



Alabama Department of Environmental Management
adem.alabama.gov

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October 5, 2023

Mr. K. Lance Taylor
President
Pillar Materials, LLC
P.O. Box 3424
Oxford, AL 36203

RE: Draft Permit
431 Quarry
NPDES Permit Number AL0084482
Cleburne County (029)

Dear Mr. Taylor:

Transmitted herein is a draft of the above referenced permit. Please review the enclosed draft permit carefully. If previously permitted, the draft may contain additions/revisions to the language in your current permit. Please submit any comments on the draft permit to the Department within 30 days from the date of receipt of this letter.

Since the Department has made a tentative decision to issue the above referenced permit, ADEM Admin. Code r. 335-6-6-.21 requires a public notice of the draft permit followed by a period of at least 30 days for public comment before the permit can be issued. The United States Environmental Protection Agency will also receive the draft permit for review during the 30-day public comment period.

Any mining, processing, construction, land disturbance, or other regulated activity proposed to be authorized by this draft permit is prohibited prior to the effective date of the formal permit. Any mining or processing activity within the drainage basin associated with each permitted outfall which is conducted prior to Departmental receipt of certification from a professional engineer licensed to practice in the State of Alabama, that the Pollution Abatement/Prevention Plan was implemented according to the design plan, or notification from the Alabama Surface Mining Commission that the sediment control structures have been certified, is prohibited.

This permit requires Discharge Monitoring Reports (DMR) to be submitted utilizing the Department's web-based electronic reporting system. Please read Part I.D of the permit carefully and visit <https://aepacs.adem.alabama.gov/nviro/ncore/external/home>.

Should you have any questions concerning this matter, please contact Clint Dear at (334) 274-4238 or clint.dear@adem.alabama.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "William D. McClimans", is written over a horizontal line.

William D. McClimans, Chief
Mining and Natural Resource Section
Stormwater Management Branch
Water Division

WDM/cdd

File: DPER/59028

cc: Clint Dear, ADEM
Environmental Protection Agency Region IV
Alabama Department of Conservation and Natural Resources
U.S. Fish and Wildlife Service
Alabama Historical Commission
Advisory Council on Historic Preservation





NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

PERMITTEE: Pillar Materials, LLC
P.O. Box 3424
Oxford, AL 36203

FACILITY LOCATION: 431 Quarry
Highway US-431
Heflin, AL 36264
Cleburne County
T16S, R9E, S29, & S30

PERMIT NUMBER: AL0084482

DSN & RECEIVING STREAM: 001 - 1 Choccolocco Creek
002 - 1 Choccolocco Creek
003 - 1 Jackson Creek

In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251-1388 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, §§22-22A-1 to 22-22A-17, and rules and regulations adopted thereunder, and subject further to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the above-named receiving waters.

ISSUANCE DATE:

EFFECTIVE DATE:

EXPIRATION DATE:

Draft

Alabama Department of Environmental Management

MINING AND NATURAL RESOURCE SECTION
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

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PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this Permit and lasting through the expiration date of this Permit, the Permittee is authorized to discharge from each point source identified on Page 1 of this Permit and described more fully in the Permittee's application, if the outfalls have been constructed and certified. Discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Discharge Limitations			Monitoring Requirements	
	Daily Minimum	Monthly Average	Daily Maximum	Sample Type	Measurement Frequency ¹
pH (Outfall 001-1 & 002-1) 00400	6.0 s.u.	-----	8.5 s.u.	Grab	2/Month
pH (Outfall 003-1) 00400	6.0 s.u.	-----	9.0 s.u.	Grab	2/Month
Solids, Total Suspended 00530	-----	25.0 mg/L	45.0 mg/L	Grab	2/Month
Flow, In Conduit or Thru Treatment Plant ² 50050	-----	Report MGD	Report MGD	Instantaneous	2/Month

B. REQUIREMENTS TO ACTIVATE A PROPOSED MINING OUTFALL

1. Discharge from any point source identified on Page 1 of this Permit which is a proposed outfall is not authorized by this Permit until the outfall has been constructed and certification received by the Department from a professional engineer, registered in the State of Alabama, certifying that such facility has been constructed according to good engineering practices and in accordance with the Pollution Abatement and/or Prevention (PAP) Plan.
2. Certification required by Part I.B.1. shall be submitted on a completed ADEM Form 432. The certification shall include the latitude and longitude of the constructed and certified outfall.
3. Discharge monitoring and Discharge Monitoring Report (DMR) reporting requirements described in Part I.C. of this Permit do not apply to point sources that have not been constructed and certified.
4. Upon submittal of the certification required by Part I.B.1. to the Department, all monitoring and DMR submittal requirements shall apply to the constructed and certified outfall.

C. DISCHARGE MONITORING AND RECORD KEEPING REQUIREMENTS

1. **Sampling Schedule and Frequency**
 - a. The Permittee shall collect at least one grab sample of the discharge to surface waters from each constructed and certified point source identified on Page 1 of this Permit and described more fully in the Permittee's application twice per month at a rate of at least every other week if a discharge occurs at any time during the two week period, but need

¹ See Part I.C.2. for further measurement frequency requirements.

² Flow must be determined at the time of sample collection by direct measurement, calculation, or other method acceptable to the Department.

not collect more than two samples per calendar month. Each sample collected shall be analyzed for each parameter specified in Part I.A. of this Permit.

- b. If the final effluent is pumped in order to discharge (e.g. from incised ponds, old highwall cuts, old pit areas or depressions, etc.), the Permittee shall collect at least one grab sample of the discharge from each point source identified on Page 1 of this Permit and described more fully in the Permittee's application each quarterly (three month) monitoring period if a discharge occurs at any time during the quarterly monitoring period which results from direct pumped drainage. Each sample collected shall be analyzed for each parameter specified in Part I.A. of this Permit.
- c. The Permittee may increase the frequency of sampling listed in Parts I.C.1.a and I.C.1.b; however, all sampling results must be reported to the Department and included in any calculated results submitted to the Department in accordance with this Permit.

2. Measurement Frequency

Measurement frequency requirements found in Part I.A. shall mean:

- a. A measurement frequency of one day per week shall mean sample collection on any day of discharge which occurs every calendar week.
- b. A measurement frequency of two days per month shall mean sample collection on any day of discharge which occurs every other week, but need not exceed two sample days per month.
- c. A measurement frequency of one day per month shall mean sample collection on any day of discharge which occurs during each calendar month.
- d. A measurement frequency of one day per quarter shall mean sample collection on any day of discharge which occurs during each calendar quarter.
- e. A measurement frequency of one day per six months shall mean sample collection on any day of discharge which occurs during the period of January through June and during the period of July through December.
- f. A measurement frequency of one day per year shall mean sample collection on any day of discharge which occurs during each calendar year.

3. Monitoring Schedule

The Permittee shall conduct the monitoring required by Part I.A. in accordance with the following schedule:

- a. MONITORING REQUIRED MORE FREQUENTLY THAN MONTHLY AND MONTHLY shall be conducted during the first full month following the effective date of coverage under this Permit and every month thereafter. More frequently than monthly and monthly monitoring may be done anytime during the month, unless restricted elsewhere in this Permit, but the results should be reported on the last Discharge Monitoring Report (DMR) due for the quarter (i.e., with the March, June, September, and December DMRs).
- b. QUARTERLY MONITORING shall be conducted at least once during each calendar quarter. Calendar quarters are the periods of January through March, April through June, July through September, and October through December. The Permittee shall conduct the quarterly monitoring during the first complete calendar quarter following the effective date

of this Permit and is then required to monitor once during each quarter thereafter. Quarterly monitoring may be done anytime during the quarter, unless restricted elsewhere in this Permit, but the results should be reported on the last DMR due for the quarter (i.e., with the March, June, September, and December DMRs).

- c. SEMIANNUAL MONITORING shall be conducted at least once during the period of January through June and at least once during the period of July through December. The Permittee shall conduct the semiannual monitoring during the first complete semiannual calendar period following the effective date of this Permit and is then required to monitor once during each semiannual period thereafter. Semiannual monitoring may be done anytime during the semiannual period, unless restricted elsewhere in this Permit, but it should be reported on the last DMR due for the month of the semiannual period (i.e., with the June and December DMRs).
- d. ANNUAL MONITORING shall be conducted at least once during the period of January through December. The Permittee shall conduct the annual monitoring during the first complete calendar annual period following the effective date of this Permit and is then required to monitor once during each annual period thereafter. Annual monitoring may be done anytime during the year, unless restricted elsewhere in this Permit, but it should be reported on the December DMR.

4. Sampling Location

Unless restricted elsewhere in this Permit, samples collected to comply with the monitoring requirements specified in Part I.A. shall be collected at the nearest accessible location just prior to discharge and after final treatment, or at an alternate location approved in writing by the Department.

5. Representative Sampling

Sample collection and measurement actions taken as required herein shall be representative of the volume and nature of the monitored discharge and shall be in accordance with the provisions of this Permit.

6. Test Procedures

For the purpose of reporting and compliance, Permittees shall use one of the following procedures:

- a. For parameters with an EPA established Minimum Level (ML), report the measured value if the analytical result is at or above the ML and report "0" for values below the ML. Test procedures for the analysis of pollutants shall conform to 40 CFR Part 136, guidelines published pursuant to Section 304(h) of the FWPCA, 33 U.S.C. Section 1314(h), and ADEM Standard Operating Procedures. If more than one method for analysis of a substance is approved for use, a method having a minimum level lower than the permit limit shall be used. If the minimum level of all methods is higher than the permit limit, the method having the lowest minimum level shall be used and a report of less than the minimum level shall be reported as zero and will constitute compliance, however should EPA approve a method with a lower minimum level during the term of this Permit the Permittee shall use the newly approved method.
- b. For pollutant parameters without an established ML, an interim ML may be utilized. The interim ML shall be calculated as 3.18 times the Method Detection Level (MDL) calculated pursuant to 40 CFR Part 136, Appendix B.

Permittees may develop an effluent matrix-specific ML, where an effluent matrix prevents attainment of the established ML. However, a matrix specific ML shall be based upon

proper laboratory method and technique. Matrix-specific MLs must be approved by the Department, and may be developed by the Permittee during permit issuance, reissuance, modification, or during compliance schedule.

In either case the measured value should be reported if the analytical result is at or above the ML and "0" reported for values below the ML.

- c. For parameters without an EPA established ML, interim ML, or matrix-specific ML, a report of less than the detection limit shall constitute compliance if the detection limit of all analytical methods is higher than the permit limit using the most sensitive EPA approved method. For the purpose of calculating a monthly average, "0" shall be used for values reported less than the detection limit.

The Minimum Level utilized for procedures identified in Parts I.C.6.a. and b. shall be reported on the Permittee's DMR. When an EPA approved test procedure for analysis of a pollutant does not exist, the Director shall approve the procedure to be used.

7. Recording of Results

For each measurement or sample taken pursuant to the requirements of this Permit, the Permittee shall record the following information:

- a. The facility name and location, point source number, date, time, and exact place of sampling or measurements;
- b. The name(s) of person(s) who obtained the samples or measurements;
- c. The dates and times the analyses were performed;
- d. The name(s) of the person(s) who performed the analyses;
- e. The analytical techniques or methods used including source of method and method number; and
- f. The results of all required analyses.

8. Routine Inspection by Permittee

- a. The Permittee shall inspect all point sources identified on Page 1 of this Permit and described more fully in the Permittee's application and all treatment or control facilities or systems used by the Permittee to achieve compliance with the terms and conditions of this Permit at least as often as the applicable sampling frequency specified in Part I.C.1 of this Permit.
- b. The Permittee shall maintain a written log for each point source identified on Page 1 of this Permit and described more fully in the Permittee's application in which the Permittee shall record the following information:
 - (1) The date and time the point source and any associated treatment or control facilities or systems were inspected by the Permittee;
 - (2) Whether there was a discharge from the point source at the time of inspection by the Permittee;

- (3) Whether a sample of the discharge from the point source was collected at the time of inspection by the Permittee;
- (4) Whether all associated treatment or control facilities or systems appeared to be in good working order and operating as efficiently as possible, and if not, a description of the problems or deficiencies; and
- (5) The name and signature of the person performing the inspection of the point source and associated treatment or control facilities or systems.

9. Records Retention and Production

- a. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the above reports or the application for this Permit, for a period of at least three (3) years from the date of the sample collection, measurement, report, or application. This period may be extended by request of the Director at any time. If litigation or other enforcement action, under the AWPCA, AEMA, and/or the FWPCA, is ongoing which involves any of the above records, the records shall be kept until the litigation is resolved. Upon the written request of the Director, the Permittee shall provide the Director with a copy of any record required to be retained by this paragraph. Copies of these records should not be submitted unless requested.
- b. All records required to be kept for a period of three (3) years shall be kept at the permitted facility or an alternate location approved by the Department in writing and shall be available for inspection.

10. Monitoring Equipment and Instrumentation

All equipment and instrumentation used to determine compliance with the requirements of this Permit shall be installed, maintained, and calibrated in accordance with the manufacturer's instructions or, in the absence of manufacturer's instructions, in accordance with accepted practices. The Permittee shall develop and maintain quality assurance procedures to ensure proper operation and maintenance of all equipment and instrumentation. The quality assurance procedures shall include the proper use, maintenance, and installation, when appropriate, of monitoring equipment at the plant site.

D. DISCHARGE REPORTING REQUIREMENTS

1. Requirements for Reporting of Monitoring

- a. Monitoring results obtained during the previous three (3) months shall be summarized for each month on a Discharge Monitoring Report (DMR) Form approved by the Department, and submitted to the Department so that it is received by the Director no later than the 28th day of the month following the quarterly reporting period (i.e., on the 28th day of January, April, July, and October of each year).
- b. The Department utilizes a web-based electronic reporting system for submittal of DMRs. **Except as allowed by Part I.D.1.c. or d., the Permittee shall submit all DMRs required by Part I.D.1.a. by utilizing the Department's current electronic reporting system.** The Department's current reporting system, Alabama Environmental Permitting and Compliance System (AEPACS), can be found online at <https://aepacs.adem.alabama.gov/nviro/ncore/external/home>.

- c. If the electronic reporting system is down (i.e. electronic submittal of DMR data is unable to be completed due to technical problems originating with the Department's system; this could include entry/submittal issues with an entire set of DMRs or individual parameters), permittees are not relieved of their obligation to submit DMR data to the Department by the required submittal date. However, if the electronic reporting system is down on the 28th day of the month or is down for an extended period of time as determined by the Department when a DMR is required to be submitted, the facility may submit the data in an alternate manner and format acceptable to the Department. Preapproved alternate acceptable methods include faxing, e-mailing, mailing, or hand-delivery of data such that they are received by the required reporting date. Within five calendar days of the electronic reporting system resuming operation, the Permittee shall enter the data into the reporting system unless an alternate timeframe is approved by the Department. An attachment should be included with the electronic DMR submittal verifying the original submittal date (date of the fax, copy of dated e-mail, or hand-delivery stamped date).
- d. The permittee may submit a request to the Department for a temporary electronic reporting waiver for DMR submittals. The waiver request should include the permit number; permittee name; facility/site name; facility address; name, address, and contact information for the responsible official or duly authorized representative; a detailed statement regarding the basis for requesting such a waiver; and the duration for which the waiver is requested. Approved electronic reporting waivers are not transferrable. Permittees with an approved electronic reporting waiver for DMRs may submit hard copy DMRs for the period that the approved electronic reporting waiver request is effective. The Permittee shall submit the Department-approved DMR forms to the address listed in Part I.D.1.i.
- e. If the Permittee, using approved analytical methods as specified in Part I.C.6., monitors any discharge from a point source identified on Page 1 of this Permit and describe more fully in the Permittee's application more frequently than required by this Permit; the results of such monitoring shall be included in the calculation and reporting of values on the DMR Form, and the increased frequency shall be indicated on the DMR Form.
- f. In the event no discharge from a point source identified on Page 1 of this Permit and described more fully in the Permittee's application occurs during a monitoring period, the Permittee shall report "No Discharge" for such period on the appropriate DMR Form.
- g. Each DMR Form submitted by the Permittee to the Department in accordance with Part I.D.1. must be legible and bear an original signature or electronic signature. Photo and electronic copies of the signature are not acceptable and shall not satisfy the reporting requirements of this Permit.
- h. All reports and forms required to be submitted by this Permit, the AWPCA, and the Department's rules and regulations, shall be signed by a "responsible official" of the Permittee as defined in ADEM Admin. Code r. 335-6-6-.09 or a "duly authorized representative" of such official as defined in ADEM Admin. Code r. 335-6-6-.09 and shall bear the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false

information, including the possibility of fine and imprisonment for knowing violations."

- i. All DMRs, reports, and forms required to be submitted by this Permit, the AWPCA and the Department's rules and regulations, shall be submitted through the Department's electronic reporting system, AEPACS, or, if in hardcopy, shall be addressed to:

Alabama Department of Environmental Management
Water Division, Mining and Natural Resource Section
Post Office Box 301463
Montgomery, Alabama 36130-1463

Certified and Registered Mail shall be addressed to:

Alabama Department of Environmental Management
Water Division, Mining and Natural Resource Section
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2059

- j. Unless authorized in writing by the Department, approved reporting forms required by this Permit or the Department are not to be altered, and if copied or reproduced, must be consistent in format and identical in content to the ADEM approved form. Unauthorized alteration, falsification, or use of incorrectly reproduced forms constitutes noncompliance with the requirements of this Permit and may significantly delay processing of any request, result in denial of the request, result in permit termination, revocation, suspension, modification, or denial of a permit renewal application, or result in other enforcement action.
- k. If this Permit is a reissuance, then the Permittee shall continue to submit DMRs in accordance with the requirements of their previous permit until such time as DMRs are due as discussed in Part I.D.1.

2. Noncompliance Notification

- a. The Permittee must notify the Department if, for any reason, the Permittee's discharge:
 - (1) Potentially threatens human health or welfare;
 - (2) Potentially threatens fish or aquatic life;
 - (3) Causes an in-stream water quality criterion to be exceeded;
 - (4) Does not comply with an applicable toxic pollutant effluent standard or prohibition established under Section 307(a) of the FWPCA, 33 U.S.C. §1317(a);
 - (5) Contains a quantity of a hazardous substance which has been determined may be harmful to the public health or welfare under Section 311(b)(4) of the FWPCA, 33 U.S.C. §1321(b)(4); or
 - (6) Exceeds any discharge limitation for an effluent parameter as a result of an unanticipated bypass or upset.

The Permittee shall orally or electronically report any of the above occurrences, describing the circumstances and potential effects of such discharge to the Director within 24-hours

after the Permittee becomes aware of the occurrence of such discharge. In addition to the oral or electronic report, the Permittee shall submit to the Director a written report as provided in Part I.D.2.c., no later than five (5) days after becoming aware of the occurrence of such discharge.

- b. If for any reason, the Permittee's discharge does not comply with any limitation of this Permit, the Permittee shall submit a written report to the Director as provided in Part I.D.2.c. This report must be submitted with the next Discharge Monitoring Report required to be submitted by Part I.D.1. of this Permit after becoming aware of the occurrence of such noncompliance.
- c. Any written report required to be submitted to the Director in accordance with Parts I.D.2.a. and b. shall be submitted using a Noncompliance Notification Form (ADEM Form 421) available on the Department's website (<http://adem.alabama.gov/DeptForms/Form421.pdf>) and include the following information:
 - (1) A description of the discharge and cause of noncompliance;
 - (2) The period of noncompliance, including exact dates and times, or if not corrected, the anticipated time the noncompliance is expected to continue; and
 - (3) A description of the steps taken and/or being taken to reduce or eliminate the noncomplying discharge and to prevent its recurrence.

3. Reduction, Suspension, or Termination of Monitoring and/or Reporting

- a. The Director may, with respect to any point source identified on Page 1 of this Permit and described more fully in the Permittee's application, authorize the Permittee to reduce, suspend, or terminate the monitoring and/or reporting required by this Permit upon the submission of a written request for such reduction, suspension, or termination by the Permittee provided:
 - (1) All mining, processing, or disturbance in the drainage basin(s) associated with the discharge has ceased and site access is adequately restricted or controlled to preclude unpermitted and unauthorized mining, processing, transportation, or associated operations/activity;
 - (2) Permanent, perennial vegetation has been re-established on all areas mined or disturbed for at least one year since mining has ceased in the drainage basin(s) associated with the surface discharge, or all areas have been permanently graded such that all drainage is directed back into the mined pit to preclude all surface discharges;
 - (3) Unless waived in writing by the Department, the Permittee has been granted, in writing, a 100% Bond Release, if applicable, by the Alabama Department of Industrial Relations and, if applicable, by the Surface Mining Commission for all areas mined or disturbed in the drainage basin(s) associated with the discharge;
 - (4) Unless waived in writing by the Department, the Permittee has submitted inspection reports prepared and certified by a Professional Engineer (PE) registered in the State of Alabama or a qualified professional under the PE's direction which certify that the facility has been fully reclaimed or that water quality remediation has been achieved. The first inspection must be conducted approximately one year prior to and the second inspection must be conducted

within thirty days of the Permittee's request for termination of monitoring and reporting requirements;

- (5) All surface effects of the mining activity such as fuel or chemical tanks, preparation plants or equipment, old tools or equipment, junk or debris, etc., must be removed and disposed of according to applicable state and federal regulations;
 - (6) The Permittee's request for termination of monitoring and reporting requirements contained in this Permit has been supported by monitoring data covering a period of at least six consecutive months or such longer period as is necessary to assure that the data reflect discharges occurring during varying seasonal climatological conditions;
 - (7) The Permittee has stated in its request that the samples collected and reported in the monitoring data submitted in support of the Permittee's request for monitoring termination or suspension are representative of the discharge and were collected in accordance with all Permit terms and conditions respecting sampling times (e.g., rainfall events) and methods and were analyzed in accordance with all Permit terms and conditions respecting analytical methods and procedures;
 - (8) The Permittee has certified that during the entire period covered by the monitoring data submitted, no chemical treatment of the discharge was provided;
 - (9) The Permittee's request has included the certification required by Part I.D.1.e. of this Permit; and
 - (10) The Permittee has certified to the Director in writing as part of the request, its compliance with (1) through (9) above.
- b. It remains the responsibility of the Permittee to comply with the monitoring and reporting requirements of this Permit until written authorization to reduce, suspend, or terminate such monitoring and/or reporting is received by the Permittee from the Director.

E. OTHER REPORTING AND NOTIFICATION REQUIREMENTS

1. Anticipated Noncompliance

The Permittee shall give the Director written advance notice of any planned changes or other circumstances regarding a facility which may result in noncompliance with permit requirements.

2. Termination of Discharge

The Permittee shall notify the Director, in writing, when all discharges from any point source(s) identified on Page 1 of this Permit and described more fully in the Permittee's application have permanently ceased.

3. Updating Information

- a. The Permittee shall inform the Director of any change in the Permittee's mailing address or telephone number or in the Permittee's designation of a facility contact or officer(s) having the authority and responsibility to prevent and abate violations of the AWPCA, the AEMA, the Department's rules and regulations, and the terms and conditions of this Permit,

in writing, no later than ten (10) days after such change. Upon request of the Director, the Permittee shall furnish the Director with an update of any information provided in the permit application.

- b. If the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information with a written explanation for the mistake and/or omission.

4. Duty to Provide Information

- a. The Permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, suspending, terminating, or revoking and reissuing this Permit, in whole or in part, or to determine compliance with this Permit. The Permittee shall also furnish to the Director upon request, copies of records required to be maintained by this Permit.
- b. The Permittee shall furnish to the Director upon request, within a reasonable time, available information (name, phone number, address, and site location) which identifies offsite sources of material or natural resources (mineral, ore, or other material such as iron, coal, coke, dirt, chert, shale, clay, sand, gravel, bauxite, rock, stone, etc.) used in its operation or stored at the facility.

F. SCHEDULE OF COMPLIANCE

The Permittee shall achieve compliance with the discharge limitations specified in Part I.A. of this Permit in accordance with the following schedule:

Compliance must be achieved by the effective date of this Permit.

PART II OTHER REQUIREMENTS, RESPONSIBILITIES, AND DUTIES

A. OPERATIONAL AND MANAGEMENT REQUIREMENTS

1. Facilities Operation and Management

The Permittee shall at all times operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities only when necessary to achieve compliance with the conditions of this Permit.

2. Pollution Abatement and/or Prevention Plan

a. The Pollution Abatement and/or Prevention (PAP) Plan shall be prepared and certified by a registered Professional Engineer (PE), licensed to practice in the State of Alabama, and shall include at a minimum:

- (1) The information indicated in ADEM Admin Code r. 335-6-9-.03 and ADEM Admin. Code ch. 335-6-9 and its Appendices A and B;
- (2) A description of methods which will be implemented to prevent offsite vehicle tracking onto roadways and/or into ditches at the entrances and/or exits of the Permittee's operations;
- (3) A description of setbacks from waters of the State in units of linear feet on the horizontal plane; a description of the methods taken to visibly delineate setbacks from waters of the State; and a description of any other actions taken to prevent encroachment upon setbacks;
- (4) A description of the methods used to delineate the boundaries of coverage under this Permit such that the boundaries are readily visible during the life of the operation;
- (5) A description of any other Best Management Practices (BMPs) which will be implemented to provide control of all nonpoint source pollution that is or may be associated with the Permittee's operations;

b. The PAP Plan shall become a part of this Permit and all requirements of the PAP Plan shall become requirements of this Permit pursuant to ADEM Admin Code r. 335-6-9-.05(2). The PAP Plan shall be amended if the Department determines that the existing sediment control measures, erosion control measures, or other site management practices are ineffective or do not meet the requirements of this Permit.

c. For existing sources, the PAP Plan shall be updated to include all requirements of this section within 180 days of the effective date of this permit. New sources shall submit the PAP plan with the NPDES Individual Permit application prior to coverage under this Permit.

3. Best Management Practices (BMPs)

- a. Unless otherwise authorized in writing by the Director, the Permittee shall provide a means of subsurface withdrawal for any discharge from each point source identified on Page 1 of this Permit and described more fully in the Permittee's application. Notwithstanding the above provision, a means of subsurface withdrawal need not be provided for any discharge caused by a 24-hour precipitation event greater than a 10-year, 24-hour precipitation event.
- b. Dilution water shall not be added to achieve compliance with discharge limitations except when the Director has granted prior written authorization for dilution to meet water quality requirements.
- c. The Permittee shall minimize the contact of water with overburden, including but not limited to stabilizing disturbed areas through grading, diverting runoff, achieving quick growing stands of temporary vegetation, sealing acid-forming and toxic-forming materials, and maximizing placement of waste materials in back-fill areas.
- d. The Permittee shall prepare, submit to the Department for approval, and implement a Best Management Practices (BMPs) Plan for containment of any or all process liquids or solids, in a manner such that these materials do not present a potential for discharge, if so required by the Director. When submitted and approved, the BMP Plan shall become a part of this Permit and all requirements of the BMP Plan shall become requirements of this Permit.
- e. Spill Prevention, Control, and Management

The Permittee shall prepare, implement, and maintain a Spill Prevention, Control and Countermeasures (SPCC) Plan acceptable to the Department that is prepared and certified by a Professional Engineer (PE), registered in the State of Alabama, for all onsite petroleum product or other pollutant storage tanks or containers as provided by ADEM Admin. Code r. 335-6-6-.08(j)5. The Plan shall describe and the Permittee shall implement appropriate structural and/or non-structural spill prevention, control, and/or management pursuant to ADEM Admin. Code r. 335-6-6-.12 (r) sufficient to prevent any spills of pollutants from entering a ground or surface water of the State or a publicly or privately owned treatment works. The Plan shall include at a minimum, the engineering requirements provided in 40 C.F.R. §§112.1. Any containment system used to implement this requirement shall be constructed of materials compatible with the substance(s) contained and shall prevent the contamination of groundwater. Such containment systems shall be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided. The Plan shall list any materials which the Permittee may utilize to contain and to absorb fuel and chemical spills and leaks. The Permittee shall maintain sufficient amounts of such materials onsite or have sufficient amounts of such materials readily available to contain and/or absorb fuel and chemical spills and leaks. Soil contaminated by chemical spills, oil spills, etc., must be immediately cleaned up or be removed and disposed of in a manner consistent with all State and federal regulations.

- f. All surface drainage and storm water runoff which originate within or enters the Permittee's premises and which contains any pollutants or other wastes shall be discharged, if at all, from a point source identified on Page 1 of this Permit and described more fully in the Permittee's application.
- g. The Permittee shall take all reasonable precautions to prevent any surface drainage or storm water runoff which originates outside the Permittee's premises and which contains any pollutants or other wastes from entering the Permittee's premises. At no time shall the Permittee discharge any such surface drainage or storm water runoff which enters the Permittee's premises if, either alone or in combination with the Permittee's effluent, the discharge would exceed any applicable discharge limitation specified in Part I.A. of this Permit.

4. Biocide Additives

- a. The Permittee shall notify the Director in writing not later than sixty (60) days prior to instituting the use of any biocide corrosion inhibitor or chemical additive in any cooling or boiler system(s) regulated by this Permit. Notification is not required for additives that should not reasonably be expected to cause the cooling water or boiler water to exhibit toxicity as determined by analysis of manufacturer's data or testing by the Permittee. Such notification shall include:
- (a) Name and general composition of biocide or chemical;
 - (b) 96-hour median tolerance limit data for organisms representative of the biota of the water(s) which the discharge(s) enter(s);
 - (c) Quantities to be used;
 - (d) Frequencies of use;
 - (e) Proposed discharge concentrations; and
 - (f) EPA registration number, if applicable.
- b. The use of any biocide or chemical additive containing tributyl tin, tributyl tin oxide, zinc, chromium, or related compounds in any cooling or boiler system(s) regulated by the Permit is prohibited except as exempted below. The use of a biocide or additive containing zinc, chromium or related compounds may be used in special circumstances if (1) the permit contains limits for these substances, or (2) the applicant demonstrates during the application process that the use of zinc, chromium or related compounds as a biocide or additive will not pose a reasonable potential to violate the applicable State water quality standards for these substances. The use of any additive, not identified in this Permit or in the application for this Permit or not exempted from notification under this Permit is prohibited, prior to a determination by the Department that permit modification to control discharge of the additive is not required or prior to issuance of a permit modification controlling discharge of the additive.

5. Facility Identification

The Permittee shall clearly display prior to commencement of any regulated activity and until permit coverage is properly terminated, the name of the Permittee, entire NPDES permit number, facility or site name, and other descriptive information deemed appropriate by the Permittee at an easily accessible location(s) to adequately identify the site, unless approved otherwise in writing by the Department. The Permittee shall repair or replace the sign(s) as necessary upon becoming aware that the identification is missing or is unreadable due to age, vandalism, theft, weather, or other reason.

6. Removed Substances

Solids, sludges, filter backwash, or any other pollutants or other wastes removed in the course of treatment or control of wastewaters shall be disposed of in a manner that complies with all applicable Department rules and regulations.

7. Loss or Failure of Treatment Facilities

Upon the loss or failure of any treatment facility, including but not limited to the loss or failure of the primary source of power of the treatment facility, the Permittee shall, where necessary to maintain compliance with the discharge limitations specified in Part I.A. of this Permit or any other terms or conditions of this Permit, cease, reduce, or otherwise control production and/or discharges until treatment is restored.

8. Duty to Mitigate

The Permittee shall promptly take all reasonable steps to minimize or prevent any violation of this Permit or to mitigate and minimize any adverse impact to waters resulting from noncompliance with any discharge limitation specified in Part I.A. of this Permit, including such accelerated or additional monitoring of the discharge and/or the receiving waterbody as is necessary to determine the nature and impact of the noncomplying discharge.

B. BYPASS AND UPSET

1. Bypass

- a. Any bypass is prohibited except as provided in Parts II.B.1.b. and c.
- b. A bypass is not prohibited if:
 - (1) It does not cause any applicable discharge limitation specified in Part I.A. of this Permit to be exceeded;
 - (2) The discharge resulting from such bypass enters the same receiving water as the discharge from the permitted outfall;
 - (3) It is necessary for essential maintenance of a treatment or control facility or system to assure efficient operation of such facility or system; and
 - (4) The Permittee monitors the discharge resulting from such bypass at a frequency, at least daily, sufficient to prove compliance with the discharge limitations specified in Part I.A. of this Permit.
- c. A bypass is not prohibited and need not meet the discharge limitations specified in Part I.A. of this Permit if:
 - (1) It is unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (2) There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the Permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (3) The Permittee submits a written request for authorization to bypass to the Director at least ten (10) days, if possible, prior to the anticipated bypass or within 24 hours of an unanticipated bypass, the Permittee is granted such authorization, and Permittee complies with any conditions imposed by the Director to minimize any adverse impact to waters resulting from the bypass.

- d. The Permittee has the burden of establishing that each of the conditions of Parts II.B.1.b. or c. have been met to qualify for an exception to the general prohibition against bypassing contained in Part II.B.1.a. and an exemption, where applicable, from the discharge limitations specified in Part I.A. of this Permit.

2. Upset

- a. The Permittee may seek to demonstrate that noncompliance with technology-based effluent limits occurred as a result of an upset if the conditions of Part II.B.2.b are met and if the Permittee complies with the conditions provided in Part II.B.2.c.
- b. If the Permittee wishes to establish the affirmative defense of an upset for technology-based effluent limit noncompliance, the Permittee must demonstrate through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that the Permittee can identify the specific cause(s) of the upset;
 - (2) The wastewater treatment facility was at the time being properly operated in accordance with Part II.B.d.
 - (3) The Permittee submitted notice of the noncompliance during the upset as required by Part II.B.2.c; and
 - (4) The Permittee complied with any remedial measures required under Part II.A.7. of this Permit.
- c. If the Permittee wishes to establish the affirmative defense of an upset for technology-based effluent limit noncompliance, the Permittee shall:
 - (1) No later than 24-hours after becoming aware of the occurrence of the upset, orally report the occurrence and circumstances of the upset to the Director in accordance with Part I.G.2.; and
 - (2) No later than five (5) days after becoming aware of the occurrence of the upset, furnish the Director with evidence, including properly signed, contemporaneous operating logs, design drawings, construction certification, maintenance records, weir flow measurements, dated photographs, rain gauge measurements, or other relevant evidence, demonstrating that:
 - (i) An upset occurred;
 - (ii) The Permittee can identify the specific cause(s) of the upset;
 - (iii) The Permittee's treatment facility was being properly operated at the time of the upset; and
 - (iv) The Permittee promptly took all reasonable steps to minimize any adverse impact to waters resulting from the upset.
- d. A discharge which is an overflow from a treatment facility or system, or an excess discharge from a point source associated with a treatment facility or system and which results from a 24-hour precipitation event larger than a 10-year, 24-hour precipitation event is not eligible to be considered as a result of an upset unless:

- (1) The treatment facility or system is designed, constructed, and maintained to contain the maximum volume of wastewater which would be generated by the facility during a 24-hour period without an increase in volume from precipitation and the maximum volume of wastewater resulting from a 10-year, 24-hour precipitation event or to treat the maximum flow associated with these volumes. In computing the maximum volume of wastewater which would result from a 10-year, 24-hour precipitation event, the volume which would result from all areas contributing runoff to the individual treatment facility must be included (i.e., all runoff that is not diverted from the mining area and runoff which is not diverted from the preparation plant area); and
 - (2) The Permittee takes all reasonable steps to maintain treatment of the wastewater and minimize the amount of overflow or excess discharge.
- e. The Permittee has the burden of proof in defense of any enforcement action as a result of noncompliance of technology-based effluent limits the Permittee proposes to attribute to an upset.

C. PERMIT CONDITIONS AND RESTRICTIONS

1. Prohibition against Discharge from Facilities Not Certified

- a. Notwithstanding any other provisions of this Permit, if the permitted facility has not obtained or is not required to obtain a permit from the Alabama Surface Mining Commission, any discharge(s) from any point or nonpoint source(s) from the permitted facility which was not certified to the Department on a form approved by the Department by a professional engineer, registered in the State of Alabama, as being designed, constructed, and in accordance with plans and specifications reviewed by the Department is prohibited; or
- b. Notwithstanding any other provisions of this Permit, if the permitted facility has obtained or is required to obtain a permit from the Alabama Surface Mining Commission, any discharge(s) from any point or nonpoint source(s) from the permitted facility which is associated with a treatment facility which was not constructed and certified to the Alabama Surface Mining Commission pursuant to applicable provisions of said Commission's regulations, is prohibited until the Permittee submits to the Alabama Surface Mining Commission, certification by a professional engineer, registered in the State of Alabama, certifying that such facility has been constructed in accordance with plans and specifications approved by the Alabama Surface Mining Commission. This requirement shall not apply to pumped discharges from the underground works of underground coal mines where no surface structure is required by the Alabama Surface Mining Commission, provided the Department is notified in writing of the completion or installation of such facilities, and the pumped discharges will meet permit effluent limits without treatment.

2. Permit Modification, Suspension, Termination, and Revocation

- a. This Permit may be modified, suspended, terminated, or revoked and reissued, in whole or in part, during its term for cause, including but not limited to, the following:
 - (1) The violation of any term or condition of this Permit;

- (2) The obtaining of this Permit by misrepresentation or the failure to disclose fully all relevant facts;
 - (3) The submission of materially false or inaccurate statements or information in the permit application or reports required by the Permit;
 - (4) The need for a change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;
 - (5) The existence of any typographical or clerical errors or of any errors in the calculation of discharge limitations;
 - (6) The existence of material and substantial alterations or additions to the facility or activity generating wastewater which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit;
 - (7) The threat of the Permittee's discharge on human health or welfare; or
 - (8) Any other cause allowed by ADEM Admin. Code ch. 335-6-6.
- b. The filing of a request by the Permittee for modification, suspension, termination, or revocation and reissuance of this Permit, in whole or in part, does not stay any Permit term or condition of this Permit.

3. Automatic Expiration of Permits for New or Increased Discharges

- a. Except as provided by ADEM Admin. Code r. 335-6-6-.02(h) and 335-6-6-.05, if this Permit was issued for a new discharger or new source, it shall expire eighteen months after the issuance date if construction has not begun during that eighteen month period.
- b. Except as provided by ADEM Admin. Code r. 335-6-6-.02(h) and 335-6-6-.05, if any portion of this Permit was issued or modified to authorize the discharge of increased quantities of pollutants to accommodate the modification of an existing facility, that portion of this Permit shall expire eighteen months after this Permit's issuance if construction of the modification has not begun within eighteen month period.
- c. Construction has begun when the owner or operator has:
 - (1) Begun, or caused to begin as part of a continuous on-site construction program:
 - (i) Any placement, assembly, or installation of facilities or equipment; or
 - (ii) Significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or
 - (2) Entered into a binding contractual obligation for the purpose of placement, assembly, or installation of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under the paragraph. The entering into a lease with the State of

Alabama for exploration and production of hydrocarbons shall also be considered beginning construction.

- d. The automatic expiration of this Permit for new or increased discharges if construction has not begun within the eighteen month period after the issuance of this Permit may be tolled by administrative or judicial stay.

4. Transfer of Permit

This Permit may not be transferred or the name of the Permittee changed without notice to the Director and subsequent modification or revocation and reissuance of this Permit to identify the new Permittee and to incorporate any other changes as may be required under the FWPCA or AWPCA. In the case of a change in name, ownership, or control of the Permittee's premises only, a request for permit modification in a format acceptable to the Director is required at least 30 days prior to the change. In the case of a change in name, ownership, or control of the Permittee's premises accompanied by a change or proposed change in effluent characteristics, a complete permit application is required to be submitted to the Director at least 180 days prior to the change. Whenever the Director is notified of a change in name, ownership, or control, he may decide not to modify the existing Permit and require the submission of a new permit application.

5. Groundwater

Unless authorized on page 1 of this Permit, this Permit does not authorize any discharge to groundwater. Should a threat of groundwater contamination occur, the Director may require groundwater monitoring to properly assess the degree of the problem, and the Director may require that the Permittee undertake measures to abate any such discharge and/or contamination.

6. Property and Other Rights

This Permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of Federal, State, or local laws or regulations, nor does it authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any waters of the State or of the United States.

D. RESPONSIBILITIES

1. Duty to Comply

- a. The Permittee must comply with all terms and conditions of this Permit. Any permit noncompliance constitutes a violation of the AWPCA, AEMA, and the FWPCA and is grounds for enforcement action, for permit termination, revocation and reissuance, suspension, modification, or denial of a permit renewal application.
- b. The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the FWPCA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Permit has not yet been modified to incorporate the effluent standard, prohibition or requirement.
- c. For any violation(s) of this Permit, the Permittee is subject to a civil penalty as authorized by the AWPCA, the AEMA, the FWPCA, and Code of Alabama 1975, §§22-22A-1 et. seq., as amended, and/or a criminal penalty as authorized by Code of Alabama 1975, §22-22-1 et. seq., as amended.

- d. The necessity to halt or reduce production or other activities in order to maintain compliance with the conditions of this Permit shall not be a defense for a Permittee in an enforcement action.
- e. Nothing in this Permit shall be construed to preclude or negate the Permittee's responsibility or liability to apply for, obtain, or comply with other ADEM, federal, state, or local government permits, certifications, licenses, or other approvals.
- f. The discharge of a pollutant from a source not specifically identified in the permit application for this Permit and not specifically included in the description of an outfall in this Permit is not authorized and shall constitute noncompliance with this Permit.
- g. The Permittee shall take all reasonable steps, including cessation of production or other activities, to minimize or prevent any violation of this Permit or to minimize or prevent any adverse impact of any permit violation.

2. Change in Discharge

- a. The Permittee shall apply for a permit modification at least 180 days in advance of any facility expansion, production increase, process change, or other action that could result in the discharge of additional pollutants, increase the quantity of a discharged pollutant, or that could result in an additional discharge point. This requirement also applies to pollutants that are not subject to discharge limitations in this Permit. No new or increased discharge may begin until the Director has authorized it by issuance of a permit modification or a reissued permit.
- b. The Permittee shall notify the Director as soon as it knows or has reason to believe that it has begun or expects to begin to discharge any pollutant listed as a toxic pollutant pursuant to Section 307(a) of the FWPCA, 33 U.S.C. §1317(a), any substance designated as a hazardous substance pursuant to Section 311(b)(2) of the FWPCA, 33 U.S.C. §1321(b)(2), any waste listed as a hazardous waste pursuant to Code of Alabama 1975, §22-30-10, or any other pollutants or other wastes which is not subject to any discharge limitations specified in Part I.A. of this Permit and was not reported in the Permittee's application, was reported in the Permittee's application in concentrations or mass rates lower than that which the Permittee expects to begin to be discharged, or has reason to believe has begun to be discharged.

3. Compliance with Toxic or Other Pollutant Effluent Standard or Prohibition

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Sections 301(b)(2)(C),(D),(E) and (F) of the FWPCA, 33 U.S.C. §1311(b)(2)(C),(D),(E), and (F); 304(b)(2) of the FWPCA, 33 U.S.C. §1314(b)(2); or 307(a) of the FWPCA, 33 U.S.C. §1317(a), for a toxic or other pollutant discharged by the Permittee, and such standard or prohibition is more stringent than any discharge limitation on the pollutant specified in Part I.A. of this Permit or controls a pollutant not limited in Part I.A. of this Permit, this Permit shall be modified to conform to the toxic or other pollutant effluent standard or prohibition and the Permittee shall be notified of such modification. If this Permit has not been modified to conform to the toxic or other pollutant effluent standard or prohibition before the effective date of such standard or prohibition, the authorization to discharge in this Permit shall be void to the extent that any discharge limitation on such pollutant in Part I.A. of this Permit exceeds or is inconsistent with the established toxic or other pollutant effluent standard or prohibition.

4. Compliance with Water Quality Standards and Other Provisions

- a. On the basis of the Permittee's application, plans, or other available information, the Department has determined that compliance with the terms and conditions of this Permit will assure compliance with applicable water quality standards. However, this Permit does not relieve the Permittee from compliance with applicable State water quality standards established in ADEM Admin. Code ch. 335-6-10, and does not preclude the Department from taking action as appropriate to address the potential for contravention of applicable State water quality standards which could result from discharges of pollutants from the permitted facility.
- b. Compliance with Permit terms and conditions notwithstanding, if the Permittee's discharge(s) from point source(s) identified on Page 1 of this Permit cause(s) or contribute(s) to a condition in contravention of State water quality standards, the Department may require abatement action to be taken by the Permittee, modify the Permit pursuant to the Department's rules and regulations, or both.
- c. If the Department determines, on the basis of a notice provided pursuant to Part II.C.2. of this Permit or any investigation, inspection, or sampling, that a modification of this Permit is necessary to assure maintenance of water quality standards or compliance with other provisions of the AWPCA or FWPCA, the Department may require such modification and, in cases of emergency, the Director may prohibit the noticed act until the Permit has been modified.

