

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</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 not be limited to:

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

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)

See [Permit Map](#) and [Attachment III-A-1, Operations Map](#)

The timing increments are as follows:

<u>Increment No.</u>	<u>Acres</u>	<u>From</u>	<u>Estimate Life</u>
1	478	Issuance of Permit	12 Months
2	475	End of Increment #1	12 Months
3	343	End of Increment #2	12 Months
4	426	End of Increment #3	12 Months
5	254	End of Increment #4	12 Months
6	63	Permit Issuance	Life of Mine

The sequence of mining operations will be generally as follows:

- 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

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

ATTACHMENT III-A-1
TYPE AND METHOD OF COAL MINING PROCEDURES

The area method of surface mining will be used. Mining operations will be limited to the Upper New Castle, Lower New Castle, Mary Lee, Blue Creek, and Jagger coal seams only. Preparation will consist of (a) timber removal (b) topsoil removal (if required) (c) drilling and blasting of overburden (d) overburden removal (e) coal removal (f) regrading and revegetation. Once the site has been regraded and topsoiled (if required) soil samples will be analyzed (where required) and proper nutrients will be added before revegetation. Any problem that may arise will be handled by proper consulting personnel utilizing various support equipment and support personnel.

General Note: All previous ASMC permits P-3224, P-3438, P-3483, and P-3699 have been mined and reclaimed or are under bond forfeiture. The Shannon and Sumter Underground Mines are abandoned. There are no current mining activities ongoing on any of the permits listed above other than a coal loadout area within Increment No. 6 of P-3859.

Increment No. 1, a portion of Increment No. 3, a portion of Increment No. 4, and a portion of Increment No. 6 of ASMC P-3859 are over permitted by the permit boundaries of the Shannon Mine No. 4. Mining operations within Increment No. 1 of P-3859 are complete and the increment has a Phase I Bond Release. Portions of Increments No. 2, 3, 4, and 5 of P-3959 over permit Increment No. 1 of P-3859 in its entirety. As Increments No. 2, 3, 4, and 5 of P-3959 are bonded, revision applications to P-3859 will be submitted to the regulatory authority deleting the over permitted area as double permitted and double bonded area or Increment No. 1 of P-3859 will progress through the normal bond release process to receive a Phase II and eventually a Phase III release. Increment No. 3 of P-3859 is undisturbed and unbonded. A portion of Increment No. 1 of P-3959 over permits a small portion of Increment No. 3 of P-3859. As Increment No. 1 of P-3959 is bonded and the over permitted area of Increment No. 3 of P-3859 is disturbed, a revision application to P-3859 will be submitted to the regulatory authority deleting the over permitted area as double permitted and double bonded area or the over permitted area of Increment No. 3 of P-3859 will be mined through the approved operation plan of permit P-3859. Increment No. 4 of P-3859 is undisturbed and unbonded. Portions of Increments No. 4 and 5 of P-3959 over permit a portion of Increment No. 4 of P-3859. A permit revision application to P-3859 is currently under review by the regulatory authority deleting the over permitted area, namely cuts 1 through 33 of Increment No. 4 of P-3859, as double permitted and undisturbed area. The remaining portions of Increment No. 4 of P-3859, namely cuts 34 through 102 will be mined through the approved operation plan of permit P-3859. Spoil material from the start up operations of Increment No. 4 of P-3859 will be transported in a controlled manner and disposed of with Increment No. 5 of P-3959. Increment

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

No. 6 of P-3859 is an active incidental increment. Increment No. 6 of P-3959 over permits a portion of Increment No. 6 of P-3859. A permit revision application to P-3859 is currently under review by the regulatory authority deleting the over permitted area of Increment No. 6 of P-3859, as double permitted and double bonded area.

Mining at the Shannon Mine No. 4 will commence within Increment No. 1 along the reclaimed highwall. Mobile equipment will be used to mine the overburden above the New Castle Coal Seam. Once the New Castle Coal Seam has been removed, the dragline will be used to mine the innerburden between the remaining coal seams. Pits will generally align in a northeast to southwest and a northwest to southeast direction with an outside turn in the highwall with advancement to the northeast. Spoil material will be spoiled to the west, northwest, and southwest within the adjacent previously mined areas, within subsequent open pits, and downslope. Mining will continue in this manner until the limits of the increment are reached.

