

Applicant: <u>Quality Coal Co., Inc.</u>
Mine Name: <u>Dutton Hill Mine No. 2</u>
Permit Number: <u>P-3980</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
- Salem MC MUL-T Triple Auger
- 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:

<u>Increment No.</u>	<u>Acres</u>	<u>From</u>	<u>Estimate Life</u>
2	35	Issuance of Permit	12 Months
3	28	End of Increment #2	12 Months
1	95	End of Increment #3	36 Months
4	1	End of Increment #3	36 Months

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 (if required)
- 5) Overburden Removal (if required)
- 6) Coal Recovery by strip mining and/or auger mining
- 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 (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. The New Castle, Mary Lee and Blue Creek Seams will be mined as mining progresses along the length of each cut along with auger mining of the final highwall and were feasible along existing highwalls that will not be surface mined.

Auger mining is proposed on the Mary Lee and Blue Creek Seams. The Mary Lee Seam will be augered prior to stripping down to the Blue Creek Seam. Augering on the Mary Lee Seam will begin as soon as the Mary Lee Coal removal has advanced far enough down the pit to allow the auger to operate. No delay in normal backfilling and grading is expected due to auger operations. Auger holes on the Mary Lee Seam will be sealed according to the auger regulations. A 20 feet offset bench will be left from the Mary Lee highwall prior to mining down to the Blue Creek Seam. This will insure the auger seal on the Mary Lee Seam will remain undisturbed during mining of the Blue Creek Seam. For the final highwall elimination a minimum vertical distance of 20 feet will be observed from the auger seal on the Mary Lee Seam. Augering of the Blue Creek Seam will begin as soon as the Blue Creek Coal removal has advanced far enough to allow the auger to operate. Auger holes on the Blue Creek Seam will be sealed in accordance with the auger regulations.

Mining at the Dutton Hill Mine No. 2 will commence within Increment No. 2 with cut no. 1 along the existing pre-law highwall located the NE/SE of Section 27. Pits will generally align northwest to southeast with advancement to the northeast. Spoil material from the initial cuts will be spread out over the previously mined area south and west of the initial cuts in a manner not to block diversion ditches routing runoff to Basin 013. Spoil material from the next cuts will be spoiled within subsequent open pits from the previous cuts. Mining will continue in this manner until the limits of the increment are reached.

Mining of Increment No. 3 will commence at the existing pre-law highwall located the NW/SW of Section 26. Pits will generally align east to west with advancement to the north. Spoil material from the initial cuts will be placed in the final cut of Increment No. 2 and within the existing open highwall and spoil material from the next cuts will be spoiled within subsequent open pits from the previous cuts. Mining will continue in this manner through cut no. 6.

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Beginning with cut no. 6 the mining direction will change. Mining of cut no. 7 will commence at the existing pre-law highwall located the SW/NW and SE/NW of Section 26. Pits will generally align southwest to northeast with advancement to the southeast. Spoil material from the initial cuts will be placed within the existing open highwall and spoil material from the next cuts will be spoiled within subsequent open pits from the previous cuts. Mining will continue in this manner until the limits of the increment are reached.

Mining of Increment No. 1 will commence with cut no. 1 along the approximate location of the Blue Creek Coal Seam located within the NE/SE of Section 22 and the NW/SW of Section 23 that was not mined by previous pre-law surface mining. Pits will generally align northeast to southwest with advancement to the southeast. Spoil material from the initial cuts will be spread out over the previously mined area north, northeast and east of the initial cuts in a manner not to block diversion ditches routing runoff to Basins 006 and 027. Spoil material from the next cuts will be spoiled within subsequent open pits from the previous cuts. Mining will continue in this manner through cut no. 21. Beginning with cut no. 22 the mining direction will change. Pits will generally align northwest to southeast with advancement to the southwest. Spoil material from the initial cuts will be spread out over the previously mined area southeast of Basin 027 in a manner not to block diversion ditches routing runoff to Basin 027. Beginning with cut no. 25 the mining direction will change. Pits will generally align west to east with advancement to the south. Spoil material will be placed within subsequent open pits from the previous cuts. Mining will continue in this manner until the limits of the increment are reached.

Along with coal recovery, the fire clay will be recovered where ever possible within each cut. Clay recovery will commence following coal removal within a cut. After the clay is removed, the next cut will be mined. This dual mining sequence will not cause any delays in mining or reclamation. The clay will be stockpiled within the permit boundary and shall be used for sealing auger holes and the excess clay will be transported offsite by contract truckers. Permeability tests will be ran on the clay used for sealing auger holes to ensure the clay has a permeability no greater than 1×10^{-7} cm/sec if the clay does not meet the permeability requirements for sealing auger holes, acceptable clay will be tested for permeability and hauled from an offsite location to be used to seal auger holes.

If there is any coal located within the proposed pool area of any sediment basin, the coal will be excavated during the time of construction of the pool area.

See Attachment III-A-1, Operations Map.

See Attachment III-A-1(a), Typical Auger Mining Layout.

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Permit Application for Auger Mining

In addition to completing all applicable portions of the "Permit Application for Surface and Underground Mining", anyone who intends to conduct auger mining operations shall complete the following: (785.20, 819)

- (a) Give the diameter, depth, and spacing of auger holes including width of barrier pillars to be left between holes or series of holes.

Augered Seam	Maximum Depth of Cover	Auger Dia.	Web Width	Barrier Width	# Holes
Mary Lee	180'	1.7'	1.7'	8.1'	20
Blue Creek	200'	1.7'	1.9'	9.1'	20

Note: The auger to be used is a Salem MC MUL-T Triple Auger with 3 auger heads with a diameter of 1.7' each which will result in a 5.1' total hole width.

See Attachment III-A-1(a), Typical Auger Mining Layout.

- (b) Is underground mining to be conducted in the immediate area following completion of auger mining operations?
() Yes (X) No

If yes, describe the steps to be taken to provide access for such operations to the remaining coal reserve.

Although no underground mining is currently planned for the area it is possible that underground mining may occur in the future. There is approximately 0.5 miles of partially reclaimed/abandoned highwall that lie to the south of Increment No. 1 and runs south to north to Increment No. 2 that would allow underground mining access.

- (c) Is auger mining to be conducted contemporaneously with underground mining operations and in the same seam?

() Yes (X) No

If yes, describe the measures to be taken to prevent 'breaking through' into underground workings.

- (d) Is auger mining to be conducted:

(1) In conjunction with an active surface mining operation?

(X) Yes () No

(2) In an in-active surface mine? () Yes (X) No

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(3) Along a natural outcrop which has not been previously disturbed?

() Yes (X) No

- (e) Describe in detail the measures to be taken to reclaim the highwall if auguring is not being conducted in conjunction with a surface mining operation.
- (f) Describe and locate on the permit map all the power lines, pipelines, buildings and other facilities located above the proposed auger mining operation. If subsidence resulting from auger mining is anticipated, describe in detail the measures to be taken to prevent or mitigate adverse effects on surface structures and facilities.

All buildings and other facilities are shown on the Permit Map. Also, the 30 degree angle of draw for structures and the 75 degree angle of draw for water resources are shown the Pre-Subsidence Map. There are no wells or other water resources within the 75 degree angle of draw. There are no occupied dwellings within the 30 degree angle of draw.

No subsidence is anticipated due to the spacing of the holes and the barrier pillars to be left. Design of the auger hole layout was done using the NIOSH ARMPSHWM program. This program is based on the long term stability of the web and barrier pillars. However, in the highly unlikely event that subsidence occurs and causes material damage to any of the renewable resource lands including areas shown as "Unmanaged Forest Land" on the Pre-Subsidence Map by unplanned subsidence, then Quality Coal Co., Inc. will repair the material damage by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses that it was capable of supporting before subsidence damage. Should unplanned subsidence occur and cause material damage to any of the structures, then Quality Coal Co., Inc. will repair the damage necessary to restore the structure to its condition before subsidence or the owner of said structure will be compensated for any damage.

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Narrative Description of Auger Operation

Auger mining will be performed in such a manner as to provide adequate support pillars between each hole. Spacing of the recovery holes will vary depending on the nature of the overburden, depth of center to center, allowing a minimum of 1 foot of web (Support) pillar between each recovery hole for the conditions shown above.

Dr. Chris Mark of the US Bureau of Mines (now NIOSH) initially developed the ARMPS-HWM program to predict the possibility of subsidence due to longwall mining/highwall mining. Dr. Zach Agioutantis later developed it into a windows application.