5. Compliance with Statutes and Rules

- a. This Permit has been issued under ADEM Admin. Code div. 335-6. All provisions of this division, that are applicable to this Permit, are hereby made a part of this Permit. A copy of this division may be obtained for a small charge from the Office of General Counsel, Alabama Department of Environmental Management, 1400 Coliseum Blvd., Montgomery, AL 36110-2059.
- b. This Permit does not authorize the noncompliance with or violation of any Laws of the State of Alabama or the United States of America or any regulations or rules implementing such laws. FWPCA, 33 U.S.C. Section 1319, and Code of Alabama 1975, Section 22-22-14.

6. Right of Entry and Inspection

The Permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

- a. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the Permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and
- d. Sample or monitor at reasonable times, for the purposes of assuring Permit compliance or as otherwise authorized by the AWPCA, any substances or parameters at any location.

7. Duty to Reapply or Notify of Intent to Cease Discharge

- a. If the Permittee intends to continue to discharge beyond the expiration date of this Permit, the Permittee shall file with the Department a complete permit application for reissuance of this Permit at least 180 days prior to its expiration. **Applications must be submitted electronically via the Department's current electronic permitting system. The Department's current online permitting system, Alabama Environmental Permitting and Compliance System (AEPACS), can be found online at <https://aepacs.adcm.alabama.gov/nviro/ncore/external/home>.**
- b. If the Permittee does not desire to continue the discharge(s) allowed by this Permit, the Permittee shall notify the Department at least 180 days prior to expiration of this Permit of the Permittee's intention not to request reissuance of this Permit. This notification must include the information required in Part I.D.4.a. and be signed by an individual meeting the signatory requirements for a permit application as set forth in ADEM Admin. Code r. 335-6-6-.09.
- c. Failure of the Permittee to submit to the Department a complete application for reissuance of this Permit at least 180 days prior to the expiration date of this Permit will void the automatic continuation of this Permit provided by ADEM Admin. Code r. 335-6-6-.06; and should this Permit not be reissued for any reason, any discharge after the expiration of this Permit will be an unpermitted discharge.

PART III ADDITIONAL REQUIREMENTS, CONDITIONS, AND LIMITATIONS

A. CIVIL AND CRIMINAL LIABILITY

1. Tampering

Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained or performed under this Permit shall, upon conviction, be subject to penalties and/or imprisonment as provided by the AWPCA and/or the AEMA.

2. False Statements

Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished as provided by applicable State and Federal law.

3. Permit Enforcement

This NPDES Permit is a Permit for the purpose of the AWPCA, the AEMA, and the FWPCA, and as such all terms, conditions, or limitations of this Permit are enforceable under State and Federal law.

4. Relief From Liability

Except as provided in Part II.B.1. (Bypass) and Part II.B.2. (Upset), nothing in this Permit shall be construed to relieve the Permittee of civil or criminal liability under the AWPCA, AEMA, or FWPCA for noncompliance with any term or condition of this Permit.

B. OIL AND HAZARDOUS SUBSTANCE LIABILITY

Nothing in this Permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties to which the Permittee is or may be subject to under Section 311 of the FWPCA, 33 U.S.C. §1321.

C. AVAILABILITY OF REPORTS

Except for data determined to be confidential under Code of Alabama 1975, §22-22-9(c), all reports prepared in accordance with the terms of this Permit shall be available for public inspection at the offices of the Department. Effluent data shall not be considered confidential. Knowingly making any false statement in any such report may result in the imposition of criminal penalties as provided for in Section 309 of the FWPCA, 33 U.S.C. §1319, and Code of Alabama 1975, §22-22-14.

D. DEFINITIONS

1. Alabama Environmental Management Act (AEMA) - means Code of Alabama 1975, §§22-22A-1 et. seq., as amended.
2. Alabama Water Pollution Control Act (AWPCA) - means Code of Alabama 1975, §§22-22-1 et. seq., as amended.
3. Average monthly discharge limitation - means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar

month divided by the number of "daily discharges" measured during that month (zero discharge days shall not be included in the number of "daily discharges" measured and a less than detectable test result shall be treated as a concentration of zero if the most sensitive EPA approved method was used).

4. Arithmetic Mean - means the summation of the individual values of any set of values divided by the number of individual values.
5. BOD - means the five-day measure of the pollutant parameter biochemical oxygen demand
6. Bypass - means the intentional diversion of waste streams from any portion of a treatment facility.
7. CBOD - means the five-day measure of the pollutant parameter carbonaceous biochemical oxygen demand.
8. Controlled Surface Mine Drainage -- means any surface mine drainage that is pumped or siphoned from the active mining area.
9. Crushed stone mine - means an area on or beneath land which is mined, quarried, or otherwise disturbed in activity related to the extraction, removal, or recovery of stone from natural or artificial deposits, including active mining, reclamation, and mineral storage areas, for production of crushed stone.
10. Daily discharge - means the discharge of a pollutant measured during any consecutive 24-hour period in accordance with the sample type and analytical methodology specified by the discharge permit.
11. Daily maximum - means the highest value of any individual sample result obtained during a day.
12. Daily minimum - means the lowest value of any individual sample result obtained during a day.
13. Day - means any consecutive 24-hour period.
14. Department - means the Alabama Department of Environmental Management.
15. Director - means the Director of the Department or his authorized representative or designee.
16. Discharge - means "[t]he addition, introduction, leaking, spilling or emitting of any sewage, industrial waste, pollutant or other waste into waters of the state." Code of Alabama 1975, §22-22-1(b)(8).
17. Discharge monitoring report (DMR) - means the form approved by the Director to accomplish monitoring report requirements of an NPDES Permit.
18. DO - means dissolved oxygen.
19. E. coli – means the pollutant parameter Escherichia coli.
20. 8HC - means 8-hour composite sample, including any of the following:
 - a. The mixing of at least 5 equal volume samples collected at constant time intervals of not more than 2 hours over a period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.

- b. A sample continuously collected at a constant rate over period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.
- 21. EPA - means the United States Environmental Protection Agency.
 - 22. Federal Water Pollution Control Act (FWPCA) - means 33 U.S.C. §§1251 et. seq., as amended.
 - 23. Flow – means the total volume of discharge in a 24-hour period.
 - 24. Geometric Mean - means the Nth root of the product of the individual values of any set of values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered one (1).
 - 25. Grab Sample - means a single influent or effluent portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the discharge.
 - 26. Indirect Discharger - means a nondomestic discharger who discharges pollutants to a publicly owned treatment works or a privately owned treatment facility operated by another person.
 - 27. Industrial User - means those industries identified in the Standard Industrial Classification manual, Bureau of the Budget 1967, as amended and supplemented, under the category “Division D – Manufacturing” and such other classes of significant waste producers as, by regulation, the Director deems appropriate.
 - 28. mg/L - means milligrams per liter of discharge.
 - 29. MGD - means million gallons per day.
 - 30. Monthly Average - means, other than for E. coli bacteria, the arithmetic mean of all the composite or grab samples taken for the daily discharges collected in one month period. The monthly average for E. coli bacteria is the geometric mean of daily discharge samples collected in a one month period. The monthly average for flow is the arithmetic mean of all flow measurements taken in a one month period. (Zero discharges shall not be included in the calculation of monthly averages.)
 - 31. New Discharger - means a person owning or operating any building, structure, facility or installation:
 - a. From which there is or may be a discharge of pollutants;
 - b. From which the discharge of pollutants did not commence prior to August 13, 1979, and which is not a new source; and
 - c. Which has never received a final effective NPDES Permit for dischargers at that site.
 - 32. New Source - means:
 - a. A new source as defined for coal mines by 40 CFR Part 434.11 (1994); and
 - b. Any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:
 - (1) After promulgation of standards of performance under Section 306 of FWPCA which are applicable to such source; or

- (2) After proposal of standards of performance in accordance with Section 306 of the FWPCA which are applicable to such source, but only if the standards are promulgated in accordance with Section 206 within 120 days of their proposal.
33. NH₃-N - means the pollutant parameter ammonia, measured as nitrogen.
34. 1-year, 24-hour precipitation event - means the maximum 24-hour precipitation event with a probable recurrence interval of once in one year as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May 1961, or equivalent regional or rainfall probability information developed therefrom.
35. Permit application - means forms and additional information that are required by ADEM Admin. Code r. 335-6-6-.08 and applicable permit fees.
36. Point Source - means "any discernible, confined and discrete conveyance, including but not limited to any pipe, channel, ditch, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft from which pollutants are or may be discharged." Section 502(14) of the FWPCA, 33 U.S.C. §1362(14).
37. Pollutant - includes for purposes of this Permit, but is not limited to, those pollutants specified in Code of Alabama 1975, §22-22-1(b)(3) and those effluent characteristics, excluding flow, specified in Part I.A. of this Permit.
38. Pollutant of Concern - means those pollutants for which a water body is listed as impaired or which contribute to the listed impairment.
39. Pollution Abatement and/or Prevention Plan (PAP Plan) – mining operations plan developed to minimize impacts on water quality to avoid a contravention of the applicable water quality standards as defined in ADEM Admin. Code r. 335-6-9-.03
40. Preparation, Dry - means a dry preparation facility within which the mineral/material is cleaned, separated, or otherwise processed without use of water or chemical additives before it is shipped to the customer or otherwise utilized. A dry preparation plant includes all ancillary operations and structures necessary to clean, separate, or otherwise process the mineral/material, such as storage areas and loading facilities. Dry preparation also includes minor water spray(s) used solely for dust suppression on equipment and roads to minimize dust emissions.
41. Preparation, Wet - means a wet preparation facility within which the mineral/material is cleaned, separated, or otherwise processed using water or chemical additives before it is shipped to the customer or otherwise utilized. A wet preparation plant includes all ancillary operations and structures necessary to clean, separate, or otherwise process the mineral/material, such as storage areas and loading facilities. Wet preparation also includes mineral extraction/processing by dredging, slurry pumping, etc.
42. Privately Owned Treatment Works - means any devices or system which is used to treat wastes from any facility whose operator is not the operator of the treatment works, and which is not a "POTW".
43. Publicly Owned Treatment Works (POTW) - means a wastewater collection and treatment facility owned by the State, municipality, regional entity composed of two or more municipalities, or another entity created by the State or local authority for the purpose of collecting and treating municipal wastewater.
44. Receiving Stream - means the "waters" receiving a "discharge" from a "point source".

45. Severe property damage - means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
46. 10-year, 24-hour precipitation event - means that amount of precipitation which occurs during the maximum 24-hour precipitation event with a probable recurrence interval of once in ten years as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May 1961, or equivalent regional or rainfall probability information developed therefrom.
47. TKN - means the pollutant parameter Total Kjeldahl Nitrogen.
48. TON - means the pollutant parameter Total Organic Nitrogen.
49. TRC - means Total Residual Chlorine.
50. TSS – means the pollutant parameter Total Suspended Solids
51. Treatment facility and treatment system - means all structures which contain, convey, and as necessary, chemically or physically treat mine and/or associated preparation plant drainage, which remove pollutants limited by this Permit from such drainage or wastewater. This includes all pipes, channels, ponds, tanks, and all other equipment serving such structures.
52. 24HC - means 24-hour composite sample, including any of the following:
 - a. The mixing of at least 12 equal volume samples collected at constant time intervals of not more than 2 hours over a period of 24 hours;
 - b. A sample collected over a consecutive 24-hour period using an automatic sampler composite to one sample. As a minimum, samples shall be collected hourly and each shall be no more than one twenty-fourth (1/24) of the total sample volume collected; or
 - c. A sample collected over a consecutive 24-hour period using an automatic composite sampler composited proportional to flow.
53. 24-hour precipitation event - means that amount of precipitation which occurs within any 24-hour period.
54. 2-year, 24-hour precipitation event - means the maximum 24-hour precipitation event with a probable recurrence interval of once in two years as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May 1961, or equivalent regional or rainfall probability information developed therefrom.
55. Upset - means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit discharge limitations because of factors beyond the control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate facilities, lack of preventive maintenance, or careless or improper operation.
56. Waters - means "[a]ll waters of any river, stream, watercourse, pond, lake, coastal, ground or surface water, wholly or partially within the State, natural or artificial. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership, or corporation unless such waters are used in interstate commerce." Code of Alabama 1975, §22-22-1(b)(2). "Waters" include all "navigable waters" as defined in §502(7) of the FWPCA, 33 U.S.C. §1362(7), which are within the State of Alabama.

57. Week - means the period beginning at twelve midnight Saturday and ending at twelve midnight the following Saturday.
58. Weekly (7-day and calendar week) Average – is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. The calendar week is defined as beginning on Sunday and ending on Saturday. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for the calendar week shall be included in the data for the month that contains the Saturday.

E. SEVERABILITY

The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit, shall not be affected thereby.

F. PROHIBITIONS AND ACTIVITIES NOT AUTHORIZED

1. Discharges from disposal or landfill activities as described in ADEM Admin. Code div. 335-13 are not authorized by this Permit unless specifically approved by the Department.
2. Relocation, diversion, or other alteration of a water of the State is not authorized by this Permit unless specifically approved by the Department.
3. Lime or cement manufacturing or production and discharge of process waters from such manufacturing or production is not authorized by this Permit unless specifically approved by the Department.
4. Concrete or asphalt manufacturing or production and discharge of process waters from such manufacturing or production is not authorized by this Permit unless specifically approved by the Department.
5. The discharge of wastewater, generated by any process, facility, or by any other means not under the operational control of the Permittee or not identified in the application for this Permit or not identified specifically in the description of an outfall in this Permit is not authorized by this Permit.

G. DISCHARGES TO IMPAIRED WATERS

1. This Permit does not authorize new sources or new discharges of pollutants of concern to impaired waters unless consistent with an EPA-approved or EPA-established Total Maximum Daily Load (TMDL) and applicable State law, or unless compliance with the limitations and requirements of the Permit ensure that the discharge will not contribute to further degradation of the receiving stream. Impaired waters are those that do not meet applicable water quality standards and are identified on the State of Alabama's §303(d) list or on an EPA-approved or EPA-established TMDL. Pollutants of concern are those pollutants for which the receiving water is listed as impaired or contribute to the listed impairment.
2. Facilities that discharge into a receiving stream which is listed on the State of Alabama's §303(d) list of impaired waters, and with discharges that contain the pollutant(s) for which the waters are impaired, must within six (6) months of the Final §303(d) list approval, document in its BMP plan how the BMPs will control the discharge of the pollutant(s) of concern, and must ensure that there will be no increase of the pollutants of concern. A monitoring plan to assess the effectiveness of the BMPs in achieving the allocations must also be included in the BMP plan.

3. If the facility discharges to impaired waters as described above, it must determine whether a TMDL has been developed and approved or established by EPA for the listed waters. If a TMDL is approved or established during this Permit cycle by EPA for any waters into which the facility discharges, the facility must review the applicable TMDL to see if it includes requirements for control of any water discharged by the Permittee. Within six (6) months of the date of TMDL approval or establishment, the facility must notify the Department on how it will modify its BMP plan to include best management practices specifically targeted to achieve the allocations prescribed by the TMDL, if necessary. Any revised BMP plans must be submitted to the Department for review. The facility must include in the BMP plan a monitoring component to assess the effectiveness of the BMPs in achieving the allocations.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION**

NPDES INDIVIDUAL PERMIT RATIONALE

Company Name: Pillar Materials, LLC

Facility Name: 431 Quarry

County: Cleburne

Permit Number: AL0084482

Prepared by: Clint Dear

Date: September 19, 2023

Receiving Waters: Choccolocco Creek and Jackson Creek

Permit Coverage: Crushed Stone Quarry, Wet Preparation, Transportation and Storage, and Associated Areas

SIC Code: 1422

The Department has made a tentative determination that the available information is adequate to support initial issuance of this permit.

This proposed permit covers a crushed stone quarry, wet preparation, transportation and storage, and associated areas which discharge to surface waters of the state.

This proposed permit authorizes treated discharges into a stream segment, other State waters, or local watershed that currently has a water quality classification of Public Water Supply and Fish and Wildlife (PWS/F&W) (ADEM Admin. Code r. 335-6-10-.09). If the requirements of the proposed permit are fully implemented, the facility will not discharge pollutants at levels that will cause or contribute to a violation of the PWS/F&W classification.

Full compliance with the proposed permit terms and conditions is expected to be protective of instream water quality and ensure consistency with applicable instream State water quality standards (WQS) for the receiving stream.

Technology Based Effluent Limits (TBELs) for crushed stone mining facilities can be found in 40 CFR 436.22(1) and (2) for facilities that recycle waste water for use in processing and mine dewatering, respectively. The TBELs were promulgated for existing dischargers using the Best Practicable Control Technology Available (BPT). New Source Performance Standards (NSPS) have not yet been developed by the EPA for the Crushed Stone Subcategory.

The instream WQS for pH, for streams classified as PWS/F&W, are 6.0 - 8.5 s.u per ADEM Admin Code r. 335-6-10-.09; however, because discharges from Outfall 003-1 are expected only in response to rain events, it is the opinion of the Department that discharges with an allowable pH daily maximum of 9.0 will not adversely affect the instream pH based on the low discharge/stream flow ratio. The discharge limitations for pH of 6.0 – 9.0 s.u. for Outfall 003-1 are identical to the existing point source TBELs found

in 40 CFR 436 Subpart B. Information provided in the Permittee's application indicated that Outfalls 001-1 and 002-1 could discharge chronically when the discharge/stream flow ratio may be high; therefore, discharge limitations for pH of 6.0 – 8.5 s.u. are proposed for Outfall 001 -1 and 002-1 per ADEM Admin Code r. 335-6-10-.09.

The TBELs for 40 CFR 436 Subpart B do not include limitations for Total Suspended Solids (TSS). TSS is classified as a conventional pollutant in 40 CFR 401.16 and is expected to be discharged from this type of facility. Therefore, monthly average and daily maximum effluent limitations for TSS are those proposed by the EPA for crushed stone mine drainage in the *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Mineral Mining and Processing Point Source Category* (July 1979).

The applicant has requested, in accordance with 40 CFR Part 122.21 and their NPDES permit application, a waiver from testing for the Part A, B, and C pollutants listed in the EPA Form 2C and 2D that are not addressed in their application. They have also certified that due to the processes involved in their mining activity these pollutants are believed to be not present in the waste stream.

The Pollution Abatement/Prevention (PAP) plan for this facility has been prepared by a professional engineer (PE) registered in the State of Alabama and is designed to ensure reduction of pollutants in the waste stream to a level that, if operated properly, the discharge will not contribute to or cause a violation of applicable State WQS. The proposed permit terms and conditions are predicated on the basis of ensuring a reduction of pollutants in the discharge to a level that reduces the potential of contributing to or causing a violation of applicable State WQS.

In accordance with ADEM Admin. Code r. 335-6-3-.07 the design PE, as evidenced by their seal and/or signature on the application, has accepted full responsibility for the effectiveness of the waste treatment facility to treat the Permittee's effluent to meet NPDES permit limitations and requirements, and to fully comply with Alabama's WQS, when such treatment facilities are properly operated.

If there is a reasonable potential that a pollutant present in the treated discharges from a facility could cause or contribute to a contravention of applicable State WQS above numeric or narrative criteria, 40 CFR Part 122 requires the Department to establish effluent limits using calculated water quality criterion, establish effluent limits on a case-by-case basis using criteria established by EPA, or establish effluent limits based on an indicator parameter. Based on available information, potential pollutants discharged from this facility, if discharged within the concentrations allowed by this permit, would not have a reasonable potential to cause or contribute to a contravention of applicable State WQS.

Pursuant to ADEM Admin. Code r. 335-6-6-.12(r) this permit requires the Permittee to design and implement a Spill Prevention Control and Countermeasures (SPCC) plan for all stored chemicals, fuels and/or stored pollutants that have the potential to discharge to a water of the State. This plan must meet the minimum engineering requirements as defined in 40 CFR Part 112 and must provide for secondary containment adequate to control a potential spill.

The applicant is not proposing discharges of pollutants to a water of the State with an approved Total Maximum Daily Load (TMDL).

This proposed permit also authorizes treated discharges into Choccolocco Creek, a stream segment or other State water that is included on Alabama's current CWA §303(d) list for Pathogens. However, this is not a pollutant of concern for a facility of this type. As such, no further monitoring requirements are proposed.

If the requirements of the proposed permit and pollution abatement plan are fully implemented, there is reasonable assurance that the facility will not discharge pollutants at levels that will cause or contribute to any further impairment of Choccolocco Creek.

The applicant is proposing discharges of pollutants to an ADEM identified Tier 1 water, Choccolocco Creek. If the requirements of the proposed permit and pollution abatement plan are fully implemented, there is reasonable assurance that discharges from the facility will not contain pollutants of concern contributing to the Tier 1 condition, pollutants causing or contributing to the Tier 1 condition will not be present in the discharge at significant levels, and/or the facility will not discharge pollutants at levels that will cause or contribute to a violation of applicable State WQS in the Tier 1 water.

The proposed permit action authorizes new discharges of pollutants to Jackson Creek which was determined by the Department to be waters where the quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water (Tier II). Pursuant to ADEM Admin. Code r. 335-6-10 (Antidegradation Policy and Implementation of the Antidegradation Policy), the applicant has submitted and the Department has reviewed and considered information regarding (1) demonstration of necessity/importance, (2) alternatives analysis, and (3) calculations of total annualized costs for technically feasible treatment alternatives regarding the proposed new discharges to Tier II waters. The Department has determined, based on the applicant's demonstration, that the proposed new discharges to the Tier II waters are necessary for important economic or social development in the area in which the waters are located.

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION

ANTIDegradation RATIONALE

Company Name: Pillar Materials, LLC
Facility Name: 431 Quarry
County: Cleburne
Permit Number: AL0084482
Prepared by: Clint Dear
Date: October 5, 2023
Receiving Waters: Jackson Creek
Stream Category: Tier II as defined by ADEM Admin. Code 335-6-10-.12
Discharge Description: This proposed permit covers a crushed stone quarry, wet preparation, transportation and storage, and associated areas which discharge to surface waters of the state.

The following preliminary determination was prepared in accordance with ADEM Admin. Code 335-6-10-.12 (7) (c):

The Department has reviewed the information submitted by applicant in accordance with ADEM Admin. Code 335-6-10-.12(9). The applicant has demonstrated that there are no technically or economically viable treatment options in its alternatives analysis that would completely eliminate a direct discharge.

The permit applicant has indicated that the following economic and social benefits will result from this project:

1. The Permittee states that the operation will increase employment by 10 employees.
2. The Permittee states an estimated \$58,200 of taxes/fees will be generated for the mine operation.
3. The Permittee states that the operation will supply crushed limestone products to be used for construction activities in the community. The operation will also provide jobs to area residents.

The Department has determined that the discharge proposed by the permit applicant is necessary for important economic and social development in the area of the outfall location in the receiving water.

Reviewed By: 

Date: 10/05/2023

NPDES Individual Application - Mining (Form 315)

version 3.4

(Submission #: HPV-C6RW-0C11V, version 1)

Digitally signed by:
AEPACS
Date: 2023.06.14 13:25:02 -05:00
Reason: Submission Data
Location: State of Alabama

Details

Submission ID HPV-C6RW-0C11V

Form Input

Processing Information

Is this a coalbed methane operation?

No

Please indicate the purpose of this application:

Initial Permit Application for New Facility

General Instructions

NPDES Individual Permit Application  Mining Operations (Form 315)

This form should be used to submit an application for an NPDES individual permit to authorize discharges from surface & underground mineral, ore, or mineral product mining, quarrying, excavation, borrowing, hydraulic mining, storage, processing, preparation, recovery, handling, loading, storing, or disposing activities, and associated areas including pre-mining site development, construction, excavation, clearing, disturbance, and reclamation.

Incomplete or incorrect answers or missing signatures will delay processing. Attach additional comments or information as needed. Commencement of activities applied for as detailed in this application are not authorized until permit coverage has been issued by the Department.

[For assistance, please click here to determine the permit staff responsible for the site or call \(334\) 394-4372.](#)

[Please click here for the Alabama 303\(d\) list of Impaired Waters](#)

[Please click here for information on Alabama TMDLs](#)

Permittee Information

Permittee

Permittee Name

Pillar Materials, LLC

Mailing Address

P.O. Box 3424

Oxford, AL 36203

Responsible Official

Prefix

Mr.

First Name Last Name

K. Lance *Taylor*

Title

President

Organization Name

Pillar Materials, LLC

Phone Type Number Extension

Business 256-835-1800

Email

lance@taylorcorporation.com

Mailing Address

P.O. Box 3424

Oxford, AL 36203

Facility/Operations Information

Facility/Operations Name

431 Quarry

Permittee Organization Type

LLC

Parent Corporation and Subsidiary Corporations of Applicant, if any:

NONE PROVIDED

Landowner(s) Name, Address and Phone Number:

Pillar Holdings, LLC

P.O. Box 3424

Oxford, AL 36203

(256) 835-1800

Sub-contractor(s)/Operator(s), if known:

NONE PROVIDED

Is the "Company/Permittee" properly registered and in good standing with the Alabama Secretary of State's office?

Yes

Facility/Operations Address or Location Description

2255 Highway 78 East

Heflin, AL 36264

Facility/Operations County (Front Gate)

Calhoun

Do the operations span multiple counties?

Yes

Additional Counties

Cleburne

Detailed Directions to the Facility/Operations

Begin at int. of US-78 and AL-21 in Oxford. East on US-78 for 6.3 miles to AL-301 (to US-431). Turn right. South on AL-301 for 0.4 miles to US-431. Continue straight. South on US-431 for 0.6 miles to a gated driveway and turn right. Pit lies behind (further west) the Scenic Drive RV Park.

Please refer to the link below for Lat/Long map instruction help:

[Map Instruction Help](#)

Facility/Operations Front Gate Latitude and Longitude

33.61030,-85.72307

Township(s), Range(s), Section(s) (Note: If you are submitting multiple TRSs, please separate each TRS by a semicolon. Example: T19S,R1E,S15; T20S,R2E,S16)

T16S, R9E, S 29 & 30

SIC Code(s) [Please select your primary SIC code first]:

1422-Crushed and Broken Limestone

NAICS Code(s) [Please select your primary NAICS code first]:

212312-Crushed and Broken Limestone Mining and Quarrying

Facility/Operations Contact

Prefix

Mr.

First Name Last Name

K. Lance *Taylor*

Title

President

Organization Name

Pillar Materials, LLC

Phone Type Number Extension

Business 256-835-1800

Email

lance@taylorcorporation.com

Member Information

Identify the name, title/position, and unless waived in writing by the Department, the resident address of every officer (a PO Box is not acceptable), general partner, LLP partner, LLC member, investor, director, or person performing a function similar to a director, of the applicant, and each person who is the record or beneficial owner of 10 percent or more of any class of voting stock of the applicant, or any other responsible official(s) of the applicant with legal or decision making responsibility or authority for the facility/operations:

List of Names/Titles/Addresses, as described in the instructions above, will be entered by:

Manually Entering in Table

Name	Title/Position	Physical Address of Residence
K. Lance Taylor	President	1361 Evans Bridge Road, Heflin, AL 36264

Other than the "Company/Permittee", identify the name of each corporation, partnership, association, and single proprietorship for which any individual identified above is or was an officer, general partner, LLP partner, LLC member, investor, director, or individual performing a function similar to a director, or principal (10% or more) stockholder, that had an Alabama NPDES permit at any time during the five year (60 month) period immediately preceding the date on which this form is signed (if this does not apply, then enter N/A after selecting "Manually Enter in Table"):

List of Corporations/Partnerships/etc, Names and Titles, as described in the instructions above, will be entered by:

Manually Entering in Table

Name of Corporation, Partnership, Association, or Single Proprietorship	Name of Individual	Title/Position in Corporation, Partnership, Association, or Single Proprietorship
Pillar Materials, LLC	K. Lance Taylor	President

Additional Contacts (1 of 1)

ADDITIONAL CONTACTS:

Contact Type
NONE PROVIDED

Contact

First Name **Last Name**
NONE PROVIDED NONE PROVIDED

Title
NONE PROVIDED

Organization Name
NONE PROVIDED

Phone Type **Number** **Extension**
NONE PROVIDED

Email
NONE PROVIDED

Address
[NO STREET ADDRESS SPECIFIED]
[NO CITY SPECIFIED], AL [NO ZIP CODE SPECIFIED]

Compliance History

Has the applicant ever had any of the following:

Event	Apply?
An Alabama NPDES, SID, or UIC permit suspended or terminated	No
An Alabama or federal environmental permit suspended/terminated	No
An Alabama State Oil Gas Board permit or other approval suspended or terminated	No
An Alabama or federal performance/environmental bond, or similar security deposited in lieu of a bond, or portion thereof, forfeited	No

Has the applicant, parent corporation, subsidiary, general partner, LLP partner, or LLC Member had any Warning Letters, Notice of Violations (NOVs), Administrative Actions, or litigation filed by ADEM or EPA during the three year (36 month) period preceding the date on which this form is signed?
No

For this facility, list any other NPDES or other environmental permits (including permit numbers), authorizations, or certifications that have been applied for or issued within the State by ADEM, EPA, Alabama Department of Labor (ADOL), US Army Corp of Engineers (USACE), or other agency, to the applicant, parent corporation, subsidiary, or LLC member whether presently effective, expired, suspended, revoked, or terminated:
None

For other facilities, list any other NPDES or other ADEM permits (including permit numbers), authorizations, or certifications that have been applied for or issued within the State by ADEM, EPA, ASMC, ADOL, or USACE, to the applicant, parent corporation, subsidiary, or LLC member whether presently effective, expired, suspended, revoked, or terminated:
None

Anti-Degradation Evaluation

Pursuant to ADEM Admin. Code ch. 335-6-10-.12(9), responses to the following questions must be provided by the applicant requesting NPDES permit coverage for new or expanded discharges of pollutant(s) to Tier 2 waters (except discharges eligible for coverage under general permits). As part of the permit application review process, the Department is required to consider, based on the applicant's demonstration, whether the proposed new or increased discharge to Tier 2 waters is necessary for important economic or social development in the area in which the waters are located. Do you have new or increased discharges?
Yes

NOTE

If the discharge is to a Tier II waterbody as defined in ADEM Admin. Code r. 335-6-10-.12(4), complete questions below, ADEM Form 311-Alternatives Analysis, and either ADEM Form 312 or ADEM Form 313- Calculation of Total Annualized Project Costs (Public-Sector or Private-Sector Projects, whichever is applicable). ADEM Form 312 or ADEM Form 313, whichever is applicable, must be provided for each treatment discharge alternative considered technically viable.
[ADEM forms can be found on the Department's website here.](#)

What environmental or public health problem will the discharger be correcting?

None.

How much will the discharger be increasing employment (at its existing facility or as the result of locating a new facility)?

Increased employment by 10 employees.

How much reduction in employment will the discharger be avoiding?

None.

How much additional state or local taxes will the discharger be paying?

The following amounts have been estimated:
Income tax withheld from and paid on employees, \$20,000;
tax on company, \$25,000;
real estate tax, \$3,000;
sales/use tax, \$5,000;
business license tax, \$1,000.

The equipment used to mine and process the materials use energy. Taxes are also paid on the energy. For example, almost half of the cost of diesel or gasoline is tax. The estimated fuel tax is \$4,200. In addition to the direct taxes paid, numerous support facilities and vendors also pay taxes.

What public service to the community will the discharger be providing?

The discharger plans to be a contributing and cohesive part of the local community of Oxford. Community relations and development is a major goal of the facility. Local organizations and charities will be provided with contributions from Taylor Corporation through various projects. An additional public service provided to the community includes environmental protection for Choccolocco Creek, a water of the state designated for fish and wildlife habitat in a public water supply watershed. Preventing pollution to Choccolocco Creek will provide the ability to preserve the water of the state for current and future area residences. Of course, the money provided to employees, the taxes paid to government, and the production of stone aggregate all have the potential to lead to public service to the community.

What economic or social benefit will the discharger be providing to the community?

Obviously, employment provides very important economic and social benefits to the community. The discharger will employ people from Oxford and the surrounding communities. In addition to the direct employment, the discharger creates indirect economic social benefits through other companies that provide support services. The Oxford Pit will provide material for construction projects. The construction projects could result in improved infrastructure could be a critical part of economic growth within the region. The company will make charitable contributions. Employees also make charitable contributions, including church tithes.

Attach Form 311 (Alternative Analysis)

[Form311.pdf - 06/13/2023 04:15 PM](#)

Comment

NONE PROVIDED

Please attach Form 312 (Public Sector Projects) or Form 313 (Private Sector Projects).

[Form313.pdf - 06/13/2023 04:15 PM](#)

Comment

NONE PROVIDED

Activity Description & Information

Narrative description of activity(s):

The 431 Quarry of Pillar Materials, LLC will produce crushed stone aggregate for commercial use.

Total Facility/Operations Area (acres)

384.00

Total Disturbed Area (acres)
91.00

Anticipated Commencement Date
06/30/2023

Anticipated Completion Date
06/30/2023

Please identify which of the following apply to this operation:

Activity/Condition	Apply?
An existing facility/operation which currently results in discharges to State waters?	No
A proposed facility/operation which will result in a discharge to State waters?	Yes
Be located within any 100-year flood plain?	No
Discharge to Municipal Separate Storm Sewer?	No
Discharge to waters of or be located in the Coastal Zone?	No
Need/have ADEM UIC permit coverage?	No
Be located on Indian/historically significant lands?	No
Need/have ADEM SID permit coverage?	No
Need/have ASMC permit coverage?	No
Need/have State Oil & Gas Board permit coverage?	No
Need/have ADOL permit coverage?	No
Generate, treat, store, or dispose of hazardous or toxic waste?	No
Be located in or discharge to a Public Water Supply (PWS) watershed or be located within 1/4 mile of any PWS well?	Yes
Incised pit	No

Does your facility/operation use cooling water?
No

Material to be Removed, Processed, or Transloaded

Material To Be Removed, Processed, Or Transloaded (Note: Sum must equal 100.)

Mineral(s)/Mineral product(s)	%
Limestone, crushed limestone and dolomite	60
Crushed rock (other)	40
	Sum: 100

Proposed Activity To Be Conducted

Type(s) of activity presently conducted at applicant's existing facility or proposed to be conducted at facility (Select Yes or No):

Activity	Apply?
Adjacent/associated asphalt/concrete plant(s)	No
Alternative fuels operation	No
Auger mining	No
Cement production	No
Chemical processing or leaching	No
Chemicals used in process or wastewater treatment (coagulant, biocide, etc.)	No
Construction related temporary borrow pits/areas	No
Creek/stream crossings	No

Activity	Apply?
Dredging	No
Excavation	Yes
Grading, clearing, grubbing, etc.	Yes
Hydraulic mining	No
Hydraulic mining, dredging, instream or between stream-bank mining	No
Lime production	No
Low volume sewage treatment package plant	No
Mineral dry processing (crushing & screening)	Yes
Mineral loading	Yes
Mineral storing	Yes
Mineral transportation	Yes
Mineral wet preparation	Yes
Onsite construction debris or equipment storage/disposal	No
Onsite mining debris or equipment storage/disposal	No
Other beneficiation & manufacturing operations	No
Pre-construction ponded water removal	No
Pre-mining logging or land clearing	Yes
Preparation plant waste recovery	No
Quarrying	Yes
Reclamation of disturbed areas	No
Solution mining	No
Surface mining	Yes
Synthetic fuel production	No
Underground mining	No
Waterbody relocation or other alteration	No
Within-bank mining	No

If the operation will include activities other than those listed above, please describe them below:
 NONE PROVIDED

If the type of activity presently conducted or proposed is Mineral Transportation, please indicate which of the following apply:

Method	Apply?
Barge	No
Rail	No
Truck	Yes

Fuel - Chemical Handling, Storage, & Spill Prevention Control & Countermeasures (SPCC) Plan

Will fuels, chemicals, compounds, or liquid waste be used or stored onsite?
 Yes

Please identify the fuel, chemicals, compounds, or liquid waste and indicate the volume of each:

Volume (gallons)	Contents
1,000	Diesel
1,000	Diesel

SPCC Plan

[SPCC Plan.pdf - 06/13/2023 04:14 PM](#)

Comment

NONE PROVIDED

ASMC Regulated Entities

Is this a coal mining operation regulated by ASMC?

No

Topographic Map Submittal

Topographic Map

Attach to this application a 7.5 minute series U.S.G.S. topographic map(s) or equivalent map(s) no larger than, or folded to a size of 8.5 by 11 inches (several pages may be necessary), of the area extending to at least one mile beyond property boundaries. The topographic or equivalent map(s) must include a caption indicating the name of the topographic map, name of the applicant, facility name, county, and township, range, & section(s) where the facility are located. Unless approved in advance by the Department, the topographic or equivalent map(s), at a minimum, must show: a) An accurate outline of the area to be covered by the permit (b) An outline of the facility (c) All existing and proposed disturbed areas (d) Location of intake and discharge areas (e) Proposed and existing discharge points (f) Perennial, intermittent, and ephemeral streams (g) Lakes, springs, water wells, wetlands (h) All known facility dirt/improved access/haul roads (i) All surrounding unimproved/improved roads (j) High-tension power lines and railroad tracks (k) Contour lines, township-range-section lines (l) Drainage patterns, swales, washes (m) All drainage conveyance/treatment structures (ditches, berms, etc.) (n) Any other pertinent or significant feature.

Topographic Map

[topo.pdf - 06/13/2023 01:58 PM](#)

Comment

NONE PROVIDED

Detailed Facility Map Submittal

Detailed Facility Map

[maps.pdf - 06/13/2023 02:01 PM](#)

Comment

NONE PROVIDED

Outfalls (1 of 3)

Outfall Identifier: 001

Feature Type

Outfall (External)

Outfall Identifier

001

Outfall Status

Proposed

ⓘ Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water

Chocolocco Creek

Check below if the discharge enters the receiving water via an unnamed tributary.
NONE PROVIDED

Location of Outfall
33.60582,-85.73965

303(d) Segment?
Yes

TMDL Segment?
No

Outfalls (2 of 3)

Outfall Identifier: 002

Feature Type
Outfall (External)

Outfall Identifier
002

Outfall Status
Proposed

ⓘ Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water
Choccolocco Creek

Check below if the discharge enters the receiving water via an unnamed tributary.
NONE PROVIDED

Location of Outfall
33.61173,-85.73102

303(d) Segment?
Yes

TMDL Segment?
No

Outfalls (3 of 3)

Outfall Identifier: 003

Feature Type
Outfall (External)

Outfall Identifier
003

Outfall Status
Proposed

❶ Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water

Jackson Creek

Check below if the discharge enters the receiving water via an unnamed tributary.

NONE PROVIDED

Location of Outfall

33.61016,-85.72319

303(d) Segment?

No

TMDL Segment?

No

Discharge Characterization

EPA Form 2C, EPA Form 2D, and/or ADEM Form 567 Submittal

Yes, pursuant to 40 CFR 122.21, the applicant requests a waiver for completion of EPA Form 2C, EPA Form 2D, and ADEM Form 567 and certifies that the operating facility will discharge treated stormwater only; that chemical/compound additives are not used (unless waived in writing by the Department on a programmatic, categorical, or individual compound/chemical basis); that there are no process, manufacturing, or other industrial operations or wastewaters, including but not limited to lime or cement production and synfuel operations; and that coal and coal products are not mined nor stored onsite.

Please download the following Excel file to enter your information. Once complete, please attach to the below control.

[Download spreadsheet here.](#)

Required attachment:

[Form315TableB.xlsx - 06/13/2023 01:22 PM](#)

Comment

NONE PROVIDED

Please download the following Excel file to enter your information. Once complete, please attach to the below control.

[Download spreadsheet here.](#)

Required attachment:

[Form315TableC.xlsx - 06/13/2023 01:22 PM](#)

Comment

NONE PROVIDED

Discharge Structure Description & Pollutant Source

Please download the following Excel file to enter your information. Once complete, please attach to the below control.

[Download spreadsheet here.](#)

Required attachment:

[Form315DischargeStructure.xlsx - 06/13/2023 04:08 PM](#)

Comment

NONE PROVIDED

Variance Request

Do you intend to request or renew one or more of the CWA technology variances authorized at 40 CFR 122.21(m)?

No

Pollution Abatement & Prevention (PAP) Plan Summary (1 of 3)

Outfall(s):
001P

Outfall Questions:	Please select one:
Runoff from all areas of disturbance is controlled	Yes
Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond	Yes
Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage	Yes
Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity	Yes
Trees, boulders, and other obstructions removed from pond during initial construction	Yes
Width of top of dam greater than 12'	Yes
Side slopes of dam no steeper than 3:1	Yes
Cutoff trench at least 8' wide	Yes
Side slopes of cutoff trench no less than 1:1	Yes
Cutoff trench located along the centerline of the dam	Yes
Cutoff trench extends at least 2' into bedrock or impervious soil	Yes
Cutoff trench filled with impervious material	Yes
Embankments and cutoff trench 95% compaction standard proctor ASTM	Yes
Embankment free of roots, tree debris, stones >6" diameter, etc.	Yes
Embankment constructed in lifts no greater than 12"	Yes
Spillpipe sized to carry peak flow from a one year storm event	Yes
Spillpipe will not chemically react with effluent	Yes
Subsurface withdrawal	Yes
Anti-seep collars extend radially at least 2' from each joint in spillpipe	Yes
Splashpad at the end of the spillpipe	Yes
Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream	N/A
Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream	Yes
Emergency overflow at least 20' long	Yes
Side slopes of emergency spillway no steeper than 2:1	Yes
Emergency spillway lined with riprap or concrete	Yes
Minimum of 1.5' of freeboard between normal overflow and emergency overflow	Yes
Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam	Yes
All emergency overflows are sized to handle entire drainage area for ponds in series	Yes
Dam stabilized with permanent vegetation	Yes
Sustained grade of haul road <10%	Yes
Maximum grade of haul road <15% for no more than 300'	Yes
Outer slopes of haul road no steeper than 2:1	Yes
Outer slopes of haul road vegetated or otherwise stabilized	Yes
Detail drawings supplied for all stream crossings	Yes
Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans	Yes
Long-Term Stabilization/Grading And Permanent Reclamation or Water Quality Remediation Plans	Yes

Identify and provide detailed explanation for any **N** or **N/A** response(s):
21. Emergency spillway is adequate for 25-yr event, but sized for the larger 50-yr event.

Pollution Abatement & Prevention (PAP) Plan Summary (2 of 3)

Outfall(s):
002P

Outfall Questions:	Please select one:
Runoff from all areas of disturbance is controlled	Yes
Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond	Yes
Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage	Yes
Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity	Yes
Trees, boulders, and other obstructions removed from pond during initial construction	Yes
Width of top of dam greater than 12'	Yes
Side slopes of dam no steeper than 3:1	Yes
Cutoff trench at least 8' wide	Yes
Side slopes of cutoff trench no less than 1:1	Yes
Cutoff trench located along the centerline of the dam	Yes
Cutoff trench extends at least 2' into bedrock or impervious soil	Yes
Cutoff trench filled with impervious material	Yes
Embankments and cutoff trench 95% compaction standard proctor ASTM	Yes
Embankment free of roots, tree debris, stones >6" diameter, etc.	Yes
Embankment constructed in lifts no greater than 12"	Yes
Spillpipe sized to carry peak flow from a one year storm event	Yes
Spillpipe will not chemically react with effluent	Yes
Subsurface withdrawal	Yes
Anti-seep collars extend radially at least 2' from each joint in spillpipe	Yes
Splashpad at the end of the spillpipe	Yes
Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream	No
Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream	Yes
Emergency overflow at least 20' long	Yes
Side slopes of emergency spillway no steeper than 2:1	Yes
Emergency spillway lined with riprap or concrete	Yes
Minimum of 1.5' of freeboard between normal overflow and emergency overflow	Yes
Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam	Yes
All emergency overflows are sized to handle entire drainage area for ponds in series	Yes
Dam stabilized with permanent vegetation	Yes
Sustained grade of haul road <10%	Yes
Maximum grade of haul road <15% for no more than 300'	Yes
Outer slopes of haul road no steeper than 2:1	Yes
Outer slopes of haul road vegetated or otherwise stabilized	Yes
Detail drawings supplied for all stream crossings	Yes
Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans	Yes
Long-Term Stabilization/Grading And Permanent Reclamation or Water Quality Remediation Plans	Yes

Identify and provide detailed explanation for any **N** or **N/A** response(s):
21. Emergency spillway is adequate for 25-yr event, but sized for the larger 50-yr event.