The mining of Increment No. 2 will be a continuation of mining operations of Cut No. 24 of Increment No. 1. Mobile equipment will be used to mine the overburden above the New Castle Coal Seam. Once the New Castle Coal Seam has been removed, the dragline will be used to mine the innerburden between the remaining coal seams. Pits will generally align in a northeast to southwest and a northwest to southeast direction with an outside turn in the highwall with advancement to the northeast. Spoil material will be spoiled to the west, northwest, and southwest within the adjacent previously mined areas, within subsequent open pits, and downslope. Mining will continue in this manner until the limits of the increment are reached. In an effort to provide additional sediment storage to the drainage control for the watersheds of Basins 002, 002B, 003, and 003A, additional basins will be added during reclamation. A permit revision application will be submitted to the regulatory authority showing their locations when determined prior to disturbance within Cut No. 36 of Increment No. 2.

The mining of Increment No. 3 will be a continuation of mining operations of Cut No. 47 of Increment No. 2. Mobile equipment will be used to mine the overburden above the New Castle Coal Seam. Once the New Castle Coal Seam has been removed, the dragline will be used to mine the innerburden between the remaining coal seams. Pits will generally align in a northeast to southwest and a northwest to southeast direction with an outside turn in the highwall with advancement to the northeast. Spoil material will be spoiled to the west, northwest, and southwest within the adjacent previously mined areas, within subsequent open pits, and downslope. Mining will continue in this manner until the limits of the increment are reached. As part of the mining operations within Increment No. 3, Basin 014 of P-3859 is proposed to be mined through. Basin 014 will be dewatered in an environmentally safe manner (such as siphoning, pumping, etc.) and mined through or

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

filled as necessary. Basin 014 will remain in place until Basin 052 is constructed and certified to the Regulatory Authority.

The mining of Increment No. 4 will be a continuation of mining operations of Cut No. 68 of Increment No. 3. Mobile equipment will be used to mine the overburden above the New Castle Coal Seam. Once the New Castle Coal Seam has been removed, the dragline will be used to mine the innerburden between the remaining coal seams. Pits will generally align in a northeast to southwest and a northwest to southeast direction with an outside turn in the highwall with advancement to the northeast. Spoil material will be spoiled to the west, northwest, and southwest within the adjacent previously mined areas, within subsequent open pits, and downslope. Mining will continue in this manner until the limits of the increment are reached. As part of the mining operations within Increment No. 4, Basin 022A of P-3859 is proposed to be mined through. Basin 022A will be dewatered in an environmentally safe manner (such as siphoning, pumping, etc.) and mined through or filled as necessary.

The mining of Increment No. 5 will be a continuation of mining operations of Cut No. 89 of Increment No. 4. Mobile equipment will be used to mine the overburden above the New Castle Coal Seam. Once the New Castle Coal Seam has been removed, the dragline will be used to mine the innerburden between the remaining coal seams. Pits will generally align in a northeast to southwest and a northwest to southeast direction with an outside turn in the highwall with advancement to the northeast. Spoil material will be spoiled to the west, northwest, and southwest within the adjacent previously mined areas, within subsequent open pits, and downslope. Mining will continue in this manner until the limits of the increment are reached. As part of the mining operations within Increment No. 5, Basin 022A of P-3859 is proposed to be mined through. Basin 022A will be dewatered in an environmentally safe manner (such as siphoning, pumping, etc.) and mined through or filled as necessary.

See Attachment III.-A.-1, Operations Map, for the cut sequence layout.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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.

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.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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 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. 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

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

the best available non-acid and non-toxic forming and non-combustible material.

- 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. 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) The mine facilities at this site will consist of 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.

A dewatering station consisting of a dewatering well and pump used to dewater the underground workings of Black Diamond Coal Mining Co.'s Mines No. 2, 3, and 4 and Adger Mine at this facility. Construction of the pumping station and dewatering well will begin with the clearing and grubbing of the construction site. The foundation areas will be graded to the appropriate grades as necessary to facilitate construction operations. Upon the completion of the grading operations the dewatering well will be drilled at the required location for the facility. The well will be cased as shown in [Attachment III-A-6](#). Sediment control will be provided as necessary during construction of the facilities. Sediment control may consist of sediment basins, silt fencing, or hay dams. Water will be withdrawn from the Black Diamond Coal Mining Co.'s Mines No. 2, 3, and 4 and Adger Mine and allowed to discharge to Basins 047A and 025 for treatment. Modifications to these facilities will be performed as necessary to upgrade and update the facilities during the life of the mine. Maintenance will consist of the clean out of wells, replacement of casing, and the replacement of worn pumps and pumplines when necessary. When no longer needed, the well will be sealed by filling the well with concrete or other suitable sealant. The affected surface area will be graded,

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

fertilized, seeded with a seed mixture approved in the reclamation plan, and mulched to ensure a permanent diverse vegetative cover. See [Attachment III-A-6](#) for typical illustration of methods to be used to seal and/or manage wells.