Attached are definitions of the parameters used in the ARMPS-HWM program along with Table 1 of the Program indicating the suggested minimum safety factors.

Below shows the recommended safety factor (SF) for this application as determined by the ARMPS-HWM. As shown below the panel design described earlier in this section is adequate to prevent subsidence.

<u>Augered Seam</u>	<u>Web SF</u>	<u>Barrier SF</u>	<u>Overall SF</u>
Mary Lee	1.31	1.50	2.00
ARMPS-HWM Suggested SF	1.30	1.50	2.00
Blue Creek	1.35	1.51	2.09
ARMPS-HWM Suggested SF	1.30	1.50	2.00

Drainage will be controlled from each recovery hole by allowing each hole to drain into the open pit and be pumped if necessary, to an approved sediment basin. If necessary, drainage will be treated chemically in accordance with the surface water treatment plan of this permit.

See attached the ARMPS-HWM Modules for the Mary Lee and Blue Creek Seams.

See attached the ARMPS-HWM Suggested Minimum Stability Factors.

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Reclamation of Auger Holes

Within 72 hours of completing each hole each auger hole will be sealed by backfilling with impervious, non-combustible clay material to a minimum of five (5) feet above the top of the auger hole and compacted to provide an impervious seal. Where the Blue Creek seam will be augered below the Marylee seam a 20 foot offset bench will be observed on the Marylee seam to maintain the integrity of the auger seals on the Marylee seam. For final highwall elimination a minimum vertical distance of 20 feet will be observed from the auger seal on the Marylee seam.

See Attachment III-A-6, Typical Auger Mining Opening Sealing Plan.

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H. Subsidence Control Plan (784.20)

1. Include a survey which shows what structures or renewable resource lands exist within the proposed permit and adjacent area and whether subsidence, if it occurred, could cause material damage or diminution of reasonably foreseeable use of such structures or renewable resource lands. If it is determined that no material damage will occur to surface structures or renewable resource lands from subsidence, the application shall include supporting evidence of such a finding.

A Survey of occupied dwellings, features and renewable resource lands has been conducted. The limits of the survey were determined by a 30 degree angle of draw from the outer limits of mining. Findings are indicated on the Pre-Subsidence Map.

No subsidence is anticipated due to the spacing of the holes and the barrier pillars to be left. Design of the auger hole layout was done using the NIOSH ARMPSHWM program. This program is based on the long term stability of the web and barrier pillars. However, in the highly unlikely event that subsidence occurs and causes material damage to any of the renewable resource lands including areas shown as "Unmanaged Forest Land" on the Pre-Subsidence Map by unplanned subsidence, then Quality Coal Co., Inc. will repair the material damage by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses that it was capable of supporting before subsidence damage. Should unplanned subsidence occur and cause material damage to any of the structures, then Quality Coal Co., Inc. will repair the damage necessary to restore the structure to its condition before subsidence or the owner of said structure will be compensated for any damage.

See Attachment III-A-1(H), Pre-Subsidence Map.

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(b) Unplanned Subsidence.

See Attachment III-A-1(H), Pre-Subsidence Map for auger mining location.

- (1) Using maps, plans, and cross sections, as needed, locate the areas where coal extraction is to take place and where subsidence, if incurred, cannot be considered planned subsidence. Clearly show on a map the relationship of parts (i-v) below to critical surface features, renewable resource lands, and structures. See Permit Map.
 - (i) Provide a detailed mine plan map. Describe the methods of mining used, such as room and pillar, checker board, blind room or other methods.
 - (ii) Locate extraction panels, give geometric sizes, dimensions and orientation, and include details of length, width and height of panels. Give percent of coal left as support in ratio to percent of coal removed within the extraction panel. Provide information on crosscut and room dimensions, and both driven on what centers. Include similar information concerning any secondary recovery that is planned.
 - (iii) Provide details locating all permanent coal blocks and barrier pillars outside the actual extraction panels. Give geometric shapes, dimensions and orientation of these blocks and barrier pillars.
 - (iv) Give anticipated date (month/year) in which mining will be conducted in each area and/or panel.
 - (v) Characterize variations in claystone layers immediately below the extracted coal seam(s). Include data on varying claystone thickness throughout the area covered by the subsidence control plan. Provide assurances that measures have been adopted concerning the maximization of mine stability as it relates to claystone flood conditions.
- (2) Provide a detailed description of measures to be taken to prevent unplanned subsidence from causing material damage or lessening the value or reasonable foreseeable use of the surface. Describe how these measures are to be applied. Include the following information.
 - (i) Locate area(s) in which coal removal is not planned, including its relationship to overlying area(s) to be protected by leaving coal in place.

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- (ii) Locate area(s) to be backfilled or backstowed.
- (iii) Describe measures to be taken on the surface to prevent material damage or diminution of the value or reasonable foreseeable use of the surface including, but not limited to:
 - (A) Reinforcement of sensitive structures or features;
 - (B) Installation of footers or other techniques designed to reduce damage caused by movement;
 - (C) Change of location of pipelines, utility lines or other features;
 - (D) Relocation of moveable improvements to sites outside the potential angle-of-draw;
 - (E) Monitoring to determine the commencement and degree of subsidence so that appropriate measures can be taken to prevent or reduce damage; and
 - (F) Describe any other prevention measures to be taken.
- (3) Provide a detailed description of measures that are to be taken to mitigate the effect of any material damage or diminution of value or foreseeable use of lands which may occur as a result of unplanned subsidence. Describe how these measures are to be promptly applied in accordance with 817.124. Measures include, but are not limited to, one or more of the following:
 - (i) Restoration or rehabilitation of damaged structures (including surface and underground agricultural drainage systems), features and lands after subsidence to a condition capable of supporting and suitable for foreseeable use including restoration of approximate land surface contours to premining conditions in order to assure proper surface drainage.
 - (ii) Replacement of structures, including surface and underground agricultural drainage systems destroyed or damaged by subsidence.
 - (iii) Purchase of structures prior to mining or purchase of damaged structures at pre-subsidence value.
 - (iv) Purchase of non-cancellable insurance policies, as described in 817.124(c), payable to the surface owner in the full amount of the possible material damage or other comparable measures.

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- (v) Describe other mitigation measures to be taken.
- (4) Provide a detailed description of measures to be taken to determine the degree of material damage or diminution of value or foreseeable use of the surface, including, but not limited to such measures as:
 - (i) Conducting of pre-subsidence surveys of all structures and surface features which might be materially damaged by subsidence.
 - (ii) Monitoring to measure deformation near specified structures or features or other appropriate locations.

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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.

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.

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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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Attachment III-A-3

- 3.a) Coal removal will occur as described in the Operations Plan (Part III-A-1). Once uncovered, the coal will be broken by loader and loaded on trucks for shipment to an offsite location. No coal processing or cleaning will be necessary.

All coal not shipped will be stockpiled onsite for future shipment. Areas for coal stockpiles will be carefully selected as to minimize contamination of the surface and groundwater in the area. Coal stockpiles will be constructed on hilltops or ridge tops to prevent any unnecessary surface drainage from entering the stockpile area. When it is not possible to place the coal stockpiles on high ground, diversions will be constructed around the coal stockpile in manner as to divert all offsite drainage away from the coal stockpile. Diversions will be constructed as outlined in Part III-B-3 of this application. Prior to the construction of the coal stockpile, the area will be cleared and grubbed of all organic material, removing and protecting all topsoil in accordance with Rules 880-X-10C-.07 thru 880-X-10C-.11, if necessary. The coal stockpile subgrade will be graded in such a manner as to shape the stockpile area to a slope (1% - 3%) to provide adequate drainage and minimize infiltration. Upon completion of the subgrade, a relatively impervious pad will be constructed using a clay material (with a permeability coefficient of 1×10^{-6} cm/sec or less) placed in six (6") inch lifts and compacted to ninety-five (95%) percent of the standard proctor density, a minimum of two (2') feet in thickness above the subgrade. Upon completion of the impervious clay pad, a pad will be constructed made of compacted coal of desired thickness to carry the weight of loading and transportation equipment. Silt fences and erosion control sumps shall be used to limit the runoff from the coal stockpile areas, see attached typicals for Best Management Practices. All surface runoff from the coal stockpile will routed through an approved sediment basin prior to leaving the permit area where chemical treatment may be added as necessary to meet all State and Federal water quality limits. The coal stockpiles and diversions needed for coal stockpiles will be maintained until removal. After all coal is removed and the coal stockpile is no longer needed the base material will be removed and placed in the final pit, a minimum of 30 feet away from the highwall, a minimum of 10 feet up from the pit floor, and a minimum of 100 feet away from a major drain. This acid or toxic forming material will be covered with a minimum of four (4') feet of the best available non-acid, non-toxic and non-combustible forming material. After the base material has been removed the disturbed areas for the coal stockpiles will be regraded to the approximate original contour and revegetated in accordance with the approved Reclamation Plan (IV-C-5).