Pollution Abatement & Prevention (PAP) Plan Summary (3 of 3)

Outfall(s):
003P

Outfall Questions:	Please select one:
Runoff from all areas of disturbance is controlled	Yes
Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond	N/A
Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage	N/A
Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity	N/A
Trees, boulders, and other obstructions removed from pond during initial construction	N/A
Width of top of dam greater than 12'	N/A
Side slopes of dam no steeper than 3:1	N/A
Cutoff trench at least 8' wide	N/A
Side slopes of cutoff trench no less than 1:1	N/A
Cutoff trench located along the centerline of the dam	N/A
Cutoff trench extends at least 2' into bedrock or impervious soil	N/A
Cutoff trench filled with impervious material	N/A
Embankments and cutoff trench 95% compaction standard proctor ASTM	N/A
Embankment free of roots, tree debris, stones >6" diameter, etc.	N/A
Embankment constructed in lifts no greater than 12"	N/A
Spillpipe sized to carry peak flow from a one year storm event	N/A
Spillpipe will not chemically react with effluent	N/A
Subsurface withdrawal	N/A
Anti-seep collars extend radially at least 2' from each joint in spillpipe	N/A
Splashpad at the end of the spillpipe	N/A
Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream	N/A
Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream	N/A
Emergency overflow at least 20' long	N/A
Side slopes of emergency spillway no steeper than 2:1	N/A
Emergency spillway lined with riprap or concrete	N/A
Minimum of 1.5' of freeboard between normal overflow and emergency overflow	N/A
Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam	N/A
All emergency overflows are sized to handle entire drainage area for ponds in series	N/A
Dam stabilized with permanent vegetation	N/A
Sustained grade of haul road <10%	Yes
Maximum grade of haul road <15% for no more than 300'	Yes
Outer slopes of haul road no steeper than 2:1	Yes
Outer slopes of haul road vegetated or otherwise stabilized	Yes
Detail drawings supplied for all stream crossings	Yes
Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans	Yes
Long-Term Stabilization/Grading And Permanent Reclamation or Water Quality Remediation Plans	Yes

Identify and provide detailed explanation for any N/A response(s):

1. No disturbance, other than the haul road, is proposed in the watershed drained by Outfall 003P. The runoff from the haul road will be controlled by BMPs.
- 2-29. No proposed sedimentation pond.

Pollution Abatement & Prevention (PAP) Plan Review Checklist

General Information:	Please select one:
PE Seal with License #	Yes
Name and Address of Operator	Yes
Legal Description of Facility	Yes
Name of Company	Yes
Number of Employees	Yes
Products to be Mined	Yes
Hours of Operation	Yes
Water Supply and Disposition	Yes

Maps:	Please select one:
Topographic Map including Information from Part XIII (a) & (o) of this Application	Yes
1/500 or Equivalent Facility Map including Information from Part XIV of this Application	Yes

Detailed Design Diagrams:	Please select one:
Plan Views	Yes
Cross-section Views	Yes
Method of Diverting Runoff to Treatment Basins	Yes
Line Drawing of Water Flow through Facility with Water Balance or Pictorial Description of Water Flow	Yes

Narrative of Operations:	Please select one:
Raw Materials Defined	Yes
Processes Defined	Yes
Products Defined	Yes

Schematic Diagram:	Please select one:
Points of Waste Origin	Yes
Collection System	Yes
Disposal System	Yes

Post Treatment Quantity and Quality of Effluent:	Please select one:
Flow	Yes
Suspended Solids	Yes
Iron Concentration	Yes
pH	Yes

Description of Waste Treatment Facility:	Please select one:
Pre-Treatment Measures	Yes
Recovery System	Yes
Expected Life of Treatment Basin	Yes
Measures for Ensuring Access to All Treatment Structures and Related Appurtenances including Outfall Locations	Yes
Schedule of Cleaning and/or Abandonment	Yes

Other:	Please select one:
Precipitation/Volume Calculations/Diagram Attached	Yes

Other:	Please select one:
BMP Plan for Haul Roads	Yes
Measures for Minimizing Impacts to Adjacent Stream (e.g., Buffer Strips, Berms)	Yes
Measures for Ensuring Appropriate Setbacks are Maintained at All Times	Yes
Methods for Minimizing Nonpoint Source Discharges	Yes
If Chemical Treatment Used, Methods for Ensuring Appropriate Dosage	No
Facility Closure Plans	Yes
PE Rationale(s) For Alternate Standards, Designs or Plans	Yes

Identify and provide detailed explanation for any "N" or "N/A" response(s):
No chemical treatment planned.

Pollution Abatement & Prevention (PAP) Plan

Is this a coal mining operation regulated by ASMC?

No

For non-coal mining facilities, has a PAP Plan in accordance with ADEM Admin. Code r. 335-6-9-.03 been completed?

Yes

PAP Plan (non-coal mining facilities)

[PAP Plan.pdf - 06/13/2023 04:09 PM](#)

Comment

NONE PROVIDED

Professional Engineer (PE)

Registration License Number

16938

Professional Engineer

Prefix

Mr.

First Name Last Name

R. A. Deerman

Title

Professional Engineer

Organization Name

InSite Engineering

Phone Type Number Extension

Business 205-752-4037

Email

rdeerman@insiteengineering.org

Address

515 Energy Center Boulevard

Northport, AL 35473

Information for the Applicant

Please read the following information and acknowledge below:

Contact the Department prior to submittal with any questions or to request acceptable alternate content/format.

Be advised that you are not authorized to commence regulated activity until this application can be processed, publicly noticed, and approval to proceed is received in writing from the Department.

EPA Form(s) 1 and 2F need not be submitted unless specifically required by the Department. EPA Form(s) 2C and/or 2D are required to be submitted unless the applicant is eligible for a waiver and the Department grants a waiver, or unless the relevant information required by EPA Form(s) 2C and/or 2D are submitted to the Department in an alternative format acceptable to the Department.

Planned/proposed mining sites that are greater than 5 acres, that mine/process coal or metallic mineral/ore, or that have wet or chemical processing, must apply for and obtain coverage under an Individual or General NPDES Permit prior to commencement of any land disturbance. Such Individual NPDES Permit coverage may be requested via this ADEM Form 315.

The applicant is advised to contact:

- (1) The Alabama Surface Mining Commission (ASMC) if coal, coal fines, coal refuse, or other coal related materials are mined, transloaded, processed, etc.;
- (2) The Alabama Department of Labor (ADOL) if conducting non-coal mining operations;
- (3) The Alabama Historical Commission for requirements related to any potential historic or culturally significant sites;
- (4) The Alabama Department of Conservation and Natural Resources (ADCNR) for requirements related to potential presence of threatened/endangered species;
- (5) The US Army Corps of Engineers, Mobile or Nashville Districts, if this project could cause fill to be placed in federal waters or could interfere with navigation.

The Department must be in receipt of a completed version of this form, including any supporting documentation, and the appropriate processing fee [including Greenfield Fee and Biomonitoring & Toxicity Limits fee(s), if applicable], prior to development of a draft NPDES permit.

Acknowledgement

I acknowledge I have read and understand the information above.

Additional Attachments

Additional Attachments

wr_application_06-12-23.pdf - 06/13/2023 04:17 PM

Comment

NONE PROVIDED

Application Preparer

Application Preparer

Prefix

Mr.

First Name Last Name

R. A. Deerman

Title

Professional Engineer

Organization Name

InSite Engineering

Phone Type Number Extension

Business 205-752-4037

Email

rdeerman@insiteengineering.org

Address

515 Energy Center Boulevard

Northport, AL 35473

Fees Assessed

The following itemized fees have been assessed in accordance with Fee Schedule D and 335-1-6-.04(a) of ADEM Admin. Code Division 1 regulations based on the information provided in this application.

Wet Preparation, Processing, Beneficiation:
6860

Greenfield Site Fee:
1610

Fee

Fee
8470

Agreements and Signature(s)

SUBMISSION AGREEMENTS

- I am the owner of the account used to perform the electronic submission and signature.
- I have the authority to submit the data on behalf of the facility I am representing.
- I agree that providing the account credentials to sign the submission document constitutes an electronic signature equivalent to my written signature.
- I have reviewed the electronic form being submitted in its entirety, and agree to the validity and accuracy of the information contained within it to the best of my knowledge.

Professional Engineer

A detailed, comprehensive Pollution Abatement & Prevention (PAP) Plan must be prepared, signed, and certified by a professional engineer (PE), registered in the State of Alabama, and the PE must certify as follows: I certify on behalf of the applicant, that I have completed an evaluation of discharge alternatives for any proposed new or increased discharges of pollutant(s) to Tier 2 waters and reached the conclusions indicated. I certify under penalty of law that technical information and data contained in this application, and a comprehensive PAP Plan including any attached SPCC plan, maps, engineering designs, etc. acceptable to ADEM, for the prevention and minimization of all sources of pollution in stormwater and authorized related process wastewater runoff has been prepared under my supervision for this facility utilizing effective, good engineering and pollution control practices and in accordance with the provisions of ADEM Admin. Code Division 335-6, including Chapter 335-6-9 and Appendices A & B. If the PAP Plan is properly implemented and maintained by the Permittee, discharges of pollutants can reasonably be expected to be effectively minimized to the maximum extent practicable and according to permit discharge limitations and other permit requirements. The applicant has been advised that appropriate pollution abatement/prevention facilities and structural & nonstructural management practices or Department approved equivalent management practices as detailed in the PAP Plan must be fully implemented and regularly maintained as needed at the facility in accordance with good sediment, erosion, and other pollution control practices, permit requirements, and other ADEM requirements to ensure protection of groundwater and surface water quality.

Signed By Rick Deerman on 06/14/2023 at 12:18 PM

Responsible Official

This application must be signed and initialed by a Responsible Official of the applicant pursuant to ADEM Admin. Code Rule 335-6-6-.09 who has overall responsibility for the operation of the facility. I certify under penalty of law that this document, including technical information and data, the PAP Plan, including any SPCC plan, maps, engineering designs, and all other attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the PE and other person or persons under my supervision who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine or imprisonment for knowing violations. A comprehensive PAP Plan to prevent and minimize discharges of pollution to the maximum extent practicable has been prepared at my direction by a PE for this facility utilizing effective, good engineering and pollution control practices and in accordance with the provisions of ADEM Admin. Code Division 335-6, including Chapter 335-6-9 and Appendices A & B, and information contained in this application, including any attachments. I understand that regular inspections must be performed by, or under the direct supervision of, a PE and all appropriate pollution abatement/prevention facilities and structural & nonstructural management practices or Department approved equivalent management practices identified by the PE must be fully implemented prior to and concurrent with commencement of regulated activities and regularly maintained as needed at the facility in accordance with good sediment, erosion, and other pollution control practices and ADEM requirements. I understand that the PAP Plan must be fully implemented and regularly maintained so that discharges of pollutants can reasonably be expected to be effectively minimized to the maximum extent practicable and according to permit discharge limitations and other requirements to ensure protection of groundwater and surface water quality. I understand that failure to fully implement and regularly maintain required management practices for the protection of groundwater and surface water quality may subject the Permittee to appropriate enforcement action. I certify that this form has not been altered, and if copied or reproduced, is consistent in format and identical in content to the ADEM approved form. I further certify that the discharges described in this application have been tested or evaluated for the presence of non-stormwater discharges and any non-mining associated beneficiation/process pollutants and wastewaters have been fully identified. I acknowledge my understanding that if coal, coal fines, coal refuse, or other coal related materials are mined, transloaded, processed, etc., that I may be required to obtain a permit from the ASMC. I acknowledge my understanding that if non-coal, non-limestone materials are mined, transloaded, processed, etc., that I may be required to obtain a permit from the ADOL. I acknowledge my understanding that if the proposed activities will be conducted in or potentially impact waters of the state or waters of the US (including wetlands), that I may be required to obtain a permit from the USACE.

Responsible Official

Signed By Karlton Taylor on 06/14/2023 at 1:18 PM

**Calculation of Total Annualized Project Costs
for Private-Sector Projects**

Capital Costs to be Financed (Supplied by applicant)	\$ 300,000 (1)
Interest rate for Financing (Expressed as a decimal)	0.08 (i)
Time Period of Financing (Assume 10 years*)	10 years (n)
Annualization Factor = $\frac{i}{(1+i)^{10} - 1} + i$	0.149 (2)
Annualized Capital Cost [Calculate: (1) x (2)]	\$ 44,700 (3)
Annual Cost of Operation and Maintenance (including but not limited to monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement)**	\$ 5,300 (4)
Total Annual Cost of Pollution Control Project [(3) + (4)]	\$ 50,000 (5)

* While actual payback schedules may differ across projects and companies, assume equal annual payments over a 10-year period for consistency in comparing projects.

** For recurring costs that occur less frequently than once a year, pro rate the cost over the relevant number of years (e.g., for pumps replaced once every three years, include one-third of the cost in each year).

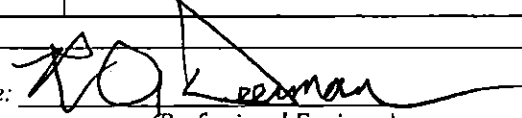
Attachment 1 to Supplementary Form ADEM Form 311

Alternatives Analysis

Applicant/Project: 431 Quarry

All new or expanded discharges (except discharges eligible for coverage under general permits) covered by the NPDES permitting program are subject to the provisions of ADEM's antidegradation policy. Applicants for such discharges to Tier 2 waters are required to demonstrate "... that the proposed discharge is necessary for important economic or social development." As a part of this demonstration, the applicant must complete an evaluation of the discharge alternatives listed below, including a calculation of the total annualized project costs for each technically feasible alternative (using ADEM Form 312 for public-sector projects and ADEM Form 313 for private-sector projects). Alternatives with total annualized project costs that are less than 110% of the total annualized project costs for the Tier 2 discharge proposal are considered viable alternatives.

Alternative	Viable	Non-Viable	Comment
1 Land Application		X	Water quantity too great; steep terrain
2 Pretreatment/Discharge to POTW		X	No pipeline to POTW available
3 Relocation of Discharge		X	Terrain of facility does not allow relocation(s)
4 Reuse/Recycle		X	Water quantity too great
5 Process/Treatment Alternatives		X	Current treatment method is recognized as Best Available Treatment Technology
6 On-site/Sub-surface Disposal		X	Water quantity too great
<i>(other project-specific alternatives considered by the applicant; attach additional sheets if necessary)</i>			
7			
8			
9			

<p>Pursuant to ADEM Administrative Code Rule 335-6-3-.04, I certify on behalf of the applicant that I have completed an evaluation of the discharge alternatives identified above, and reached the conclusions indicated.</p>	<p>Signature:  (Professional Engineer)</p> <p>Date: <u>06/09/23</u></p>
---	---

(Supporting documentation to be attached, referenced, or otherwise handled as appropriate.)



**MINING NPDES PERMIT APPLICATION
FOR
431 QUARRY**



**Prepared for
Pillar Materials, LLC
2255 Highway 78 East
(P.O. Box 3424)
Oxford, AL 36203**

5800 Feldspar Way
Hoover, AL 35244
Phone: (205) 733-9696

2135 University Blvd., Suite A
Tuscaloosa, AL 35401
Phone: (205) 752-4037

Engineer's Certification

I certify that this report was prepared by me and that I am a Professional Engineer in the State of Alabama.



R. A. Deerman, PE 16938

June 12, 2023

Date

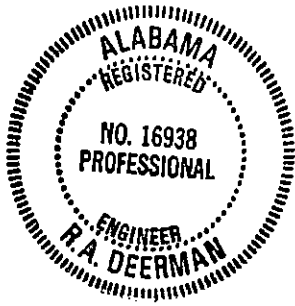


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1. Introduction

1.1. Location

Pillar Materials, LLC proposes to open the 431 Quarry in Cleburne and Calhoun Counties, near the community of Five Points in western Cleburne County. Driving directions to the pit begin at the intersection of US-78 and AL-21 in Oxford. Travel east on US-78 for 6.3 miles to AL-301 (to US-431) and turn right. Travel south on AL-301 for 0.4 miles to US-431 and continue straight. Travel south on US-431 for 0.6 miles to a gated driveway and turn right. The proposed quarry lies behind (further west) the Scenic Drive RV Park. The parcels are located in Sections 29 and 30 of Township 16S and Range 9E. Figure 1-1 is a location map of the pit. Several features of the location map are worth an explanation. The scale is 1" = 3,000' in order to show areas within a mile of the proposed facility. The map is reduced as compared to a typical USGS quadrangle map. The county line (yellow highlight) does not coincide with the National Forest boundary (pink highlight). The property boundaries, taken from county GIS maps, do not perfectly match the county lines or National Forest boundaries. It is assumed that the boundaries on the USGS maps are approximate and that the property boundaries are more accurate. Figure 1-2 is an enlarged site map on aerial photography.

1.2. Work Description

The 431 Quarry of Pillar Materials, LLC will produce crushed stone aggregate for commercial use.

1.3. Contents

This document contains an engineering certification, sedimentation control plans, a Pollution Abatement and Prevention (PAP) Plan, a Best Management Practices Plan, and a Spill Prevention Control and Countermeasures (SPCC) Plan.

1.4. Purpose

The purpose of this document is to apply for issuance of an NPDES Individual Mining Permit for Pillar Materials, LLC. The permit will authorize discharges from mine dewatering activities and stormwater. The permit will include three outfalls, Outfalls DSN001P and DSN002P to Choccolocco Creek plus DSN003P to Jackson Creek.

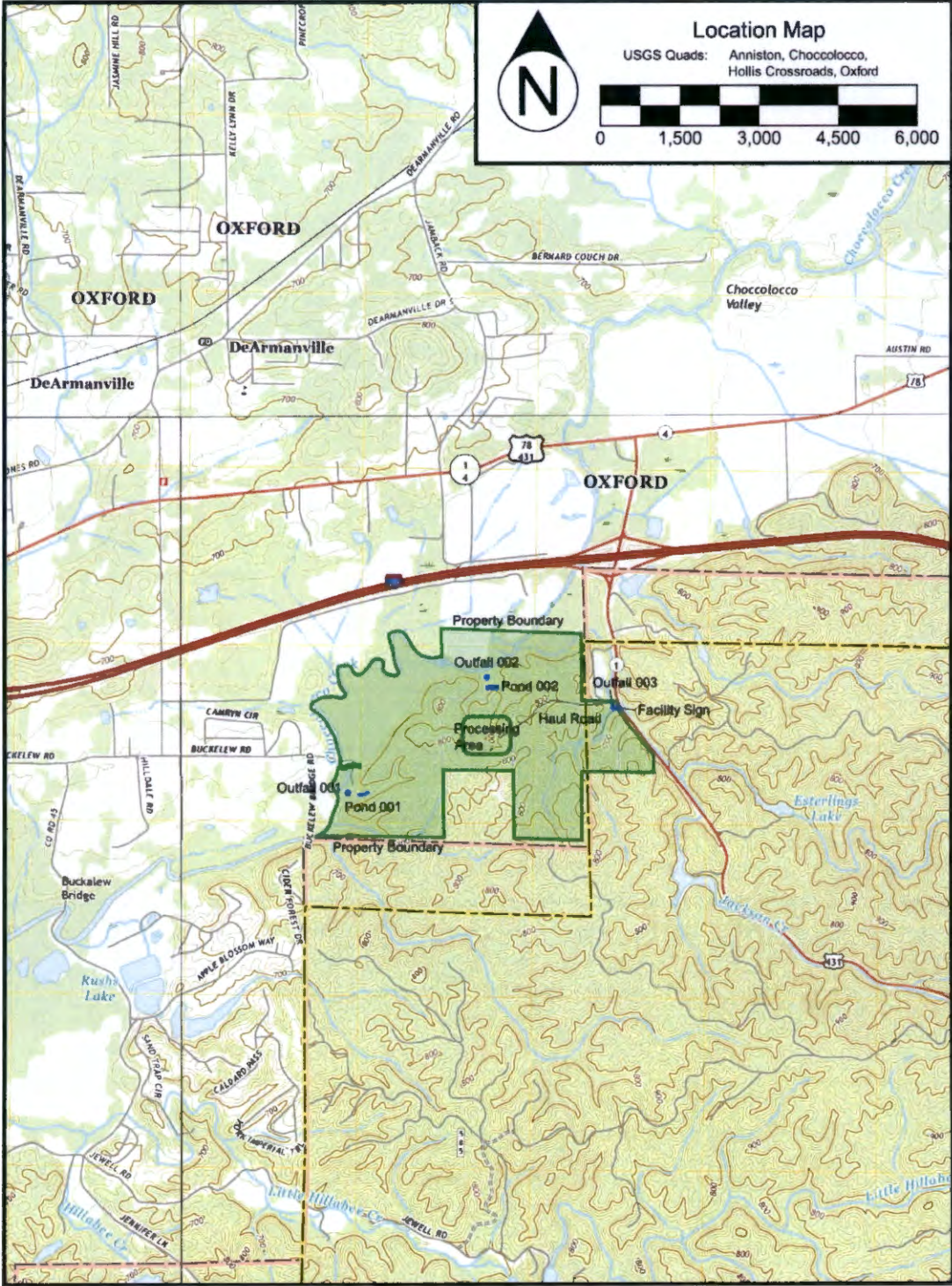


Figure 1-1. Location Map.

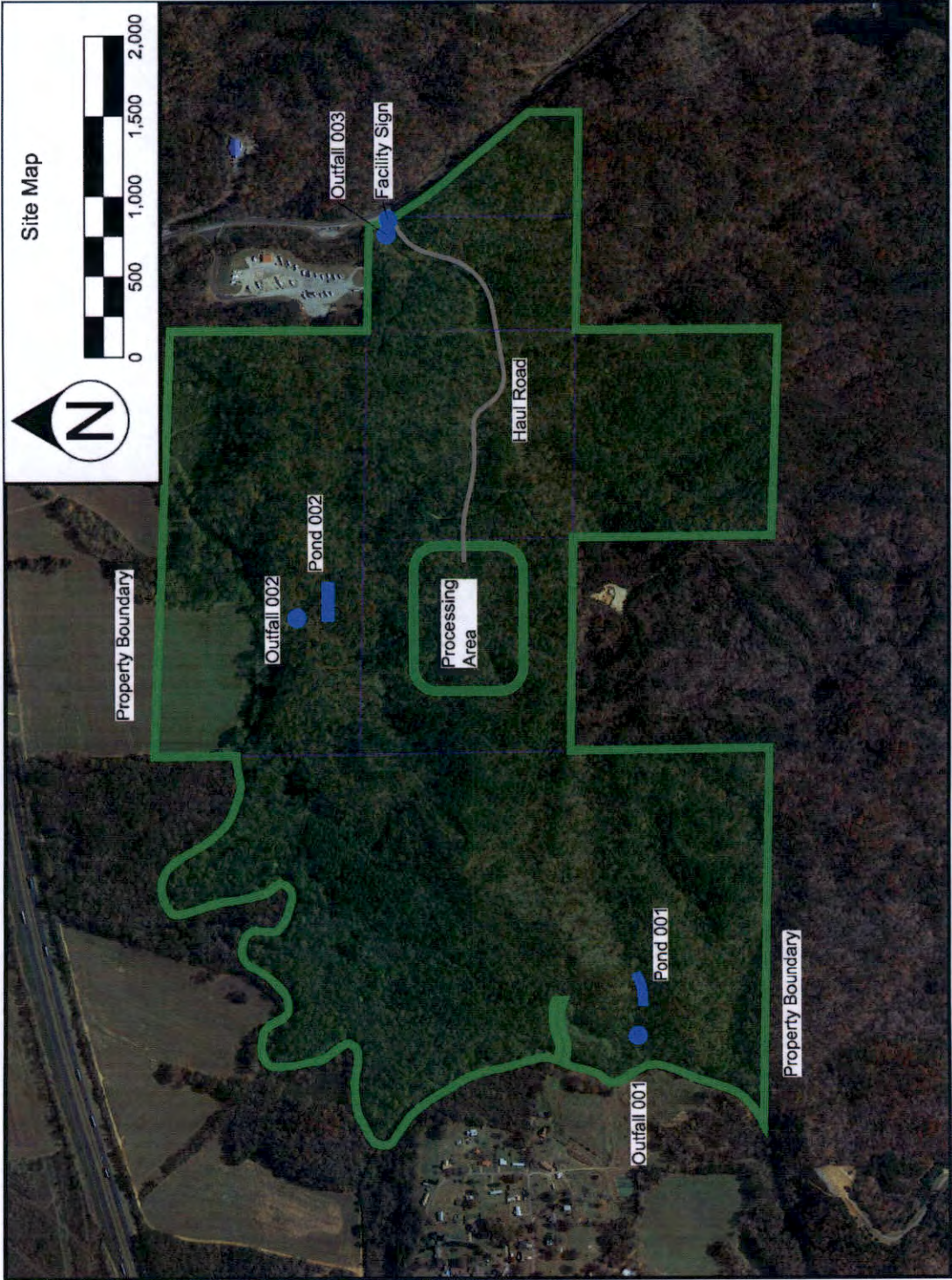


Figure 1-2. Site Map.

2. Site Description

2.1. Geologic Setting

The mine site is near the border the Valley and Ridge physiographic province and the Piedmont physiographic province. Primarily, the mine will recover the limestone (including dolomite) and phyllite identified by a geological investigation for use as industrial aggregates.

2.2. Soil Types

The soils within the floodplain of Choccolocco Creek vary, but no disturbance is planned there. Mining is proposed in the adjacent steep terrain where the soil is predominantly Talladega. There is some discrepancy in the Soil Survey. It calls the same soil Talladega in Calhoun County but labels it Tallapoosa in Cleburne County. Regardless, the soils are similar and will be considered Talladega in this application. The soil formed in residuum from weathered metamorphic rock, including phyllite. The soil is loamy, well drained, and the erosion factor (K, in the universal soil loss equation) ranges from 0.28 to 0.32, indicating a moderately high erodibility.

2.3. Rainfall

The average rainfall is approximately 54 inches per year in southeastern Calhoun County and southwestern Cleburne County. The rainfall depths of design storm events are from NOAA Atlas 14. At the mine site, the 1-yr/24-hr rainfall depth is 3.59 inches, the 2-yr/24-hr rainfall depth is 4.09 inches, and the 25-yr/24-hr rainfall depth is 6.74 inches.

2.4. Streams and Wetlands

Choccolocco Creek and its tributary, Jackson Creek, flows along (and sometimes through) the borders of some of the parcels associated with the mine. However, no mining is proposed within 50 feet of either creek and no changes to the creeks are proposed. A haul road is proposed along an unnamed intermittent stream and will cross two tributaries of the intermittent stream. No change to the intermittent stream is proposed. Wetlands probably exist in the floodplain of Choccolocco Creek, but not in the vicinity of any proposed mining. No wetlands impacts are anticipated.

2.5. Outfall 001 (DSN001P)

Proposed Outfall DSN001P will include discharges from mine de-watering activities and stormwater. Pillar Materials, LLC may also conduct mineral dry and wet processing (crushing, screening, and washing) within the watershed. The proposed outfall will be located west from Pond 001 and will discharge to Choccolocco Creek. The geographic coordinates of the outfall will be 33.60582°N and 85.73965°W. The total watershed area for DSN001P will be 42 acres. The disturbed area will be 38 acres.

The reach of Choccolocco Creek to which Pond 001 discharges is a public water supply (PWS), so the pond analysis includes the 50-yr rainfall event. The entire reach labeled as PWS is from an unnamed tributary from Boiling Spring (downstream) to Egoniaga Creek (upstream). A shorter subset of the reach, from Hillabee Creek (downstream) to Egoniaga Creek (upstream) is on the 303(d) list but only for pathogens and the mine will not contribute pathogens.

2.6. Outfall 002 (DSN002P)

Proposed Outfall DSN002P will include discharges from mine de-watering activities and stormwater. Pillar Materials, LLC may also conduct mineral dry and wet processing (crushing, screening, and washing) within the watershed. The proposed outfall will be located north from Pond 002 and will discharge to Choccolocco Creek. The geographic coordinates of the outfall will be 33.61173°N and 85.73102°W. The total watershed area for DSN002P will be 65 acres. The disturbed area will be 53 acres.

The reach of Choccolocco Creek to which Pond 002 discharges is a public water supply (PWS), so the pond analysis includes the 50-yr rainfall event. The entire reach labeled as PWS is from an unnamed tributary from Boiling Spring (downstream) to Egoniaga Creek (upstream). A shorter subset of the reach, from Hillabee Creek (downstream) to Egoniaga Creek (upstream) is on the 303(d) list but only for pathogens and the mine will not contribute pathogens.

2.7. Outfall 003 (DNS003P)

Proposed Outfall DSN003P will include discharges of stormwater only. The only disturbed area within the watershed drained by proposed outfall will be the haul road that connects the mining operation to US Highway 431. Besides the haul road, including an adjacent scale and appurtenances, there will be no other mining disturbance within the watershed. Discharges will be controlled by best management practices. The proposed outfall will be located near US Highway 431 before water enters Jackson Creek.

Jackson Creek is neither a PWS nor is it on the 303(d) list. It is, however, a tributary of Choccolocco Creek.

3. Sedimentation Controls

3.1. Introduction

The proposed pollution abatement facilities are designed and will be constructed to control the quality of discharges from mine de-watering activities and stormwater at Outfalls DSN001P and DSN002P. Normal drainage patterns will direct the discharges to the outfalls.

3.2. Diversions

No diversions exist and none are proposed.

3.3. Sedimentation Ponds

Pond 001 is proposed at Outfall DSN001P. The total watershed area for Pond 001 is 42 acres. The disturbed area is 38 acres. The watershed soil is in hydrologic soil group D. The cover is assumed to be a combination of bare earth, crop residue cover (mulch), and pasture resulting in an overall calculated curve number of 88.

The initial pond excavation will create a water body approximately 290 feet long by 96 feet wide by 16 feet deep with a volume of 10.26 acre-feet. The actual shape will be irregular so these values are approximate. The required sediment volume is 9.50 acre-feet (0.25 acre-feet per acre for 38 acres is 9.50 acre-feet). The primary discharge structure will be a 24-inch diameter circular pipe while the emergency spillway will be a trapezoidal channel with a bottom width of 10 feet.

Key items from the analysis of Pond 001 using HEC-HMS include the following:

- Normal Pool Elevation: 654.00
- 1-yr/24-hr Peak Elevation: 655.73
- Crest of Emergency Spillway: 657.00
- 50-yr/24-hr Peak Elevation: 658.53

Pond 001 detains the runoff from the 1-yr/24-hr storm reducing the peak discharge from 116 cfs to 43 cfs. Pond 001 detains the runoff from the 50-yr/24-hr storm reducing the peak discharge from 300 cfs to 135 cfs. The maximum depth of water in the emergency spillway during the 50-yr/24-hr storm will be 1.53 feet.

The upstream toe of the Pond 001 embankment is no lower than an elevation of 638.00. The elevation difference from the upstream toe of the embankment to the crest of the open channel spillway is 19.00 feet. The volume of water impounded by the embankment from the upstream toe of the embankment to the crest of the open channel spillway is 13.69 acre-feet.

Figure 3-1 provides details about Pond 001.

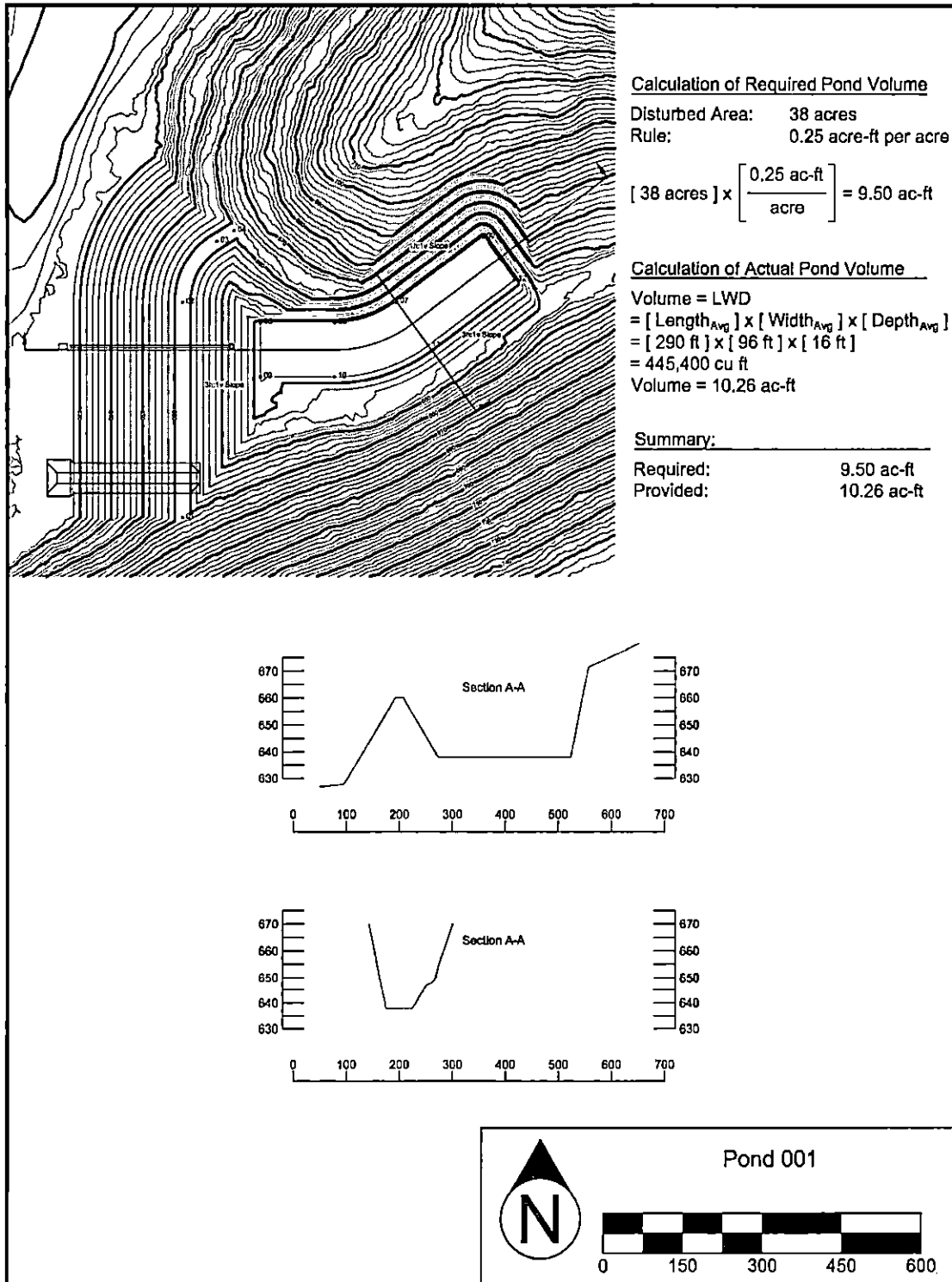


Figure 3-1. Pond 001.

Pond 002 is proposed at Outfall DSN002P. The total watershed area for Pond 002 is 65 acres. The disturbed area is 53 acres. The watershed soil is in hydrologic soil group D. The cover is assumed to be a combination of bare earth, crop residue cover (mulch), and pasture resulting in an overall calculated curve number of 88.

The initial pond excavation will create a water body approximately 320 feet long by 115 feet wide by 16 feet deep with a volume of 13.57 acre-feet. The actual shape will be irregular so these values are approximate. The required sediment volume is 13.25 acre-feet (0.25 acre-feet per acre for 53 acres is 13.25 acre-feet). The primary discharge structure will be a 24-inch diameter circular pipe while the emergency spillway will be a trapezoidal channel with a bottom width of 10 feet.

Key items from the analysis of Pond 002 using HEC-HMS include the following:

- Normal Pool Elevation: 660.00
- 1-yr/24-hr Peak Elevation: 661.74
- Crest of Emergency Spillway: 663.00
- 50-yr/24-hr Peak Elevation: 664.91

Pond 002 detains the runoff from the 1-yr/24-hr storm reducing the peak discharge from 171 cfs to 58 cfs. Pond 002 detains the runoff from the 50-yr/24-hr storm reducing the peak discharge from 442 cfs to 203 cfs. The maximum depth of water in the emergency spillway during the 50-yr/24-hr storm will be 1.91 feet.

The upstream toe of the Pond 002 embankment is no lower than an elevation of 644.00. The elevation difference from the upstream toe of the embankment to the crest of the open channel spillway is 19.00 feet. The volume of water impounded by the embankment from the upstream toe of the embankment to the crest of the open channel spillway is 18.51 acre-feet.

Figure 3-2 provides details about Pond 002.

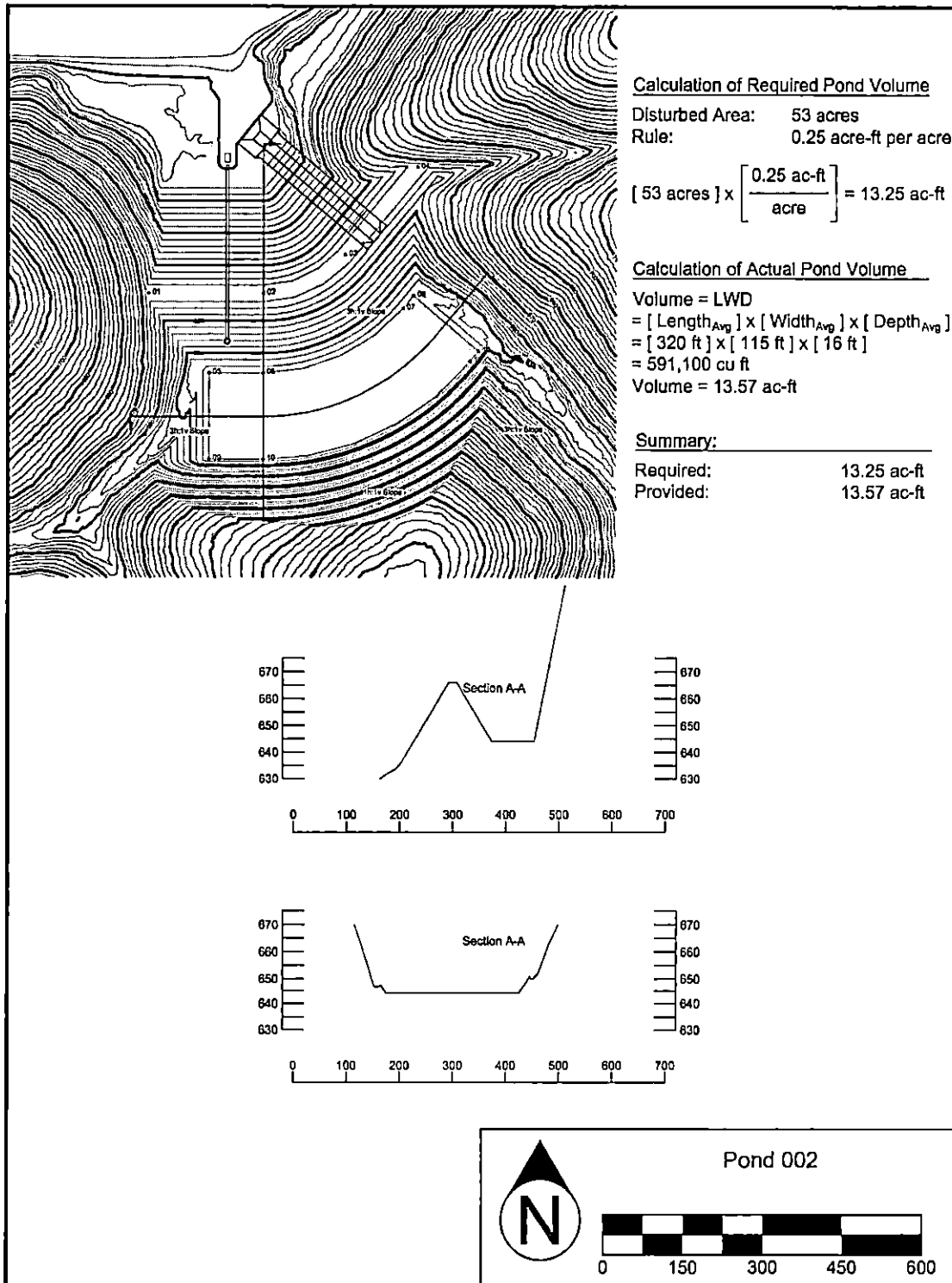


Figure 3-2. Pond 002.

4. Pollution Abatement and Prevention Plan

4.1. Introduction

The plan follows the regulatory outline with each section introduced by the applicable portion of Rule 335-6-9-.03 "Pollution Abatement and/or Prevention Plan".

4.2. Name and Address

335-6-9-.03(2) (a) name and address of the operator and a legal description of the area to be mined.

The operator is Pillar Materials, LLC and the mailing address is as follows:

Pillar Materials, LLC
P.O. Box 3424
Oxford, AL 36203

The telephone number for the contact at Pillar Materials, LLC is (256) 835-1800 and the contact person is Mr. Lance Taylor, President. The mine is in Cleburne and Calhoun Counties, Alabama in Sections 29 and 30 of Township 16S and Range 9E. Access to the mine from US Highway 431 will be via a haul road.

4.3. General Information

335-6-9-.03(2) (b) general information, including name and affiliation of company, number of employees, product(s) to be mined, hours of operation and water supply and disposition.

The operator is Pillar Materials, LLC. There may be as many as 10 full-time employees at the pit. Operation will be 8 hours per day, 5 days per week, but weekends and 12-hour days may be scheduled. The 431 Quarry will produce crushed stone aggregate for commercial use. Water from mine de-watering activities and stormwater will be treated in Pond 001 or Pond 002 prior to discharge. Discharges from Outfall 003 will be treated by BMPs.

4.4. Topographic Map

335-6-9-.03(2) (c) topographic map showing location of mine, preparation plant, settling basin and all waste water discharge points.

Figure 1-1 is a topographic map which shows the location of the mine, the settling basins, and the water discharge points. An office, crushing, screening, and other facilities may be located at the site marked "processing area" on the topographic map. A scale house may be located near US Highway 431 along the haul road.

4.5. Diversions

335-6-9-.03(2) (d) method and plan for diverting surface water runoff from operational areas and mineral and refuse storage piles.

No diversions exist and none are proposed.

4.6. Operations

335-6-9-.03(2) (e) narrative account of operation(s) explaining and/or defining raw materials, processes and products. Blockline or schematic diagrams indicating points of waste origin and its collection and disposal shall be included.

Overburden will be removed by excavating equipment to expose the stone (normally, limestone, including dolomite, or phyllite). The overburden that is suitable for use as topsoil may be stockpiled for reclamation or to develop vegetative cover. Overburden that is not suitable for use as topsoil may be used to construct runoff control structures or may be stockpiled separately for use as fill soil.

Heavy equipment, along with drilling and blasting, will be used to mine the stone. Following mining, the broken aggregate will be loaded into trucks and transported. Pillar Materials, LLC may also conduct mineral dry and wet processing (crushing, screening, and washing) within the watershed.

Waste products generated as a result of the mining operation are sediments from disturbed areas, transported by rainfall runoff or pumped discharges. Wet processing may also generate sediments. The source of the wet processing water will be the sedimentation pond and the water will return to the sedimentation pond after use. The sediments will originate in the mine, spoil areas, or other disturbed areas. The sediments will be transported by rainfall runoff, wet process return flow, or by pumping to the sedimentation pond. The sediments will be captured by detaining the water in the sedimentation pond. When necessary, the accumulated sediments will be removed from the sedimentation pond. A schematic is given in Figure 4-1.

4.7. Waste Characteristics

335-6-9-.03(2) (f) quantity and characteristics of waste after treatment with respect to flow, suspended solids, total iron, and pH.

Assuming an average annual rainfall of 54 inches and an average runoff coefficient of 50%, runoff should be approximately 2,000 gallons per day per acre of watershed. Using the factor, the average daily flow from DSN001P will be 84,000 gallons per day (gpd) and the average daily flow from DSN002P will be 130,000 gpd. The average daily flow from DSN003P will be 314,000 gpd, treated with BMPS. Discharged water will comply with permit limits with regard to suspended solids, total iron, and pH.