- 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, energy dissipators, 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

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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. -24 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 a stated in the reclamation plan.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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)

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.

Withdrawal wells will be sealed by filling the wells with concrete or other suitable sealant. The affected surface area will be graded, fertilized, seeded with a seed mixture approved in the reclamation plan, and mulched to ensure a permanent diverse vegetative cover. See [Attachment III-A-6](#) for typical illustration of methods to be used to seal and/or manage bore holes and wells.

Abandoned gas and/or oil wells, which may be encountered during mining operations, will be eliminated upon the completion of coal removal in the general area of the well, by squaring up the remaining casing for preparation of sealing. If the casing is steel, a 3/8 inch thick steel cap will be welded to the existing casing. If the casing is not steel, the top three feet of the casing will be plugged with concrete or sacrete. See [Attachment III-A-6](#) for typical illustration of methods to be used to seal abandoned gas and/or oil wells.

When active gas and/oil wells are encountered during mining operations, the owner of the well will submit an abandonment plan to the Alabama Oil and Gas Board to abandon the well. The well will be sealed in accordance with their plan and specifications. Upon the completion of coal removal, the gas and/or oil well will be treated as an abandoned well and sealed as specified above. If the owner proposes to temporary abandon the well and resume production after mining operations have progressed a safe distance away, a plan will be submitted to the Oil and Gas Board for approval.

Underground mine openings will be eliminated by backfilling the openings with a clay material having a permeability ranging from 0.00001 to 0.000001 cm/sec. The clay material will be placed in horizontal lifts not to exceed 6 inches and compacted to 95% of the standard proctor. The clay material will be placed to a minimum height of 5 feet above the top of the underground mine opening. Upon the completion of the sealing operations the open pit will be backfilled and reclaimed in accordance with the reclamation plan. See [Attachment III-A-6](#) for typical illustration of methods to be used to seal underground mine openings within the lowest coal seam to be mined.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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 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.

8. Is surface mining to be conducted within 500 feet of an underground mine? (780.27, 816.79) (XXX) Yes () 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.

Alabama Land and Mineral Corp.'s Shannon Underground Mine and Black Diamond Coal Mining Co.'s Sumter Mine lie within the limits of this proposed mining operation. Both of the above mentioned mines are abandoned and are located within the Blue Creek coal seam which is to be mined at the Shannon Mine No.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

4. See [Attachment III-A-8 Underground Map](#).

In numerous previous permit applications submitted to ASMC, the Mine Safety and Health Administration (MSHA) has been consulted concerning conducting surface mining within 500 feet of an abandoned or inactive underground mine. MSHA's response has always been, if the underground mine is abandoned or inactive with no works in the mine, MSHA has no interest, concern, or jurisdiction.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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.

3. Diversions. (780.29,816.43, 816.44)

Are diversions of overland flow or stream channel diversions proposed?

(X) Yes () No

If yes, complete the following:

- (a) Is the diversion to be permanent?

() Yes (X) No

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

CERTIFICATION STATEMENT:

I hereby certify that Attachment III-B.-2.A prepared for Shannon, LLC's Shannon Mine No. 4, P-3959, 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 by knowledge and belief.

Steven R. Ingle, P.E.
AL Registration #18213

Date

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

GENERAL PLAN

The general plan consists of constructing thirteen (13) proposed Basins, Basins 008, 012, 013, 016, 016A, 017, 018, 019, 020, 023, 052, 053, 076, and utilizing eleven (11) existing Basins, Basins 001, 002, 002B, 003, 003A, 008A, 009, 010, 015, 015A, and 022 for the life of the mine. The following table lists the existing basins, their previous basins identification number, which ASMC permit they were originally permitted under, and the ASMC permit which they are currently permitted under.