Any material such as oil, grease, rags etc. that may present a fire hazard will be properly disposed of in an approved landfill. Any non-coal waste will be disposed of at approved off-site landfills, which meet all applicable local, state and federal requirements.

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All transportation facilities such as haul roads, access roads, etc. will be constructed and maintained to meet minimum design criteria including but not limited to the following: Existing roads in adequate condition will be used if possible to eliminate additional disturbance. New roads will be located on ridges or the most suitable slopes available for stability. The minimum width necessary for the proposed roads will be cleared, grubbed and all topsoil removed (if required) and stockpiled for protection. Roadbeds will be constructed by compacting desirable backfill material in lifts to form an adequate sub-grade. The road bed will then be capped with a minimum of four (4) inches of compacted base material such as gravel, crushed stone, rock, chert or other suitable material (as approved by the Regulatory Authority) sufficient for its intended use. Routine maintenance will be required to maintain the surface of roads such as periodic grading and resurfacing may be required in the course of mining to keep the roads in adequate condition. All roads, existing or created for use in this mining operation, will have adequate sediment control facilities, such as silt fences, hay bale berms, and/or excavated sediment trap sumps constructed where deemed necessary to effectively catch and control sediment from these disturbed areas. All materials used in the construction of the transportation facilities will be non-toxic and non-combustible. Where needed, drainage control structures will be placed below the sub-grade, using prudent engineering practices to design and construct said structures. Drainage control for the transportation facilities will be accomplished by the use of drainpipes, ditches, cross drains and ditch relief drains. No sustained grades of ten (10%) percent will be constructed unless unavoidable, at which time sediment control facilities such as silt fences, hay dams and/or rock check dams will be installed at strategic locations to prevent erosion and insure stability. Grades greater than fifteen (15%) percent will require ditch relief drains, cross over drains and road drain ways at a minimum of 300 feet apart. All disturbed areas adjacent to the newly constructed road will be revegetated in accordance with the approved Reclamation Plan (Part IV-C-5) immediately following construction. Routine vegetative maintenance will be administered when necessary to maintain a vegetative cover. Maintenance of drainage control facilities including cleaning of road ditches, removal of sediment from structures and minor repairs may be required periodically. When roads are not to be left permanently, at landowners request, roads will be removed in the following manner: the base material will be hauled offsite and disposed of in an appropriate manner, with the sub-grade and drainage control ditches being plowed up and regraded to the approximate original contour. The original drainage courses will be re-established by regrading and reshaping to blend with the surrounding area. To prevent erosion and provide long term stability, terraces, cross drains, berms, etc. will be constructed, where deemed necessary. Sediment control measures for all disturbed areas created or existing in the construction or use of proposed or existing haul roads will include but not be limited to the construction or installation of hay dams, silt fences, rock check dams, etc. and will be constructed or installed in strategic locations as deemed

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necessary on site. These sediment control facilities will be constructed or installed promptly following the construction of said haul roads, access roads, etc. All disturbed areas will be revegetated in accordance with the approved Reclamation Plan (IV-C-5). Haulroads and all routes of travel will be maintained with water and/or other materials to minimize fugitive dust emissions. Dust suppression will consist of the application of water, chemical binders and/or other dust suppressants. See for the Part III-B-5 for primary and ancillary road layout, design, construction, maintenance requirements and specifications.

- 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) 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./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 as stated in the reclamation plan.

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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) (See Attachment III-A-6 for Typical Drawings)

Mine opening within the permit area (other than blast holes) will be eliminated by the following methods:

- 1) Exploration Holes - Exploration Holes will be backfilled with drill cuttings and capped with 2' of clay.
- 2) Monitoring Wells - Groundwater monitoring wells will be cased using PVC pipe of equal diameter of the drilling bit used. This casing will extend a minimum depth equal to the depth necessary to reach competent rock material to prevent filling of the well. The casing depth may vary depending upon the depth of the aquifer being targeted for monitoring. Groundwater monitoring wells may be temporarily sealed using a PVC cap of equal diameter as casing requires. Groundwater monitoring wells will be sealed at the time of abandonment with a concrete cap (2.0'x2.0'x.5').
- 3) Mine Openings - Old works (abandoned underground mines) which may be encountered during the mining operation will be eliminated by the following process: Prior to the backfilling or shooting of the final highwall all mine openings will be sealed with a clay material having a permeability ranging between 0.00001 and 0.000001 cm/sec. This clay material will be compacted in six (6) inch lifts to ninety-five (95%) percent of the standard proctor density, a minimum of five (5) feet above the top of the opening.
- 4) Auger Holes - Within 72 hours of completing each hole each auger hole will be sealed by backfilling with impervious, non-combustible clay material to a minimum of five (5) feet above the top of the auger hole and compacted to provide an impervious seal. Where the Blue Creek seam will be augered below the Marylee seam a 20 foot offset bench will be observed on the Marylee seam to maintain the integrity of the auger seals on the Marylee seam. For final highwall elimination a minimum vertical distance of 20 feet will be observed from the auger seal on the Marylee seam. See Typical Auger Mining Final Highwall. The clay material to be used for sealing the auger holes will be the fireclay seam underneath the Marylee seam. The fireclay exists within Increment No. 2 (approximately 9.5 acres). There is an estimated 33,000 yards of available fireclay. To seal all of the auger holes on both the Blue Creek and Marylee seams will require approximately 30,000 yards. All of the fireclay material will be removed and stockpiled during mining of Increment No. 2 to insure that adequate clay material is available for sealing auger holes created during mining of the other increments.

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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.

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

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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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Permit Number: <u>P-</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?

(X) Yes () No

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Attachment III-B-2(a)

CERTIFICATION STATEMENT:

I hereby certify that Attachment III-B-2(a) prepared for Quality Coal Co., Inc., Dutton Hill Mine No. 2, 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 and belief.



Stephen Miles, P.E.
Alabama License No. 33253

1/27/2014
Date



Applicant: <u>Quality Coal Co., Inc.</u>
Mine Name: <u>Dutton Hill Mine No. 2</u>
Permit Number: <u>P-3980</u>

ATTACHMENT III-B-2(a)

GENERAL PLAN

The General Plan consists of constructing two (2) proposed basins, Basins 013 and 027 for the life of the mine and using Basin 006 from P-3920. Detailed design plans for Basins 013 and 027 will be submitted to the Regulatory Authority for review and upon written approval will be constructed and certified to the Regulatory Authority prior to disturbance within the watershed of each basin. General design data is included.

Basin 006 will be used by P-3920 and Dutton Hill Mine No. 2 for sediment control and will be double permitted and bonded by both permits. A revision will be submitted to the Regulatory Authority for P-3920 to modify Basin 006 for the additional area that will be disturbed by Dutton Hill Mine No. 2 within its watershed. And, a construction certification will be submitted to the Regulatory Authority upon construction of Basin 006 prior to mining Increment No. 1 within Dutton Hill Mine No. 2.

Basins 006 and 027 are to remain as permanent water impoundments, fish and wildlife habitats. Data to qualify the basins as permanent water impoundments will be submitted to the Regulatory Authority prior to Phase II Bond Release. Basin 013 is proposed as temporary and detailed removal plans will be submitted and approved by the Regulatory Authority prior to a Phase II bond release.

A request will be made to the Director to disturb within the 100' stream buffer zone of the unnamed tributary to Lost Creek located within the SW/NW, SE/NW and NW/SW of Section 26 within Increment No. 3. The disturbance within the 100' stream buffer zone will consist of a diversion ditch to route runoff to Basin 013.

The Jasper USGS Quad shows perennial streams within the Dutton Hill Mine No. 2 permit boundary. However, field investigations by McGehee Engineering Corp. has found the streams not to be perennial and have documented the streams as non-perennial within the attached Stream Discrepancy Report.

Due to Basins 013 and 027 being constructed in spoil material, the interior of the basins will be lined with 1.0 foot (minimum) of clay material with a permeability no greater than 1×10^{-6} cm/sec up to the emergency spillway elevation to minimize infiltration and to provide a stable pool level. The material will be placed in horizontal lifts not to exceed 6 inches and compacted to 95% of the

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standard proctor. (See attached data and watershed map for basin location and preliminary hydrologic information).