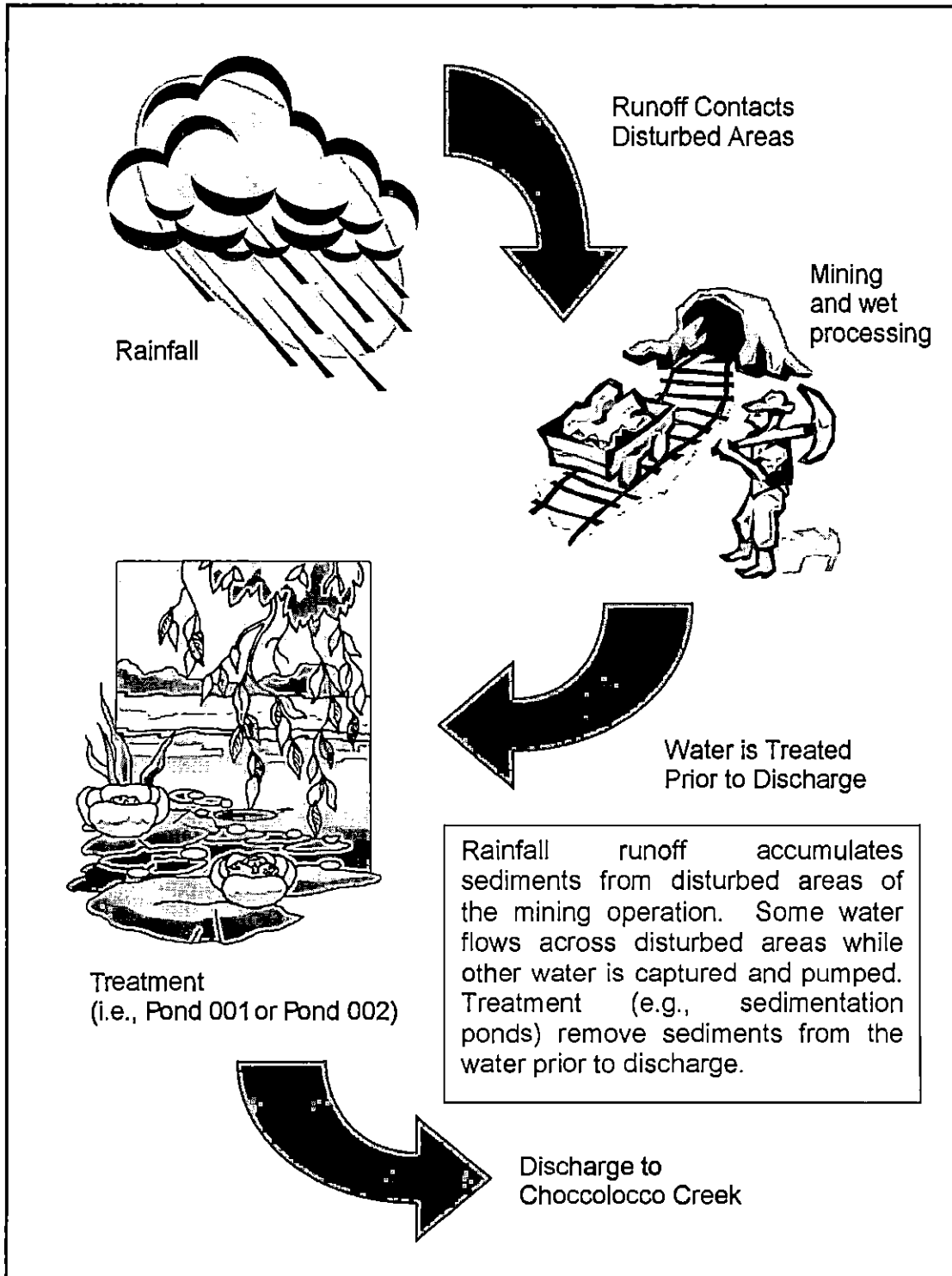


Figure 4-1. Waste Schematic.

4.8. Waste Treatment Facilities

335-6-9-.03(2) (g) description of waste treatment facilities, pretreatment measures and recovery systems including expected life of sedimentation basins and schedules for cleaning or proper abandonment of such basins. If earthen sedimentation basins are a portion of the treatment scheme, plans for the construction of these facilities should meet minimum construction criteria as found in the Guidelines in Appendix A.

The waste treatment facilities consist of the sedimentation controls, especially the sedimentation ponds, described in Chapter 3. The proposed ponds, Pond 001 and Poo2, meet the minimum construction criteria as found in the Guidelines in Appendix A. Pond 001 and Pond 002 will serve to satisfy the regulatory requirements for sediment storage and detention. The expected life of the sedimentation basins is the life of the mine and the ponds will be cleaned out when sediment accumulation is 60% of design capacity. The ponds will be maintained for the life of the permit.

4.9. Haul Road Sediment Control

335-6-9-.03(2) (h) a plan to eliminate or minimize sediment and other pollutants from haul roads must be included and should meet minimum design criteria as established by the Guidelines in Appendix B.

The haul roads meet the specifications listed below:

- 1) No sustained grade will exceed 10 percent;
- 2) The maximum grade will not exceed 15 percent for 300 feet. There will be no more than 300 feet of 15 percent maximum grade for each 1000 feet of road constructed;
- 3) Where possible, the haul road will be constructed so that runoff from the road is routed to a sedimentation basin but for much of its length as it approaches US Highway 431, sediments must be controlled by best management practices;
- 4) Outer slopes for haul roads out of the permitted area will not be steeper than 2:1 and will be lined with natural vegetation to avoid erosion;
- 5) Roads will be surfaced with either slag, chert, crushed limestone, crushed sandrock, or red rock, other than temporary roads for limited access; and
- 6) There will be no creek (perennial stream) crossings, but two intermittent streams will be culverted to allow the haul road to cross them.

4.10. Stream Impact Minimization

335-6-9-.03(2) (I) location of all streams in or adjacent to the mining area and those measures which will be taken to minimize the impact on water quality when the mining operation is located in close proximity to such streams. Such measures may include but not be limited to setbacks, buffer strips, or screens.

The operation drains to Choccolocco Creek. The sedimentation controls, especially the sedimentation ponds, described in Chapter 3 are intended to minimize any negative stream impacts.

4.11. Non-Point Impact Minimization

335-6-9-.03(2)(j) those measures to be employed to minimize the effect of any non point source pollution which may be generated as a result of the surface mining operation.

The surface runoff from mined areas generally drains to Pond 001 or to Pond 002. Any negative impacts from non-point discharges will be minimized using best management practices.

4.12. Construction Certification

335-6-9-.03(2)(k) all pollution abatement facilities must be certified by the design engineer as being constructed in accordance with the approved plans.

All outfalls, but especially the proposed ponds (Pond 001 and Pond 002) will be certified by an engineer after construction.

4.13. Watershed Classification

335-6-9-.03(2)(l) the applicant shall specify if the proposed mining operation is to be constructed in the watershed of an impoundment classified as a public water supply or a direct tributary thereon.

This facility discharges into a stream segment classified as a Public Water Supply (PWS). The mining operation drains to Choccolocco Creek. More specifically, two outfalls discharge to a reach of Choccolocco Creek labeled as PWS. The third outfall discharges to a tributary (Jackson Creek) that joins the same reach of Choccolocco Creek that is labeled as PWS.

4.14. Facility Closure Plan

Specific closure plans will be submitted as necessary at the time of closure. At a minimum all areas will be reclaimed and grassed to the standards established by ADEM.

5. Best Management Practices Plan

5.1. Planned Structures

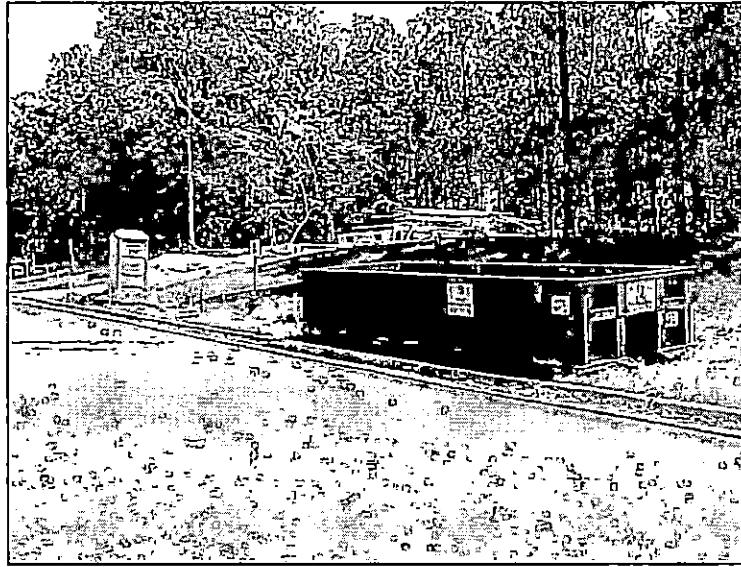
Previous chapters presented sediment control structures along with the Pollution Abatement and Prevention Plan to minimize discharges of sediments and other pollutants. The proposed sedimentation ponds are especially important. The proposed sedimentation ponds are designed for two design rainfall events. A primary discharge structure passes the smaller design event with subsurface withdrawal. An emergency spillway passes the larger design event.

5.2. Excerpts

Applicable excerpts from the *Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas* (Handbook), are included in this chapter. These excerpts provide all details for the applicable BMPs, including installation, inspection, and maintenance. The Handbook is divided into two volumes, Volume 1 (Developing Plans and Designing Best Management Practices) and Volume 2 (Installation, Maintenance, and Inspection of Best Management Practices). For convenience, the corresponding practices are included together in this document. For example, the Groundskeeping practice from Volume 1 is immediately followed by the Groundskeeping practice from Volume 2 in this document. The excerpt order is intended to convey that the operation should limit disturbances (Groundskeeping, Buffer Zones, Buffer Zones, and Preservation of Vegetation); control sediment and dust (Check Dams, Sediment Barriers, and Dust Control); and stabilize the soil (Mulching, Temporary Seeding, and Permanent Seeding).

Where Best Management Practice Buffer Zone states "local ordinances may require a wider buffer," it is understood that the buffer zone is 50 feet rather than 35 feet in order to comply with ADEM guidance.

Groundskeeping (GK)



Practice Description

Groundskeeping, or “good housekeeping”, describes the various activities and measures, in addition to the specific practices used for erosion and sediment control that are essential during construction for the protection of environmental quality. Groundskeeping is applicable at all construction sites.

Planning Considerations

In addition to the sediment and erosion control practices included in the Handbook that deal directly with sediment and erosion control, some general groundskeeping measures are essential to the pollution prevention aspect of a Stormwater Pollution Prevention Plan. Included in the Groundskeeping practice are the following different areas:

- Inspection and Maintenance Procedures
- Materials Inventory
- Spill Prevention and Material Management Measures
- Spill Controls
- Hazardous Products
- Air Emissions (excessive odor)
- Other Good Groundskeeping Measures (i.e. fugitive spray, excessive noise and aesthetics)

Design Criteria

Inspection and Maintenance Procedures

The following inspection and maintenance procedures need to be followed to maintain adequate sediment and erosion controls:

- All control measures need to be inspected at least once per week and following any accumulation of rainfall of $\frac{3}{4}$ " or more within a 24-hour period. A more frequent inspection interval may be required by either a permitting agency or a permittee.
- All measures need to be maintained in good working order. If a repair is necessary, it should be initiated within 24 hours of report.
- Sediment Barriers need to be inspected weekly for proper anchorage and leakage underneath. Silt fencing should also be inspected for tears.
- Built-up sediment needs to be removed from sediment barriers when it has reached $\frac{1}{2}$ of the height of the barrier. Sediment needs to be placed in a stabilized site to prevent re-entry into the same site or another entrapment area.
- Sediment basins need to be inspected monthly for depth of sediment and built-up sediment needs to be removed when $\frac{1}{2}$ of the basin volume is filled.
- Temporary and permanent seeding and plantings need to be inspected for bare spots, washouts, and unhealthy growth. A person should be designated to be responsible for maintaining planted areas until there is a uniform stand with 85% ground cover and growth has reached 1" in height.

Materials Inventory

A materials list should be compiled for items that will be stored outside on the site during construction. For example:

- _____ Pipe, fittings, and joint compounds for underground utility piping
- _____ Gravel and stone bedding material
- _____ Concrete forming materials
- _____ Other (specify) _____
- _____
- _____
- _____

Note: Fuels, oils, and other petroleum products; forming oils and compounds; fertilizers; pesticides; strippers; detergents; cleaners; or any other hazardous or toxic compounds should not be stored outside on the site unless specifically agreed upon by all responsible parties, including those persons responsible for enforcing local ordinances and policies. On-site storage should meet all local, state, and federal rules regarding secondary containment. Additionally, local ordinances may require fencing and security measures for storage of these products.

Spill Prevention and Material Management Practices

Petroleum Products

All vehicles kept on the site need to be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. A Spill Prevention Control and Countermeasures (SPCC) plan should be developed for the facility to address the safe storage, handling and clean-up of petroleum products and other chemicals. Petroleum products should be stored in tightly sealed containers, which are clearly labeled. If petroleum products are stored on site, a secondary containment facility will be required if the cumulative storage capacity of all tanks, greater than 55 gallons, at the site exceeds 1,320 gallons. Any asphalt substances used on-site should be applied according to the manufacturer's recommendations.

Fueling & Servicing

Locate these types of activities as far away as possible from waters of the State and stormwater inlets or conveyances so that stormwater coming into contact with these activities cannot reach water of the State. No fueling, servicing, maintenance, or repair of equipment or machinery should be done within 50 feet of a stream, or within 100 feet of a stream classified for public water supply (PWS) or Outstanding Alabama Water (OAW) or designated as an Outstanding National Resource Water (ONRW), or a sinkhole.

Mud Tracking

A stabilized construction entrance needs to be designated on the plan. The practice Construction Exit Pad provides design details for planning such an entrance. Only designated entrances should be used for construction access to the site.

The General Contractor should be responsible for keeping mud cleaned from adjoining streets daily if needed. Only use "dry" methods like sweeping to remove mud from streets. DO NOT use water to flush mud from the street.

Concrete Trucks

Concrete trucks should be allowed to wash only in locations where discharge is appropriately contained and meets any applicable regulatory requirements. All the concrete truck washout or waste discharge on-site must be contained to be properly removed, recycled, or disposed of later. Containment can be in the form

of metal, vinyl, plastic, or poly lined containers or pits, filter bags, or manufactured products. It is best to use proper signage at the concrete washout location. It is not permissible to discharge concrete wash directly to streams or storm drains. Concrete wash can contain sediment, as well as, alkalinity and chemical additives that could be harmful to fish, stream bottom macroinvertebrates and wildlife.

Disposal of Oil

No fuels, oils, lubricants, solvents, or other hazardous materials can be disposed of on the site. All hazardous material must be properly disposed of in accordance with State law.

Trash/Solid Waste

Waste containers should be located as far away as possible from waters of the State and stormwater inlets or conveyances so that stormwater coming into contact with these activities cannot reach water of the State. The General Contractor is responsible for disposing of all solid waste from the site in accordance with State law. Dumpsters or other collection facilities must be provided as needed. Solid waste may not be buried on the site.

Sanitary Waste

The General Contractor is responsible for providing sanitary facilities on the site. Sanitary waste may be disposed only in locations having a state permit. Portable toilets should be located so that accidental spills will not discharge into a storm sewer or concentrated flow area.

Other Discharges

Water for pressure testing sanitary sewers, flushing water lines, sand blasting, concrete cleansing, etc., may be discharged only in approved areas. Discharge of hydrostatic test water may require additional permitting, particularly if chlorinated public water is used.

Spill Controls

In addition to the good housekeeping measures and material management measures listed previously, the following procedures need to be followed for spill prevention and clean-up:

- Manufacturer's recommended methods for spill cleanup needs to be clearly posted and site personnel need to be made aware of the procedures and the location of the information and cleanup supplies. Refer to material safety data sheets (Material Safety Data Sheet).
- Material and equipment necessary for spill cleanup needs to be kept in the material storage area on-site. Equipment and materials include, but are not limited to: brooms, dust pans, mops, rags, gloves, goggles,

absorbent clay (kitty litter), sand, sawdust, absorbent mats, and plastic and metal trash containers specifically for this purpose.

- All spills need to be cleaned up immediately after discovery and properly containerized for proper disposal. Burial is not acceptable.
- The spill area must be kept well ventilated, and personnel need to wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material must be reported immediately to the appropriate state or local government agency, regardless of the size.
- The spill prevention plan needs to be adjusted to include measures to prevent this type of spill from being repeated, and the plan needs to show how to clean up the spill if another one does occur.

Contaminated Soils

Removal of contaminated soils and underground storage tanks should be based on information provided by the Alabama Department of Environmental Management following a proper site assessment.

Hazardous Products

- Products must be kept in original containers unless they are not resealable. If product is transferred to a new container, it must be properly marked and labeled.
- Original labels and material safety data sheets should be retained.
- If surplus product must be disposed, disposal must be done in accordance with Alabama Department of Environmental Management regulations.

Air Emissions

Burning

Burning on the site may require a permit from the Alabama Forestry Commission. County or city ordinances may also apply. Starting disposal fires with diesel fuel or old tires is not a recommended practice. The use of burn pits with fans to generate hot disposal fires decreases the fire disposal time and minimizes smoke.

Dust Control

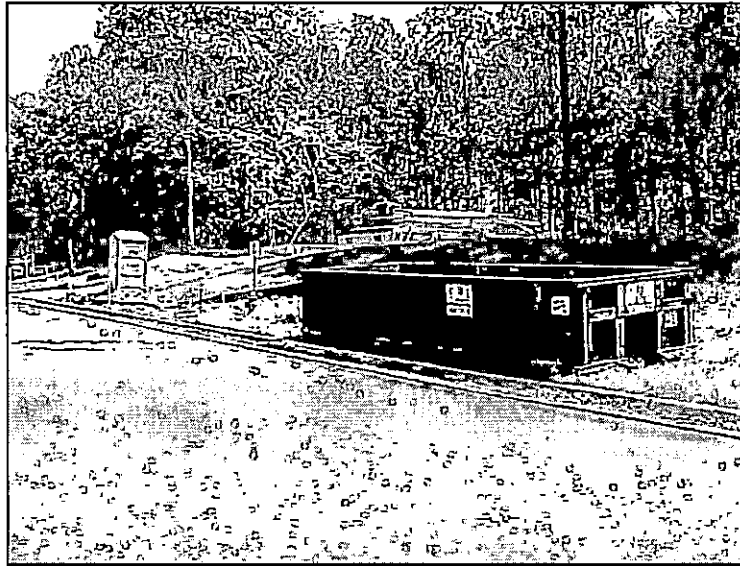
Apply measures that minimize dust. Stabilizing areas with mulch as soon as possible can minimize dust. Watering should be provided in unstabilized areas.

Other Good Groundskeeping Measures

The following good housekeeping measures also need to be followed during the construction of the project:

- An effort should be made to store only enough products to do the job.
- All materials stored on-site should be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products should be kept in their original containers with the original manufacturer's label.
- Whenever possible, all of a product should be used up before disposing of the container.
- Manufacturer's recommendations for proper use and disposal must be followed (see Material Safety Data Sheet).
- The site superintendent should inspect daily to ensure proper usage, storage, and disposal of materials.
- Fertilizers need to be applied only in the amounts recommended by the plan.
- All paint containers need to be tightly sealed and stored when not required for use. Excess paint and painting equipment cleaning liquid shall not be dumped into the storm sewer system but should be properly disposed of according to manufacturer's instructions (see Material Safety Data Sheet) and State regulations.
- The site should be kept clean and well groomed (trash picked up regularly, weeds mowed, and signs maintained).
- Offsite fugitive spray from dust control, sand blasting and pressure washing must be minimized to the extent possible.
- Locate activities that generate odors and noise as far from surrounding properties as possible (this item includes portable toilets burn sites, fueling areas, equipment repair areas and dumpsters).

Groundskeeping (GK)



Practice Description

Groundskeeping or “good housekeeping” describes the various activities and measures, in addition to the specific practices used for erosion and sediment control that are essential during construction for the protection of environmental quality. Groundskeeping is applicable at all construction sites.

Typical Components of the Practice

Prior to the start of construction, Groundskeeping activities and measures should be identified by a qualified design professional and included in the construction and pollution prevention plan. The essential components of Groundskeeping should be provided to the prime contractor for a project. Groundskeeping activities and measures essential at construction sites vary based on the complexity of the site and the project. Groundskeeping typically includes the following activities and measures:

- Inspections During Construction/Installation of Erosion and Sediment Control and Stormwater Measures (BMPS)
- Spill Prevention and Material Management
- Spill Controls

- Other Potential Activities and Measures (examples: removal of contaminated soils, management of hazardous products, protection of air quality, etc.)

Details about Components

Inspections of BMPs

Inspections should be made regularly and timely to ensure that erosion and sediment control and stormwater management practices are performing as planned and whether or not maintenance is needed. In addition, inspections and reports should meet local and state requirements.

Spill Prevention and Material Management

Alabama Department Environmental Management (ADEM) regulations require that an operator/owner implement a Spill Prevention Control and Counter Measures (SPCC) Plan for all temporary and permanent onsite fuel or chemical storage tanks or facilities to address the safe storage, handling and cleanup of petroleum products and other chemicals.

All vehicles kept on the site need to be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.

If petroleum products are stored on site, a secondary containment facility will be required if the cumulative storage capacity of all tanks, greater than 55 gallons, at the site exceeds 1,320 gallons. The secondary containment facility must be designed by a qualified design professional.

Petroleum products should be stored in labeled tightly sealed containers.

Any asphalt substances used on-site should be applied according to the manufacturer's recommendations.

Locate petroleum-based activities as far away as possible from waters of the State and stormwater inlets or conveyances so that stormwater coming into contact with these activities cannot reach water of the State. No fueling, servicing, maintenance, or repair of equipment or machinery should be done within 50 feet of a stream, or within 100 feet of a stream classified for public water supply (PWS) or Outstanding Alabama Water (OAW), or designated as an Outstanding National Resource Water (ONRW) or a sinkhole.

Only designated entrances should be used for construction access to the site. Mud tracked from the site onto streets and roads should be cleaned on a daily basis if needed. Only use "dry" methods like sweeping to remove mud from streets. DO NOT use water to flush mud from the street.

Concrete trucks should be allowed to wash only in locations where discharge is appropriately contained and meets any applicable regulatory requirements. All

the concrete truck washout or waste discharge on-site must be contained to be properly removed, recycled, or disposed of later. Containment can be in the form of metal, vinyl, plastic, or poly lined containers or pits, filter bags, or manufactured products. It is best to use proper signage at the concrete washout location. It is not permissible to discharge concrete wash directly to streams or storm drains. Concrete wash can contain sediment, as well as, alkalinity and chemical additives that could be harmful to fish, stream bottom macroinvertebrates and wildlife.

No fuels, oils, lubricants, solvents, or other hazardous materials can be disposed of on the site. All hazardous material must be properly disposed of in accordance with state law.

Waste containers should be located as far away as possible from waters of the State and stormwater inlets or conveyances so that stormwater coming into contact with these activities cannot reach water of the State. The General Contractor is responsible for disposing of all solid waste from the site in accordance with State law. Dumpsters or other collection facilities must be provided as needed. Solid waste may not be buried on the site.

Portable toilets should be located so that accidental spills will not discharge into a storm sewer or concentrated flow area.

Water for pressure testing sanitary sewers, flushing water lines, etc., may be discharged only in approved areas and to prevent discharging to surface waters. Discharge of hydrostatic test water may require additional permitting, particularly if chlorinated public water is used.

Spill Controls

The operator/owner is expected to maintain on-site or have readily available sufficient oil & grease absorbing material and flotation booms to contain and clean-up fuel or chemical spills and leaks.

Equipment and materials include, but are not limited to brooms, dust pans, mops, rags, gloves, goggles, absorbent clay, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

Spills of toxic or hazardous material must be reported immediately. The operator/owner is required to immediately notify ADEM after becoming aware of a significant spill/leak or visible oil sheen in the vicinity of the construction activity. In the event of a spill with the potential to impact groundwater or other waters of the State, the operator/owner is expected to immediately call the National Response Center (NRC) at 1-800-424-8802 and the Alabama Emergency Management Agency (AEMA) at 1-800-843-0699. The caller should be prepared to report the name, address and telephone number of person reporting spill, the exact location of the spill, the company name and location, the material spilled, the estimated quantity, the source of spill, the cause of the spill, the nearest downstream water with the potential to receive the spill, and the actions taken for containment and cleanup.

All spills need to be cleaned up immediately after discovery and properly containerized for proper disposal. Refer to Material Safety Data Sheets for safe handling procedures. Burial is not acceptable.

The spill area must be kept well ventilated and personnel need to wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

The spill prevention plan needs to be adjusted to include measures to prevent any spill from being repeated, and the plan needs to show how to clean up the spill if another one does occur.

Removal of Contaminated Soils and Underground Storage Tanks

Site assessment and removal of contaminated soils and underground storage tanks should be done following a site assessment based on procedures provided by the Alabama Department of Environmental Management.

Management of Hazardous Products

Products must be kept in original containers unless they are not resealable. If a product is transferred to a new container, it must be properly marked and labeled.

Original labels and Material Safety Data Sheets should be retained until the related product is no longer on the site.

If surplus product must be disposed of, disposal must be done in accordance with state (Alabama Department of Environmental Management regulations).

Protection of Air Quality

Smoke

Burning on the site may require a permit from the Alabama Forestry Commission. County and city ordinances may also apply. Starting disposal fires with diesel fuel, petroleum products, or old tires is not a recommended practice. Burn pits with fans to generate hot disposal fires decreases the fire time and minimizes smoke. Burning may be prohibited by State "burn bans" to reduce potential for ground-level ozone.

Dust

Dust should be controlled if it will create a problem either on or off of the site. If measures are not included in the site design plan see the practice Dust Control for potential measures to use to eliminate or minimize dust.

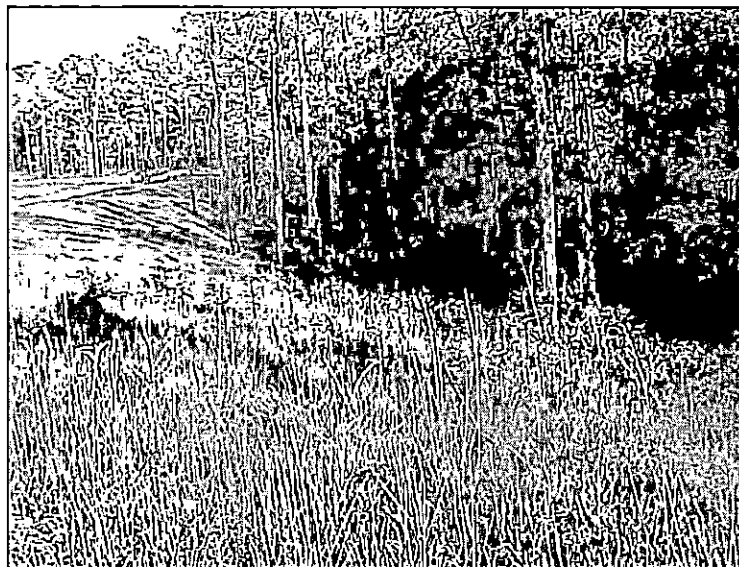
Other Good Groundskeeping Practices

The following measures may be needed:

- All materials stored on-site should be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products should be kept tightly sealed in their original containers with the original manufacturer's label.
- Whenever possible, all of a product should be used up before disposing of the container.
- Manufacturer's recommendations for proper use and disposal must be followed. See Material Safety Data Sheets for product of concern.

The site superintendent or a designated employee should inspect daily to ensure proper usage, storage, and disposal of material.

Buffer Zone (BZ)



Practice Description

A buffer zone is a strip of plants adjacent to land-disturbing sites bordering streams, lakes, and wetlands which provides streambank stability, reduces scour erosion, reduces storm runoff velocities, and filters sediment in stormwater. This practice applies on construction sites and other disturbed areas that can support vegetation and can be particularly effective on floodplains, next to wetlands, along streambanks and on steep, unstable slopes.

Planning Considerations

The width and plant composition of a buffer zone will determine its effectiveness.

There is no ideal width and plant community for buffer zones. The width of the buffer zone should be designed with desirable vegetation to provide significant protection of a perennial stream, water body or wetland. The purpose(s) of the buffer and landscape characteristics should determine the width of the buffer needed.

Three zones are typically recognized in the buffer area. If planned to be 45 to 55 feet wide, the recommended width and plant categories are described in the following listings:

- Zone 1: the first 15 to 20 feet nearest the stream. Cover is close growing trees (commonly 6 to 10 feet apart).
- Zone 2: the next 10 to 15 feet. Cover is trees or trees and shrubs.
- Zone 3: the next 20 feet. Cover is grass or dense groundcover.

Note: All widths are for one side of the stream only and are measured from top of stream bank.

Existing vegetation should be considered for retention, especially hardwoods that are in Zones 1 and 2.

Buffer Zone 3 may be established with a grass planting or with close-growing groundcover that will provide dense cover to filter sediment. Where topography accommodates sheet flow from the adjacent landscape, Zone 3 should be retained or developed as a Filter Strip.

Necessary site preparation and planting for establishing new buffers should be done at a time and manner to insure survival and growth of selected species.

Buffer zones may become part of the overall landscape of the project.

The layout and density of the buffer should complement natural features and mimic natural riparian forests.

Design Criteria

Installation (Preservation)

Evaluate vegetation and landscape features in proposed buffer zone to determine potential for existing plant community to maintain streambank stability, prevent sheet, rill and scour erosion, reduce stormwater velocities and filter sediment.

Dedicate a vegetated zone to effectively minimize streambank and shoreline erosion, prevent sheet, rill and scour erosion in the buffer zone and remove sediment from sheet flow from the disturbed area. Initially estimate a width of 50 feet wide adjacent to the stream (each side), water body or wetland. Adjust the width to account for slope of the land adjacent to the stream and the purposes of the buffer. If the buffer is planned to trap sediment in sheet flow the width should be increased 2 feet for every 1% slope measured along a line perpendicular to the streambank and immediately downslope of the disturbed area. If the buffer is not planned to trap sediment and only bank stabilization is the purpose of the buffer only Zones 1 and 2 are required and the adjustment for slope of the adjacent land is not essential.

Installation (Plantings)

Width and Zone Requirements

Use guidance under Installation (Preservation) to determine width and zone requirements.

Site Preparation

Plan appropriate site preparation to provide a suitable planting medium for grass, or trees and shrubs.

Plan to install sediment and erosion control measures such as silt fence and diversions if zones are graded before seedbed preparation.

If significant compaction exists, plan for chiseling or subsoiling.

For Zone 3 plantings, clear area of clods, rocks, etc. that would interfere with seedbed preparation; smooth the area, to encourage sheet flow, before the soil amendments are applied and firm the soil after the soil amendments are applied. Follow guidelines in the Filter Strip practice Design Criteria if Zone 3 is to be used to filter sheet flow from the adjacent construction area.

Soil Amendments (lime and fertilizer)

Plan soil amendments using design criteria for the appropriate category (Permanent Seeding, Tree Planting on Disturbed Areas, and Shrub, Vine and Groundcover Planting). Incorporate amendments to a depth of 4" to 6" with a disk or chisel plow.

Plantings

Plan the vegetation for buffer zones using Design Criteria for Permanent Seeding, Tree Planting on Disturbed Areas, and/or Shrub, Vine and Groundcover Planting. No invasive species shall be used. If trees are planted, multiple hardwood species should be used.

Mulching

Plan to mulch shaped areas, and other areas that are bare using the Mulching practice.

Buffer Zone (BZ)



Practice Description

A buffer zone is a strip of plants adjacent to land-disturbing sites or bordering streams, lakes, and wetlands which provides streambank stability, reduces scour erosion, reduces storm runoff velocities and filters sediment in stormwater. This practice applies on construction sites and other disturbed areas that can support vegetation and can be particularly effective on floodplains, next to wetlands, along stream banks and on steep, unstable slopes.

Typical Components of the Practice

- Preservation and Protection of Existing Vegetation
- Site Preparation
- Soil Amendments (lime and fertilizer)
- Planting Desired Vegetation
- Mulching
- Maintenance

Installation (Preservation)

Prior to start of construction, buffer zones should be designed by a qualified design professional. Plans and specifications should be referred to by field personnel throughout the installation process.

Preserve vegetation on designated areas shown in plan. In the absence of a plan, maintain a buffer of existing vegetation with a minimum width for shoreline or stream bank protection of at least 35 feet. Local ordinances may require a wider buffer. Narrower buffer zones may be sufficient on steep slopes that are narrower than 35 feet.

Installation (Plantings)

Prior to start of construction, buffer zones should be designed by a qualified design professional. Plans and specifications should be referred to by field personnel throughout the installation process.

Site Preparation

Install planned measures such as silt fences and diversions before grading and seedbed preparation. In the absence of a plan and before grading and seedbed preparation, install other necessary measures which may include silt fences and diversions. Clear area of clods, rocks, etc. that would interfere with seedbed preparation; smooth the area before the soil amendments are applied and firm the soil after the soil amendments are applied.

Soil Amendments (lime and fertilizer)

Apply lime and fertilizer according to the plan or by soil test recommendations. In the absence of a plan or soil test recommendations, apply agricultural limestone at the rate of 2 tons per acre (90 lbs per 1000 ft².) and 10-10-10 fertilizer at the rate of 1000 lbs per acre (25 lbs per 1000 ft².). Apply ground agricultural limestone unless a soil test shows pH of 6.0 or greater. Incorporate amendments to a depth of 4" to 6" with a disk or chisel plow.

Planting Desired Vegetation

Plant desired vegetation according to the design plan. In the absence of a plan use installation guidelines for Permanent Seeding, Tree Planting on Disturbed Areas, or Shrub, Vine and Groundcover Planting.

Mulching

Spread mulch according to guidelines in the Mulching practice.

Common Problems

Consult with qualified design professional if any of the following occur:

- Soil compaction can prevent adequate plant growth. Compaction should be addressed during site preparation.

- Design specifications for plants (variety, seeding/planting dates) and mulch cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.

Problems that require remedial actions:

- Erosion, washout and poor plant establishment – repair eroded surface, reseed, reapply mulch and anchor.
- Mulch is lost to wind or stormwater runoff – reapply mulch and anchor.

Maintenance

Replant trees, grass, shrubs or vines where needed to maintain adequate cover for erosion control. Maintain grass plantings with periodic applications of fertilizer and mowing.

Preservation of Vegetation (PV)



Practice Description

Preservation of vegetation is the avoidance of an area during land disturbing and construction activity to prevent mechanical and other injury to desirable plants in the planned landscape. The practice provides erosion and sediment control and is applicable where vegetative cover is desired, and the existing plant community is compatible with the planned landscape.

Planning Considerations

Preservation of vegetation requires good site management to minimize the impact of construction activities on existing vegetation.

Plants to save should be identified prior to any construction activity.

Proper maintenance, especially during construction, is important to ensure healthy vegetation that can control erosion.

Different species, soils, and climatic conditions will require different maintenance activities.

Design Criteria

Plant Protection

Groups of plants and individual trees to be retained should be located on a plan map (see Figure PV-1). Limits of clearing should be planned outside the drip line of groups or individual trees to be saved.

Flagging or other appropriate means of marking the site of the groups of plants and individual trees to be retained should be required before construction begins. Individual trees to be retained should be marked with a highly visible paint or surveyor's ribbon in a band circling the tree at a height visible to equipment operators.

Restrict construction equipment, vehicular traffic, stockpiles of construction materials, topsoil etc., from the areas where plants are retained and restrict these activities from occurring within the drip line of any tree to be retained. Trees being removed shall not be pushed into trees to be retained. Equipment operators shall not clean any of their equipment by slamming it against trees to be retained.

Restrict burning of debris within 100 feet of the plants being preserved. Fires shall be limited in size to prevent damage to any nearby trees.

Toxic material shall not be stored any closer than 100 feet to the drip line of any trees to be retained. Toxic materials shall be managed and disposed of according to state laws.

Fencing and Armoring

The following types of fencing or armoring may be used:

- Board Fence-Board fence may be constructed with 4" square posts set securely in the ground and protruding at least 4 feet above the ground. A minimum of 2 horizontal boards should be placed between the posts. The fence should be placed at the limits of the clearing around the drip line of the tree. If it is not practical to erect a fence at the drip line, construct a triangular fence near the trunk. The limits of clearing will still be the drip line as the root zone within the drip line will still require protection.
- Cord Fence-Posts at least 2" square or 2" in diameter set securely in the ground and protruding at least 4 feet above the ground shall be placed at the limits of clearing with 2 rows of cord ¼" or thicker at least 2 feet apart running between posts with strips of surveyor's tape tied securely to the string at intervals of 3 feet or less.
- Earth Berms-Temporary earth berms may be constructed. The base of the berm on the tree side should be located along the limits of clearing. Earth berms may not be used for this purpose if their presence will create drainage patterns that cause erosion.
- Additional Trees-Additional trees may be left standing as protection between the trees to be retained and the limits of clearing. However, for this alternative to be used, trees in the buffer must be no more than 6 feet apart to prevent passage of equipment and material through the buffer.
- Plan for these additional trees to be evaluated prior to the completion of construction and either given sufficient treatment to ensure survival or be removed.

- Trunk Armoring-As a last resort, a tree may be armored with burlap wrapping and 2" studs wired vertically no more than 2" apart to a height of 5 feet. The armoring should encircle the tree trunk. Nothing should ever be nailed to a tree. The root zone within the drip line will still require protection.
- Fencing and armoring devices should be in place before any construction work is done and should be kept in good condition for the duration of construction activities. Fencing and armoring should not be removed until the completion of the construction project.

Raising the Grade

When the ground level must be raised around an existing tree or group of trees several methods may be used to insure survival.

A well may be created around a group of trees or an individual tree slightly beyond the drip line to retain the natural soil around the feeder roots (see Figure PV-2). When the well alternative is not practical or desirable, remove vegetation and organic matter from beneath the tree or trees for 3 feet beyond the drip line and loosen the surface soil to a depth of approximately 3" without damaging the roots.

Apply fertilizer in the root area of the tree to be retained. A soil test is the best way to determine what type of fertilizer to use. In the absence of a soil test, fertilizer should be applied at the rate of 1 to 2 pounds of 10-8-6 or 10-6-4 per inch of diameter at breast height (dbh) for trees under 6" dbh and at the rate of 2 to 4 pounds of 10-8-6 or 10-6-4 per inch of dbh for trees over 6" dbh.

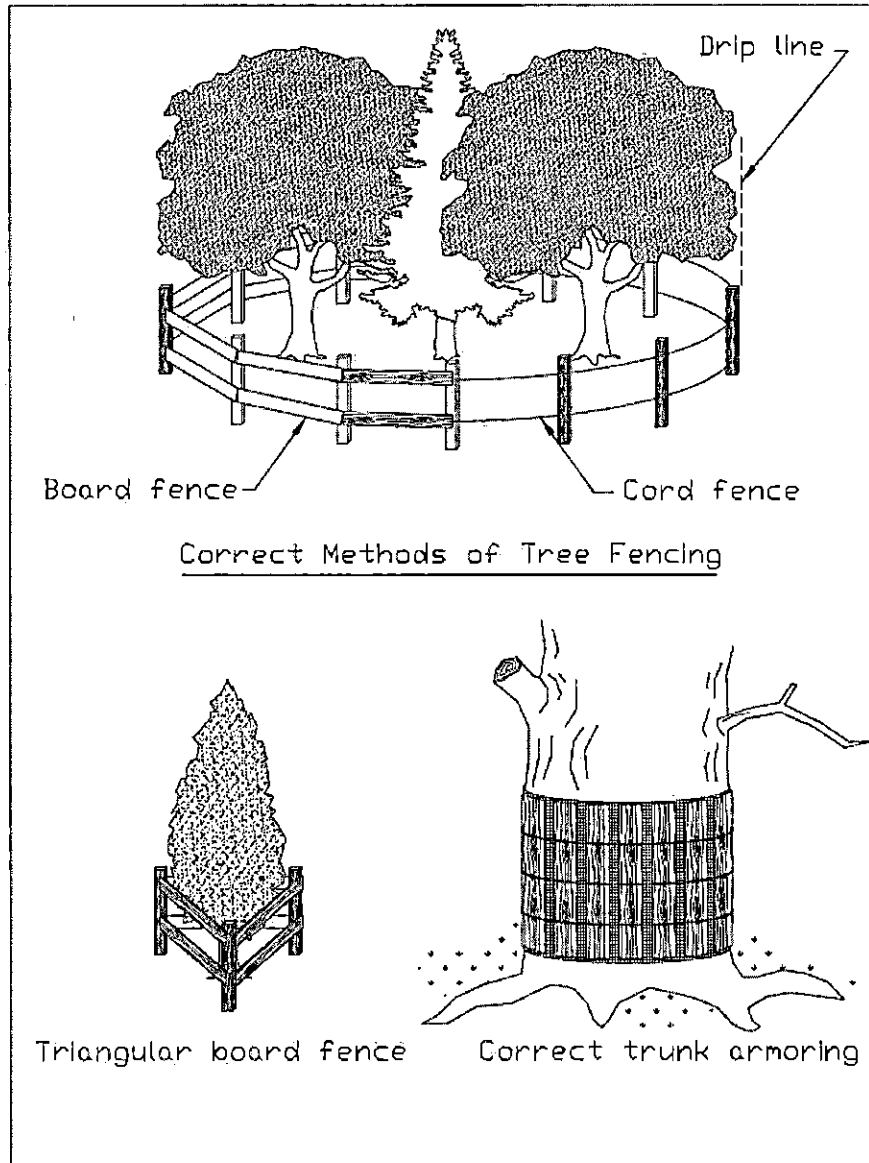


Figure PV-1 Fencing and Armoring

A dry well shall be constructed to allow for tree trunk diameter growth. A space of at least 1 foot between the tree trunk and the well wall is adequate for old, slow growing trees. Clearance for younger trees shall be at least 2 feet. The well shall be high enough to bring the top just above the level of the proposed fill. The well wall shall taper slightly away from the tree trunk at a rate of 1" per foot of wall height.

The well wall shall be constructed of large stones, brick, building tile, concrete blocks, or cinder blocks. Openings should be left through the wall of the well to allow for free movement of air and water. Mortar shall only be used near the top of the well and only above the porous fill.

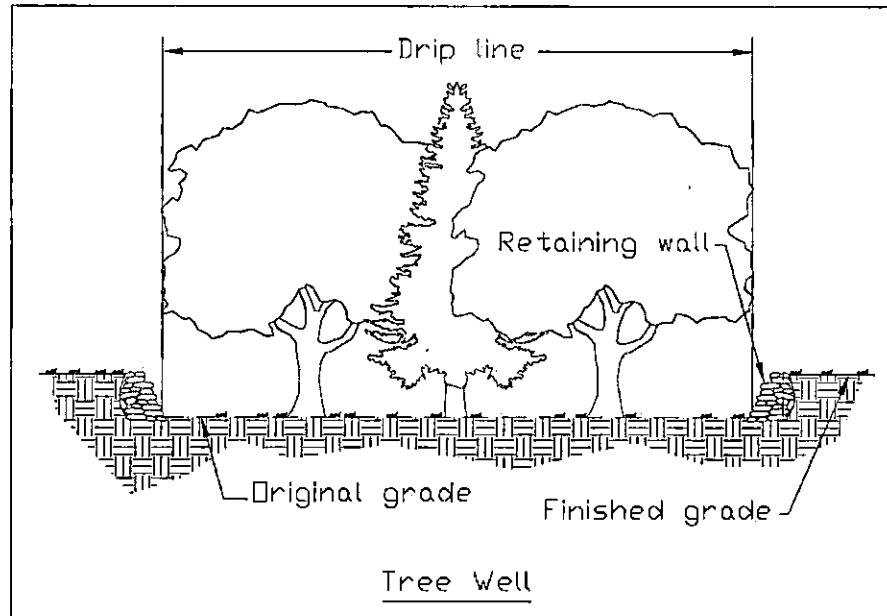


Figure PV-2 Tree Well

Drain lines composed of 4" high quality drain tiles shall begin at the lowest point inside the well and extend outward from the tree trunk in a wheel and spoke pattern with the trunk as the hub (see Figure PV-3). Radial drain lines shall slope away from the well at a rate of $\frac{1}{8}$ " per foot. The circumference line of tiles should be located beneath the drip line of the trees. Vertical tiles or pipes shall be placed over the intersections of the two tile systems if a fill of more than 2 feet is contemplated. Vertical tiles shall be held in place with stone fill. Tile joints shall be tight. A few radial tiles shall extend beyond each intersection and shall slope sharply downward to insure good drainage. Tar paper or its approved equivalent shall be placed over the tile and/or pipe joints to prevent clogging and large stone shall be placed around and over drain tiles and/or pipes for protection.