Proposed Basin No.	Previous Basin No.	Previously Permitted Under	Currently Permitted Under
001	001	P-3483	P-3859
002	002	P-3699	Bond Forfeiture
002B	002B	P-3699	Bond Forfeiture
003	003	P-3699	P-3859
003A	003A	P-3699	Bond Forfeiture
008A	*010	P-3699	Bond Forfeiture
008	*010 *001	P-3699 P-3224	Bond Forfeiture
009	009	P-3699	Bond Forfeiture
010	008	P-3699	Bond Forfeiture
015	007	P-3699	Bond Forfeiture
015A	007A	P-3699	Bond Forfeiture
022	022	P-3859	P-3859

* Indicates that through field reconnaissance and research from aerial photography dating back to February 1998, Basin 010 of P-3699 and Basin 001 of P-3224 was not constructed at the permitted sites. However, the basin was constructed at the site shown for Basin 008A of P-3959. From this research no basin has been constructed at the site proposed as Basin 008 of P-3959.

Basins 002 and 002B are designed to function in series, Basins 003

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

and 003A are designed to function in series, Basins 008 and 008A are designed to function in series, Basins 015 and 015A are designed to function in series, Basins 016 and 016A are designed to function in series, and Basins 022 and 023 will be designed to function in series. Basin 022 will be the point source discharge until Basin 023 is constructed to function in series with Basin 022. At that point in time Basin 023 will become the point source discharge. Basin 022 will not be filled or mined through as part of this application.

The original design plans for Basins 001, 002, 002B, 003, 003A, 008A (permitted as Basin 010 under P-3699), 009, 010 (permitted as Basin 008 under P-3699), 015 (permitted as Basin 007 under P-3699), 015A (permitted as Basin 007A under P-3699) and Basin 022 are attached. Detailed design plans or re-evaluation design plans for Basins 001, 002, 002B, 003, 003A, 008, 008A, 009, 022 and 023 are attached. Upon written approval from the Regulatory Authority, the basins will be constructed or modified and certified to them prior to disturbance within their respective drainage areas. In an effort to provide additional sediment storage to the drainage control for the watersheds of Basins 002, 002B, 003, and 003A, additional basins will be added during reclamation. A permit revision application will be submitted to the regulatory authority showing their locations when determined prior to disturbance within Cut No. 36 of Increment No. 2. Detailed design plans or re-evaluation design plans for Basins 010, 012, 013, 015, 015A, 016, 016A, 017, 018, 019, 020, 052, 053, 076 will be submitted to the regulatory authority and upon written approval from them will be constructed or modified and certified to the Regulatory Authority prior to disturbance within their respective drainage areas. It should be noted that the watershed boundaries for some of the existing basins have changed from that shown within their original design plans. This is due to the fact that previous disturbances within their watersheds have changed their boundaries. Revised aerial topography was used to establish the basins current watershed boundaries. General design data is enclosed.

There are existing basins previously permitted under ASMC permits, Basins 002A, 003B, and 010A under P-3699 and Basins 014 and 022A under P-3859, and existing water impoundments within the permit area which will not be utilized as part of the drainage control plan for this application. Basins 002A, 003B, 010A, 014, and 022A and the existing impoundments will be dewatered in an environmentally safe manner (such as siphoning, pumping, etc.) and mined through or filled as necessary. Basin 014 will remain in place until Basin 052 is constructed and certified to the Regulatory Authority prior to disturbance within either of their drainage areas.

All basins are proposed to be temporary and will be graded and revegetated prior to a request for Phase II bond release. (See attached data and watershed map for basin location and preliminary hydrologic information. See Attachment III-B-2(a), Permit Map, and

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

[Watershed Map](#) for basin locations.

Geologic investigations of the area indicate layers of sandstone, shale and minor amounts of bituminous coal and underclay. The coal to be mined by Shannon, LLC, will be confined to the New Castle, Mary Lee, Blue Creek, and Jagger Coal Seams of the Mary Lee Coal Group. The strata in the area is characterized by small gentle open folding.

All surface drainage from the proposed mining area flows into the unnamed tributaries to Mud Creek, Mud Creek, Lick Creek and unnamed tributaries to Buffalo Creek.