Geologic investigations of the area indicate layers of sandstone, siltstone, shale and minor amounts of bituminous coal and underclay. The coal to be mined by Quality Coal Co., Inc., will be confined to the New Castle, Mary Lee, and Blue Creek Coal Seams. 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 an unnamed tributary to Rocky Branch and an unnamed tributary to Lost Creek.

After all mining and reclamation activities are complete the diversions will remain as permanent structures.

No underground mine works exists within 500' of the permit boundary.

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

See Attachment III-B-2(a), Stream Discrepancy Report.

See Attachment III-B-2(a), Basin 013 Detailed Design Plans.

See Attachment III-B-2(a), ADEM NPDES Permit Map - AL0071081.

See Attachment III-B-2(a), ADEM NPDES Permit Map - AL0075086.

See Attachment III-B-2(a), ADEM NPDES Permit Map - AL0078972.

Applicant: Quality Coal Co., Inc.
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Attachment III-B-2(a)

Basin No.	Location	Drainage Area (Acres)
006	SW/NW & NW/SW, Section 22	70
013	NW/SW, Section 26	211
027	SE/SE, Section 22	181

Located within Township 14 South, Range 8 West, Walker County, Alabama, as found on the Jasper, Alabama USGS Quadrangle Map.

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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:

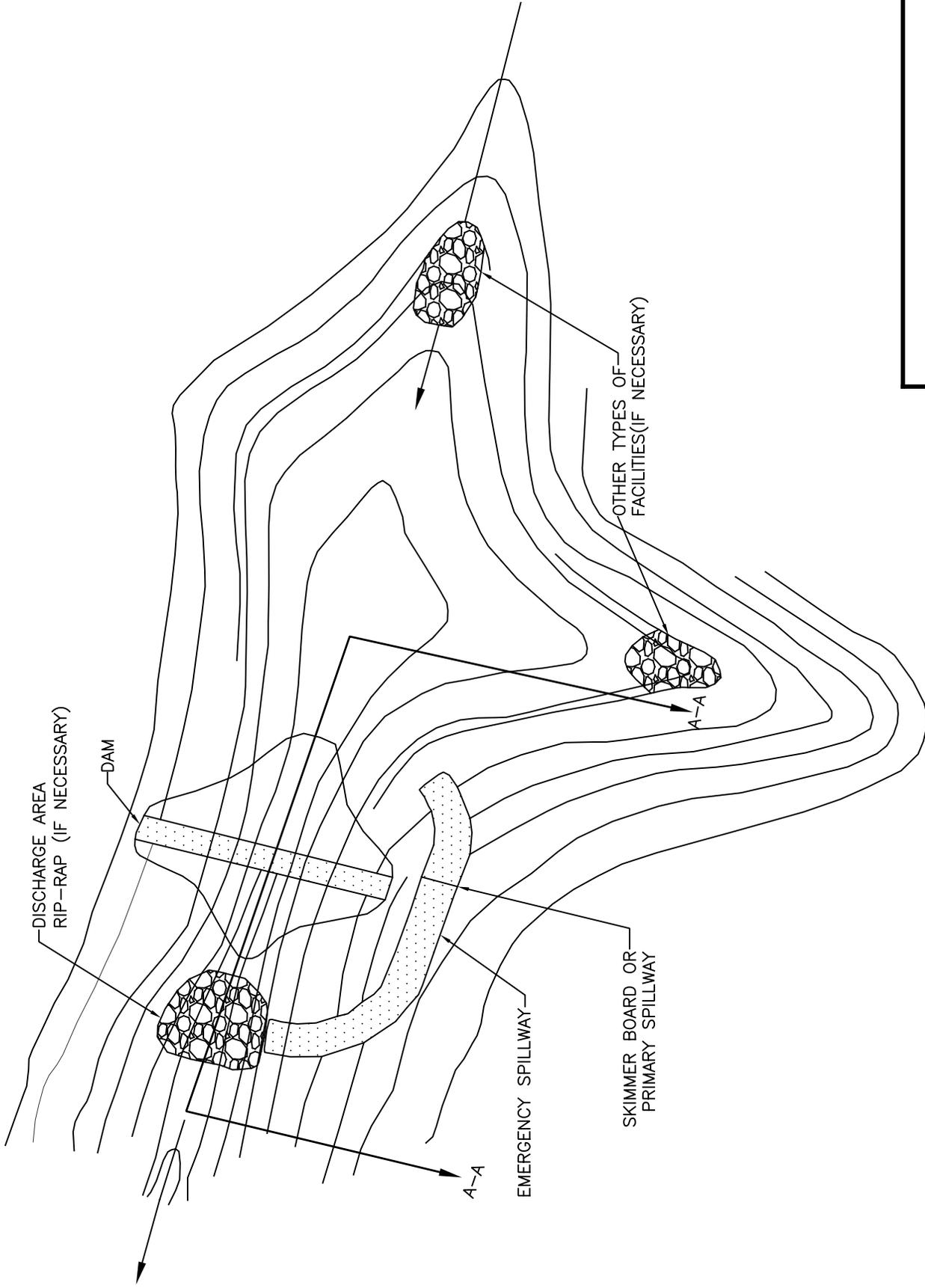
1. The top of the dam shall be no less than 12 feet wide.
2. See design sheet for maximum and minimum embankment slopes.
3. The foundation and abutments for the impounding structure shall be designed to be stable under all conditions of construction and operation of the impoundments, with a minimum static 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 a channel is used as the primary decant a skimmer shall be installed to prevent floating solids from discharging.

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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 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.

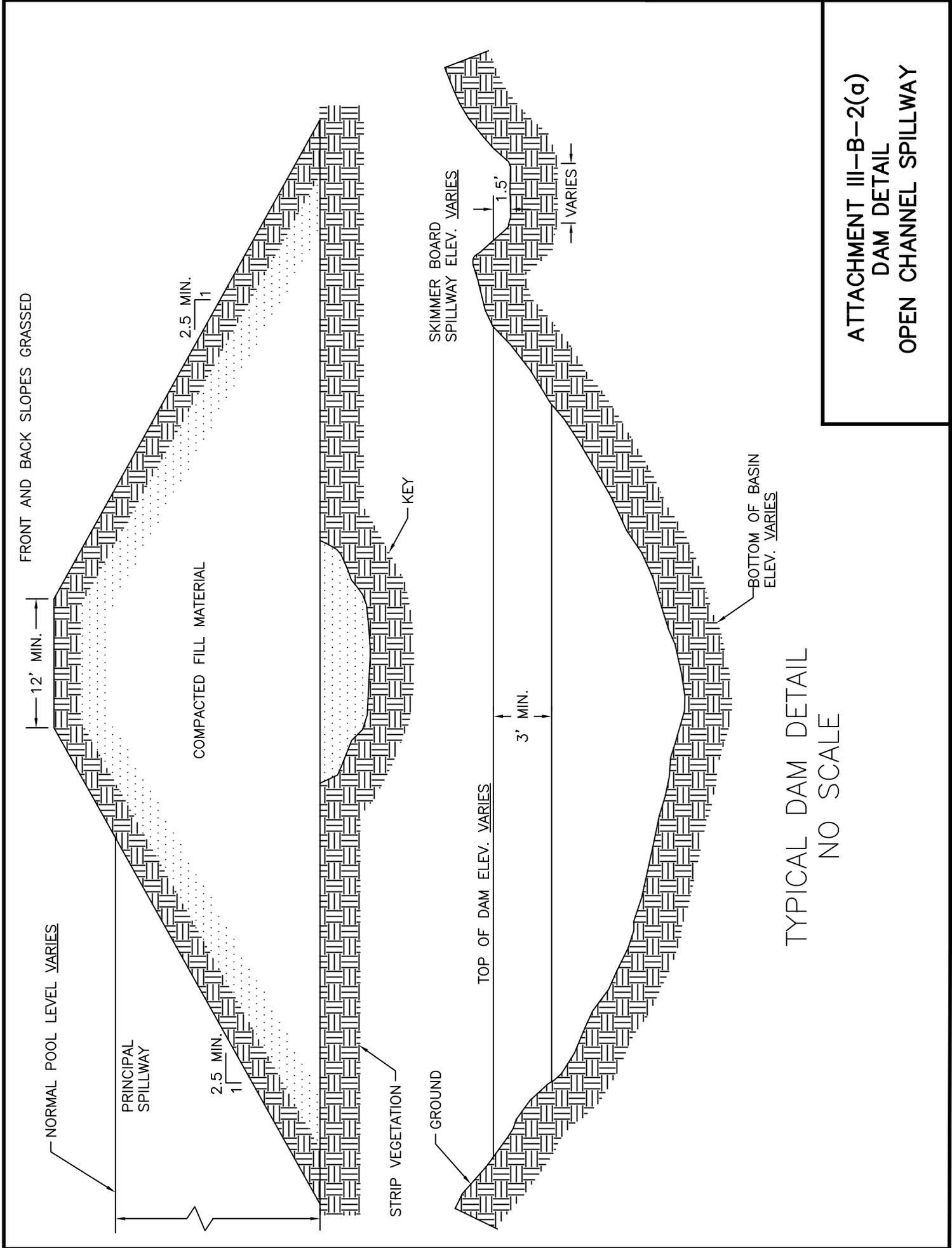
Applicant: Quality Coal Co., Inc.
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20. All sediment basins will be inspected for stability, erosion, etc. two (2) times a month until removal of the structure or release of the reclamation bond.
21. The embankment and spillway will be maintained by 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.
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, addition design and construction criteria shall be submitted prior to certification.