A layer of 2" to 6" of stone shall be placed over the entire area under the tree from the well outward at least as far as the drip line. For fills up to 2 feet deep, a layer of stone 8" to 12" thick should be adequate.

A thick layer of this stone not to exceed 30" will be needed for deeper fills. A layer of $\frac{3}{4}$ " to 1" stone covered by straw, fiberglass mat or a manufactured filter fabric shall be used to prevent soil from clogging the space between stones. Cinders shall not be used as fill material. Filling shall be completed with porous soil such as topsoil until the desired grade is reached. This soil shall be suitable to sustain specified vegetation.

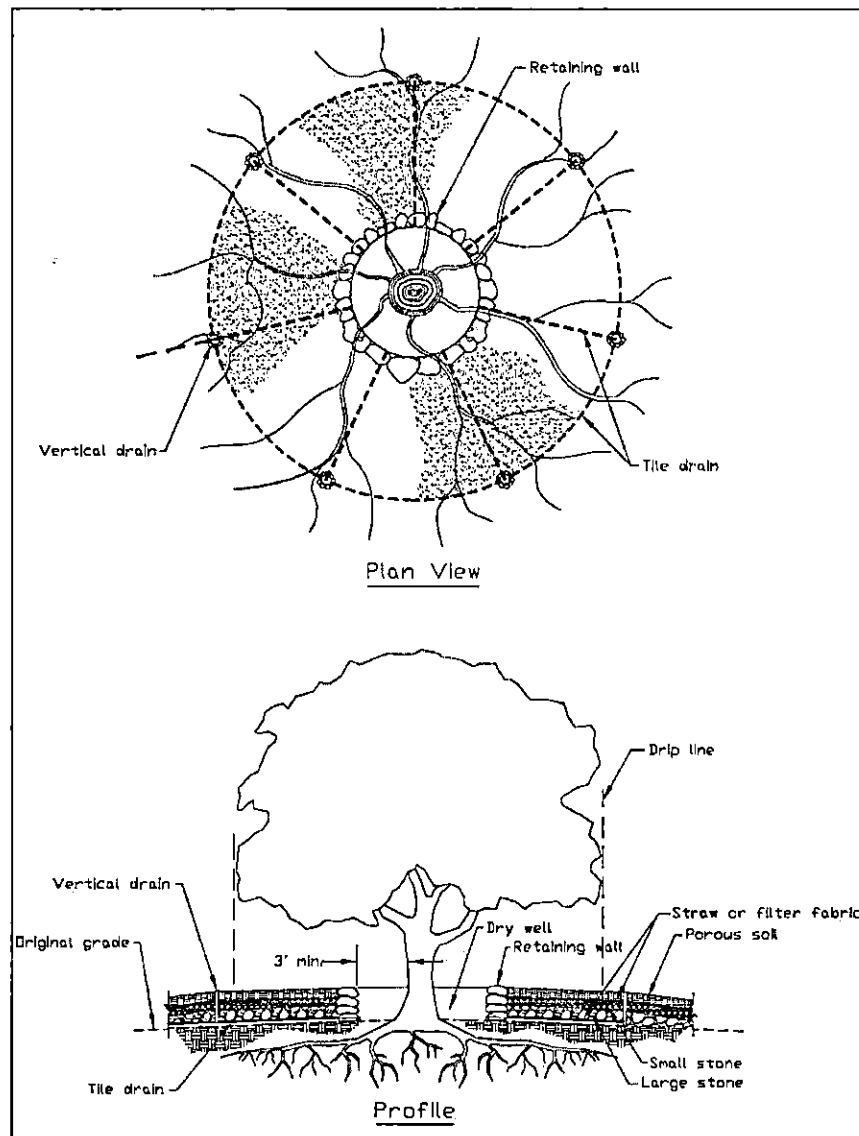


Figure PV-3 Tree Well Detail

Crushed stone shall be placed inside the dry well over the openings of the radial tiles to prevent clogging. The area between the trunk and the well wall shall either be covered by an iron grate or filled with a 50-50 mixture of crushed charcoal and sand to prevent anyone from falling into the dry well.

Where water drainage through the soil is not a problem, coarse gravel in the fill may be substituted for the tile. This material has sufficient porosity to ensure air drainage. Instead of the vertical tiles or pipes in the system, stones, crushed rock and gravel may be added so that the upper level of these porous materials slants toward the surface in the vicinity below the drip line.

Raising the grade on only one side of a tree or group of trees may be accomplished by constructing only half of one of these systems.

Lowering the Grade

Shrubs and trees shall be protected from the harmful grade cuts by the construction of a tree wall (see Figure PV-4). Following excavation, all tree roots that are exposed and/or damaged shall be trimmed cleanly and covered with moist peat moss, burlap, or other suitable material to keep them from drying out.

The wall shall be constructed of large stones, brick, building tile, concrete block or cinder block. The wall should be backfilled with topsoil, peat moss, or other organic matter to retain moisture and aid in root development. Apply fertilizer and water thoroughly. The tree plants should be pruned to reduce the leaf surface in proportion to the amount of root loss. Drainage should be provided through the wall so water will not accumulate behind the wall. Lowering the grade on one side of the tree or group of trees can be accomplished by constructing only half of this system.

Trenching and Tunneling

Trenching should be done as far away from the trunks of trees as possible, preferably outside the branches or crown spreads of trees, to reduce the amount of root area damaged or killed by trenching activities. When possible, trenches should avoid large roots or root concentrations. This can be accomplished by curving the trench or by tunneling under large roots and areas of heavy root concentration. Tunneling under a species that does not have a large tap root may be preferable to trenching beside it as it has less impact on root systems (see Figure PV-5).

Roots should not be left exposed to the air but should be covered with soil as soon as possible or protected and kept moist with burlap or peat moss until the trench or tunnel can be filled. The ends of damaged and cut roots shall be cut off smoothly and moist peat moss, burlap or topsoil should be placed over the exposed area.

Trenches and tunnels shall be filled as soon as possible. Care should be taken to ensure that air spaces are not left in the soil. Peat moss or other organic matter shall be added to the fill material as an aid to inducing and developing root growth. The tree should be fertilized and mulched to stimulate new root growth and enhance general tree vigor. If a large part of the root system has been damaged the crown leaf surface area should be reduced in proportion to the root damage. This may be accomplished by pruning 20-30 percent of the crown foliage. If the roots are damaged during the winter the crown should be pruned before the next growing season. If roots are cut during the growing season, pruning should be done immediately.

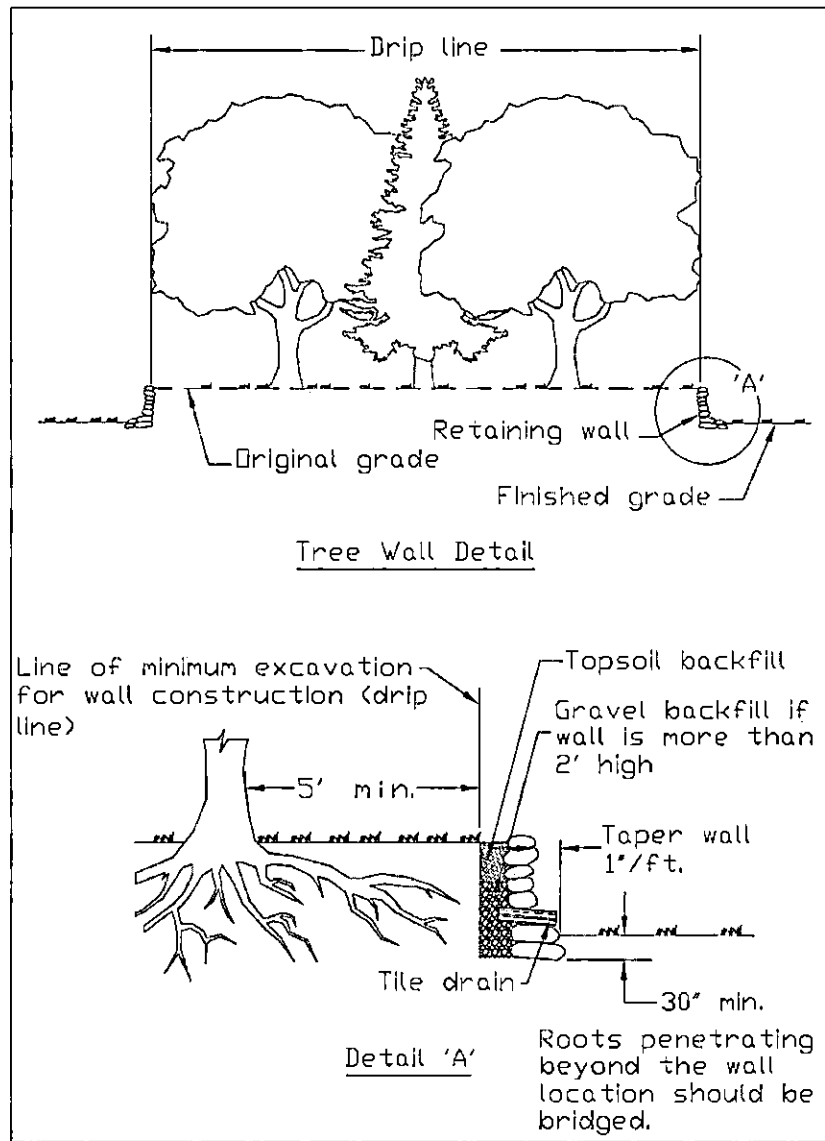


Figure PV-4 Tree Wall Detail

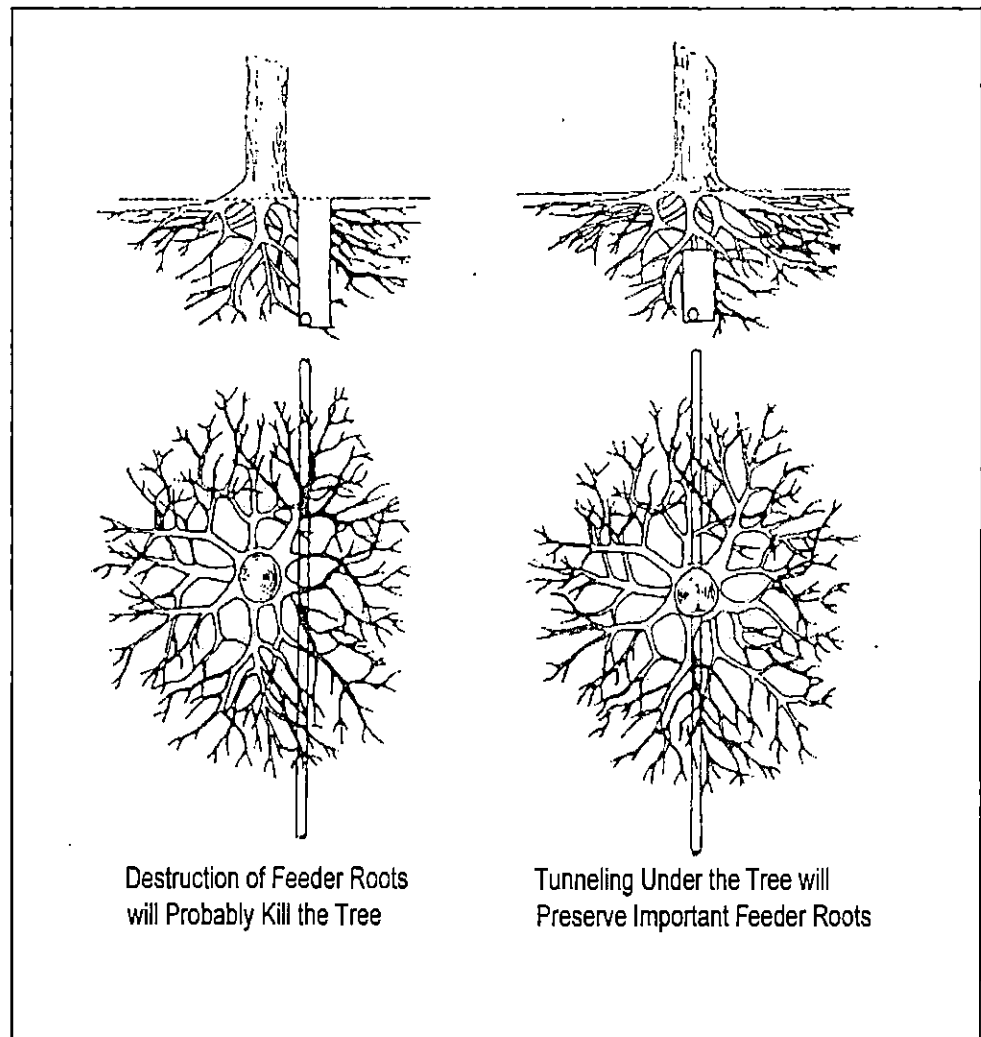


Figure PV-5 Trenching vs Tunneling

Treating Damaged Trees

When trees are damaged during construction activities certain maintenance practices can be applied to protect the health of the tree.

Soil aeration may be needed if the soil has been compacted. The soil around trees can be aerated by punching holes 1 foot deep and 18" apart under the crown of trees with an iron pipe.

Damaged roots should be cut off cleanly and moist peat moss, burlap or topsoil should be placed over the exposed area. Bark damage should be treated by removing loose bark.

Tree limbs damaged during construction or removed for any other reason shall be cut off above the collar at the branch junction.

Trees that have been stressed or damaged should be fertilized to aid their recovery.

Trees should be fertilized in the spring or fall. Fall applications are preferred.

Fertilizer should be applied to the soil over the feeder roots. In no case should it be applied closer than 3 feet to the trunk. Root systems of trees extend some distance beyond the drip line. The area to be fertilized should be increased by $\frac{1}{4}$ the area of the crown. A soil test is the best way to determine what type of fertilizer to use. In the absence of a soil test, fertilizer should be applied at the rate of 1 to 2 pounds of 10-8-6 or 10-6-4 per inch of dbh for trees under 6" dbh and at the rate of 2 to 4 pounds of 10-8-6 or 10-6-4 per inch of dbh for trees over 6" dbh.

A ground cover or organic mulch layer should be maintained around trees to prevent erosion, protect roots and to conserve water.

Preservation of Vegetation (PV)



Practice Description

Preservation of vegetation is the avoidance of an area during land disturbing and construction activity to prevent mechanical and other injury to desirable plants in the planned landscape. The practice provides erosion and sediment control and is applicable where vegetative cover is desired and the existing plant community is compatible with the planned landscape.

Typical Components of the Practice

- Mark Plant Area for Retention
- Plant Protection
- Treating Damaged Plants
- Practice Verification
- Maintenance

Installation

Preservation requirements should be designed by a qualified design professional and plans should be made available to field personnel prior to start of construction

Mark Plant Area for Retention

Clearly indicate the areas to be avoided by marking with tape (flagging), barricade netting or other appropriate means.

Plant Protection

Protect plants that are identified for preservation from compaction by equipment, cutting and filling operations, trenching, and tunneling.

Treating Damaged Plants

Treat damaged trees and shrubs as soon after damage as practical. Treatment may include shaping a wound for proper healing, pruning of jagged roots, pruning of damaged limbs and fertilization to enhance growth.

Practice Verification

Check to determine that specifications are met as the areas are identified for retention, as the plants are protected during construction and that damaged plants are treated or replaced.

Common Problems

Consult with a qualified design professional if any of the following occur:

- Soil compaction appears to be retarding plant growth or affecting plant health.
- Damage to plants appears to be severe and life threatening.
- Plants appear of poor quality and are undesirable for retention.

Problems during construction that require remedial actions:

- Erosion – eroded areas should be vegetated to grass or a suitable ground cover.
- Severely damaged trees, shrubs or vines should be replaced.

Maintenance

Enhance and maintain plant growth and health according to the maintenance plan. This may involve applying fertilizer, spreading mulch and pruning trees and shrubs.

Replace dead plants as needed to maintain desired landscape cover. Additional information about plantings is found in the following practices: Permanent Seeding; Shrub, Vine and Groundcover Planting; and Tree Planting on Disturbed Areas.

Check Dam (CD)



Practice Description

A check dam (also referred to as a “ditch check”) is a barrier constructed across a conveyance to impound water for the purpose of velocity reduction by flattening the flow gradient and reducing shear stress within the channel. This practice applies in small open channels and drainageways, including temporary and permanent swales.

Check dams are not to be used in a live stream. Situations of use include areas in need of protection during establishment of grass and areas that cannot receive a temporary or permanent non-erodible lining for an extended period.

Planning Considerations

Check dams are used in concentrated flow areas to provide temporary channel stabilization with minimal sediment retention during rainfall runoff periods on construction sites. Channel erosion is reduced because check dams flatten the gradient of the flow channel and slow the velocity of channel flow. Check dams do not reduce turbidity of runoff. Check dams can be constructed of rock, wattles (sometimes referred to as tubes or rolls), sandbags, or other materials that may be acceptable to the design professional. Unless installed correctly, check dams will not capture a significant amount of sediment. When installed correctly, most check dams can capture the coarser grained material, which can be significant for sandy

soils. Sediment capture increases as velocity in the channel decreases by creating impoundments with the check dams. This impoundment pool creates the flattening of the gradient, greatly reducing channel erosion.

Water flowing over a check dam creates turbulent erosive forces (super critical flow) that must be addressed to prevent erosion downstream of the check dam. Inevitably, water will likely flow under check dams due to limitation with ground contact. Therefore, it is of utmost importance to ensure the performance of the check dam that erosion and scour under the check dam be minimized. This is best achieved using an underlay such as an 8-oz. nonwoven filter fabric. If the underlay is extended downstream, it will also protect the channel from super critical flows from water flowing over and under the dam.

Check dams should be planned to be compatible with the other features such as streets, walkways, trails, sediment basins and rights-of-way or property lines. Check dams are installed with the center overflow area lower in elevation than the ends to ensure flow goes over the check dam and not around. Check dams are normally constructed in series and the dams should be located at a normal interval from other grade controls such as culverts or sediment basins.

Check dams are generally used as a temporary BMP that is removed following construction to allow for final long-term stabilization of the channel. Provisions should be made to establish permanent channel linings as early as possible.

Check dams can also be used for other purposes such as the capture of sediment upstream of other practices or flocculent dosing upstream of a sediment basin.

Extensive research has been conducted by The Auburn University Stormwater Research Facility. The research recommendations are incorporated in the following planning considerations:

Rock Check Dams

Many check dams are constructed of rock. Rock may not be acceptable in some installations and alternative types of check dams need to be considered. Rock check dams (Figures CD-1 and CD-2) are usually installed with mechanical equipment, but hand labor is likely needed to complete most installations to the quality needed. The availability and cost of commercially produced rock should be considered. The use of rock should be considered carefully in areas to be mowed. Some rock may be washed downstream and should be removed before each mowing operation. The use of geotextile can be used on the upstream face of the rock check dam to increase the sediment trapping efficiency of the rock check dam. Measures must be taken to prevent undermining of the check dam and erosion below the check dam. A non-woven geotextile underlayment should be used to prevent this from happening. The geotextile meeting AASHTO M 288 requirement for separation Class II (minimum 8-oz. fabric) should extend approximately 3 ft. upstream and downstream, and pinned securely with the upstream edge buried.

Measures to prevent downstream erosion associated with a rock check dam include placing larger rock on the downstream face of a rock dam and providing erosion protection material just downstream of the dam.

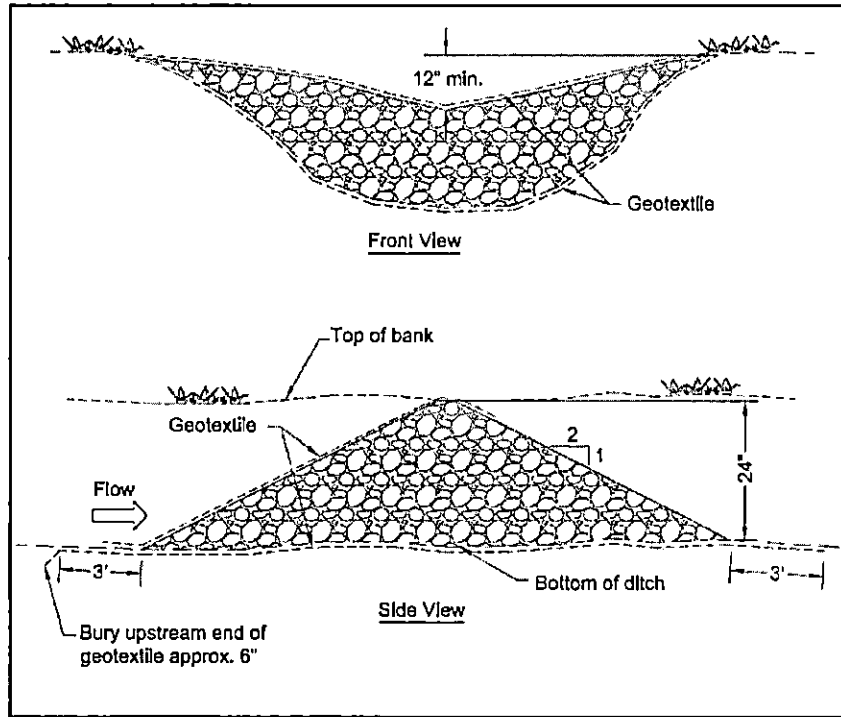


Figure CD-1 Profile and Cross-Section of Typical Rock Check Dams

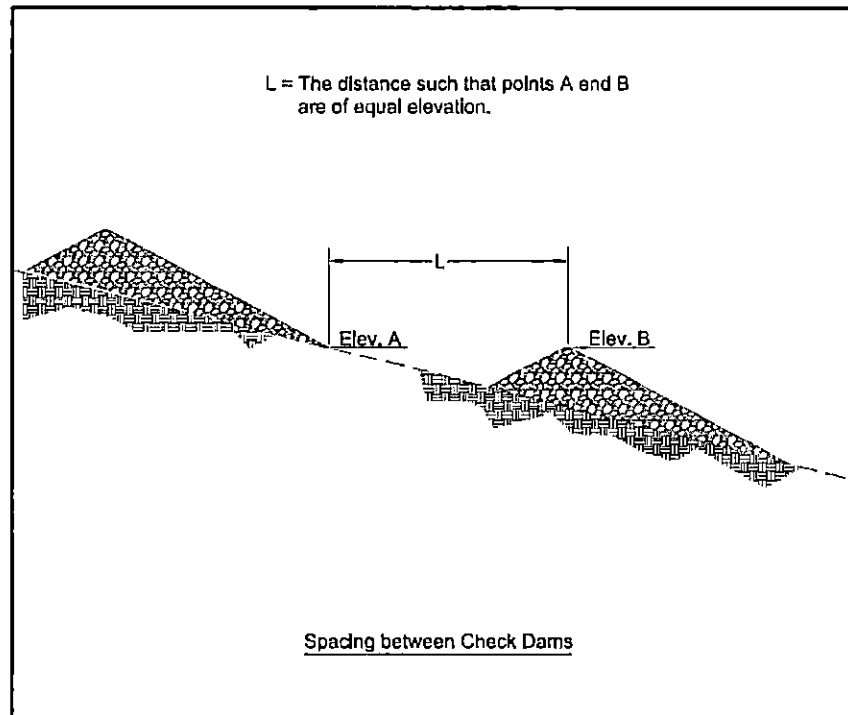


Figure CD-2 Profile of Typical Rock Check Dams

Wattle Check Dams

Wattles have been found to be best installed without trenching and on top of stapled geotextile underlayment that extends a minimum 3 ft. up and downstream from the wattle. Wattles must be properly stapled with sod staples on approximately 6-inch centers on each side of the wattle to prevent flotation and staked over the top using non-destructive tee-pee type staking. Wattles that provide less “flow through” create more ponding of water that increases the trapping of sediment (see Figures CD-3 and CD-4).

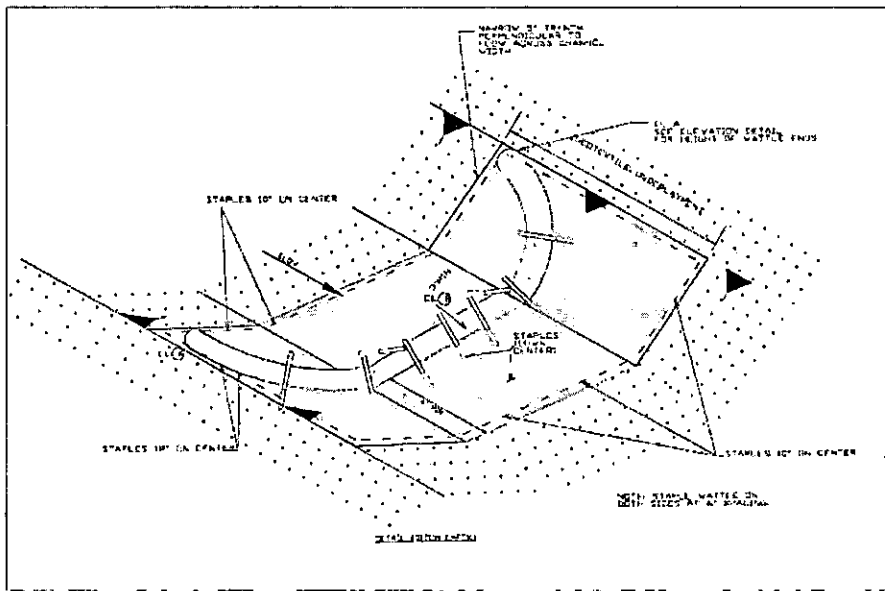


Figure CD-3 Wattle Check Dam (ditch check)

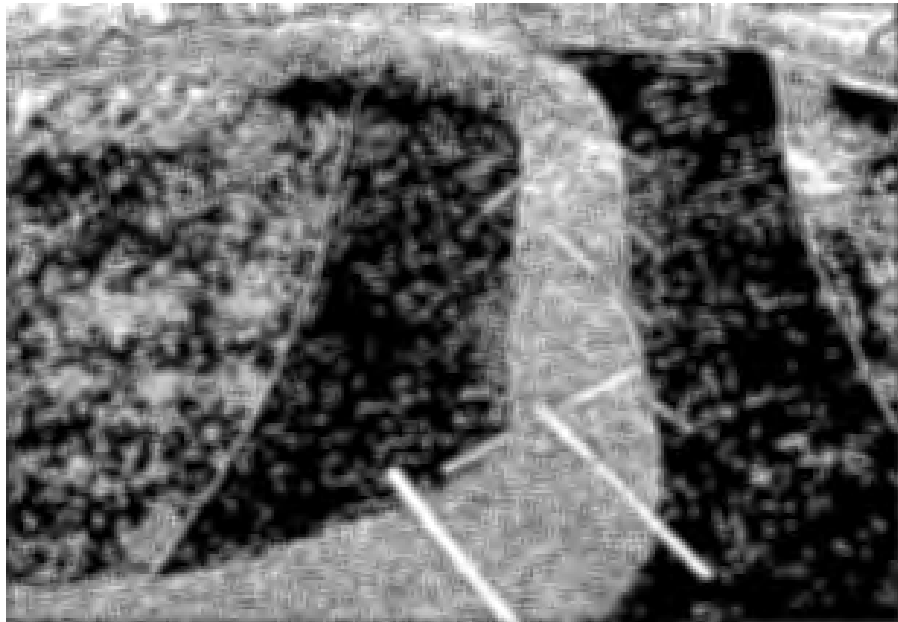


Figure CD-4 Wattle Check Dam (ditch check)
(Photo courtesy of Auburn University Stormwater Research Facility)

Silt Fence Check Dam

When properly designed and installed, typical silt fence materials can be utilized to construct a check dam. Geotextile underlayment should be used, and the fence notched as needed to ensure the maximum depth of flow is no greater than the depth of the channel. Figures CD-5 and CD-6 show the recommended details.

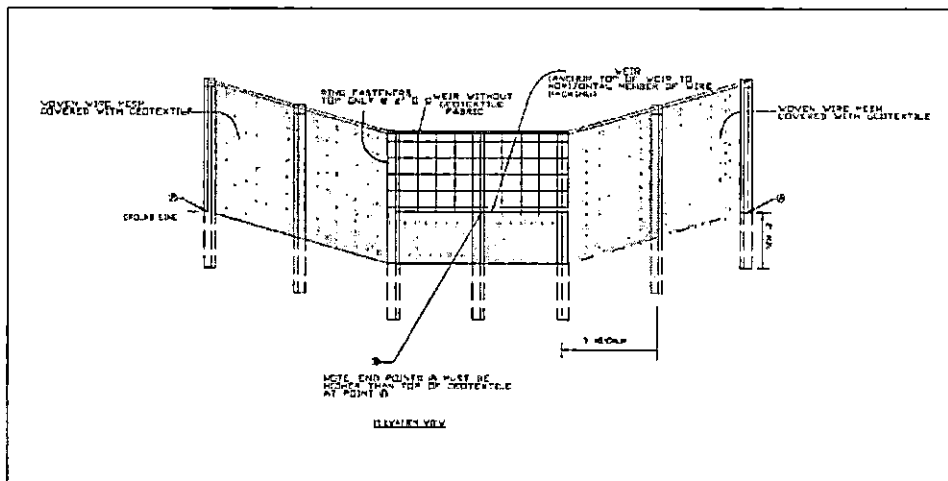


Figure CD-5 Silt Fence Check Dam Cross-Section

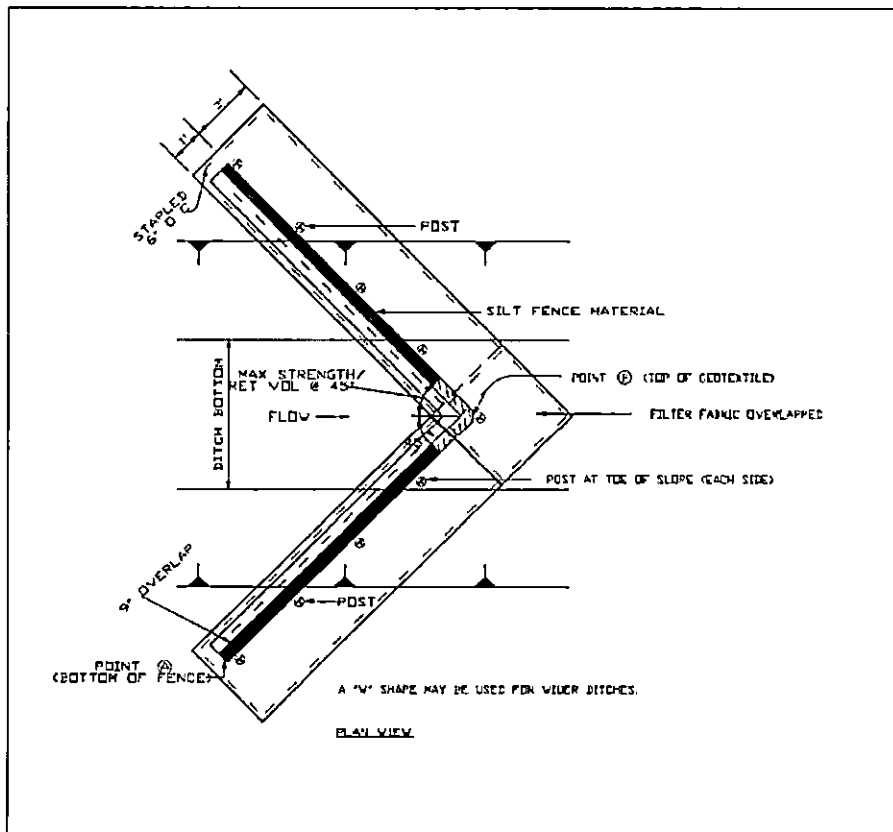


Figure CD-6 Silt Fence Check Dam Plan View



Figure CD-7 Silt Fence Check Dam
(Photo courtesy of Auburn University SWRC)

Sandbag Check Dam

Sandbags have also been proven to be effective as check dams but only when the bags are properly oriented (See Figures CD-8 and CD-9). A geotextile underlayment that extends approximately 3 ft. upstream and downstream should also be used in earth channel situations to prevent undermining and scour.

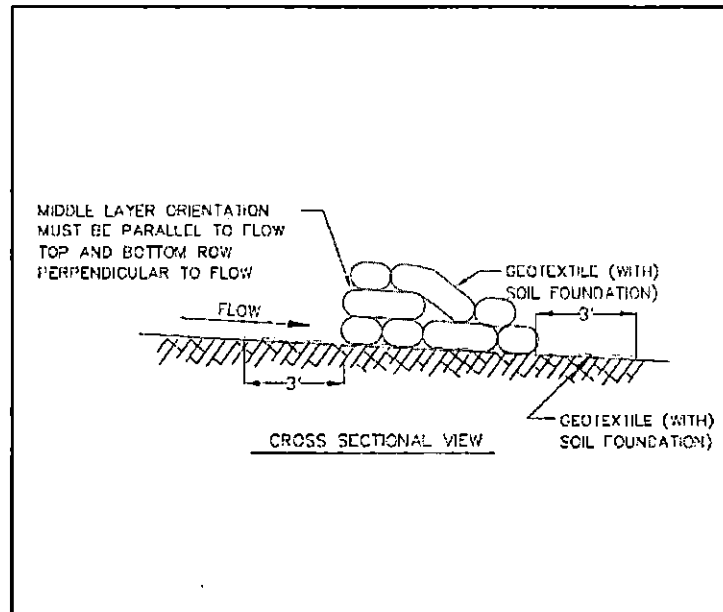


Figure CD-8 Sandbag Check Dam Cross-Section

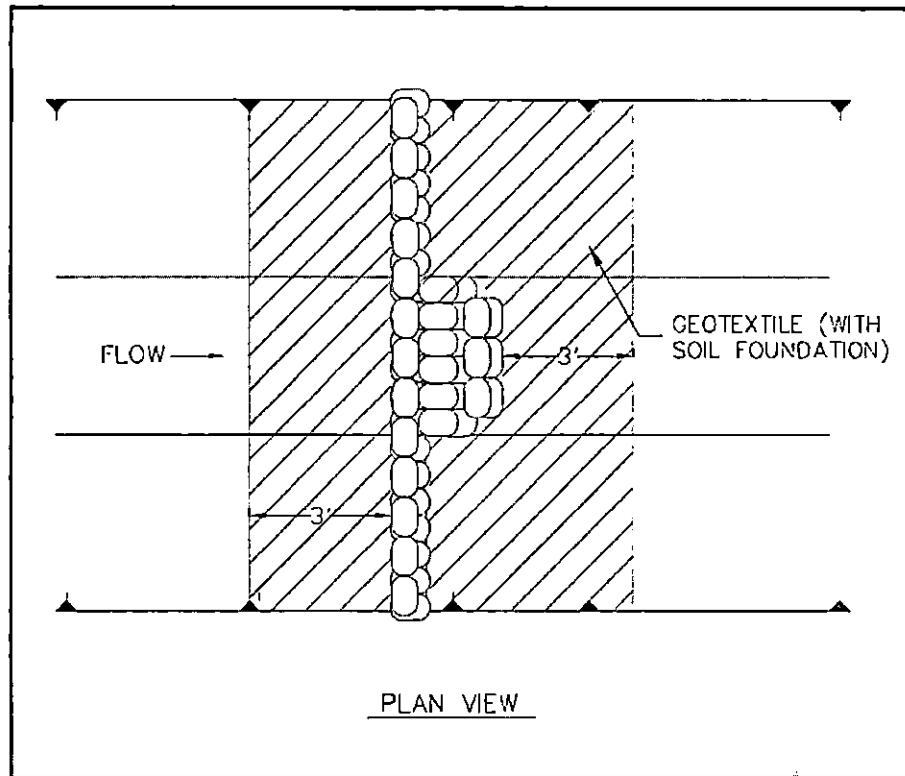


Figure CD-9 Sandbag Check Dam Plan View

Design Criteria

Formal design is not required. The following factors should be considered when designing check dams.

Drainage Area

Generally, one acre or less.

Maximum Height

Check dam height is a function of channel geometry. Most check dams are 3 feet or less in height.

Depth of Flow

Depth of flow over a check dam is a function of the cross-section and porosity of the check dam. Generally, flows over a check dam are less than 1 foot.

The center of the dam should be constructed lower than the ends. The elevation of the center of the dam should be lower than the ends by the depth of design flow.

Side Slopes

2:1 or flatter (rock check dam).

Spacing

The elevation of the toe of the upstream dam should be at or below the elevation of crest of the downstream dam (Figure CD-2).

For example, if the channel is 3% grade, and the check dam height is 2 feet, The check dam spacing should be 67 feet:

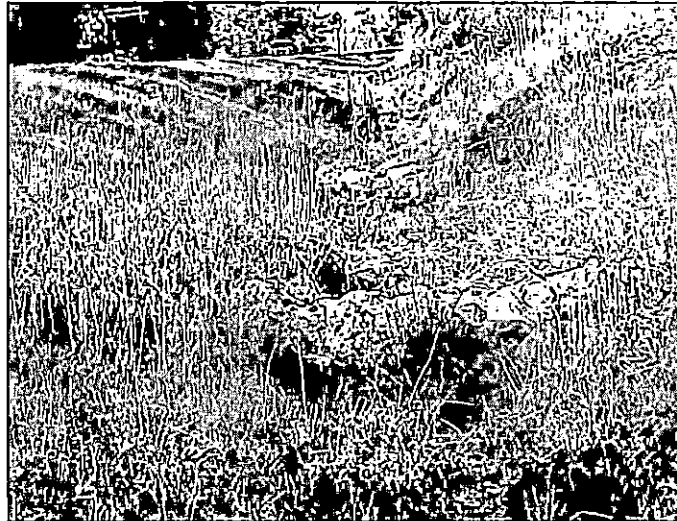
$$\text{Spacing (ft)} = \text{dam height (ft)} / \text{channel grade}$$

$$\text{Spacing} = 2 \text{ ft} / 0.03 = 67 \text{ feet}$$

Geotextile

Generally, the non-woven geotextile should meet the requirements found in AASHTO M 288 Class II used for separation.

Check Dam (CD)



Practice Description

A check dam (also referred to as a “ditch check”) is a barrier constructed across a conveyance to impound water for the purpose of velocity reduction by flattening the flow gradient and reducing shear stress within the channel. This practice applies in small open channels and drainageways, including temporary and permanent swales.

Check dams are not to be used in a live stream. Situations of use include areas in need of protection during establishment of grass and areas that cannot receive a temporary or permanent non-erodible lining for an extended period.

Typical Components of the Practice

- Site Preparation
- Materials Installation
- Erosion and Sediment Control
- Construction Verification
- Maintenance

Construction

Prior to start of construction a qualified design professional should determine the location, elevation, and size of the structure to optimize flattening of channel grade. Usually, check dam dimensions are taken from a standard drawing. Check dams are typically constructed using materials specified in a contract which

could be rock, wattles, sand bags, or other suitable material, including manufactured products. Most check dams are constructed of rock.

Site Preparation

Determine location of any underground utilities.

Locate and mark the site for each check dam in strategic locations (to avoid utilities and optimize effectiveness of each structure in flattening channel grade).

Remove debris and other unsuitable material which would interfere with proper placement of the check dam materials.

In highly erosive soil conditions it may be specified to excavate a shallow keyway (12"-24" deep and at least 12" wide) across the channel and into each abutment for each check dam. For other soils, geotextile alone without a keyway is often used on the soil.

Materials Installation

For all check dams on compacted soil, install a non-woven geotextile fabric underlayment that extends at least 3 feet up and downstream of the check dam. Bury the upstream edge of the geotextile underlayment, staple it to the trench bottom, and place compacted backfill in the trench. Ensure the geotextile is secured by stapling along its edges.

Always ensure that water flows over and not around the check dam.

Rock Check Dam. Construct the dam of the class riprap specified with a minimum 2:1 side slopes. Position rock to form a parabolic top, perpendicular to channel flow, with the center portion at the elevation shown in the design so that the flow goes over the structure and not around the structure. Small graded aggregate and/or geotextile may be specified on the upstream face of the rock check dam to increase the sediment trapping efficiency.

Wattle Check Dam. Place the specified wattle in a parabolic shape to ensure water flows over and not around the wattle. Staple the wattle in place with sod staples on approximate 6-inch centers on each side of the wattle to prevent flotation, and place wooden stakes over the top in a non-destructive tee-pee fashion.

Silt Fence Check Dam. Construct the silt fence check dam in an upstream "V" configuration and notch the silt fence as shown on the plans.

Sand Bag Check Dam. Ensure the sand bags are properly oriented in each layer as shown on the plans.

Erosion and Sediment Control

Install vegetation (temporary or permanent seeding) or mulching to stabilize other areas disturbed during the construction activities.

Construction Verification

Check finished size, grade and shape for compliance with standard drawings and materials list (check for compliance with specifications if included in contract specifications).

Common Problems

Consult with a qualified design professional if any of the following occur:

- Variations in topography on site indicate check dam will not function as intended. Change in plan will be needed.
- Materials specified in the plan are not available.

Maintenance

Inspect the check dam for material displacement and abutments for erosion around the ends of the dam after each significant rainfall event. Repair as needed.

Inspect the channel after each significant rainfall event. If channel erosion exceeds expectations, consult with the design professional and consider adding another check dam to reduce channel flow grade.

Sediment should be removed if it reaches a depth of $\frac{1}{2}$ the original dam height. If the area behind the dam fills with sediment, there is a greater likelihood that water will flow around the end of the check dam and cause the practice to fail.

Check dams should be removed when their useful life has been completed. The area where check dams are removed should be stabilized immediately. In rare instances check dams should be left as a permanent measure to support channel stability.

Sediment Barrier (SB)



Practice Description

A sediment barrier is a temporary sediment control practice installed downstream of a disturbed area intended to remove large-sized suspended sediment from sheet flow runoff by facilitating settling and to a lesser extent filtration. The most commonly used sediment barrier is a silt fence made up of a geotextile fabric that is anchored into the ground and attached to supporting posts and possibly reinforced with a wire fence or polypropylene netting. Other barrier materials could include sand bags, wattles, and various man-made materials and devices that can be used in a similar manner as a silt fence.

This practice applies downstream of small disturbed areas that yield runoff volumes less than the design storage volume. Barriers intercept runoff from upslope to form impoundments that temporarily detain runoff and allow sediment to settle out of the water and remain on the construction site.

Planning Considerations

Sediment barriers are used downslope of a disturbed area to intercept sediment-laden runoff. It is important that they be designed and installed to impound runoff from the design storm event and create favorable conditions for sediment to settle out of suspension. It is also important that the ends of sediment barriers are turned back upslope to prevent runoff from bypass around the ends of the barrier. Sediment barriers should be designed to safely overtop when the design storm is exceeded and provide for controlled dewatering of the detained runoff. Prevention

of scouring, erosion, and undermining at and under sediment barriers is also of utmost importance to ensure maximum impoundment capabilities.

The success of silt fences depends on a proper installation. Ideally, silt fences should be placed on the contour with each end turned up slope. When this installation is not feasible, “C” configurations (smiles), or “J” hooks should be used. Silt fences should be carefully installed to meet the intended purpose of intercepting and impounding sheet flow runoff. When properly installed, silt fences are effective at trapping coarse sediment but do not effectively reduce turbidity.

A silt fence is specifically designed to retain sediment transported by sheet flow from disturbed areas. Water flow through the silt fence often decreases over time as silts and debris “blind” or seal the geotextile fabric. Silt fences should be installed to be stable under the flows expected from the site. Generally, silt fences should not be installed across streams, ditches, waterways, or other concentrated flow areas. When properly designed and installed, silt fences can be used as a Check Dam (See Check Dam).

Silt fences are composed of geotextile (i.e., woven and non-woven) supported between steel or wooden posts. Silt fences are commercially available with geotextile attached to the post and can be rolled out and installed by driving the post into the ground. This type of silt fence is simple to install, but more expensive than some other installations. Silt fences must be trenched in at the bottom to prevent runoff from undermining the fence and developing rills under the fence. Locations with high runoff flows or velocities (steeper slopes and higher Runoff Curve Numbers) should use either a wire or polypropylene net reinforcement. In addition, decreasing the spacing between support posts will improve the structural integrity of the silt fence in these areas.

The “off-set” trench installation method (See Fig. SB-1) is now the preferred method of silt fence installation. This involves a conventional 6 in. x 6 in. trench or 6 in. slice installation to bury the geotextile, with the posts and wire installed 6 in. downslope of the trench or slice. The wire (when used) is on top of the ground surface and not in a trench. This installation has proven to have less potential for undermining than any installation tested at the Auburn University Stormwater Research Facility.