No existing or proposed underground mines are known to exist within 500' of any existing or proposed sediment basin.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

Attachment III-B-2-A

<u>Basin No.</u>	<u>Location</u>	<u>Drainage Area (Acres)</u>
001	NW 1/4 of NE 1/4, Sec. 11, T. 20 S, R. 6 W.	78
002	SE 1/4 of NE 1/4, Sec. 10, T. 20 S, R. 6 W.	335
002B	NE 1/4 of NE 1/4, Sec. 10 T. 20 S, R. 6 W. NW 1/4 of NW 1/4, Sec. 11 T. 20 S, R. 6 W.	166
003	SW 1/4 of NW 1/4, Sec. 10 T. 20 S, R. 6 W.	293
003A	SE 1/4 of NW 1/4, Sec. 10 T. 20 S, R. 6 W.	105
008	SE 1/4 of NW 1/4 & NE 1/4 of SW 1/4, Sec. 3 T. 20 S, R. 6 W.	114
008A	NE 1/4 of SW 1/4, Sec. 3, T. 20 S, R. 6 W.	100
009	SW 1/4 of NE 1/4, Sec. 3, T. 20 S, R. 6 W.	69
010	N 1/2 of NE 1/4, S 1/2 of NE 1/4, of Sec. 3, T. 20 S, R. 6 W.	54
012	SE 1/4 of SW 1/4, SW 1/4 of SE 1/4, Sec. 35 T. 19 S, R. 6 W.	42
013	SW 1/4 of NE 1/4, NW 1/4 of SE 1/4, Sec. 35 T. 19 S, R. 6 W.	28
015	SW 1/4 of SW 1/4, Sec. 35 T. 19 S, R. 6 W.	131
015A	SE 1/4 of SE 1/4, Sec. 34 SW 1/4 of SW 1/4, Sec. 35 T. 19 S, R. 6 W., NW 1/4 of NW 1/4, Sec. 2 NE 1/4 of NE 1/4, Sec. 3 T. 20 S, R. 6 W.	95

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

<u>Basin No.</u>	<u>Location</u>	<u>Drainage Area (Acres)</u>
016	SE 1/4 of SW 1/4, Sec. 35 T. 19 S, R. 6 W. NE 1/4 of NW 1/4, Sec. 2 T. 20 S, R. 6 W.	35
016A	SE 1/4 of SW 1/4, Sec. 35 T. 19 S, R. 6 W.	10
017	SE 1/4 of SW 1/4, Sec. 35 T. 19 S, R. 6 W.	16
018	SE 1/4 of SW 1/4, Sec. 35 T. 19 S, R. 6 W.	13
019	SE 1/4 of NE 1/4, Sec. 35 T. 19 S, R. 6 W.	35
020	SE 1/4 of NE 1/4, Sec. 35 SW 1/4 of NW 1/4, Sec. 36 T. 19 S, R. 6 W.	189
022	SE 1/4 of NW 1/4, Sec. 1 T. 20 S, R. 6 W.	304
023	NE 1/4 of NE 1/4, Sec. 1 T. 20 S, R. 6 W.	454
052	NW 1/4 of NE 1/4, SW 1/4 of NE 1/4, Sec. 2 T. 20 S, R. 6 W.	224
053	NW 1/4 of NE 1/4, Sec. 2 T. 20 S, R. 6 W.	150
076	NE 1/4 of NW 1/4, SE 1/4 of NW 1/4, Sec. 11 T. 20 S, R. 6 W.	58

All located in Jefferson County, Alabama; as found on the Abernant and McCalla USGS Quadrangle Maps.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</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 a channel is used as the primary decant a skimmer shall be installed to prevent floating solids from discharging.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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.

Applicant: Shannon, LLC
Mine Name: Shannon Mine No. 4
Permit Number: P-3959

19. Prior to Phase II bond release, additional data concerning 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[1(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.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

25. A qualified registered professional engineer or other 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.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

- (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 this mine site are shown on the [Permit Map](#) and a [Typical Diversion Ditch Cross Section](#) of proposed diversions is included in this application and described in the design and construction guidelines for diversions as prepared for Shannon, LLC.

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.-3. for referenced Guidelines.

See [Attachment III-B.-2.\(a\), 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.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</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.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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 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.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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

Are excess spoil fills proposed?

() Yes (X) 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 () 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.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

5. Transportation Facilities (780.33, 780.37)

See [Attachment III-B-5, Haulroad Map](#)

- (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 Attachments III-B-5 and III-B-5(b) for specifications and detailed designs of the road at this facility.