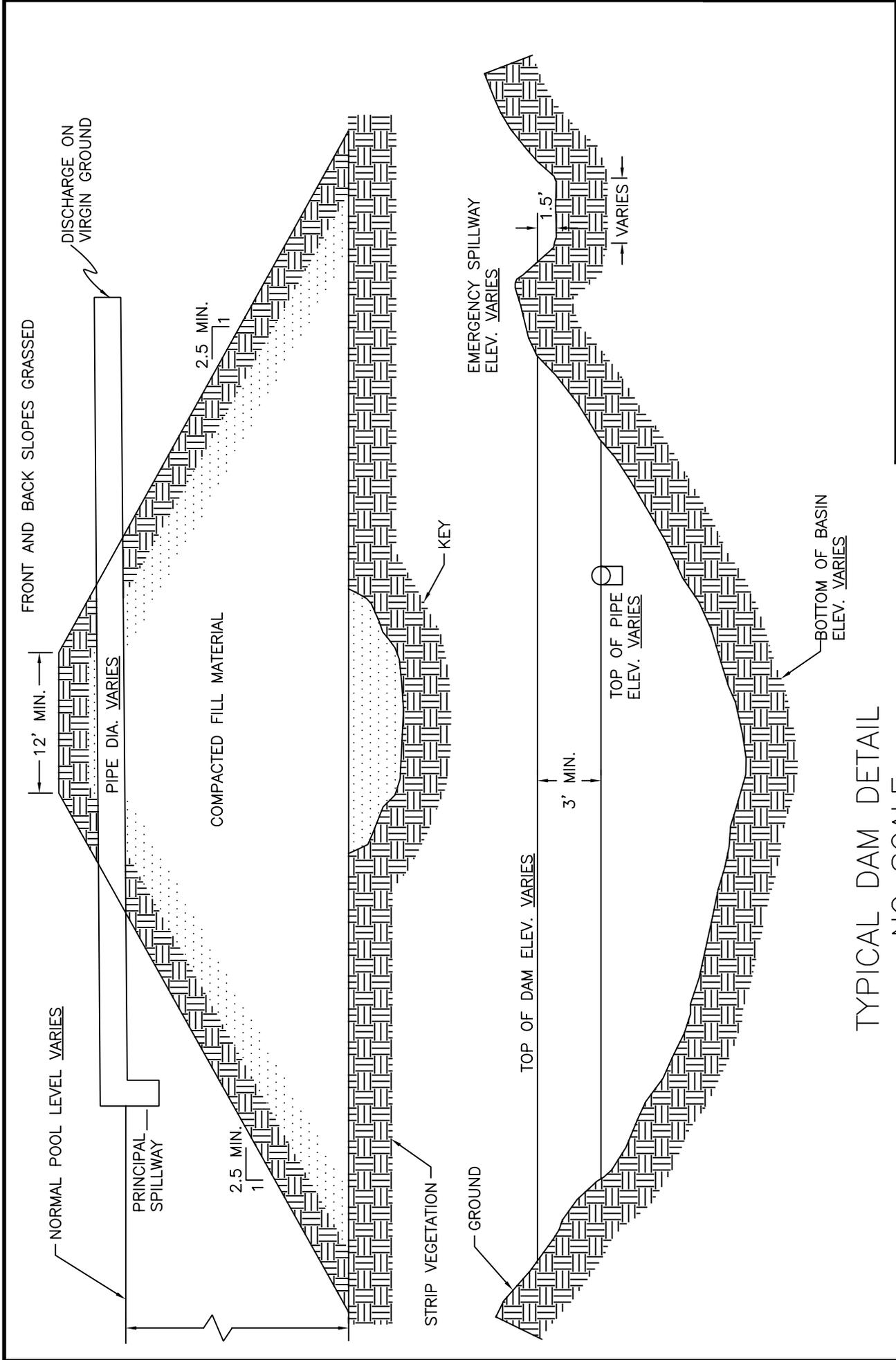
ATTACHMENT III-B-2(a)
 TYPICAL PLANVIEW
 OF POND EMBANKMENT

PLANVIEW OF EMBANKMENT POND



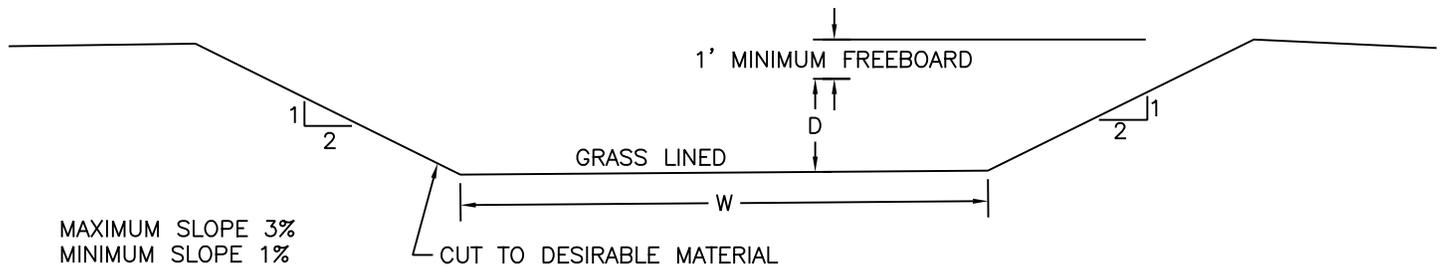
ATTACHMENT III-B-2(a)
 DAM DETAIL
 OPEN CHANNEL SPILLWAY