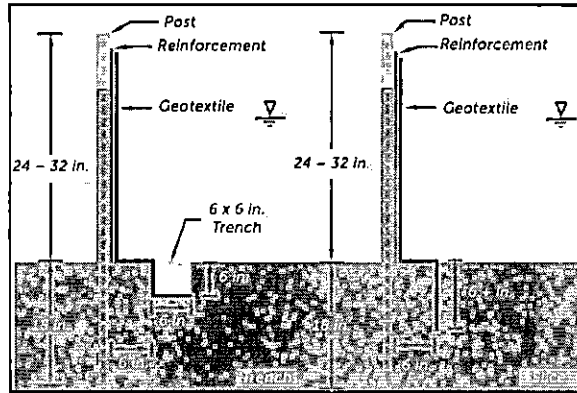


Figure SB-1 Off-Set Installation

Design Criteria (for silt fence)

Silt fence installations are normally limited to situations in which only sheet or overland flow is expected because the practice cannot pass the volumes of water generated by channelized flows. Silt fences are normally constructed of synthetic fabric (geotextile) and the life is expected to be the duration of most construction projects. Silt fence geotextile should conform to the property requirements found in AASHTO M288 shown in Table SB-1 as follows:

Table SB-1 Silt Fence Geotextile Fabric Requirements per AASHTO M288

Requirement	Test Methods	Units	Type A supported fence	Type B unsupported fence
Grab Strength Machine Direction X-Machine Direction	ASTM D4632/D4632M	N	400 400	550 450
Permittivity	ASTM D4491	sec ⁻¹	0.05	0.05
Apparent Opening Size	ASTM D4751	mm	0.60 max avg roll value	0.60 max avg roll value
Ultraviolet stability (retained strength)	ASTM D4355/4355M	%	70% after 500 h of exposure	70% after 500 h of exposure

Note: ALDOT has an approved products list for geotextile

As a general rule-of-thumb the drainage area behind the silt fence should not exceed ¼ acre per 100 linear feet of silt fence for non-reinforced fence and ½ acre per 100 feet of reinforced silt fence. However, silt fence segments must be designed to impound runoff from the design storm event. Selection of the design storm should be based on site-specific characteristics including project location, duration of disturbance, and acceptable levels of risk to downstream receiving waters. Lacking site-specific guidance, a 2-yr, 24-hr design storm event is recommended.

Overflow Outlet and Dewatering

A silt fence segment must be designed for dewatering and overflow. Since geotextile materials blind or clog over time an effective means for dewatering must be included to prepare the silt fence for subsequent storms and minimize the chance of overtopping or periods of excessive ponding. The silt fence, at full storage capacity, should dewater in 4 to 12 hours. Overflow outlet(s) must be included for runoff that exceeds the design storm event and must convey the peak flow rate for the design storm event. One outlet option which has been well tested is a perforated board with a weir. This is installed in a break along the silt fence, which is sealed to the board. The break should be located at the lowest point of the silt fence segment. The board has several 1 in. diameter orifices, and a v-notch weir at the top, placed 18 in. from the bottom, to maintain volumetric storage (Fig. SB-2).

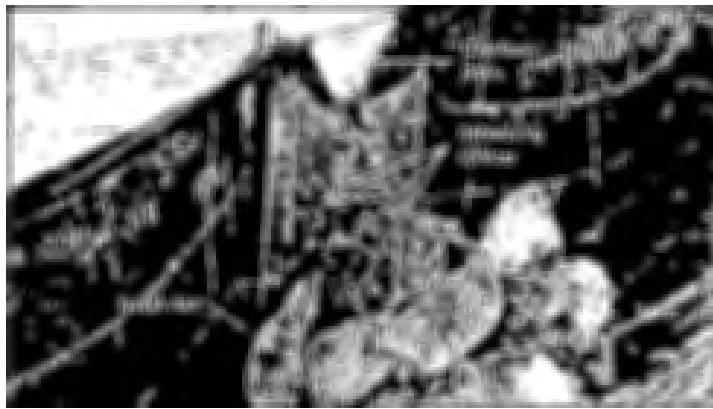


Figure SB-2 Example dewatering board & overflow weir.

Discharge from silt fence segments should be controlled to be non-erosive. Erosion control or scour protection, such as a geotextile splash apron and/or riprap, must be used immediately downstream of the dewatering and overflow outlet.

Type A Silt Fence

Type A fence shall be a minimum of 24 in. and not more than 32 in. above ground with wire reinforcements and is used on sites needing the highest degree of protection by a silt fence. The wire reinforcement is necessary because this type of silt fence is used for the highest runoff and flow situations. Wire fence should be made of 14-gauge wire with 6 in. x 6 in. openings (Note: ALDOT wire spacing may differ). Equivalent backing or reinforcement is allowed for wire reinforcement if it is sewn in or physically attached to the silt fence fabric. Type A silt fence should be used where runoff flows or velocities are particularly high or where slopes exceed a vertical height of 10 feet. Staked tie backs on each end of a Type A silt fence may be necessary to prevent overturning. Tie backs should also be used at points of possible concentration and overtopping if site conditions do not allow for the silt fence to be installed on the contour.

Provide an overflow outlet with a riprap splash pad with a geotextile underlay or other outlet protection device for any point where flow may overtop the silt fence.

The silt fence should be installed as shown in Figure SB-3. Maximum post spacing is 10 ft. In situations where runoff flows parallel with the silt fence when in perimeter control applications, 10 ft spacing is adequate. J-hooks should also be considered for long parallel flow scenarios to slow flow velocity and create areas of impoundments, thereby reducing scour potential under the silt fence. For the portion of the silt fence that creates the J-hook impoundment area, the maximum post spacing should be reduced to 5 ft. to support the hydrostatic loads. For all installations that intercept flow perpendicularly to the slope causing a concentrated impoundment, the maximum post spacing should be reduced to 5 ft. Materials for posts, post size, and fasteners are shown in Tables SB-2 and SB-3. Do not use "light weight" steel posts commonly found at building supply stores. Details for overlap of Type A silt fence is available from The Alabama Department of Transportation construction drawings and shown in Figure SB-4.

Geotextile silt fence material should be looped over each post and the top of the wire to prevent sagging. A "hog ring" attachment should be made each 1 ft along the top of the wire.

Table SB-2 Post Size for Silt Fence

Silt Fence	Minimum Length	Type of Post	Size of Post
Type A	4 ft	Steel "T" Post	1.25 lb./ft min.
Type B	4 ft	Soft Wood Oak Steel	3 in. diameter or 2X4 1.5 in. X 1.5 in. 1.33 lb./ft min.

Table SB-3 Wood Post Fasteners for Silt Fence

Fastener	Gauge	Crown	Legs	Staples/Post
Wire Staples	17 min.	¾" wide	½" long	5 min.
	Gauge	Length	Button Heads	Nail/Post
Nails	14 min.	1"	¾" long	4 min.

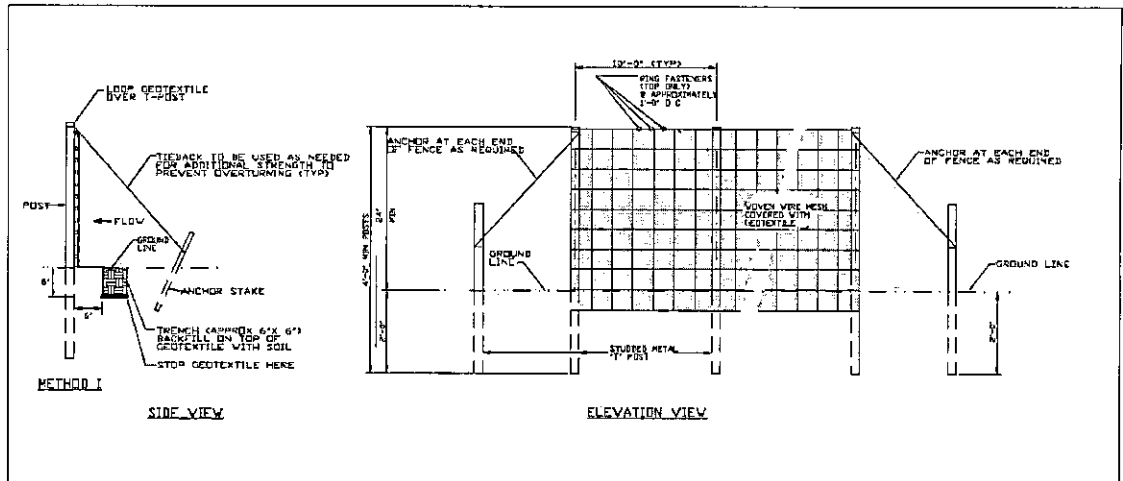


Figure SB-3 Silt Fence-Type A
 (For post material requirements see Tables SB-2 and SB-3)

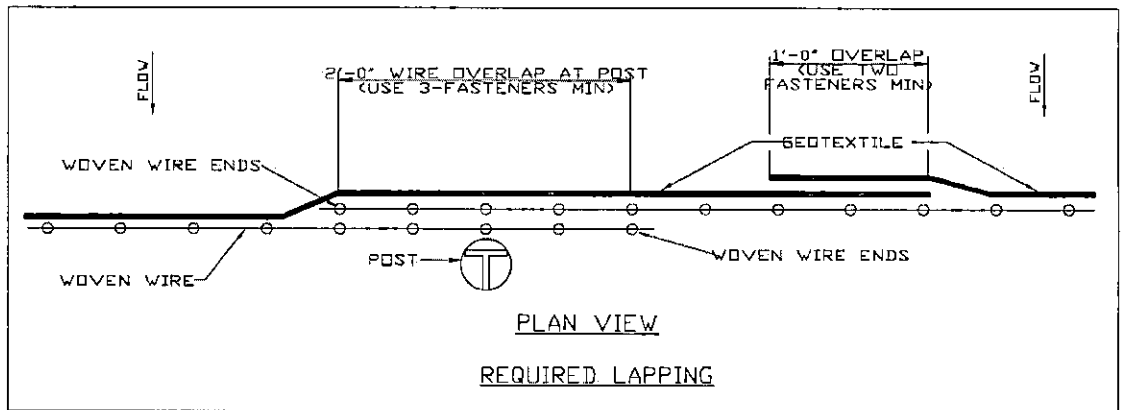


Figure SB-4 Type A Silt Fence Overlap

Type B Silt Fence

This 36 in. wide geotextile fabric should be used on developments where the life of the project is short (6 months or less) and there is less need for protection from a silt fence.

The silt fence should be installed as shown in Figure SB-5. Post spacing is either 4 ft or 6 ft based on geotextile elongation % (see note on Figure SB-5). Materials for posts and fasteners are shown in Tables SB-2 and SB-3. Details for overlap of the silt fence and fastener placement are shown in Figure SB-6. Provide overflow and dewatering devices if needed.

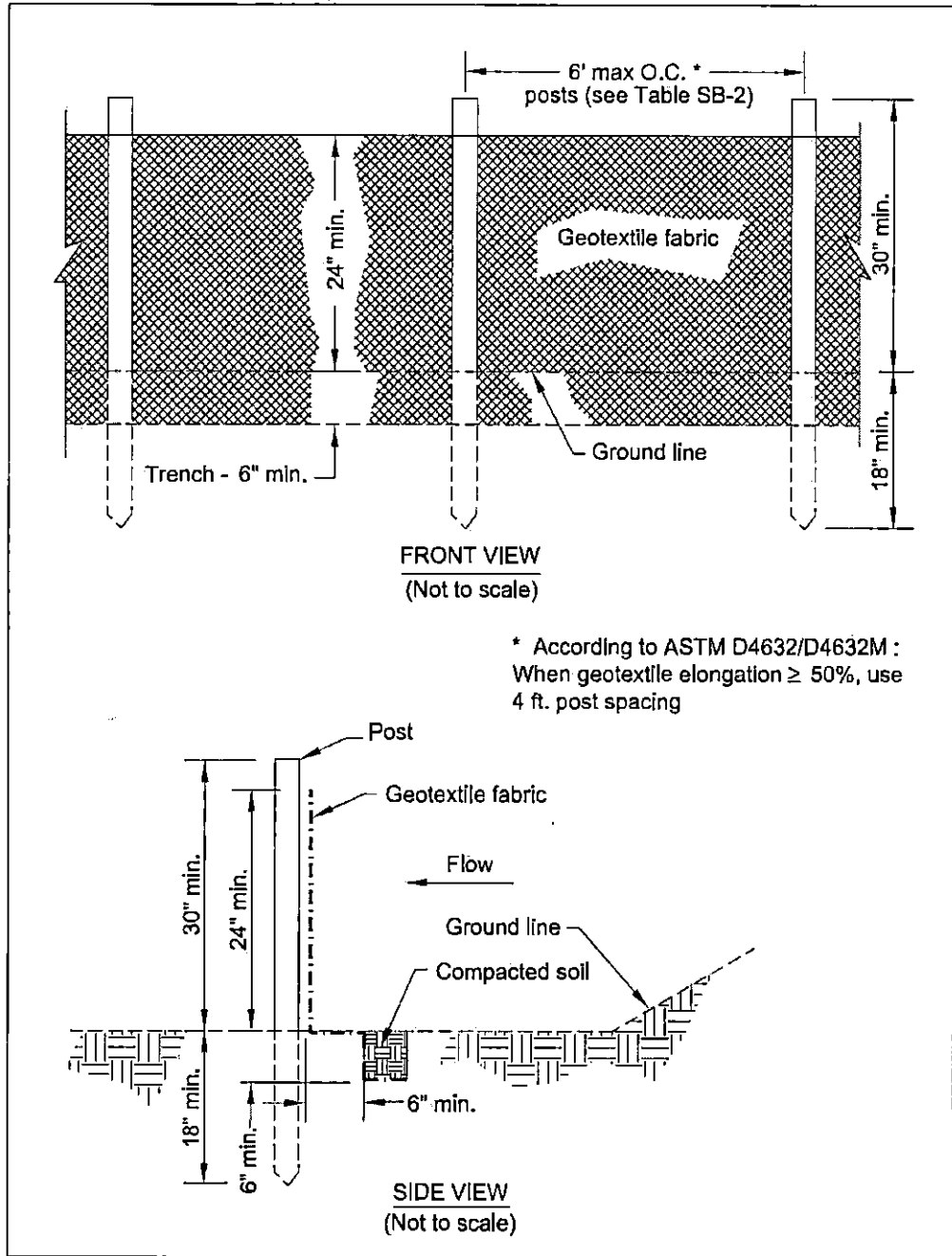


Figure SB-5 Silt Fence - Type B
 (For post material requirements see Tables SB-2 and SB-3)

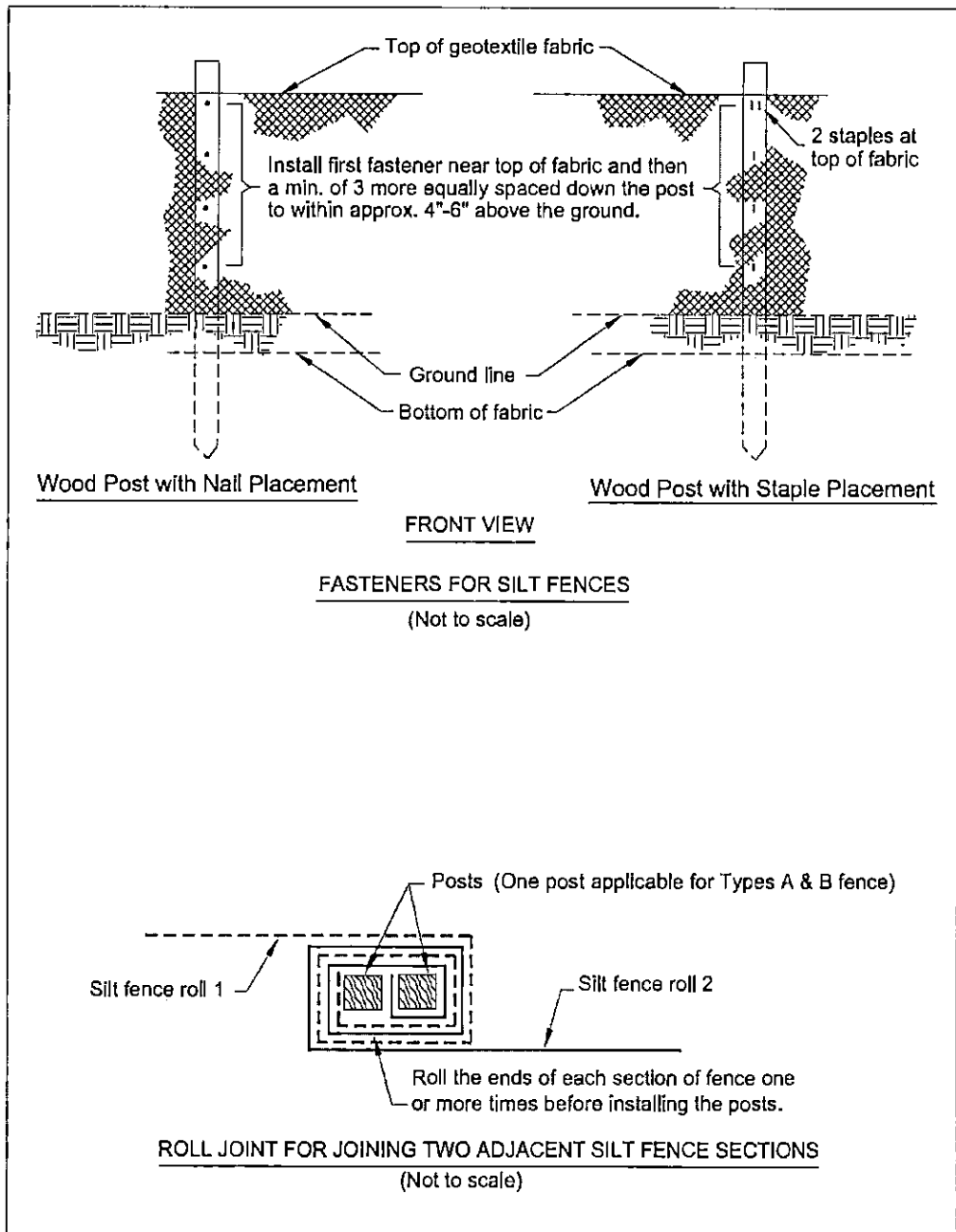
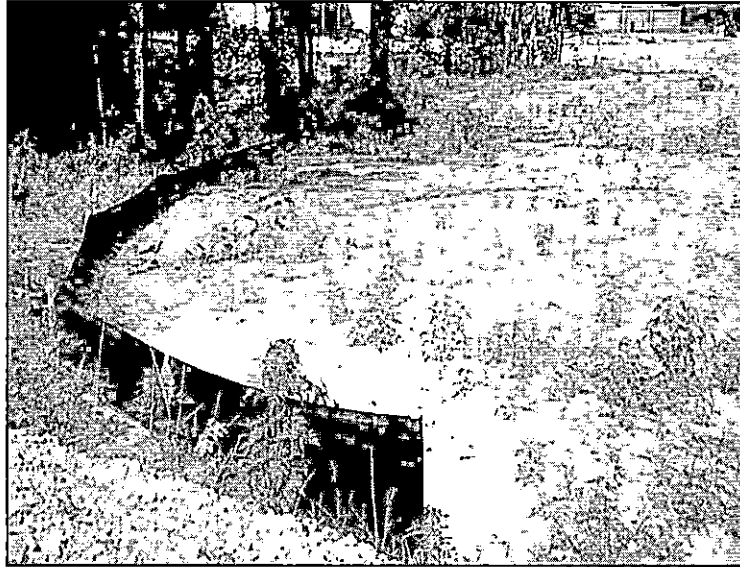


Figure SB-6 Silt Fence Installation Details for Type B

Sediment Barrier (SB)



Practice Description

A sediment barrier is a temporary sediment control practice installed downstream of a disturbed area intended to remove large-sized suspended sediment from sheet flow runoff by facilitating settling and to a lesser extent filtration. The most commonly used sediment barrier is a silt fence made up of a geotextile fabric that is anchored into the ground and attached to supporting posts and possibly reinforced with a wire fence or polypropylene netting. Other barrier materials could include sand bags, wattles, and various man-made materials and devices that can be used in a similar manner as a silt fence.

This practice applies downstream of small disturbed areas that yield runoff volumes less than the design storage volume. Barriers intercept runoff from upslope to form impoundments that temporarily detain runoff and allow sediment to settle out of the water and remain on the construction site.

Typical Components of the Practice

- Site Preparation
- Installation
- Erosion Control
- Construction Verification
- Maintenance

Construction

Prior to start of construction, sediment barriers should be designed by a qualified professional. Plans and specifications should be referred to by field personnel throughout the construction process.

Note: Silt fence is the only barrier installation being covered in this handbook.

Site Preparation

Determine exact location of underground utilities so that locations for digging or placement of stakes can be selected where utilities will not be damaged.

Smooth the construction zone to provide a broad, nearly level area for the fence. The area should be wide enough throughout the length of the fence to provide storage of runoff and sediment behind the fence.

Silt Fence Installation

Fence should be installed generally on the contour with each end turned upslope, in “C” configurations, or “J” hooks, so that runoff can be intercepted as sheet flow. Ends should be flared uphill to provide temporary storage of water. Fence should be placed so that runoff from disturbed areas must pass through the fence. Fence should not be placed across concentrated flow areas such as channels or waterways unless specifically designed as a temporary check dam. When placed near the toe of a slope, the fence should be installed far enough from the slope toe to provide a broad flat area for adequate storage capacity for sediment. An off-set installation with a trench or slice is now the preferred method of installation. Dig a trench or make a slice at least 6” deep along the fence alignment as shown in Figures SB-1 and SB-3 for Types A & B fences.

Drive posts to the depth specified 6 inches downslope of the trench. Space posts a maximum of 10 feet for Type A fencing, or 6 feet for Type B fencing. In areas where water is ponded, the fence posts may be specified at half the spacing.

For Type A fence, fasten support wire fence to upslope side of posts, extending to the ground surface as shown in the Figure SB-1.

Attach continuous length of fabric to upslope side of fence posts and through the trench. Minimize the number of joints. Type A fence joints should be installed according to Figure SB-2. Type B fence should be joined by rolling the ends together using the “roll joint” method illustrated in Figure SB-4 or as detailed in the specifications. Avoid joints at low points in the fence line. When specified, install the overflow/dewatering device and splash pad at the low point in the fence.

Install tie backs as specified on the ends of the silt fence.

Backfill the trench with compacted earth as shown in Figures SB-1 and 3.

Provide good access in areas of heavy sedimentation for clean out and maintenance.

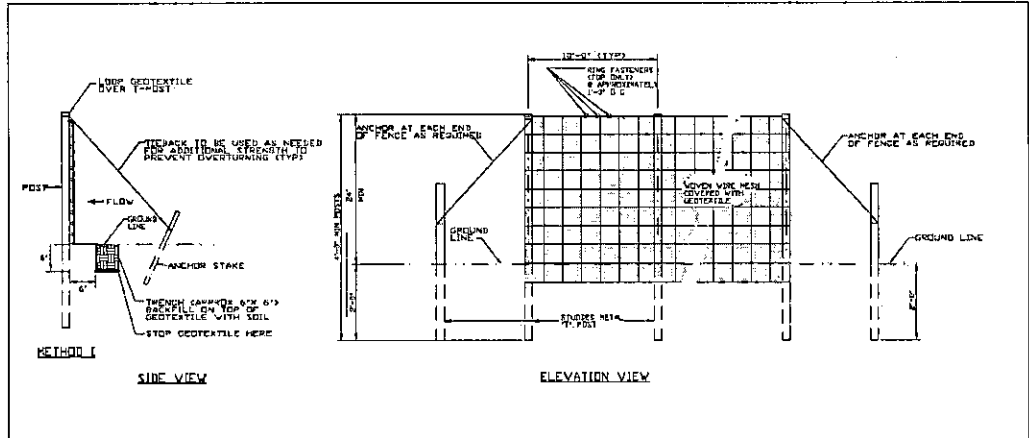


Figure SB-1 Silt Fence - Type A
(For post material requirements see Tables SB-2 and SB-3 (Volume I of Handbook))

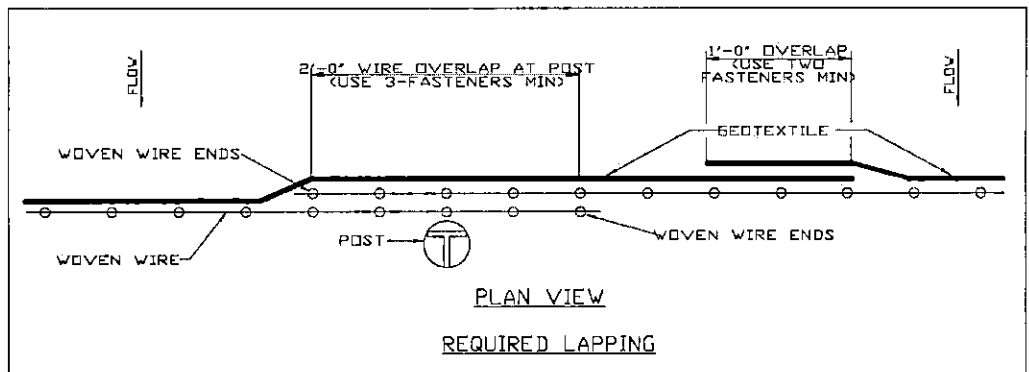


Figure SB-2 Type A Silt Fence Overlap

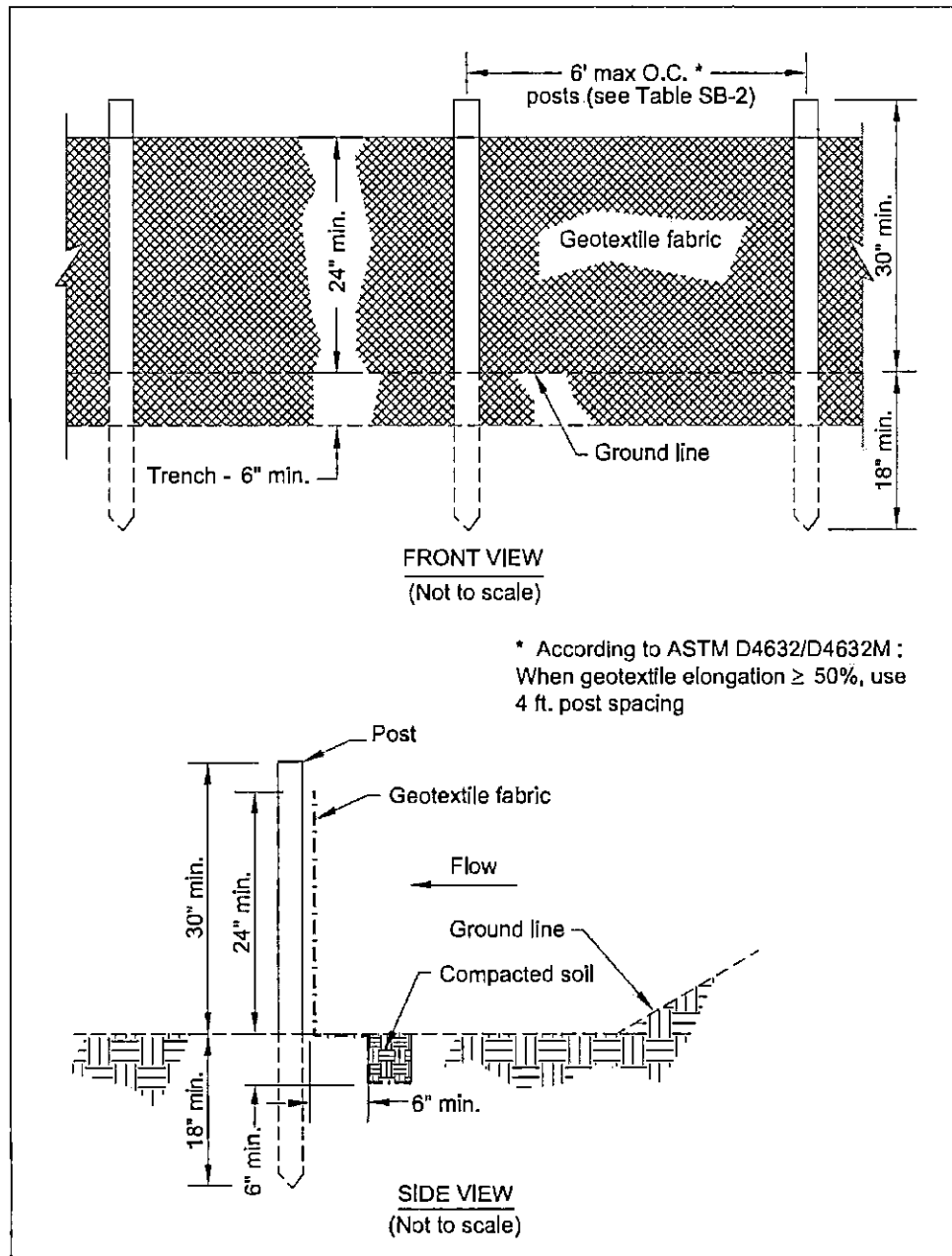


Figure SB-3 Silt Fence - Type B
 (For post material requirements see Tables SB-2 and SB-3 (Volume I of Handbook))

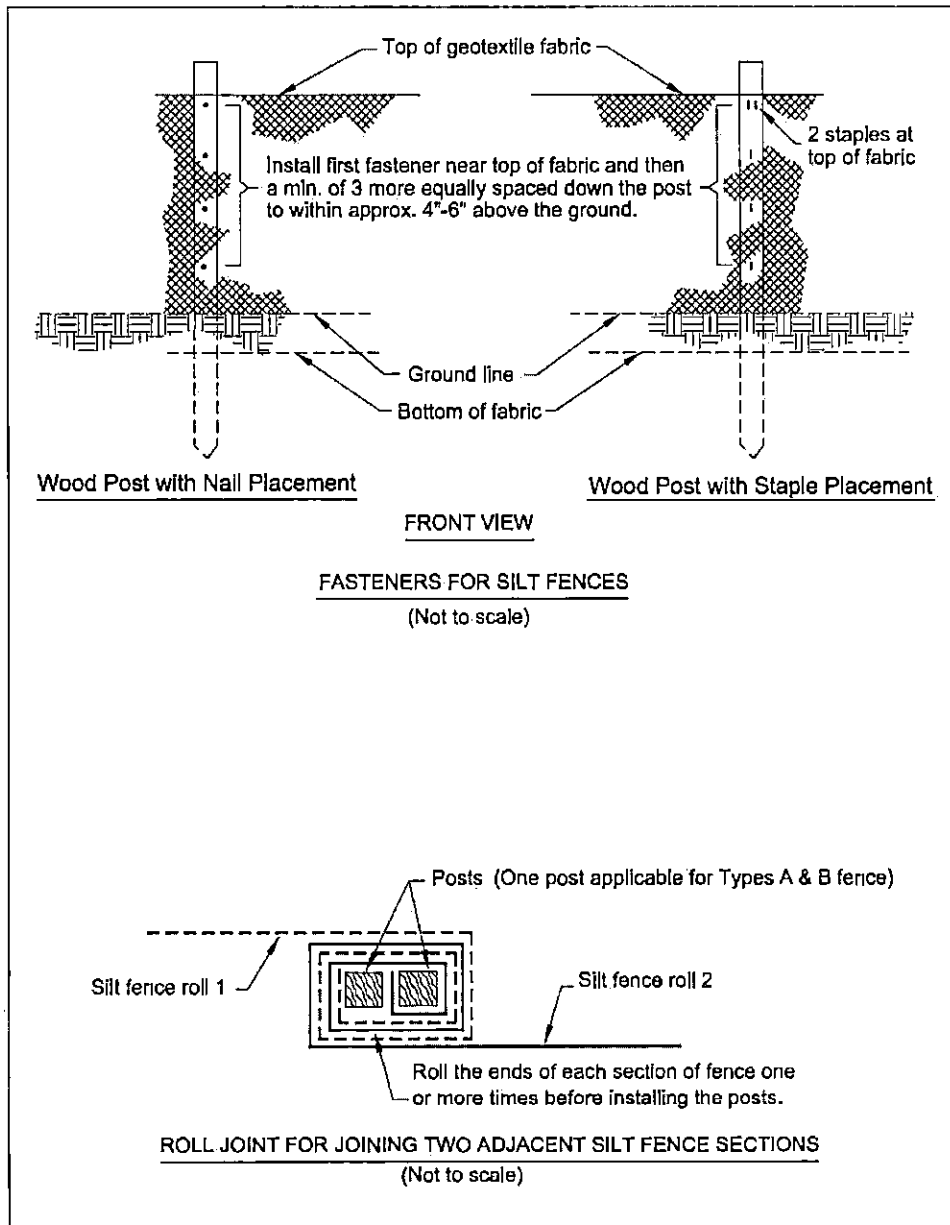


Figure SB-4 Type B Silt Fence Installation Details

Erosion Control

Stabilize disturbed areas in accordance with vegetation plan. If no vegetation plan exists, consider planting and mulching as a part of barrier installation and select planting information from appropriate planting practice, Permanent Seeding or Temporary Seeding. Select mulching information from the Mulching practice.

Construction Verification

Check finished grades and dimensions of the sediment fence. Check materials for compliance with specifications.

Common Problems

Consult with a qualified design professional if any of the following occur:

- Variations in topography onsite indicate sediment fence will not function as intended or alignment is not on contour or fence crosses concentrated flow areas; changes in plan may be needed.
- Design specifications for filter fabric, support posts, support fence, gravel or riprap cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.
- Drainage area appears to exceed $\frac{1}{4}$ acre for 100 feet of non-reinforced silt fence and $\frac{1}{2}$ acre for reinforced fence.
- The runoff exceeds the storage volume of the silt fence.

Maintenance

Inspect silt fences at least once a week and after each significant rain event.

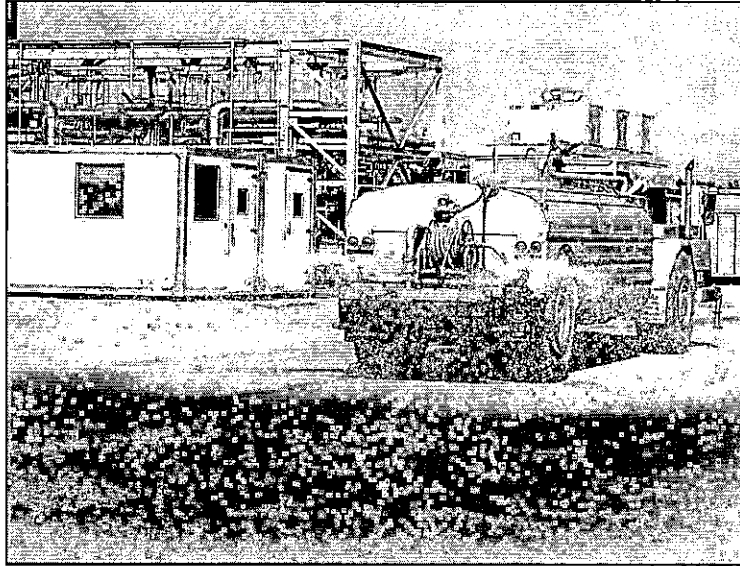
Make required repairs immediately.

Should the fabric of silt fence collapse, tear, decompose or become ineffective, replace it promptly.

Remove sediment deposits when they reach a depth of $\frac{1}{2}$ the height of the fence as installed to provide adequate storage volume for the next rain and to reduce pressure on the fence.

After the contributing drainage area has been properly stabilized, remove all barrier materials and unstable sediment deposits, bring the area to grade and stabilize it with vegetation.

Dust Control (DC)



Practice Description

Dust control includes a wide range of techniques that prevent or reduce movement of wind-borne soil particles (dust) during land disturbing activities. This practice applies to construction routes and other disturbed areas where on-site and off-site damage or hazards may occur if dust is not controlled.

Planning Considerations

Construction activities that disturb soil can be a significant source of air pollution. Large quantities of dust can be generated, especially in “heavy” construction activities such as land grading for road construction and commercial, industrial or subdivision development.

The scheduling of construction operations so that the least amount of area is disturbed at one time is important in planning for dust control.

The greatest dust problems occur during dry periods. Therefore, to the extent practicable do not expose large areas of bare soil during drought conditions.

Where wind erosion is a potential cause of dust problems, preserving vegetation should be considered as a passive measure. Leave undisturbed buffer areas between graded areas wherever possible.

Installing temporary or permanent surface stabilization measures immediately after completing land grading will minimize dust problems.

Design Criteria

Permanent Methods

Vegetative Cover

Establish vegetative cover according to the Permanent Seeding or Temporary Seeding practice on areas not subject to traffic.

Topsoiling

This entails covering the surface with less erosive soil material. See Topsoiling practice for guidance.

Stone

Stone used to stabilize construction roads can also be effective for dust control. Stone should be spread a minimum of 6" thick over construction roads in the disturbed area. For heavily traveled roads or roads subjected to heavy loads the stone thickness should be 8" to 10". A non-woven geotextile meeting the minimum requirements of AASHTO M288 for a Class 2 separation geotextile should be used under the stone.

Temporary Methods

Mulches

Mulch offers a fast, effective means of controlling dust when properly applied. See Mulching practice for guidelines for planning and installing the practice.

Temporary Vegetative Cover

For disturbed areas where no activity is anticipated for 14 days or longer, temporary seeding can effectively control dust. Establish vegetative cover according to Temporary Seeding practice guidelines.

Calcium Chloride

Calcium chloride may be applied by mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage. Sites may need to be retreated because the product degrades over time.

Spray-on Adhesives

Spray-on adhesives may be used on mineral soils for dust control. Traffic must be kept off treated areas to prevent the product from becoming ineffective. Examples of spray-on adhesives for use in dust control are listed in Table DC-1.

Table DC-1 Spray-on Adhesives for Dust Control on Mineral Soil

Material	Water Dilution (adhesive:water)	Type of Nozzle	Apply Gal/Ac
Anionic Asphalt Emulsion	7:1	Coarse Spray	1,200
Latex Emulsion	12.5:1	Fine Spray	235
Resin in Water	4:1	Fine Spray	300

Chemical Stabilization (CHS)

Chemical products are available for use on mineral soils for dust control. Traffic must be often kept off treated areas to prevent the product from becoming ineffective. The manufacturer or supplier shall provide written application methods. The application method shall ensure uniform coverage to the target and avoid drift to non-target areas including waters of the State. The manufacturer or supplier shall also provide written instructions to ensure proper safety, storage, and mixing of the product. Refer to the Planning Considerations for the Chemical Stabilization practice for planning consideration before deciding to use these type products.

Sprinkling or Irrigation

Sprinkling is especially effective for dust control on haul roads and other traffic routes. Sprinkle the site until the surface is wet. Repeat as needed. Also, bare areas may be kept wet with irrigation to control dust as an emergency treatment.

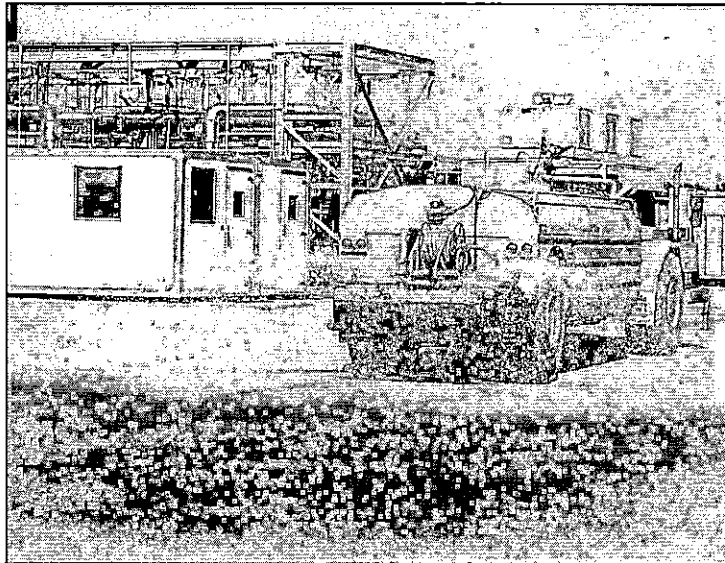
Tillage

Tillage is used to roughen the site and bring clods and moist soil to the surface. This is a very temporary emergency measure that can be used on large open disturbed areas as soon as soil blowing starts. Begin tilling on the windward edge of the site. The depth of tillage is determined by the depth to moist soil and the amount of moist soil desired at the surface. In sandy soils, the depth to moist soil may make tillage impractical.

Barriers

A board fence, wind fence, sediment fence, hay bales, or similar barriers can control air currents and blowing soil. Place barriers perpendicular to prevailing air currents at intervals about 15 times the barrier height.

Dust Control (DC)



Practice Description

Dust control includes a wide range of techniques that prevent or reduce movement of wind-borne soil particles (dust) during land disturbing activities. This practice applies to construction routes and other disturbed areas where on-site and off-site damage or hazards may occur if dust is not controlled.

Typical Components of the Practice

- Scheduling
- Erosion Control
- Other Potential Components
 - Sprinkling
 - Barriers
 - Spray-on Adhesives
 - Stone
 - Street Cleaning
- Installation Verification
- Maintenance

Construction

Dust control requirements should be designed by a qualified design professional and plans, and specifications should be made available to field personnel prior to start of construction. Whenever possible, leave undisturbed vegetated buffer areas between graded areas.

Scheduling

Schedule construction operations so that the smallest area is disturbed at any one time.

Erosion Control

Install surface stabilization measures (vegetative cover or mulch) immediately after completing the land grading.

Vegetative Cover

See Temporary or Permanent Seeding practice for guidance. Vegetation provides the most practical method of dust control for areas not subject to traffic.

Mulching

See Mulching practice for guidance on applying mulch and tackifiers or binders. Mulching is not recommended for areas with heavy traffic.

Other Potential Components

Sprinkling

Sprinkle the site with water until the surface is moist. This practice is effective for dust control on haul roads or other traffic routes, but constant repetition is required for effective control.

Barriers

Install board fences perpendicular to the prevailing winds at intervals (distance) of 15 times the barrier height.

Calcium Chloride

Apply with a mechanical spreader at a rate that keeps the surface moist.

Consult with a qualified design professional to determine if a permit is required.

Spray-on Adhesives

Spray adhesives according to the design plan.

Consult with a qualified design professional if spray-on adhesives are specified. A permit may be needed.

In the absence of a detailed plan, use manufacturers' recommendations. Table DC-1 presents examples of spray-on adhesives that have been used successfully for dust control.

Table DC-1 Application Rates for Spray-on Adhesives Used in Dust Control

Adhesive	Water Dilution (adhesive : water)	Type of Nozzle	Application Rate (gallons/acre)
Anionic Asphalt Emulsion	7:1	Coarse	1200
Latex Emulsion	12.5:1	Fine	235
Resin in Water	4:1	Fine	300
Acrylic Emulsion (Non-traffic)	7:1	Coarse	450
Non-Acrylic Emulsion (Traffic)	3.5:1	Coarse	350

Source: Virginia Erosion and Sediment Control Handbook, 1993

Consult with a qualified design professional if spray-on adhesives are specified. A permit may be needed.

Stone

Stone should be placed to the width and thickness specified in the design.

Street Cleaning

Use a street sweeper to remove the source materials.

Construction Verification

Check installation of product(s) to verify use of proper product and quantity.

Common Problems

Drought conditions result in dry soils and increase in dust problems—use greater precautions during these periods.

Maintenance

Check construction site during vehicular traffic or windy conditions to see if measures are working adequately. Maintain dust control measures continuously throughout dry weather periods, until all disturbed areas have been stabilized.

Mulching (MU)



Practice Description

Mulching is the application of plant residues such as straw or other suitable materials to the soil surface to minimize erosion. Mulching is used to support permanent and temporary seeding and, also, to provide short-term cover without seeding.

Planning Considerations

Surface mulch is the most effective, practical means of controlling runoff and erosion on disturbed land prior to vegetation establishment. Mulch absorbs the energy associated with raindrops and thereby minimizes soil particle detachment, which is the initial step of erosion.

Mulch also reduces soil moisture loss by evaporation, prevents crusting and sealing of the soil surface, moderates soil temperatures, and provides a suitable microclimate for seed germination.

Organic mulches such as straw, wood chips and shredded bark have been found to be very effective mulch materials. Materials containing weed and grass seeds which may compete with establishing vegetation should not be used. Also, decomposition of some wood products can tie up significant amounts of soil nitrogen, making it necessary to modify fertilization rates or add fertilizer with the mulch.

Hydraulic Erosion Control Products (HECPs) as defined by the Erosion Control Technology Council (ECTC) can also be used as effective mulch applications. HECPs are designated as 5 different types based on product characteristics and performance. Information from the ECTC table dated April 2014 is provided as Table MU-1. To ensure that you use the most valid information refer to the latest HECP specifications provided by the ECTC or the manufacturer's recommendation. The Alabama Department of Transportation characterizes mulches based on performance levels identified in Sections 656 and 659 of their Standard Specifications for Highway Construction.