This application consists of constructing three (3) proposed Primary Roads, Primary Roads 5P, 6P, and 7P and utilizing four (4) Primary Roads, Primary Roads 1P, 2P, 3P, and 4P for the life of the mine. The following table lists the existing primary roads, their previous identification number, which ASMC permit they are currently permitted under.

Proposed Primary Road	Previous Primary Road Number	Currently Permitted Under
1P	12P	P-3859
2P	3P	P-3859
3P	1P	P-3859
4P	6P and 10P	P-3859
5P	None	None
6P	None	None
7P	None	None

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

The original design plans for Primary Road 1P (permitted as Primary Road 12P under P-3859), Primary Road 2P (permitted as Primary Road 3P under P-3859), Primary Road 3P (permitted as Primary Road 1P under P-3859), and Primary Road 4P (permitted as Primary Road 6P and 10P under P-3859) are attached.

- (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.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</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.
7. Roads will be constructed so as to have adequate drainage

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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 compliment the natural drainage pattern of the

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

- 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. See attached [Typical Ancillary Road Drawing](#) for an illustration of the typical roadbed configurations.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</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. The material will be free of sod, roots, stones over 12 inches in diameter, and other objectionable materials. The material will be placed and spread over the entire fill area, starting at the lowest point in layers not to exceed 12 inches in thickness. The material will be compacted to 95 percent of the density, based on standard proctor as outlined in ASTM.
7. Primary roads will have a minimum width of eighteen feet and a maximum width necessary to accommodate the largest equipment traveling the road.

Applicant: Shannon, LLC
Mine Name: Shannon Mine No. 4
Permit Number: P-3959

8. 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.
9. 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.
10. 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

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

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.

11. 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.
12. 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.
13. 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. See attached [Typical Primary Road Drawing](#) for an illustration of the typical roadbed configurations.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

Part III - Blasting Plan

C. Blasting Plan

See attached [Detailed Blasting Design Plan](#)

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

FOR E THROUGH J (SEE ATTACHED SHEETS)

E. HYDROLOGIC MONITORING PLAN

1. Attach the plan for the monitoring of surface water including those parameters and sampling frequencies required to meet the specifications of the NPDES permit. If a perennial or intermittent stream flows through the proposed permit or potentially impacted off-site areas, develop and attach monitoring plans which logically relates base-line or pre-mine quantity conditions with those to be monitored during surface mining and reclamation operations.

At a minimum, the plan shall include:

- (i) Sample frequency
- (ii) Site locations
- (iii) Parameters to be monitored; and
- (iv) Appropriate maps which comply with requirements

If the predictive evaluation of the groundwater indicates that adverse on-site or off-site impacts may occur to an aquifer, the applicant shall develop a groundwater monitoring plan which logically relates the analysis of base line or pre-mining conditions to approved post-mining land uses. The plan shall list:

- (i) Parameters to be monitored, including water levels;
- (ii) Sample frequency
- (iii) Site locations; and
- (iv) Appropriate maps and cross sections which comply with requirements.

If according to the results of the PHC it is determined that groundwater monitoring may not be necessary, the applicant shall submit with the permit application sufficient documentation, including geologic and hydrologic relations, to enable the commission to make a decision regarding a waiver of the monitoring of the groundwater.

F. Surface and Groundwater Drainage Control Plan.

The permit application shall contain plan describing how the applicant intends to control surface and groundwater drainage into, through and from the proposed permit area in accordance with the required plans.

Applicant: <u>Shannon, LLC</u>
Mine Name: <u>Shannon Mine No. 4</u>
Permit Number: <u>P-3959</u>

G. Surface Water Treatment Plan.

When the PHC determination indicates the need for the treatment of surface water leaving the proposed permitted area, the applicant shall submit a plan for such treatment with the permit application which describes how such treatment will be accomplished to meet applicable State and Federal effluent limitation standards.

H. Restoration of Recharge Plan.

Attach the plan describing how the approximate recharge capacity of the disturbed area will be restored according to the requirements.

I. Plans for Recording and Reporting Data.

Describe how surface and groundwater quantity and quality data will be collected, recorded, and reported to the regulatory authority.

J. Permanent Entry Seals and Down Slope Barriers.

Describe in detail, with appropriate maps, plans, and cross sections, permanent entry seals and down slope barriers used to ensure hydraulic stability after mining has ceased.