TYPICAL DAM DETAIL
 NO SCALE



TYPICAL DAM DETAIL
NO SCALE

ATTACHMENT III-B-2(a)
DAM DETAIL
PIPE SPILLWAY



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

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

* GRASS LINING: FESCUE, BERMUDA &/OR RYE GRASS

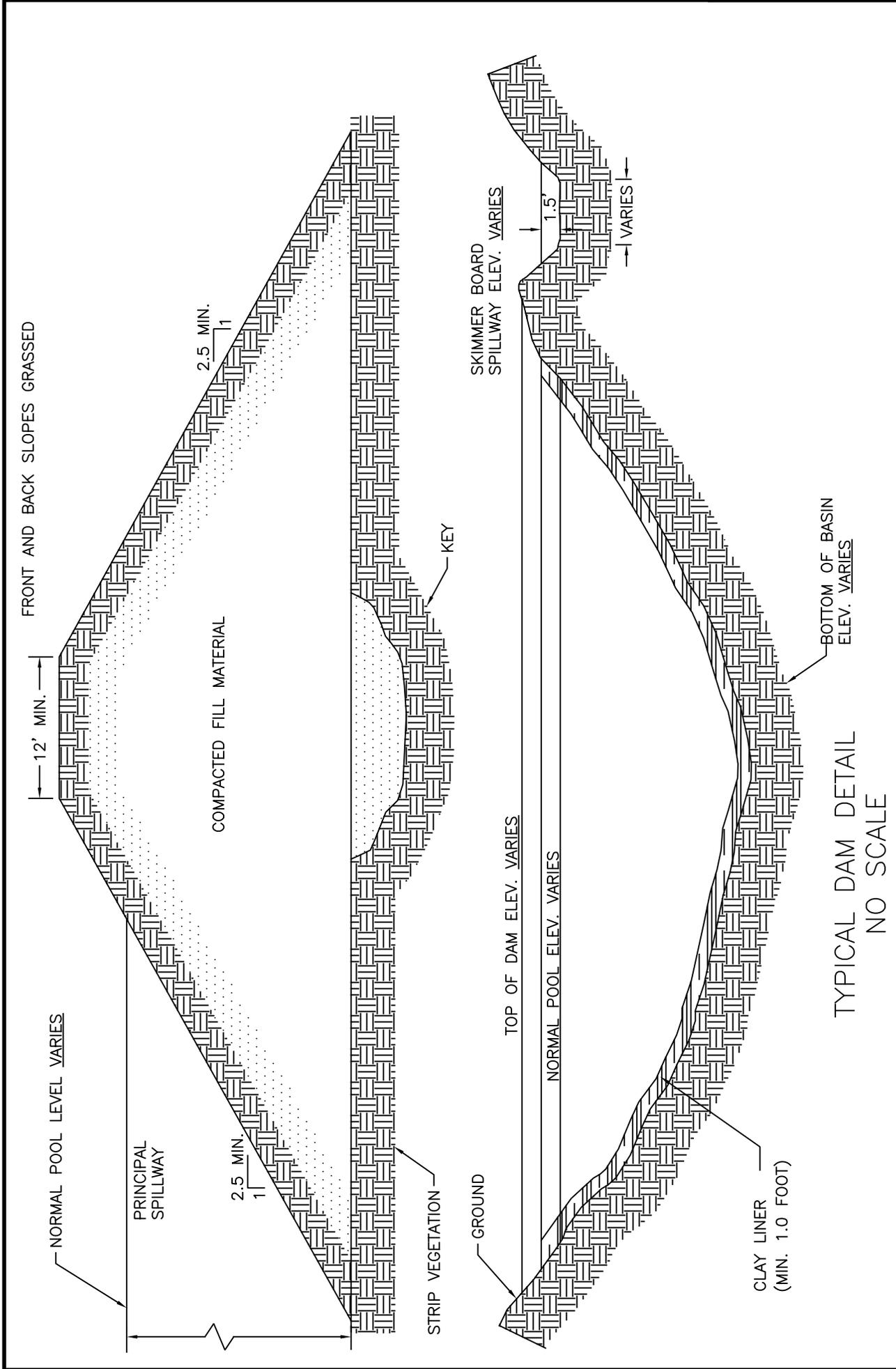
DIVERSION CHANNEL DEPTH (D) FOR WIDTH (W) 8.0 FT.	
PEAK FLOW Q (CFS)	DEPTH D (FT)
0-15	0.5
15-50	1.0
50-100	1.5
100-180	2.0
180-270	2.5

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

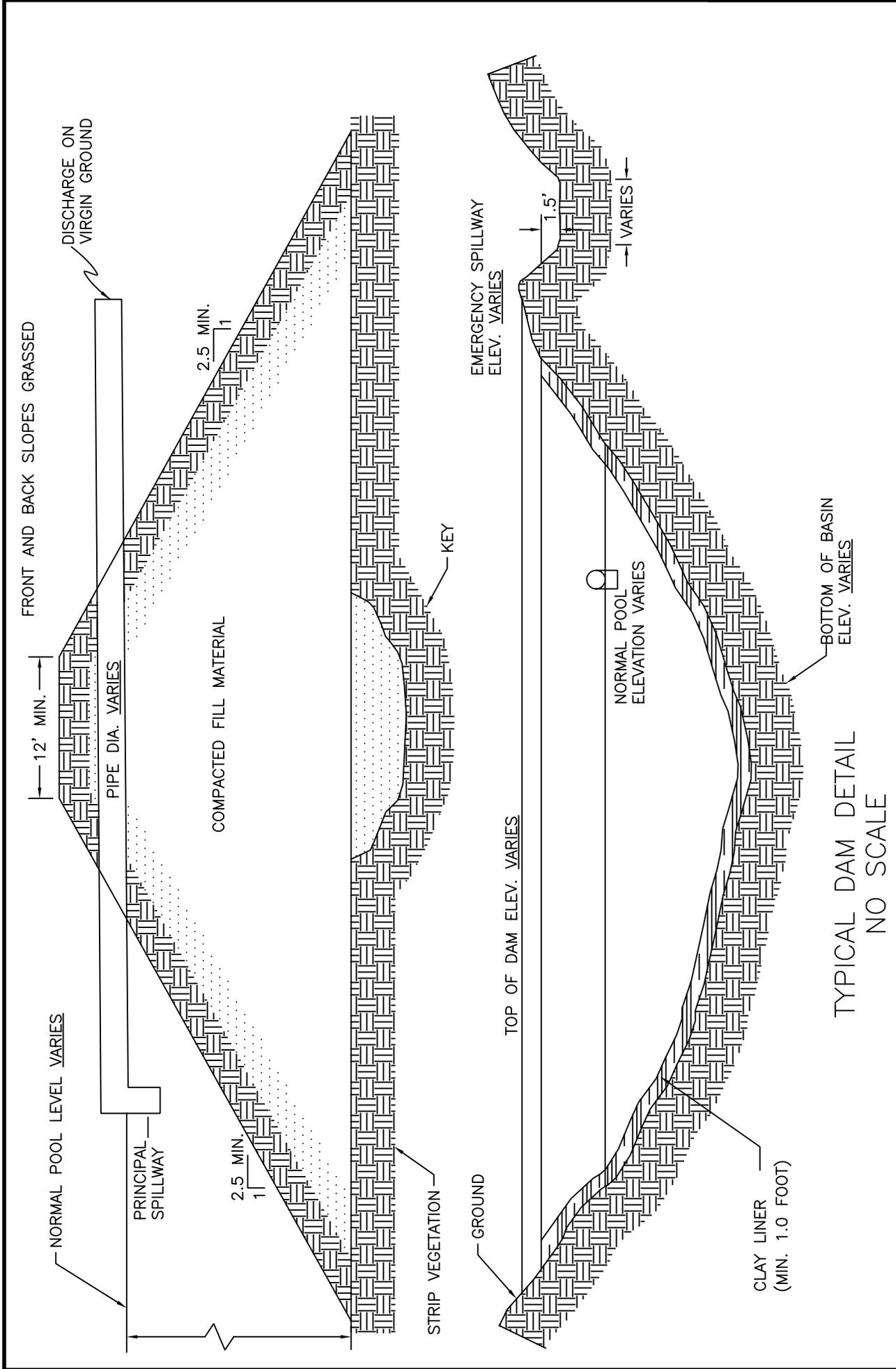
**ATTACHMENT III-B-2(a)
TYPICAL PERMANENT DIVERSION
FOR BASIN DISPOSAL**



TYPICAL DAM DETAIL
NO SCALE

Lined with 1.0 feet (minimum) of clay material with a permeability no greater than 1×10^{-6} cm/sec up to the emergency spillway elevation to minimize infiltration and to provide a stable pool level with the clay placed in 6" lifts compacted to 95% of the standard proctor.

ATTACHMENT III-B-2(a)
DAM DETAIL WITH CLAY LINER
OPEN CHANNEL SPILLWAY



TYPICAL DAM DETAIL
NO SCALE

Lined with 1.0 feet (minimum) of clay material with a permeability no greater than 1×10^{-10} cm/sec up to the emergency spillway elevation to minimize infiltration and to provide a stable pool level with the clay placed in 6" lifts compacted to 95% of the standard proctor.

ATTACHMENT III-B-2(a)
DAM DETAIL WITH CLAY LINER
PIPE SPILLWAY

Applicant: Quality Coal Co., Inc.
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- (b) Describe in detail the proposed diversion and include plans, maps and cross-sections which comply with 816.43 and 816.44.

Due to Diversion's 1-2, 1-3, 4-5, 6-7 and 8-9 routing runoff through previously mined areas, detailed design plans of Diversion 1-2, 1-3, 4-5, 6-7 and 8-9 are required.

Permanent diversions required for the Dutton Hill Mine No. 2 are shown on 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 Quality Coal Co., Inc.

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 remain as permanent structures.

See Attachment III-B-3, Diversion 1-2, 1-3, 4-5, 6-7 & 8-9 Detailed Design Plans.

See Attachment III-B-3 for referenced Guidelines.

See Permit Map for the location of diversions.