The choice of materials for mulching should be based on soil conditions, season, type of vegetation to establish, and size of the area. Properly applied and tacked mulch is always beneficial. Mulching is especially important when conditions of germination are not optimum, such as midsummer and early winter, and on difficult sites such as cut slopes, fill slopes and droughty soils.

Straw has traditionally been the most commonly used mulching material in conjunction with seeding. Wheat straw is the mostly commonly used straw and can be spread by hand or with a mulch blower. If the site is susceptible to blowing wind, the straw should be tacked down with a tackifier, or a crimper to prevent loss.

Wood chips are suitable for areas that will not be closely mowed, and around ornamental plantings. Chips do not require tacking. Because they decompose slowly, they must be treated with 12 pounds of nitrogen per ton to prevent nutrient deficiency in plants. This can be an inexpensive mulch if the chips are obtained from trees cleared on the site.

Compost, peanut hulls, and pine straw are organic materials that potentially make excellent mulches but may only be available locally or seasonally. Creative use of these materials may reduce costs.

Jute mesh or the various types of netting is very effective in holding mulch in place on waterways and slopes before grasses become established. Always consider the use of wildlife friendly netting products.

Erosion control blankets promote seedling growth in the same way as organic mulches and are suited for use in areas with concentrated flows (see Erosion Control Blanket practice).

Table MU-1 Hydraulic Erosion Control Products (HECP) Specification Chart ¹

Hydraulic Erosion Control							
Type HECP ²	Term	Functional Longevity ³	Typical Application Rates Lbs/acre (kg/ha)	Typical Maximum Slope Gradient (H:V)	Maximum Uninterrupted Slope Length (ft)	Maximum C Factor ^{4,5} (3:1 test)	Minimum Vegetation Establishment ⁶
1	Ultra Short Term	1 month	1500—2500 (1700—2800)	≤ 5:1	20	0.3	150 %
2	Short Term	2 month	2000—3000 (2250—3400)	≤ 4:1	25	0.2	150 %
3	Moderate Term	3 month	2000—3500 (2250—3900)	≤ 3:1	50	0.1	200 %
4	Extended Term	6 month	2500—4000 (2800—4500)	≤ 2:1	75	0.05	300 %
5	Long Term	12 month	3000—4500 (3400—5100)	≤ 2:1	100	0.02	300 %

¹ This table is for general guidelines only. Refer to manufacturer for application rates, instructions, gradients, maximum continuous slope lengths and other site-specific recommendations.

² These categories are independent of rolled erosion control products (RECPs) categories, despite the identical names.

³ A manufacturer's estimated time period, based upon field observations, that a material can be anticipated to provide erosion control as influenced by its composition and site-specific conditions.

⁴ "C" Factor calculated as ratio of soil loss from HECP protected slope (tested at specified or greater gradient, h:v) to ratio of soil loss from unprotected (control) plot based on large-scale testing.

⁵ Acceptable large-scale test methods may include ASTM D 6459, or other independent testing deemed acceptable by the engineer.

⁶ Minimum vegetation establishment is calculated as outlined in ASTM D 7322 being a percentage by dividing the plant mass per area of the protected plot by the plant mass per area of the control plot.

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(Source: Erosion Control Technology Council, April 2, 2014)

Design Criteria

Site Preparation

Before mulching, complete the required site preparation. Site preparation includes grading, if needed, and seedbed preparation and fertilizing, liming and seeding if a planting is being made by means other than hydroseeding.

Spreading the Mulch

Select a mulch material based on the site and practice requirements, availability of material, and availability of labor and equipment. Table MU-2 lists commonly used mulches.

Table MU-2 Mulching Materials and Application Rates

Material	Rate Per Acre and (Per 1000 ft. ²)	Notes
Straw with Seed	1 ½-2 tons (70 lbs-90 lbs)	Spread by hand or machine to attain 75% groundcover; anchor when subject to blowing.
Straw Alone (no seed)	2 ½-3 tons (115 lbs-160 lbs)	Spread by hand or machine; anchor when subject to blowing.
Wood Chips	5-6 tons (225 lbs-270 lbs)	Treat with 12 lbs. nitrogen/ton.
Bark	35 cubic yards (0.8 cubic yard)	Can apply with mulch blower.
Pine Straw	1-2 tons (45 lbs-90 lbs)	Spread by hand or machine; will not blow like straw.
Peanut Hulls	10-20 tons (450 lbs-900 lbs)	Will wash off slopes. Treat with 12 lbs. nitrogen/ton.
HECPs	0.75 – 2.25 tons (35 lbs – 103 lbs)	Refer to ECTC or Manufacturer's Specifications.

Uniformly spread organic mulches by hand or with a mulch blower at a rate which provides about 75% ground cover. Spread HECPs utilizing appropriate equipment and at rates as specified. When spreading straw mulch by hand, divide the area to be mulched into sections of approximately 1000 sq. ft. and place 70-90 pounds of straw (1 ½ to 2 bales) in each section to facilitate uniform distribution. **Caution: An over-application of wheat straw will reduce stand success – do not over-apply wheat straw when mulching a seeding!**

When straw mulch is subject to be blown away by wind, it must be anchored immediately after spreading. It is best anchored with a mulch anchoring tool.

Application of a commercial tackifier through a hydroseeder is often practical for steep slopes and can be effective on most sites. Binders (tackifiers) may be applied after mulch is spread or may be sprayed into the mulch as it is being blown onto the soil. Applying straw and binder together is the most effective

method. Liquid binders include an array of commercially available synthetic binders and organic tackifiers.

In high wind situations like roadways, crimping the mulch is the best alternative as the use of mulch binders may still result in the mulch being rolled up on the edge.

Straw mulch may also be anchored with lightweight plastic, cotton, jute, wire or paper netting which is stapled over the mulch. The manufacturer's recommendations on stapling netting should be followed. Consider the use of wildlife friendly netting.

Maintenance

Inspect all mulches periodically, and after rainstorms to check for rill erosion, dislocation, or failure. Where erosion is observed, apply additional mulch or if washout has occurred, repair the slope grade, reseed, and reinstall mulch. Continue inspections until vegetation is firmly established.

Mulching (MU)



Practice Description

Mulching is the application of plant residues such as straw or other suitable materials to the soil surface to minimize erosion. Mulching is used to support permanent and temporary seeding and, also, to provide short-term cover without seeding.

Typical Components of the Practice

- Site Preparation
- Application of Material
- Installation Verification
- Maintenance

Installation

Mulching should be designed by a qualified design professional and plans and specifications should be made available to field personnel prior to start of construction.

Site Preparation

Divert runoff water from areas above the site that will be mulched.

Remove stumps, roots and other debris from the construction area.

Grade area as needed to permit the use of equipment for seeding, mulching and maintenance. Shape area so that it is relatively smooth.

If the area will be seeded, follow seeding specifications in the design plan and apply mulch immediately after seeding.

Application of Material

Spread straw mulch, preferably cereal grain, uniformly over the area with a power blower, hydroseeder or by hand. Mulch should be uniformly spread and not clumped in piles. In a seeded area, about 25% of the ground surface should be visible after mulching. It is important when mulching a seeded area that an excessive quantity of straw is not applied – too much mulch will retard or reduce the future stand. When mulch is used for erosion control without seeding, 100% of the soil surface should be covered.

Hydraulic Erosion Control Products (HECPs) as defined by the Erosion Control Technology Council (ECTC) are also used for mulch and should be applied with the appropriate equipment and at the recommended or specified rates.

Apply mulches at the rates shown in the plan or in Table MU-1 if there is not a plan.

Anchor straw or wood cellulose mulch by one of the following methods:

- Crimp with a mulch anchoring tool, as near on the contour as practical, to punch the straw into the soil.
- Tack with a liquid tackifier designed to hold mulch in place. Use suitable spray equipment and follow manufacturer's recommendations.
- In more erosive areas, cover with netting, using a degradable natural or synthetic mesh. The netting should be anchored according to manufacturer's specifications (see Erosion Control Blanket practice).
- On steep slopes and other areas needing a higher degree of protection, use heavy natural nets without additional mulch, synthetic netting with additional mulch or erosion control mats/blankets. These areas include grassed waterways, swales and diversion channels.
- Install netting and mats/blankets according to manufacturer's specifications making sure materials are properly anchored (see Erosion Control Blanket). Verify wildlife friendly netting when specified.

Table MU-1 Mulching Materials and Application Rates

Material	Rate Per Acre and (Per 1000 ft. ²)	Notes
Straw (with Seed)	1 ½ - 2 tons (70 lbs - 90 lbs)	Spread by hand or machine; anchor when subject to blowing.
Straw Alone (no seed)	2 ½ - 3 tons (115 lbs - 160 lbs)	Spread by hand or machine; anchor when subject to blowing.
Wood Chips	5-6 tons (225 lbs - 270 lbs)	Treat with 12 lbs. nitrogen/ton.
Bark	35 cubic yards (0.8 cubic yard)	Can apply with mulch blower.
Pine Straw	1-2 tons (45 lbs - 90 lbs)	Spread by hand or machine; will not blow like straw.
Peanut Hulls	10-20 tons (450 lbs - 900 lbs)	Will wash off slopes. Treat with 12 lbs. nitrogen/ton.
HECPs	0.75 – 2.25 tons (35 lbs – 103 lbs)	Refer to ECTC or Manufacturer's Specifications.

Installation Verification

Check materials and installation for compliance with specifications.

Common Problems

Consult with qualified design professional if either of the following occurs:

- Variations in topography on site indicate the mulching materials will not function as intended; changes in plan may be needed.
- Design specifications for mulching materials or seeding requirements cannot be met; substitution may be required. Unapproved substitutions could result in erosion or seeding failure.

Problems that require remedial actions:

- Erosion, washout, and poor plant establishment; repair eroded surface, reseed, re-mulch and anchor mulch.
- Mulch is lost to wind or stormwater runoff; reapply mulch and anchor appropriately by crimping, netting, or tacking.

Maintenance

Inspect all mulched areas periodically and after rainstorms for erosion and damage to the mulch. Repair promptly and restore to original condition. Continue inspections until vegetation is well established. Keep mower height high if netting is used to prevent netting from wrapping around mower blades or shaft.

Temporary Seeding (TS)



Practice Description

Temporary seeding is the establishment of fast-growing annual vegetation from seed. Temporary vegetation provides economical erosion control for up to a year and reduces the amount of sediment moving off the site.

This practice applies where short-lived vegetation can be established before final grading or in a season not suitable for planting the desired permanent species. It helps prevent costly maintenance operations on other practices such as sediment basins and sediment barriers. In addition, it reduces problems of mud and dust production from bare soil surfaces during construction. Temporary or permanent seeding is necessary to protect earthen structures such as dikes, diversions, grass-lined channels and the banks and dams of sediment basins.

Planning Considerations

Temporary vegetative cover can provide significant short-term erosion and sediment reduction before establishing perennial vegetation.

Temporary vegetation will reduce the amount of maintenance associated with sediment basins.

Temporary vegetation is used to provide cover for no more than 1 year. Permanent vegetation should be established at the proper planting time for permanent vegetative cover.

Certain plants species used for temporary vegetation will produce large quantities of residue which can provide mulch for establishment of the permanent vegetation.

Proper seedbed preparation and selection of appropriate species are important with this practice. Failure to follow establishment guidelines and recommendations carefully may result in an inadequate or short-lived stand of vegetation that will not control erosion.

The selection of plants for temporary vegetation must be site specific. Factors that should be considered are type of soils, climate, establishment rate, and management requirements of the vegetation. Other factors that may be important are wear, mowing tolerance, and salt tolerance of vegetation.

Seeding properly carried out within the optimum dates has a higher probability of success. It is also possible to have satisfactory establishment when seeding outside these dates. However, as plantings are deviated from the optimum dates, the probability of failure increases rapidly. Seeding dates should be taken into account in scheduling land-disturbing activities.

Site quality impacts both short-term and long-term plant success. Sites that have compacted soils should be modified whenever practical to improve the potential for plant growth.

The operation of equipment is restricted on slopes steeper than 3:1, severely limiting the quality of the seedbed that can be prepared. Provisions for establishment of vegetation on steep slopes can be made during final grading. In construction of fill slopes, for example, the last 4-6" might not be compacted. A loose, rough seedbed with irregularities that hold seeds and fertilizer is essential for hydroseeding. Cut slopes should be roughened (see practice Land Grading).

Appropriate mulching practices are critical to protect against erosion on steep slopes. When using straw, anchor with netting or asphalt. On slopes steeper than 2:1, either hydraulic mulch or erosion control blanket is more appropriate than straw to protect the slope.

The use of irrigation (temporary or permanent) will greatly improve the success of vegetation establishment.

Design Criteria

Plant Selection

Select plants that can be expected to meet planting objectives. To simplify plant selection, use Table TS-1, Commonly Used Plants for Temporary Cover and Figure TS-1, Geographical Areas for Species Adaptation and Seeding Dates. Seeding mixtures commonly specified by the Alabama Department of Transportation are an appropriate alternative for plantings on rights-of-ways. Additional information related to plantings in Alabama is found in Chapter 2 in the sections on Non-Woody Vegetation.

Table TS-1 Commonly Used Plants for Temporary Cover¹

Species	Seeding Rate/AC PLS ²	North	Central	South
		Seeding Dates		
Millet, Browntop or German	40 lbs	Apr1-Aug 1	Apr1- Aug 15	Apr 1-Aug 15
Rye	3 bu	Sep 1-Nov 15	Sep 15-Nov 15	Sep 15-Nov 15
Ryegrass	30 lbs	Aug 1-Sep 15	Sep 1-Oct 15	Sep 1-Oct 15
Sorghum-Sudan Hybrids	40 lbs	May 1-Aug 1	Apr 15-Aug 1	Apr 1-Aug 15
Sudangrass	40 lbs	May 1-Aug 1	Apr 15-Aug	Apr 1-Aug 15
Wheat	3 bu	Sep 1-Nov 1	Sep 15-Nov 15	Sep 15-Nov 15
Common Bermudagrass	10 lbs	Apr 1-July 1	Mar 15-July 15	Mar 1-July 15
Crimson Clover	10 lbs	Sept 1-Nov 1	Sept 1-Nov 1	Sept 1-Nov 1

- 1 DO NOT USE Seeding Rates as part of a mixture.
- 2 PLS means Pure Live Seed and is used to adjust seeding rates. For example, to plant 10 lbs PLS of a species with germination of 80% and purity of 90%, $PLS = 0.8 \times 0.9 = 72\%$. $10\text{lbs PLS} = 10/0.72 = 13.9$ lbs of the species to be planted.

Site Preparation and Soil Amendments

Complete grading and shaping before applying soil amendments if needed to provide a surface on which equipment can safely and efficiently be used to apply soil amendments and accomplish seedbed preparation and seeding.

Lime

Apply lime according to soil test recommendations. If a soil test is not available, use 1 ton of agricultural limestone or equivalent per acre on coarse textured soils and 2 tons per acre on fine textured soils. Do not apply lime to alkaline soils or to areas which have been limed during the preceding 2 years. Other liming materials that may be selected should be provided in amounts that provide equal value to the criteria listed for agricultural lime or be used in combination with agricultural limestone or Selma chalk to provide equivalent values to agricultural limestone.

Fertilizer

Apply fertilizer according to soil test results. If a soil test is not available, apply 8-24-24 fertilizer at a rate of 400 lbs/acre (approximately 9 lbs/1000 ft²).

When vegetation has emerged to a stand and is growing, 30 to 40 lbs/acre (approximately 0.8 lbs/1000 ft²) of additional nitrogen fertilizer should be applied.

Note: Fertilizer can be blended to meet exact fertilizer recommendations. Take soil test recommendations to local fertilizer dealer for bulk fertilizer blends. This may be more economical than bagged fertilizer.

Application of Soil Amendments

Incorporate lime and fertilizer into the top 6" of soil during seedbed preparation.

Seedbed Preparation

Good seedbed preparation is essential to successful plant establishment. A good seedbed is well pulverized, loose, and smooth. If soils become compacted during grading, loosen them to a depth of 6" to 8" using a ripper or chisel plow.

If rainfall has caused the surface to become sealed or crusted, loosen it just prior to seeding by disking, raking, harrowing, or other suitable methods. When hydroseeding methods are used, the surface should be left with a more irregular surface of clods.

Planting Methods

Seeding

Evenly apply seed using a cyclone seeder (broadcast), drill seeder, cultipacker seeder, or hydroseeder. Broadcast seeding and hydroseeding are appropriate for steep slopes where equipment cannot operate safely. Small grains should be planted no more than 1" deep, and grasses and legumes no more than ½" deep. Seed that are broadcast must be covered by raking or chain dragging, and then lightly firmed with a roller or cultipacker.

Hydroseeding

Surface roughening is particularly important when hydroseeding, as a roughened slope will provide some natural coverage for lime, fertilizer, and seed. The surface should not be compacted or smooth. Fine seedbed preparation is not necessary for hydroseeding operations; large clods, stones, and irregularities provide cavities in which seeds can lodge.

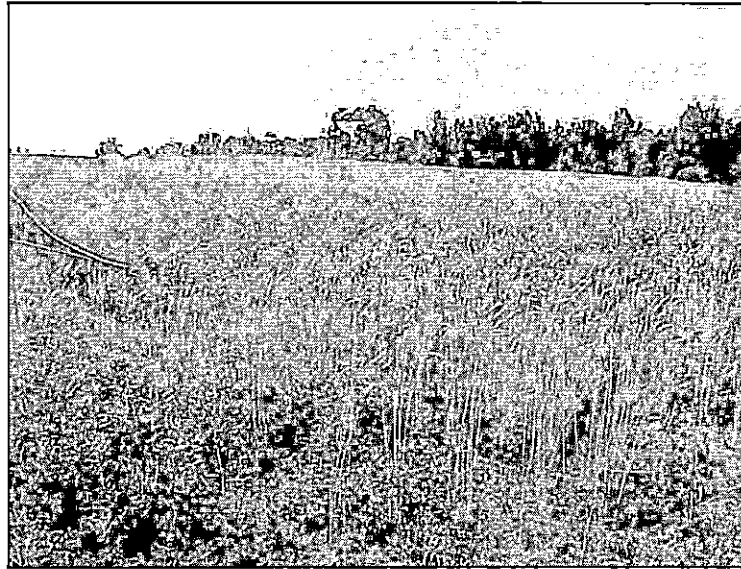
Mix seed, inoculant if required, and a seed carrier with water and apply as slurry uniformly over the area to be treated. The seed carrier should be a cellulose fiber, natural wood fiber or other approved fiber mulch material which is dyed an appropriate color to facilitate uniform application of seed. Use the correct legume inoculant at 4 times the recommended rate when adding inoculant to hydroseeder slurry. The mixture should be applied within one hour after mixing to reduce damage to seed.

Fertilizer should not be mixed with the seed-inoculant mixture because fertilizer salts may damage seed and reduce germination and seedling vigor. Fertilizer may be applied with a hydroseeder as a separate operation after seedlings are established.

Mulching

The use of appropriate mulch provides instant cover and helps ensure establishment of vegetative cover under normal conditions and is essential to seeding success under harsh site conditions (see the Mulching practice for guidance). Harsh site conditions include the following: slopes steeper than 3:1 and adverse soils (soils that are shallow to rock, rocky, or high in clay or sand). Areas with concentrated flow should be treated differently and require a practice appropriate for channel flow. (Refer to Chapter 5 Runoff Conveyance for guidance).

Temporary Seeding (TS)



Practice Description

Temporary seeding is the establishment of fast-growing annual vegetation from seed. Temporary vegetation provides economical erosion control for up to a year and reduces the amount of sediment moving off the site.

This practice applies where short-lived vegetation can be established before final grading or in a season not suitable for planting the desired permanent species. It helps prevent costly maintenance operations on other practices such as sediment basins and sediment barriers. In addition, it reduces problems of mud and dust production from bare soil surfaces during construction. Temporary or permanent seeding is necessary to protect earthen structures such as dikes, diversions, grass-lined channels and the banks and dams of sediment basins.

Typical Components of the Practice

- Scheduling
- Seedbed Preparation
- Applying Soil Amendments (lime and fertilizer)
- Planting
- Mulching or Installation of Erosion Control Blanket
- Installation Verification
- Maintenance

Installation

Prior to start of installation, plant materials, seeding rates and planting dates should be specified by a qualified design professional. Plans and specifications should be referred to by field personnel throughout the installation process.

Plantings should be made during the specified planting period if possible. When sites become available to plant outside of the recommended planting period, either a temporary seeding, mulching or chemical stabilization should be applied. If lime and fertilizer application rates are not specified, take soil samples during final grading from the top 6" in each area to be seeded. Submit samples to a soil testing laboratory for lime and fertilizer recommendations.

Seedbed Preparation

Grade and loosen soil to a smooth firm surface to enhance rooting of seedlings and reduce rill erosion. If compaction exists, loosen the surface to 6" to 8". Break up large clods and loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions to minimize soil compaction. Operate the equipment on the contour.

For either broadcast seeding or drill seeding, loosen the soil to a depth of at least 6".

For no-till drilling, the soil surface does not need to be loosened unless the site has surface compaction. If shallow compaction exists, the area should be chiseled across the slope at least 6". If compaction exists between 6" and 12" the area should be chiseled or subsoiled at least 12".

Lime and fertilizer should be incorporated during seedbed preparation.

Applying Soil Amendments

Liming

Follow the design plan or soil test recommendation. If a plan or soil test is not available, use 2 tons/acre of ground agricultural lime on clayey soils (approximately 90 lbs/1,000 ft².) and 1 ton/acre on sandy soils (approximately 45 lbs/ft²).

Spread the specified amount of lime and incorporate into the upper 6" of soil following seedbed preparation and applying fertilizer.

Agricultural lime is usually applied as a separate operation and spread in dry form. It is not normally applied with a hydraulic seeder because it is abrasive and, also, may clog the system. On the other hand, liquid lime is applied with a hydraulic seeder but because of cost, liquid lime is used primarily to provide quick action for benefit of plants during their seedling stage with the bulk of

liming needs to be provided by agricultural lime. Dry lime may be applied with the fertilizer mixture.

Fertilizing

Apply a complete fertilizer at rates specified in the design plan or as recommended by soil tests. In the absence of soil tests, use the following as a guide:

8-24-24 or equivalent – apply 400 lbs/acre (approximately 9 lbs/1000 ft²) at planting.

When vegetation has emerged to a stand and is growing, 30 to 40 lbs/acre (approximately 0.8 lbs/1000 ft²) of additional nitrogen fertilizer should be applied.

Note: Fertilizer can be blended to meet exact fertilizer recommendations. Take soil test recommendations to local fertilizer dealer for bulk fertilizer blends. This may be more economical than bagged fertilizer.

Incorporate lime and fertilizer to a depth of at least 6" with a disk or rotary tiller on slopes of up to 3:1.

On steeper slopes, lime and fertilizer may be applied to the surface without incorporation. Lime and fertilizer may be applied together; however, fertilizer should not be added to the seed mixture during hydroseeding. Lime may be added with the seed mixture.

Planting

Plant the species specified in the plan at the rate and depth specified. In the absence of plans and specifications, plant species and seeding rates may be selected by qualified persons from Table TS-1.

Apply seed uniformly using a cyclone seeder, drop-type spreader, drill, drill seeder, cultipacker seeder, by hand, or with a hydroseeder on a fresh, firm friable seedbed.

When using a drill seeder, plant seed ¼" to ½" deep. Calibrate equipment in the field.

When planting by methods other than a drill seeder or hydroseeder, cover seed by raking, or dragging a chain, brush, or mat. Then firm the soil lightly with a roller. Seed can also be covered with a hydromulch product.

Cover broadcast seed by raking or chain dragging; then firm the surface with a roller or cultipacker to provide good seed contact. Small grains should be planted no more than 1" deep and grasses and legume seed no more than ½" deep.

Table TS-1 Commonly Used Plants for Temporary Cover¹

Species	Seeding Rate/Ac PLS ²	North	Central	South
		Seeding Dates		
Millet, Browntop or German	40 lbs	May 1-Aug 1	Apr 1-Aug 15	Apr 1-Aug 15
Rye	3 bu	Sept 1-Nov 15	Sept 15-Nov 15	Sept 15-Nov 15
Ryegrass	30 lbs	Aug 1-Sept 15	Sept 1-Oct 15	Sept 1 -Nov 15
Sorghum-Sudan Hybrids	40 lbs	May 1-Aug 1	Apr 15-Aug 1	Apr 1-Aug 15
Sudangrass	40 lbs	May 1-Aug 1	Apr 15-Aug 1	Apr 1-Aug 15
Wheat Common	3 bu	Sept 1-Nov 1	Sept 15-Nov 15	Sept 15-Nov 15
Common Bermudagrass	10 lbs	Apr 1-July 1	Mar 15-July 15	Mar 1-July 15
Crimson Clover	10 lbs	Sept 1-Nov 1	Sept 1-Nov 1	Sept 1-Nov 1

- 1 DO NOT USE Seeding Rates as part of a mixture unless shown as a mixture in this table.
2 PLS means Pure Live Seed and is used to adjust seeding rates. For example, to plant 10 lbs PLS of a species with germination of 80% and purity of 90%, PLS = $0.8 \times 0.9 = 72\%$. 10lbs PLS = $10/0.72 = 13.9$ lbs of the species to be planted.

Hydroseeding

Surface roughening is particularly important when hydroseeding, as roughened slope will provide some natural coverage for lime, fertilizer, and seed. The surface should not be compacted or smooth. Fine seedbed preparation is not necessary for hydroseeding operations; large clods, stones, and irregularities provide cavities in which seeds can lodge.

Mix seed, inoculant if required, and a seed carrier with water and apply as a slurry uniformly over the area to be treated. The seed carrier should be a cellulose fiber, natural wood fiber or cane fiber mulch material which is dyed an appropriate color to facilitate uniform application of seed. Use the correct legume inoculant at 4 times the recommended rate when adding inoculant to a hydroseeder slurry. The mixture should be applied within one hour after mixing to reduce damage to seed.

Fertilizer should not be mixed with the seed-inoculant mixture because fertilizer salts may damage seed and reduce germination and seedling vigor. Fertilizer may be applied with a hydroseeder as a separate operation after seedlings are established.

Whenever possible, it is often best to incorporate lime and fertilizer with a disk.

Mulching

Mulching is extremely important for successful seeding. Whether the mulching material is straw or a hydraulic erosion control product (HECP, also referred to as hydromulch), the material needs to be applied properly. Uniformly spread organic mulches by hand or with a mulch blower at a rate which provides about 75% ground cover. Spread HECPs utilizing appropriate equipment and at rates as specified in the plan or by the manufacturer. Caution, an over-application of straw mulch (wheat, oat, or rye) will reduce stand success – do not over-apply straw mulch when mulching a seeding! (*See Mulching practice for more details*). In lieu of mulch, erosion control blanket may be used (see Erosion Control Blanket practice for more details).

Installation Verification

Check materials and installation for compliance with specifications during installation of products.

Common Problems

Consult with a qualified design professional if the following occurs:

- Design specifications for seed variety, seeding dates or mulching cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.
- Seeding outside of the recommended results in an inadequate stand. Reseed according to specifications of a qualified design professional (see recommendations under Maintenance).

Maintenance

Reseeding

Inspect seedings weekly until a stand is established and thereafter at least monthly for stand survival and vigor. Also, inspect the site for erosion.

Eroded areas should be addressed appropriately by filling and/or smoothing, and reapplication of lime, fertilizer, seed, and mulch.

A stand should be uniform and dense for best results. Stand conditions, particularly the coverage, will determine the extent of remedial actions such as seedbed preparation and reseeded. A qualified design professional should be consulted to advise on remedial actions. Consider drill seeding when doing a remedial planting.

Fertilizing

If vegetation fails to grow, have the soil tested to determine whether pH is in the correct range or nutrient deficiency is a problem.

Satisfactory establishment may require re-fertilizing the stand, especially if the planting is made early in the planting season. Follow soil test recommendations or the specifications provided to establish the planting.

Mowing

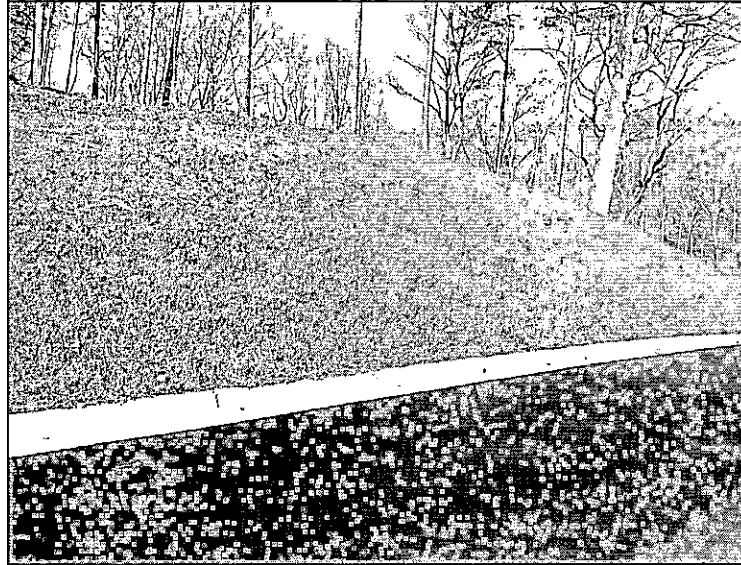
Temporary plantings may be mowed and baled or simply mowed to compliment the use of the site.

Millet, sorghum-sudan hybrids, sudangrass, rye and wheat may be mowed, but no lower than 6" (closer mowing may damage the stand).

Ryegrass is tolerant of most mowing regimes and may be mowed often and as close as 4" to 6" if this regime is started before it attains tall growth (over 8").

Bermudagrass is tolerant of most mowing regimes and can be mowed often and close, if so desired, during its growing season.

Permanent Seeding (PS)



Practice Description

Permanent seeding is the establishment of perennial vegetation from seed. This practice is used when vegetation is desired and appropriate to permanently stabilize the soil.

Planning Considerations

The advantages of seeding over other means of establishing plants include the smaller initial cost, lower labor input, and greater flexibility of method.

Disadvantages of seeding include potential for erosion during the establishment stage, seasonal limitations on suitable seeding dates, and weather-related problems such as droughts.

The probability of successful plant establishment can be maximized through good planning. The selection of plants for permanent vegetation should be site specific and based on plant characteristics, wear and mowing tolerance, soil conditions, time of year of planting, method of planting, the intended use, and management requirement of the vegetated area. Climate factors can vary widely in Alabama. Important plant attributes are discussed in Vegetation Establishment for Erosion and Sediment Control in Chapter 2. Other factors that may be important are wear, mowing tolerance, and salt tolerance of vegetation.

Plant selection may include companion plants to provide quick cover on difficult sites, late seedings, or where the desired permanent cover may be slow to

establish. Annuals are usually used for companion plants and should be selected carefully to prevent using a species that provide so much competition that it prevents the establishment of the desired species.

Seeding properly carried out within the optimum planting dates has a higher probability of success. It is also possible to have satisfactory establishment when seeding outside these dates. However, as plantings are deviated from the optimum dates, the probability of failure increases rapidly. Seeding dates should be taken into account in scheduling land-disturbing activities.

Site quality impacts both short-term and long-term plant success. Sites that have compacted soils, soils that are shallow to rock or have textures that are too clayey or too sandy should be modified whenever practical to improve the potential for plant growth and long-term cover success.

The operation of equipment is restricted on slopes steeper than 3:1, severely limiting the quality of the seedbed that can be prepared. Provisions for establishment of vegetation on steep slopes can be made during final grading. In construction of fill slopes, for example, the last 4-6" might not be compacted. A loose, rough seedbed with irregularities that hold seeds and lime and fertilizer is essential for hydroseeding. Cut slopes should be roughened (see Land Grading practice).

Appropriate mulching is critical to protect against erosion on steep slopes. When using straw, anchor with netting or asphalt. On slopes steeper than 3:1, rolled erosion control products or hydraulic erosion control products are usually needed.

The use of irrigation (temporary or permanent) will greatly improve the success of vegetation establishment.

Design Criteria

Plant Selection

Select plants that can be expected to meet planting objectives. To simplify plant selection, use Figure PS-1 Geographical Areas for Species Adaptation and Seeding Dates and Table PS-1, Commonly Used Plants for Permanent Cover. Mixtures commonly specified by the Alabama Department of Transportation are an appropriate alternative for plantings on rights-of-ways. Additional information related to plants commonly used in Alabama is found in Chapter 2 under the section Vegetation for Erosion and Sediment Control.

The plants used for temporary vegetation may be used for companion plants provided the seeding rate of the annual species is reduced by one half. See the Temporary Seeding practice for additional information on establishing temporary vegetation. **Ryegrass or other highly competitive plants should not be used as a companion plant with a permanent seeding.**

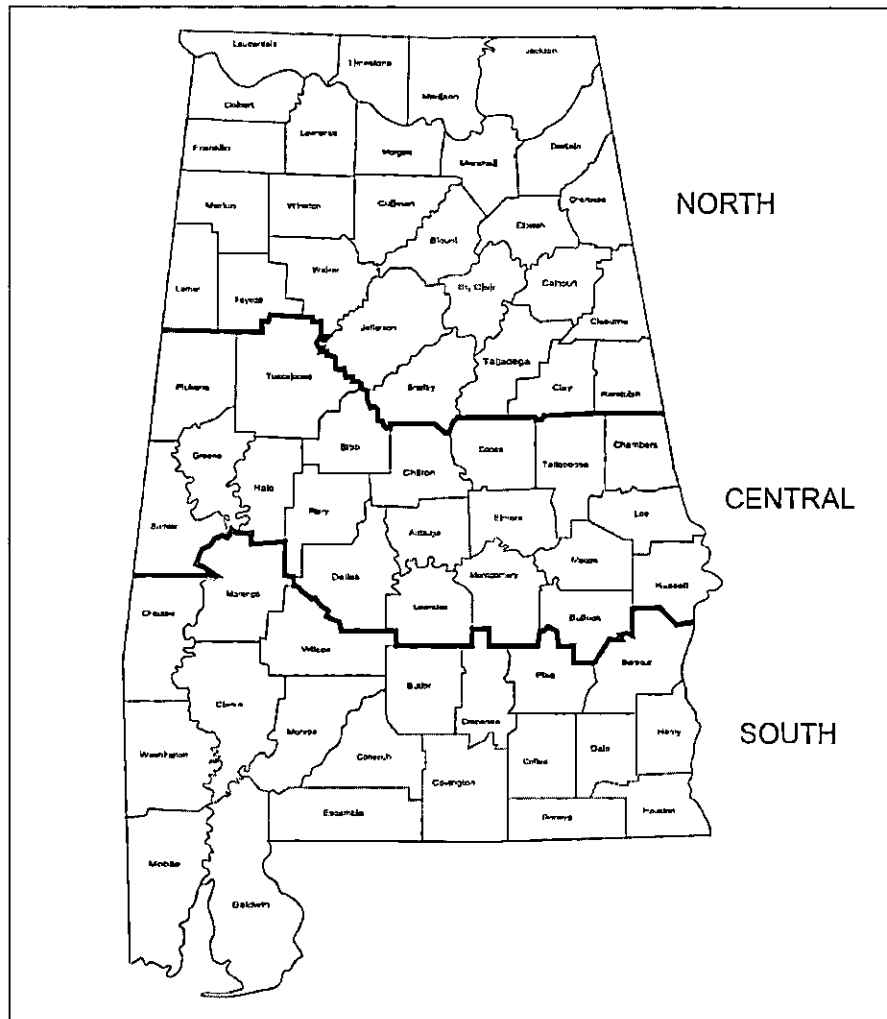


Figure PS-1 Geographical Areas for Species Adaptation and Seeding Dates

Note: Site conditions related to soils and aspect in counties adjacent to or close to county boundaries may justify adjustments in planting dates by qualified design professionals.

Table PS-1 Commonly Used Plants for Permanent Cover with Seeding Rates and Dates¹

Species	Seeding Rates/Ac PLS ²	North	Central	South
		Seeding Dates		
Bahiagrass, Pensacola	40 lbs	--	Mar 1-July 1	Feb 1-Nov 1
Bermudagrass, Common	10 lbs	Apr 1-July 1	Mar 15-July 15	Mar 1-July 15
Bahiagrass, Pensacola Bermudagrass, Common	30 lbs 5 lbs	--	Mar 1-July 1	Mar 1-July 15
Bermudagrass, Hybrid (Lawn Types)	Solid Sod	Anytime	Anytime	Anytime
Bermudagrass, Hybrid (Lawn Types)	Sprigs 1/sq ft	Mar 1-Aug 1	Mar 1-Aug 1	Feb 15-Sep 1
Fescue, Tall	40-50 lbs	Sep 1-Nov 1	Sep 1-Nov 1	--
Sericea	40-60 lbs	Mar 15-July 15	Mar 1-July 15	Feb 15-July 15
Sericea & Common Bermudagrass	40lbs 10 lbs	Mar 15-July 15	Mar 1-July 15	Feb 15-July 15
Switchgrass, Alamo	4 lbs	Apr 1-Jun 15	Mar 15-Jun 15	Mar 15-Jun 15

1 DO NOT USE Seeding Rates as part of a mixture unless shown as a mixture in this table.

2 PLS means Pure Live Seed and is used to adjust seeding rates. For example, to plant 10 lbs PLS of a species with germination of 80% and purity of 90%, PLS= $0.8 \times 0.9 = 72\%$. 10lbs PLS = $10/0.72 = 13.9$ lbs of the species to be planted.

Seedbed Requirements

Establishment of vegetation should not be attempted on sites that are unsuitable due to compaction or inappropriate soil texture, poor drainage, concentrated overland flow, or steepness of slope until measures have been completed to correct these problems. To maintain a good stand of vegetation, the soil must meet certain minimum requirements as a growth medium. A good growth medium should have these attributes:

- Sufficient pore space to permit root penetration.
- Enough fine-grained soil material (silt and clay) to maintain adequate moisture and nutrient supply.
- Sufficient depth of soil to provide an adequate root zone. The depth to rock or impermeable layers such as hardpans should be 12" or more, except on slopes steeper than 2:1 where topsoiling is not feasible.
- A favorable pH range for plant growth, usually 6.0-6.5.

- Sufficient nutrients (nitrogen, phosphorus, and potassium) for initial plant establishment.
- Freedom from large roots, branches, stones, or large clods. Clods and stones may be left on slopes steeper than 3:1 if they are to be hydroseeded.

If any of the above attributes are not met i.e., if the existing soil is too dense, coarse, shallow or acidic to foster vegetation – chiseling, topsoil, or special amendments should be used to improve soil conditions. The soil conditioners described below may be beneficial or topsoil may be applied (for guidance on topsoiling see Topsoiling practice). These amendments should only be necessary where soils have limitations that make them poor for plant growth or for turf establishment.

- Peat-appropriate types are sphagnum moss peat, reed-sedge peat, or peat humus, all from fresh-water sources. Peat should be shredded and conditioned in storage piles for at least 6 months after excavation.
- Sand-should be clean and free of toxic materials.
- Vermiculite-use horticultural grade.
- Rotted manure-use stable or cattle manure not containing undue amounts of straw or other bedding materials.
- Thoroughly rotted sawdust-should be free of stones and debris. Add 6 lbs of nitrogen to each cubic yard.
- Manufactured products that improve stand establishment and performance of the turf.

Soil Amendments

Liming Materials

Lime (Agricultural limestone) should have a neutralizing value of not less than 90 percent calcium carbonate equivalent and 90 percent will pass through a 10-mesh sieve and 50 percent will pass through a 60-mesh sieve.

Selma chalk should have a neutralizing value of not less than 80 percent calcium carbonate equivalent and 90 percent will pass through a 10-mesh sieve.

Other liming materials that may be selected should be provided in amounts that provide equal value to the criteria listed for agricultural lime or be used in combination with agricultural limestone or Selma chalk to provide equivalent values to agricultural limestone.

Plant Nutrients

Commercial grade fertilizers that comply with current Alabama Fertilizer Laws should be used to supply nutrients required to establish vegetation.

Lime and fertilizer needs should be determined by soil tests. Soil testing is performed by the Auburn University Soil Testing Laboratory and provides recommendations based on field tests on Alabama soils. The local county Cooperative Extension Service can provide information on obtaining soil tests. Commercial laboratories that make recommendations based on soil analysis may be used.

When soil tests are not available, use the following rates for application of soil amendments:

Lime Rates

Sandy soils: Use 1 ton/acre (exception on sandy soils – if the cover will be tall fescue and clover) use 2 tons/acre.

Clayey soils: 2 tons/acre.
(Do not apply lime to alkaline soils).

Fertilizer Rates

Grasses alone: Use 400 lbs/acre of 8-24-24 or the equivalent. Apply 30 lbs of additional nitrogen when grass has emerged and begun growth (approximately 0.8lbs/1000 ft²).

Grass-legume mixtures: Use 800 to 1200 lbs/acre of 5-10-10 or the equivalent.
Legumes Alone: Use 400 to 600 lbs/acre of 0-20-20 or the equivalent.

Note: Fertilizer can be blended to meet exact fertilizer recommendations. Take soil test recommendations to local fertilizer dealer for bulk fertilizer blends. This may be more economical than bagged fertilizer.

Application of Soil Amendments

Apply lime and fertilizer evenly and incorporate into the top 6" of soil by disking, chiseling, or other suitable means during seedbed preparation. Operate machinery on the contour. On sites too steep for seedbed preparation, fertilizer and lime can be applied with a hydroseeder.

Seedbed Preparation

If needed, grade and shape to provide a surface on which equipment can safely and efficiently be used for seedbed preparation and seeding.

Install necessary sediment control practices before seedbed preparation and complete grading according to the approved plan.

Prepare a friable seedbed with tillage to a depth of at least 6". Break up large clods, alleviate compaction, and smooth and firm the soil into a uniform surface. Fill in or level depressions that can collect water.

Planting Methods

Seeding

Use certified seed for permanent seeding whenever possible. Certified seed is inspected by the Alabama Crop Improvement Association to meet high quality standards and will be tagged with a "Certified Seed" tag. (Note: all seed sold in Alabama is required by law to be tagged to identify seed purity, germination, and presence of weed seeds. Seed must meet state standards for content of noxious weeds.)

Seeding dates are determined using Figure PS-1 and Table PS-1.

Inoculate legume seed with the Rhizobium bacteria appropriate to the species of legume if seed are not coated with the appropriate inoculant. Details of legume inoculation are located in Chapter 2 in the part on Vegetation for Erosion and Sediment Control under Inoculation of Legumes.

Plant seed uniformly with a cyclone seeder, a drill seeder, a cultipacker seeder, or by hand on a fresh, firm, friable seedbed. If the seedbed has been sealed by rainfall, it should be disked so the seed will be sown into a freshly prepared seedbed.

When using broadcast-seeding methods, subdivide the area into workable sections and determine the amount of seed needed for each section. Apply one-half the seed while moving back and forth across the area, making a uniform pattern; then apply the second half in the same way, but moving at right angles to the first pass.

Cover broadcast seed by raking or chain dragging; then firm the surface with a roller or cultipacker to provide good seed contact. Small grains should be planted no more than 1" deep and grasses and legume seed no more than ½" deep.

Hydroseeding

Surface roughening is particularly important when hydroseeding, as a roughened slope will provide some natural coverage for lime, fertilizer, and seed. The surface should not be compacted or smooth. Fine seedbed preparation is not necessary for hydroseeding operations; large clods, stones, and irregularities provide cavities in which seeds can lodge.

Mix seed, inoculant if required, and a seed carrier with water and apply as a slurry uniformly over the area to be treated. The seed carrier should be a cellulose fiber, natural wood fiber or other approved fiber mulch material which is dyed an appropriate color to facilitate uniform application of seed. Use the correct legume inoculant at 4 times the recommended rate when adding inoculant to a hydroseeder slurry. The mixture should be applied within one hour after mixing to reduce damage to seed.

Fertilizer should not be mixed with the seed-inoculant mixture because fertilizer salts may damage seed and reduce germination and seedling vigor.

Fertilizer may be applied with a hydroseeder as a separate operation after seedlings are established.

Lime is not normally applied with a hydraulic seeder because it is abrasive but if necessary it can be added to the seed slurry and applied at seeding or it may be applied with the fertilizer mixture. Also, lime can be blown onto steeper slopes in dry form.

