riser M31933V/Date: 03/19/13 16:15 Type: Overburden/Shipping Container; CAHABA RESOURCES, LLC - MINE #1 PLYMOUTH; DEERLICK 570T SERVICE Location: MILLDALE SEAM, Austin Location: AP Summit, AL