- (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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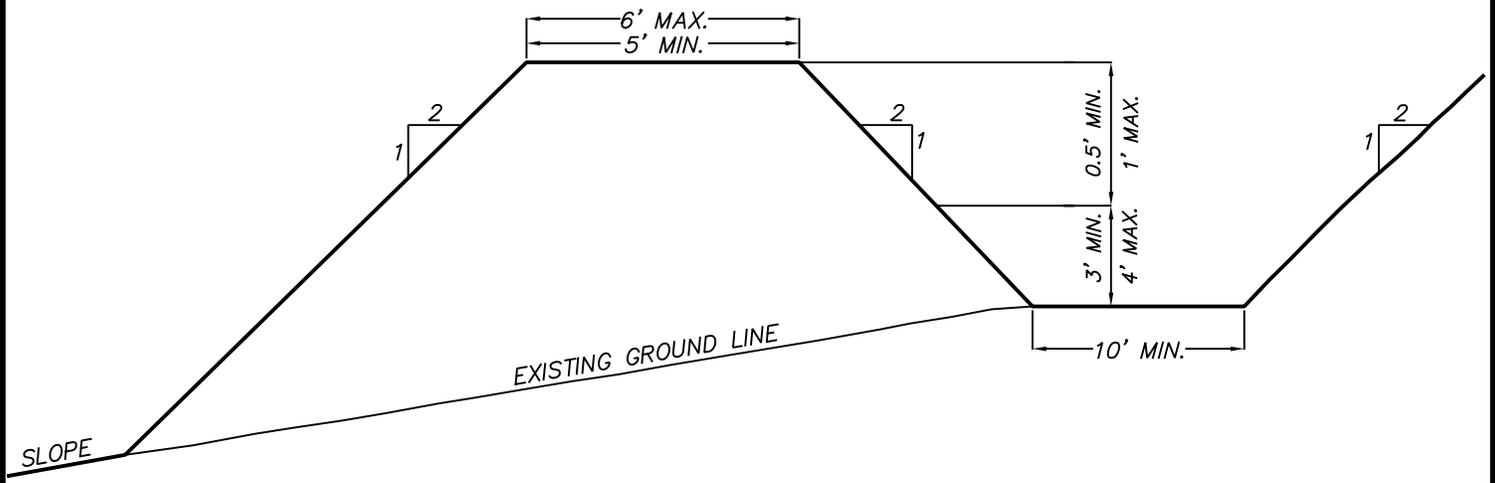
Attachment III-B-3

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.

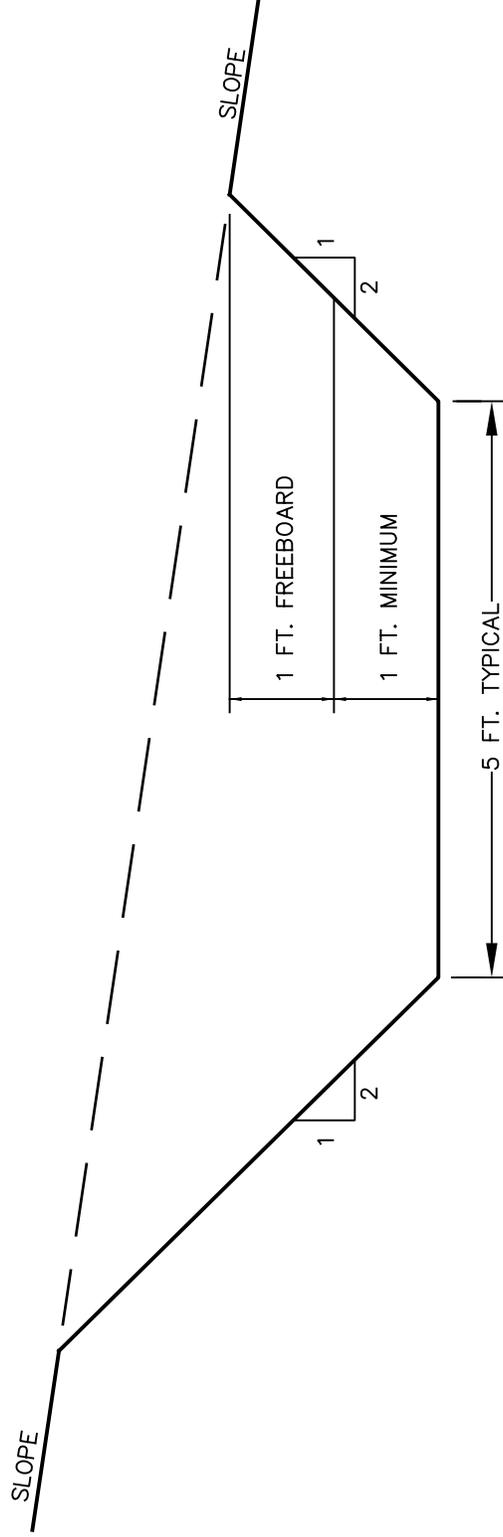
Applicant: Quality Coal Co., Inc.
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10. Topsoil removed from the diversion excavations shall be handled in accordance with Rule 880-X-10C-.07 through 880-X-10C-.11.
11. Diversions shall not be constructed or operated to divert water into underground 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.



TYPICAL DIVERSION/BERM CROSS SECTION
CHANNEL LINING TO CONSIST OF A GRASS MIXTURE

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 CROSS SECTION
CHANNEL LINING TO CONSIST OF A GRASS MIXTURE

Applicant: <u>Quality Coal Co., Inc.</u>
Mine Name: <u>Dutton Hill Mine No. 2</u>
Permit Number: <u>P-</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>Quality Coal Co., Inc.</u>
Mine Name: <u>Dutton Hill Mine No. 2</u>
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5. Transportation Facilities (780.33, 780.37)

A portion of Primary Road 3P (sta. 0+00 to sta. 10+66) from P-3920, Dutton Hill Mine, will be used as Primary 3P for P-3980, Dutton Hill Mine No. 2. This portion of Primary Road 3P will be doubled permitted by P-3920, Dutton Hill Mine and P-3980, Dutton Hill Mine No. 2.

- (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, Primary Road Location Map.

See Attachment III-B-5, Primary Road 1P Detailed Design Plans.

See Attachment III-B-5, Primary Road 3P Detailed Design Plans copied from the ASMC files of P-3920, Dutton Hill Mine.

- (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

Applicant: Quality Coal Co., Inc.
Mine Name: Dutton Hill Mine No. 2
Permit Number: P-3980

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: Quality Coal Co., Inc.
Mine Name: Dutton Hill Mine No. 2
Permit Number: P-

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.

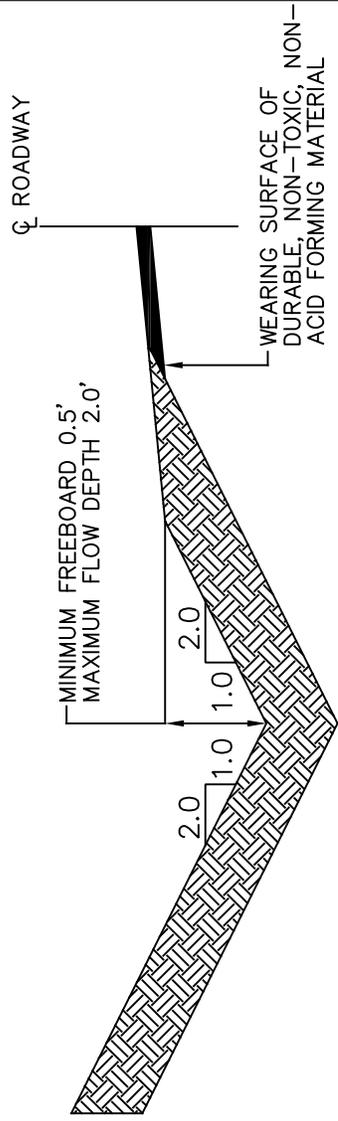
Applicant: Quality Coal Co., Inc.
Mine Name: Dutton Hill Mine No. 2
Permit Number: P-

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.

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Mine Name: <u>Dutton Hill Mine No. 2</u>
Permit Number: <u>P-</u>

- 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.
10. The following drawings illustrate typical roadbed configurations for ancillary roads.

**ANCILLARY ROAD
TYPICAL DRAINAGE DITCH CROSS-SECTION**

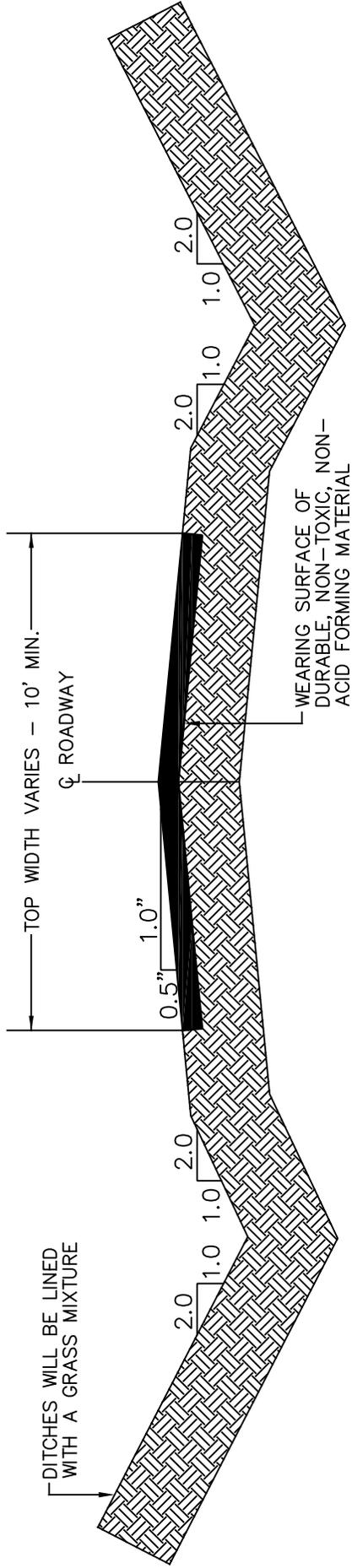


MINIMUM DITCH GRADIENT = 0%
 MAXIMUM DITCH GRADIENT = 5%
 DRAINAGE DITCH TO BE LINED WITH A GRASS MIXTURE.

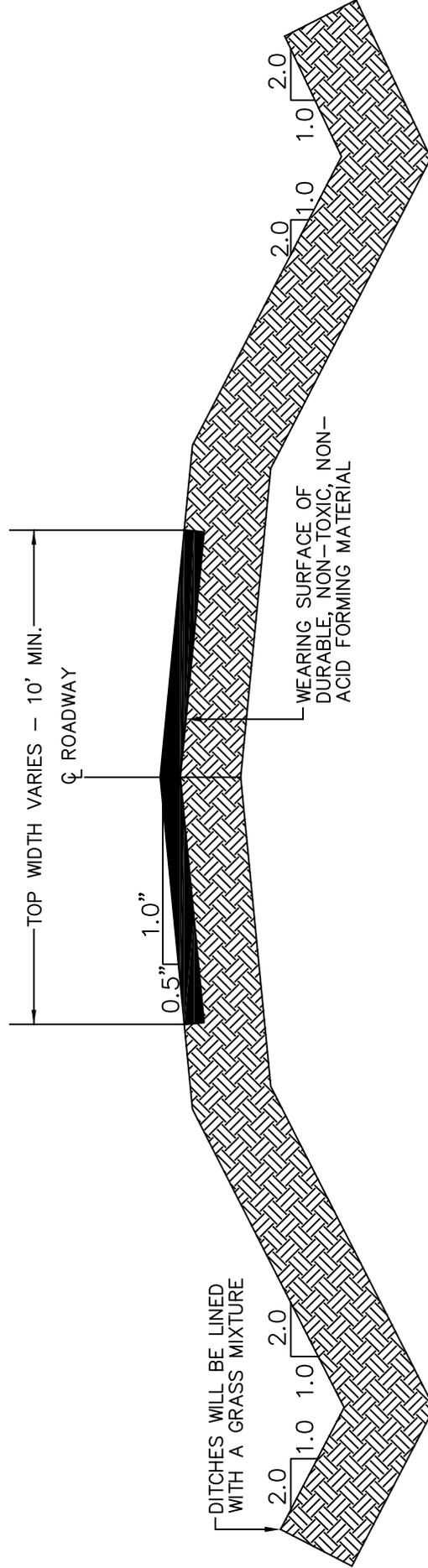
MINIMUM DITCH GRADIENT = 6%
 MAXIMUM DITCH GRADIENT = 10%
 DRAINAGE DITCH TO BE LINED WITH DURABLE NON-TOXIC & NON-ACID FORMING SANDSTONE OR LIMESTONE CLASS I RIP-RAP AND HAVE A MINIMUM THICKNESS OF 12".

MINIMUM DITCH GRADIENT = 11%
 MAXIMUM DITCH GRADIENT = 17%
 DRAINAGE DITCH TO BE LINED WITH DURABLE NON-TOXIC & NON-ACID FORMING SANDSTONE OR LIMESTONE CLASS II RIP-RAP AND HAVE A MINIMUM THICKNESS OF 16".

**ANCILLARY ROAD
TYPICAL CUT SECTION**



**ANCILLARY ROAD
TYPICAL FILL SECTION**



Applicant: Quality Coal Co., Inc.
Mine Name: Dutton Hill Mine No. 2
Permit Number: P-

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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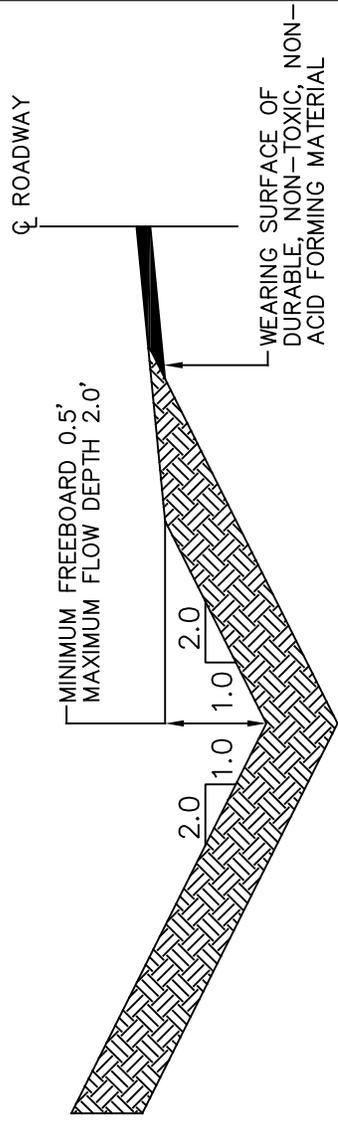
8. No sustained grades will exceed ten percent unless deemed necessary, in which case appropriate sediment control facilities will be constructed. If grades in excess of fifteen percent are required, cross drains, ditch relief drains and road drainways will be located at a minimum distance of three-hundred 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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Mine Name: Dutton Hill Mine No. 2
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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.

**PRIMARY ROAD
TYPICAL DRAINAGE DITCH CROSS-SECTION**

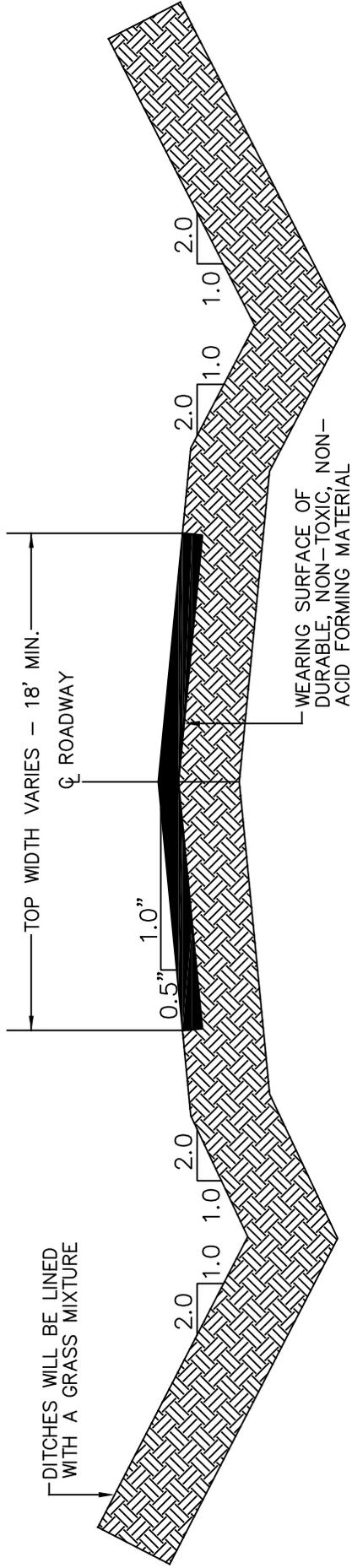


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**PRIMARY ROAD
TYPICAL CUT SECTION**



**PRIMARY ROAD
TYPICAL FILL SECTION**