Sprigging

Hybrid bermudagrass cannot be grown from seed and must be planted vegetatively. Vegetative methods of establishing common and hybrid bermudagrass, centipede grass and zoysia include sodding, plugging, and sprigging (see Sodding practice).

When sprigs are planted with a sprigging machine, furrows should be 4-6" deep and 2 feet apart. Place sprigs no farther than 2 feet apart in the row and so that at least one rooting node is in the furrow.

When broadcasting is used for sprig planting, broadcast sprigs at the specified rate (Table PS-1). Press into the top ½" to 2" of soil with a cultipacker or with a disk set nearly straight so that the sprigs are not brought back to the surface. A mulch tacking machine may be used to press sprigs into the soil.

Mulching

The use of mulch provides instant cover and helps ensure establishment of vegetation under normal conditions and is essential to seeding success under harsh site conditions (see Mulching practice). Harsh site conditions include: slopes steeper than 3:1 and adverse soils (shallow, rocky, or high in clay or sand). Areas with concentrated flow should be treated differently and require sod, a hydromulch formulated for channels or an appropriate erosion control blanket.

Irrigation

Moisture is essential for seed germination and vegetation establishment. Supplemental irrigation can be very helpful in assuring adequate stands in dry seasons or to speed development of full cover. It is a requirement for establishment of vegetation from sod and sprigs and should be used elsewhere when feasible. However, irrigation is rarely critical for low-maintenance vegetation planted at the appropriate time of the year.

Water application rates must be carefully controlled to prevent runoff. Inadequate or excessive amounts of water can be more harmful than no supplemental water.

Maintenance

Generally, a stand of vegetation cannot be determined to be fully established until soil cover has been maintained for 1 full year from planting. Inspect vegetated areas for failure and make necessary repairs and vegetate as soon as possible.

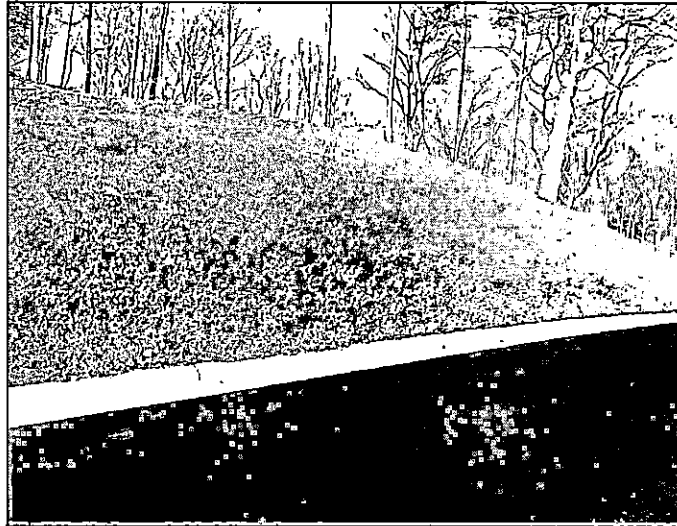
If a stand has inadequate cover, reevaluate choice of plant materials and quantities of lime and fertilizer. Re-establish the stand after seedbed preparation or over-seed the stand. Consider a temporary seeding if the time of year is not appropriate for establishment of permanent vegetation (see Temporary Seeding practice).

If vegetation fails to grow, a soil test should be made to determine if soil acidity or nutrient imbalance is responsible.

To attain complete establishment, fertilization is usually required in the second growing season. Turf grasses require annual maintenance fertilization. Use soil tests if possible or follow the guidelines given for the specific seeding mixtures.

Protect vegetation during its establishing period from traffic that will be harmful. If appropriate, use either temporary fences or barriers to protect areas that may be damaged by excessive traffic.

Permanent Seeding (PS)



Practice Description

Permanent seeding is the establishment of perennial vegetation from seed. This practice is used when vegetation is desired and appropriate to permanently stabilize the soil.

Typical Components of the Practice

- Scheduling
- Seedbed Preparation
- Applying Soil Amendments (lime and fertilizer)
- Planting
- Mulching or Installation of Erosion Control Blanket
- Installation Verification
- Maintenance

Installation

Prior to start of construction, plant materials, seeding rates and planting dates should be specified by a qualified design professional. Plans and specifications should be referred to by field personnel throughout the installation process.

Permanent seeding should be made during the specified planting period whenever possible. When sites are only available for planting outside of the recommended planting period, either an out-of-season permanent seeding, a temporary seeding, mulching or chemical stabilization should be applied. If lime and fertilizer application rates are not specified, take soil samples during final grading from the top 6" in each area to be seeded. Submit samples to a soil testing laboratory for lime and fertilizer recommendations.

Scheduling

The schedule for work at the site should consider the recommended planting period and whenever practical the site work should accommodate seeding during the recommended planting period.

Seedbed Preparation

Grade and loosen the soil to a smooth firm surface to enhance rooting of seedlings and reduce rill erosion. Break up large clods and loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions to minimize compaction. Operate the equipment on the contour.

For either broadcast seeding or drill seeding, the tillage, as a minimum, should adequately loosen the soil to a depth of at least 6", alleviate compaction, and smooth and firm the soil for the proper placement of seed.

For no-till drilling, the soil surface should not be loosened unless the site has surface compaction and if compaction exists, special care with soil loosening will be needed to retain the desired residue on the soil surface.

Incorporate lime and fertilizer to a depth of at least 6" with a disk or rotary tiller on slopes of up to 3:1. On steeper slopes, lime and fertilizer may be applied to the surface without incorporation. Lime and fertilizer may be applied through hydroseeding equipment; however, fertilizer should not be added to the seed mixture during hydroseeding. Liming materials such as liquid lime may be added with the seed mixture.

Liming

Follow the design plan or soil test recommendation. If a plan or soil test is not available, use 2 tons/acre of ground agricultural lime on clayey soils (approximately 90 lbs/acre) and 1 ton/acre on sandy soils (approximately 45 lbs/acre). Exception to situation without a design or a soil test: If the cover is tall fescue and clover, use 2 tons of agricultural lime (approximately 135 lbs/1000 ft²) on both clayey and sandy soils.

Spread the specified amount of lime and incorporate into the top 6" of soil after applying fertilizer.

Fertilizing

Apply a complete fertilizer at rates specified in the design plan or as recommended by soil tests. In the absence of soil tests, use the following as a guide:

Grass Alone

Use 8-24-24 or equivalent – apply 400 lbs/acre (approximately 9 lbs/1000 ft²) starting. When vegetation has emerged to a stand and is growing, 30 lbs/acre (approximately 0.8 lbs/10000 ft²) of additional nitrogen fertilizer should be applied.

Grass-Legume Mixture

Use 5-10-10 or equivalent – apply 800 - 1200 lbs/acre (approximately 18 – 27 lbs/1000 ft²).

Legume Alone

Use 0-20-20 or equivalent – apply 400 - 600 lbs/acre (approximately 9 – 14 lbs/1000 ft²) at planting.

Note: Fertilizer can be blended to meet exact fertilizer recommendations. Take soil test recommendations to local fertilizer dealer for bulk fertilizer blends. This may be more economical than bagged fertilizer.

Planting

Plant the species specified in the plan at the rate and depth specified. In the absence of plans and specifications, plant species and seeding rates may be selected by qualified persons using Figure PS-1 and Table PS-1.

Apply seed uniformly using a cyclone seeder, drop-type spreader, drill, cultipacker seeder or hydroseeder.

When using a drill seeder, plant grasses and legumes ¼” to ½” deep. Calibrate equipment in the field.

When planting by methods other than a drill seeder, cover seed by raking, or dragging a chain, brush, or mat. Then firm the soil lightly with a roller. Seed can also be covered with hydro-mulched wood fiber and tackifier. Legumes require inoculation with nitrogen-fixing bacteria to ensure good growth. Purchase inoculum specific for the seed and mix with seed prior to planting.

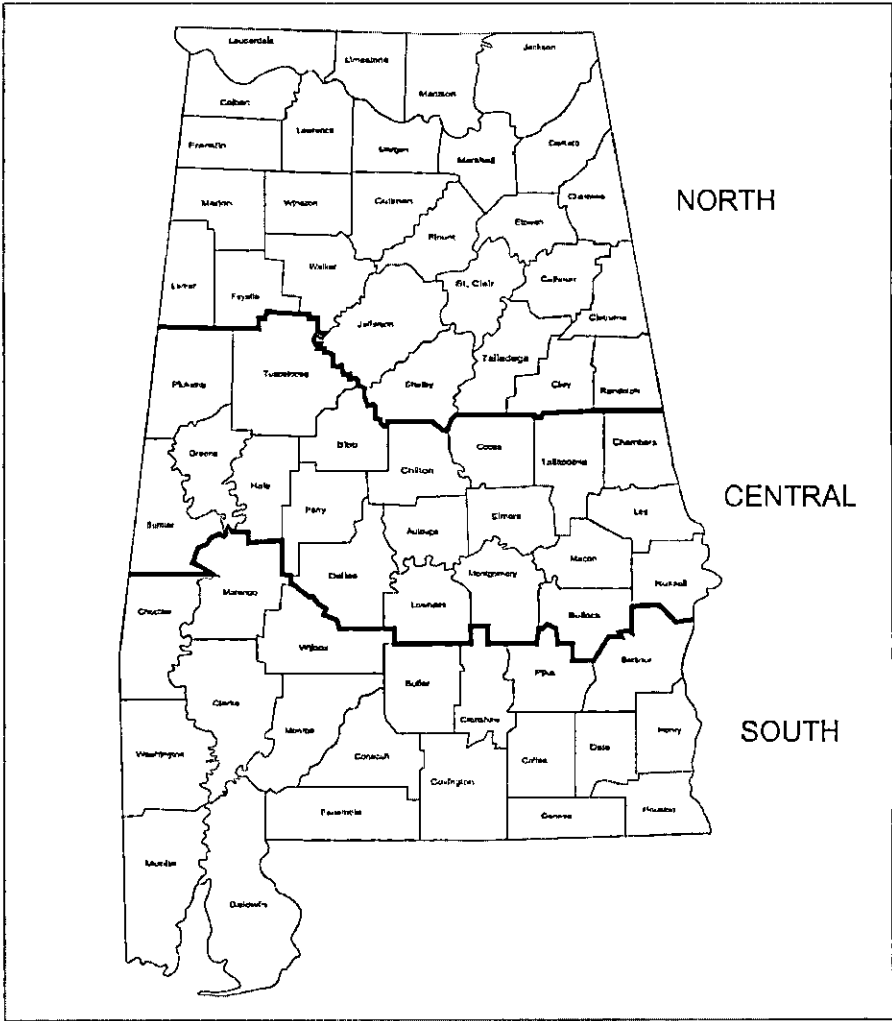


Figure PS-1 Geographical Areas for Species Adaptation

Note: Site conditions related to soils and aspect in counties adjacent to or close to county boundaries may justify adjustments in adaptable areas by qualified design professionals.

Mulching

Mulching is extremely important for successful seeding. Whether the mulching material is straw or a hydraulic erosion control product (HECP, also referred to as hydromulch), the material needs to be applied properly. Uniformly spread organic mulches by hand or with a mulch blower at a rate which provides about 75% ground cover. Spread HECPs utilizing appropriate equipment and at rates as specified in the plan or by the manufacturer. Caution, an over-application of wheat straw will reduce stand success – do not over-apply wheat straw when mulching a seeding! (See Mulching practice for more details).

Table PS-1 Commonly used Plants for Permanent Cover with Seeding Rates and Dates¹

Species	Seeding Rates/Ac PLS ²	North	Central	South
		Seeding Dates		
Bahiagrass, Pensacola	40 lbs	--	Mar 1-Jul y 1	Feb 1-Nov 1
Bermudagrass, Common	10 lbs	Apr 1-July 1	Mar 15-July 15	Mar 1-July 15
Bahiagrass, Pensacola Bermudagrass, Common	30 lbs 5 lbs	--	Mar 1-July 1	Mar 1-July 15
Bermudagrass, Hybrid (Lawn Types)	Solid Sod	Anytime	Anytime	Anytime
Bermudagrass, Hybrid (Lawn Types)	Sprigs 1/sq ft	Mar 1-Aug 1	Mar 1-Aug 1	Feb 15 - Sep 1
Fescue, Tall	40-50 lbs	Sep 1-Nov 1	Sep 1-Nov 1	--
Sericea	40-60 lbs	Mar 15-July 15	Mar 1-July 15	Feb 15 -July 15
Sericea & Common Bermudagrass	40 lbs 10 lbs	Mar 15 -July 15	Mar 1-July 15	Feb 15-July 15
Switchgrass, Alamo	4 lbs	Apr 1-Jun 15	Mar 15-Jun 15	Mar 15-June 15

¹ DO NOT USE Seeding Rates as part of a mixture unless shown as a mixture in this table.

² PLS means Pure Live Seed and is used to adjust seeding rates. For example, to plant 10 lbs PLS of a species with germination of 80% and purity of 90%, $PLS = 0.8 \times 0.9 = 72\%$. $10\text{lbs PLS} = 10/0.72 = 13.9\text{ lbs}$ of the species to be planted.

Hydroseeding

Surface roughening is particularly important when hydroseeding, as roughened slope will provide some natural coverage for lime, fertilizer, and seed. The surface should not be compacted or smooth. Smooth seedbed preparation is not necessary for hydroseeding operations; large clods, stones, and irregularities provide cavities in which seeds can lodge.

Mix seed, inoculant if required, and a seed carrier with water and apply as a slurry uniformly over the area to be treated. The seed carrier should be a cellulose fiber, natural wood fiber or cane fiber mulch material which is dyed an appropriate color to facilitate uniform application of seed. If adding a legume, and it does not have an inoculant included in the coating, include the correct legume inoculant at 4 times the recommended rate when adding seed to the hydroseeder slurry. The mixture should be applied within one hour after mixing to reduce damage to seed.

Fertilizer should not be mixed with the seed-inoculant mixture because fertilizer salts may damage seed and reduce germination and seedling vigor.

Fertilizer may be applied with a hydroseeder as a separate operation after seedlings are established.

Agricultural lime is usually applied as a separate operation and spread in dry form. It is not normally applied with a hydraulic seeder because it is abrasive and, also, may clog the system. On the other hand, liquid lime is applied with a hydraulic seeder but because of cost is used primarily to provide quick action for benefit of plants during their seedling stage with the bulk of liming needs to be provided by agricultural lime. Dry lime may be applied with the fertilizer mixture.

Installation Verification

Check materials and installation for compliance with specifications during installation of products.

Common Problems

Consult with a qualified design professional if the following occurs:

- Design specifications for seed variety, seeding dates or mulching cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.
- Seeding at the wrong time of the year results in an inadequate stand. Reseed according to specifications of a qualified design professional (see recommendations under Maintenance)
- Inadequate mulching results in an inadequate stand, bare spots, or eroded areas - prepare seedbed, reseed, cover seed evenly and tack or tie down mulch, especially on slopes, ridges and in channels (see recommendations under Maintenance).

Maintenance

Generally, a stand of vegetation cannot be determined to be fully established until vegetative cover has been maintained for 1 year from planting.

Reseeding

Inspect seedings monthly for stand survival and vigor. Also, inspect the site for erosion.

If stand is inadequate identify the cause of failure (choice of plant materials, lime and fertilizer quantities, poor seedbed preparation or weather) and take corrective action. If vegetation fails to grow, have the soil tested to determine whether pH is in the correct range or nutrient deficiency is a problem.

Stand conditions, particularly the coverage, will determine the extent of remedial actions such as seedbed preparation and reseeding. A qualified design professional should be consulted to advise on remedial actions. Consider drill seeding where possible.

Eroded areas should be addressed appropriately by filling and/or smoothing, and reapplication of lime, fertilizer, seed, and mulch.

Fertilizing

Satisfactory establishment may require fertilizing the stand in the second growing season. Follow soil test recommendations or the specifications provided to establish and maintain the planting. After the second year, fertilizing is often needed annually or periodically to maintain a healthy stand and cover sufficient for erosion control.

Mowing

Mow vegetation on structural practices such as embankments and grass-lined channels to prevent woody plants from invading.

Other areas should be mowed to compliment the use of the site.

Certain species can be weakened by mowing regimes that significantly reduce their food reserves stored for the next growing season: fescue should not be mowed close during the summer; sericea should not be mowed close in late summer.

Bermudagrass and bahiagrass are tolerant of most mowing regimes and can be mowed often and close, if so desired, during their growing season.

6. Spill Prevention Control and Countermeasures Plan

6.1. General Applicability

Title 40, Part 112 of the Code of Federal Regulations (40 CFR 112), requires the preparation and implementation of a Spill Prevention Control and Countermeasure (SPCC) Plan for any non-transportation-related facility, which due to its location, could reasonably be expected to discharge oil into or upon the navigable waters of the United States in quantities that may be harmful (as defined in 40 CFR 110) and that has the capacity to store oil in volumes greater than:

- 1,320 gallons in total aboveground storage (counting only containers with an oil storage capacity of 55 gallons or more and including equipment containing oil for ancillary purposes) or
- 42,000 gallons in total completely buried storage (not counting completely buried containers that are currently subject to all of the technical requirements of 40 CFR 280 or all of the technical requirements of a State program approved under 40 CFR 281).

Pillar Materials, LLC plans to store petroleum products at the pit in excess of 1,320 gallons. Pillar Materials, LLC is required to have an SPCC plan.

6.2. No Potential for Substantial Harm

As a requirement of the Oil Pollution Act of 1990, any SPCC-regulated facility that could cause "substantial harm" to the environment as a result of a discharge of oil, is required to prepare and implement a Facility Response Plan in accordance with 40 CFR § 112, Subpart D. The "Flowchart of Criteria for Substantial Harm", shown as Figure 6-1, shows that the facility does not pose a substantial harm to the environment and, therefore, is not required to prepare and implement a Facility Response Plan.

6.3. Purpose

The purpose of this Chapter is to serve as the Spill Prevention Control and Countermeasures (SPCC) Plan for Pillar Materials, LLC. at its 431 Quarry. A complete copy of this SPCC Plan is to be kept and available to regulatory agencies for onsite review during normal working hours (facilities attended at least 4 hours a day) in accordance with 40 CFR 112.3(e).

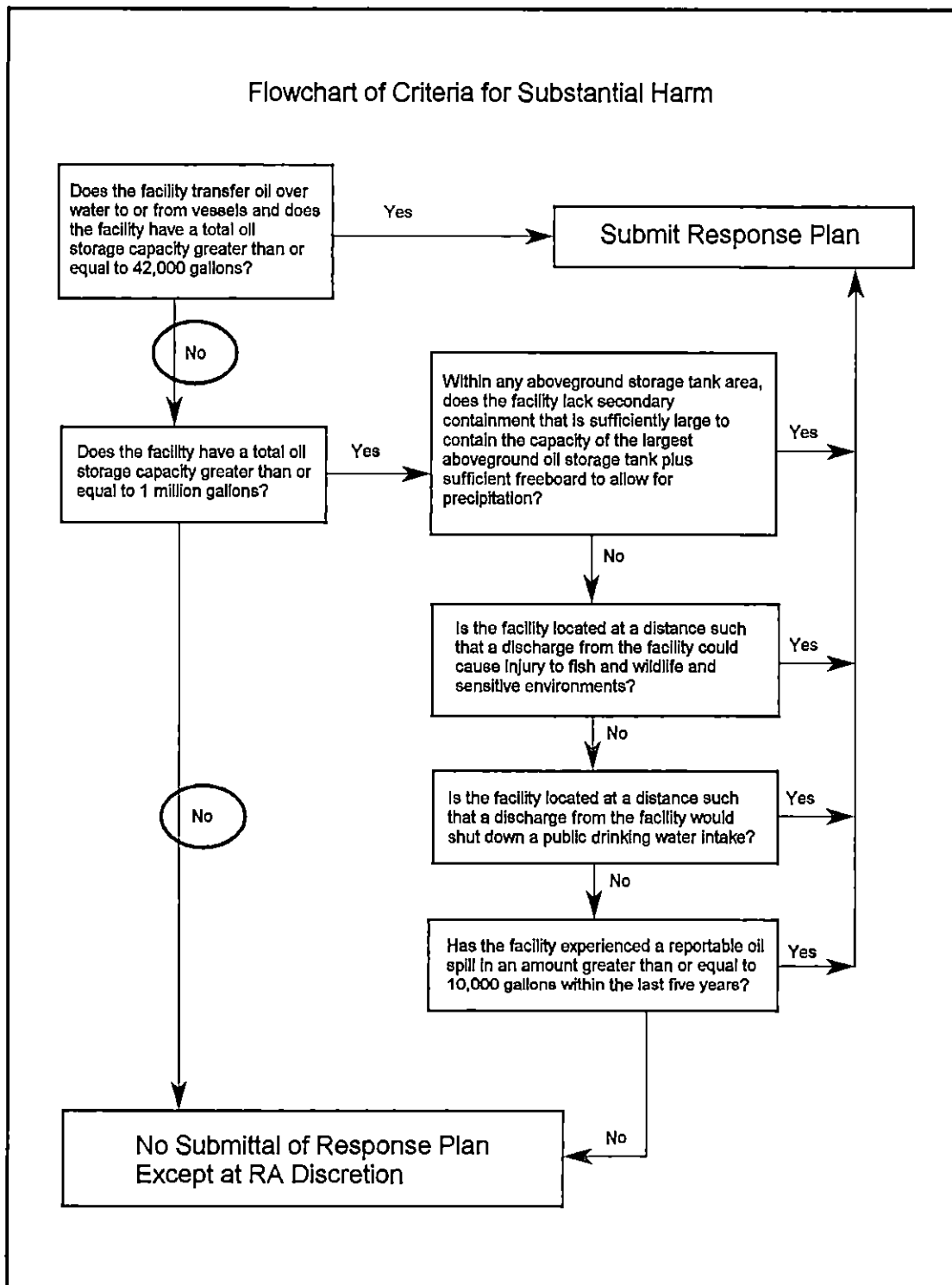


Figure 6-1. Flowchart of Criteria for Substantial Harm.

6.4. Facility Owner, Address, and Telephone

Contact and SPCC Coordinator:

Lance Taylor, President
(205) 345-6655

Physical Address:

431 Quarry
US Highway 431
Oxford, AL 35490

Mailing Address:

Pillar Materials, LLC
P.O. Box 3424
Oxford, AL 36203

6.5. Facility Operations

The 431 Quarry of Pillar Materials, LLC will produce crushed stone aggregate for commercial use.

6.6. Petroleum Storage

Pillar Materials, LLC plans to store diesel fuel at the pit using two double-walled, steel, diesel tanks. The maximum volume of each tank will be approximately 1,000 gallons. Any other petroleum (i.e., motor oils, hydraulic oil, lubricating oil, etc.) will be stored on spill containment pallets.

6.7. Petroleum Transfer Procedures

In order to lessen the probability of discharges during transfers, the following discharge prevention procedures will be utilized:

- Prior to transferring any material into a container, the person transferring the material will make sure that the available volume of the container is greater than the amount that will be transferred to the container.
- During the entire time that material is being transferred to a container, the person transferring the material must continually monitor the transfer process.
- Container level gauges, if present, will be continuously monitored during transfers.
- No smoking is allowed within 25 feet of a storage or transfer area during transfers.
- No fire, open flames or welding is allowed within 25 feet of a storage and transfer area during transfers.
- The hand brake must be engaged and the wheels chocked on any vehicle that is transferring material.
- Tools that are likely to reduce the effectiveness of the closure of any valve of a storage container will not be used.
- After transferring, any manholes and valves associated with a storage container will be closed and secured.
- Warning signs will be in-place to warn personnel not to move transfer vehicles until all transfer lines have been completely disconnected.

- Prior to the departure of a transfer vehicle, the lower most outlets of the vehicle will be examined for leakage and, if necessary, tightened, adjusted or replaced to prevent leakage.
- During transfer, all associated equipment will be properly grounded to prevent sparking from the discharge of static electricity built up within the transfer line.
- Contractors retained to transfer at this facility will be apprised of their responsibility for discharge prevention and, if necessary, discharge response during such transfers.

6.8. Discharge Prevention Measures

All containers used for storage at this facility will be of a material and construction compatible with the material stored and conditions of storage such as pressure and temperature. The secondary containment containers will be constructed of materials sufficiently impervious to contain the discharged material. The secondary containment containers will contain a volume greater than that of the largest container.

Drainage of uncontaminated storm water from a secondary containment to a permitted outfall is not allowed unless:

- The bypass valve is normally sealed closed;
- The retained storm water is inspected to ensure that no sheen nor discoloration is present;
- The bypass valve is opened, then resealed following draining under responsible supervision; and
- Adequate records are kept of the drainage events (i.e., records required under the National Pollutant Discharge Elimination System permit).

The storage containers will be inspected on a routine basis. Visual inspections will include checking the outside of the containers, supports, gauges, valves, fittings, and piping for damage, deterioration, or any accumulation of material inside diked areas.

Visible discharges that result in a loss of material from a container will be promptly corrected. Any material that accumulates within a diked area will be promptly removed.

The requirements to provide corrosion protection for completely or partially buried metallic storage containers will not be applicable because there will be no buried metallic storage containers at this facility. The requirements to protect buried piping will not be applicable because there will be no buried piping at this facility associated with oil storage. Containers, aboveground piping, and transfer operations will be protected from vehicles.

6.9. Discharge Discovery, Response and Cleanup

In the event of a discharge at this facility, the following actions will be taken, as appropriate, by facility personnel upon discovery of the discharge:

- If safely possible, attempt to stop additional discharge from the container, piping, hose or other source. Use emergency shut-off if available.
- Follow the facility's emergency response plan and use the facility's emergency notification system to warn facility occupants of the emergency. Contact the SPCC Coordinator and apprise him of the situation.
- Shut off any ignition sources (i.e., motors, electrical circuits, open flames, etc.) that could cause a fire in the vicinity of any discharged oil.
- Secure containment of the discharged material. Make sure secondary containment structures are secure and have temporary containment equipment ready in case the discharged material escapes the secondary containment; priority should be given to containing the discharge on the facility's property and protecting storm drains and other access points to surface water.
- When necessary, the SPCC Coordinator will retain a contractor to clean up and dispose of the discharged material.
- When necessary, the SPCC Coordinator will report the discharge to the appropriate authorities.

6.10. Disposal of Recovered Materials

Disposal of recovered discharged materials will take place in accordance with applicable legal requirements.

6.11. Emergency Contact List

Name	Telephone
Lance Taylor, President/ SPCC Coordinator	(256) 835-1800
National Response Center (NRC)	(800) 424-8802
Alabama Department of Environmental Management (ADEM) (After Hours, Call Birmingham Field Office)	(334) 271-7700 After Hours: (205) 942-6168
U.S. Environmental Protection Agency (EPA): Regional Administrator	(404) 562-8700

6.12. Discharge Reporting Information

In the event of an oil discharge from this facility that reaches navigable waters, the following information will be collected and reported to the individuals and organizations named in the Emergency Contact List above:

- Facility address;
- Facility telephone number;
- Date and time of the oil discharge;
- Type of oil discharged;
- Estimate of the total quantity of oil discharged;
- Source of the discharged oil;
- Description of affected media (i.e., water, shoreline, etc.);
- Cause of the oil discharge;
- Damages and/or injuries resulting from the oil discharge;
- Actions taken to stop, remove or mitigate the effects of the oil discharge;
- Whether an evacuation may be needed; and
- Names of individuals and/or organizations that have been contacted.

6.13. Discharge Reporting Deadlines

Notification, by phone, containing the above specific information, must be made to the NRC immediately upon knowledge of whenever the facility has discharged (spilled or released) a harmful quantity of oil (violated water quality standard or caused a film or sheen) into navigable waters.

ADEM requires notification within 24 hours for spills or discharges requiring notification of the NRC.

The SPCC Coordinator must submit specific information to the EPA Regional Administrator within sixty (60) days of either of the following occurrences:

- Whenever the facility has discharged 1,000-gallons or more of oil in a single discharge into navigable waters of the state or adjoining shorelines.
- Whenever the facility has discharged more than 42-gallons of oil in each of two discharges occurring within any twelve-month period.

6.14. Personnel Training

All materials-handling personnel will be trained, at a minimum, with regard to the contents of this SPCC Plan. Supplemental information could include general facility operations, operation and maintenance procedures to prevent discharges, discharge procedure protocols, and applicable pollution control laws and regulations

Discharge prevention briefings will be scheduled and conducted for all materials-handling personnel annually to assure adequate understanding of this SPCC Plan. These briefings, at a minimum, will highlight and describe known discharges or failures, malfunctioning components and any recently developed precautionary measures.

Training records will be maintained by the facility.

6.15. Security

The facility is fenced or otherwise secured (creek, trees, etc.) with access through a gate at the highway.

7. Drawings

The drawings of the site are included in this chapter.

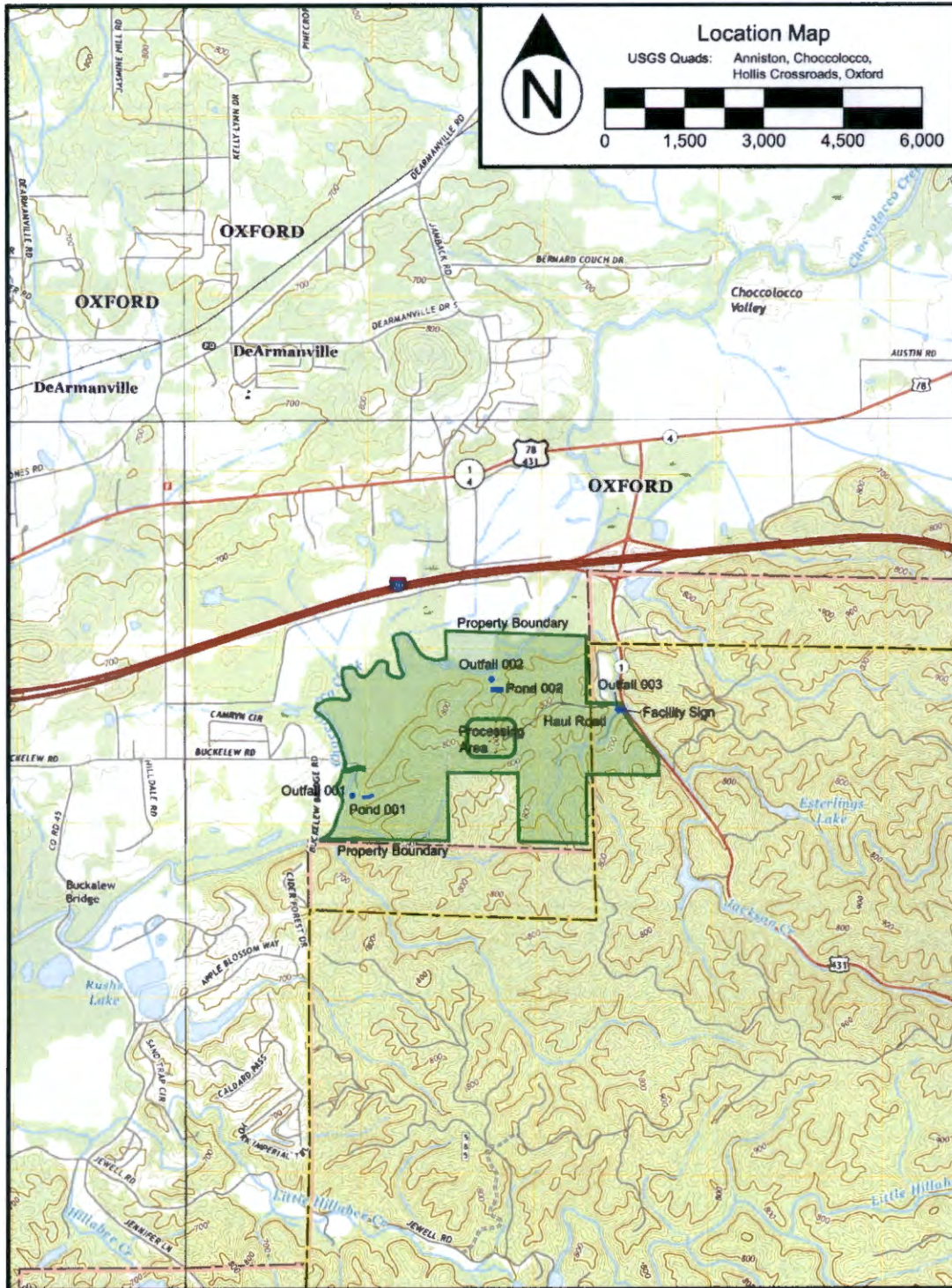
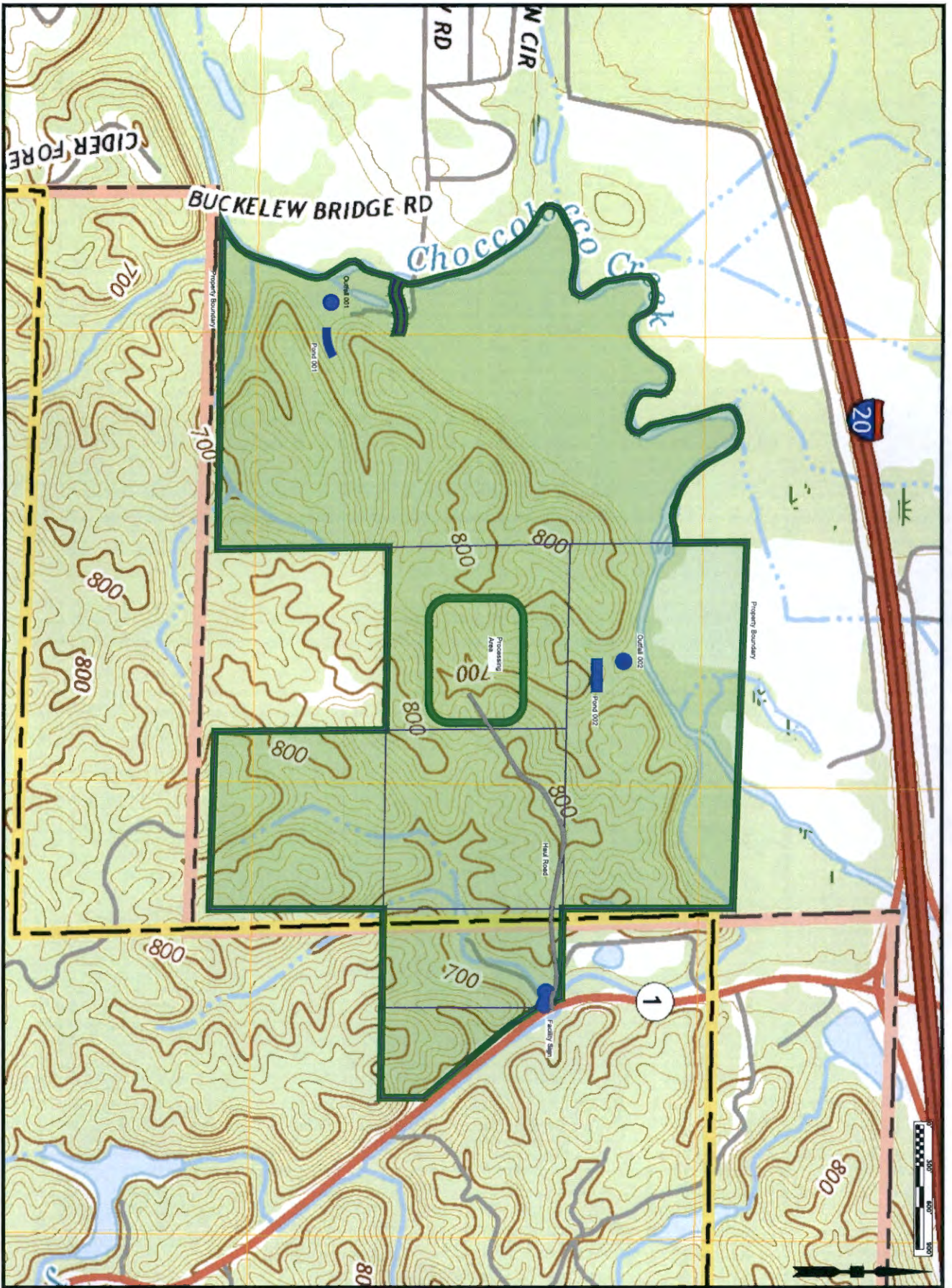


Figure 1-1. Location Map.



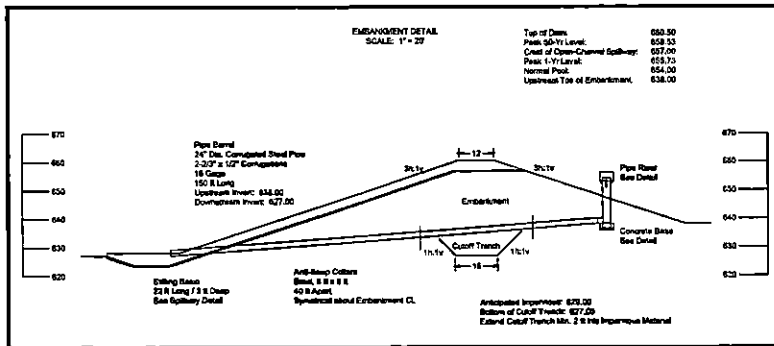
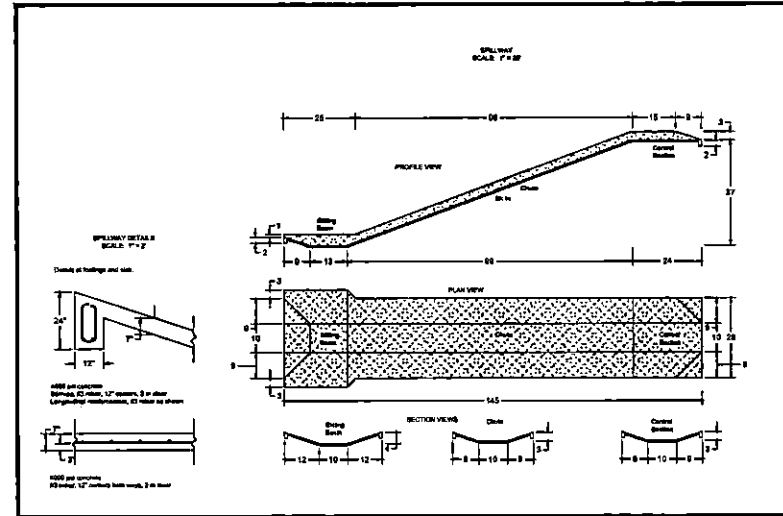
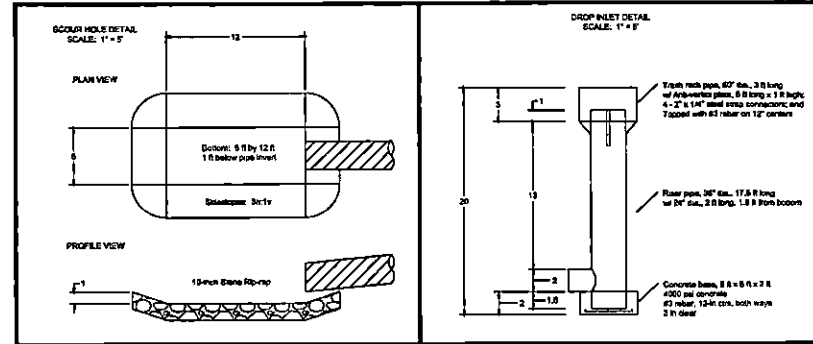
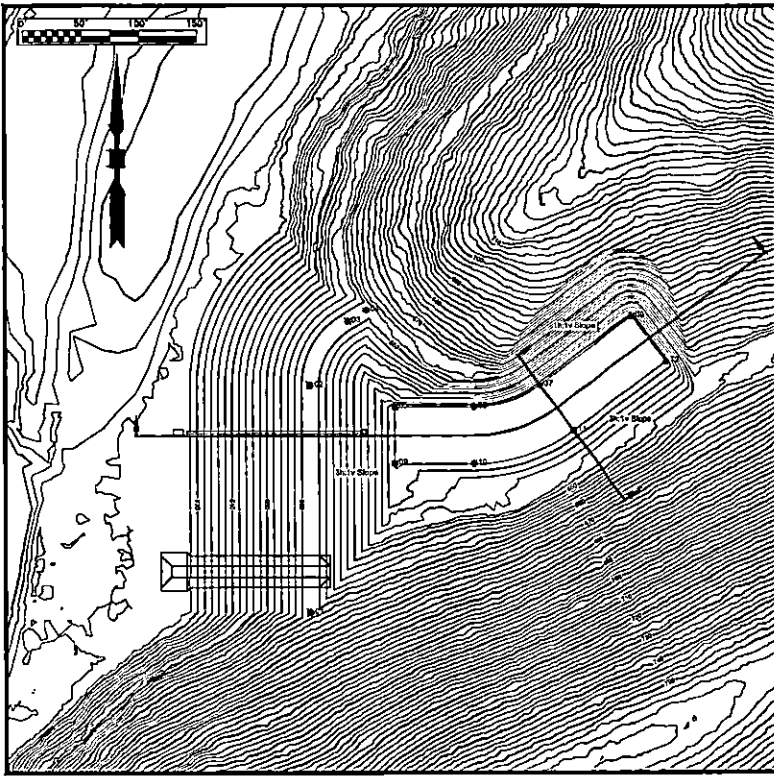
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 SHEET 1 OF 1
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PROJECT INFO:
 PROJECT NO. 2108700
 DATE: 08/20/21
 DRAWN BY:

431 Quarry
Existing Contours
 Taylor Corporation, Oxford, AL 36264

INSITE
ENGINEERING
 CIVIL / GIS
 INFRASTRUCTURE
 PLANNING
 COMMERCIAL
 RESIDENTIAL

4300 W. GARDNER
 HOUSTON, TEXAS 77056
 PHONE: (281) 416-1100
 FAX: (281) 416-1101
 WWW.INSITEENGINEERING.COM



CONTROL POINTS
Stata Plans, Alabama East, Feet

CENTERLINE OF DAM

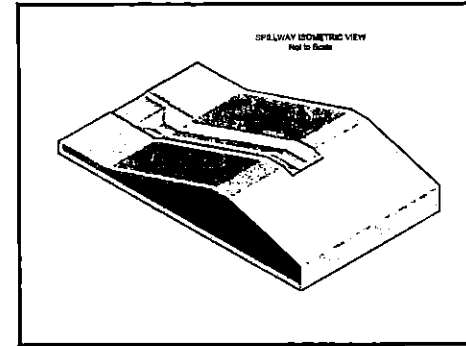
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02	544,805.36	1,129,823.04	660.00
03	544,827.27	1,129,819.08	660.00
04	544,824.06	1,129,867.96	660.00

Radius = 66.00

POINTS EXCAVATION

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06	544,848.71	1,129,822.37	638.00
07	545,207.18	1,129,821.21	638.00
08	545,208.99	1,129,862.29	638.00
09	544,816.98	1,129,822.37	638.00
10	544,848.71	1,129,822.37	638.00
11	545,028.89	1,129,841.64	638.00
12	545,118.64	1,129,842.15	638.00

Radius = 142.00



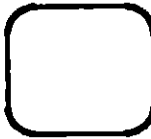
INSITE ENGINEERING
 4005 FORDSHIRE WALK
 MOBILE, ALABAMA 36684
 OFFICE: (904) 723-8636
 FAX: (904) 723-8607

2135 UNIVERSITY BLVD. SUITE A
 OFFICE: (252) 752-4637
 FAX: (252) 752-2344

CIVIL / GIS
 INFRASTRUCTURE
 ENVIRONMENTAL
 PLANNING
 COMMERCIAL
 RESIDENTIAL

431 Quarry Pond 001

Pillar Materials, LLC; Heflin, AL 36264

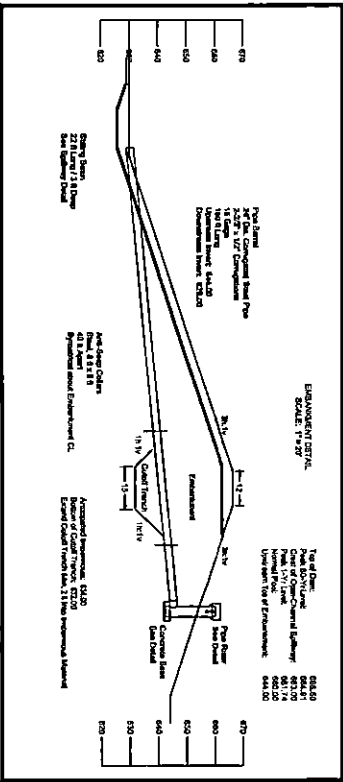
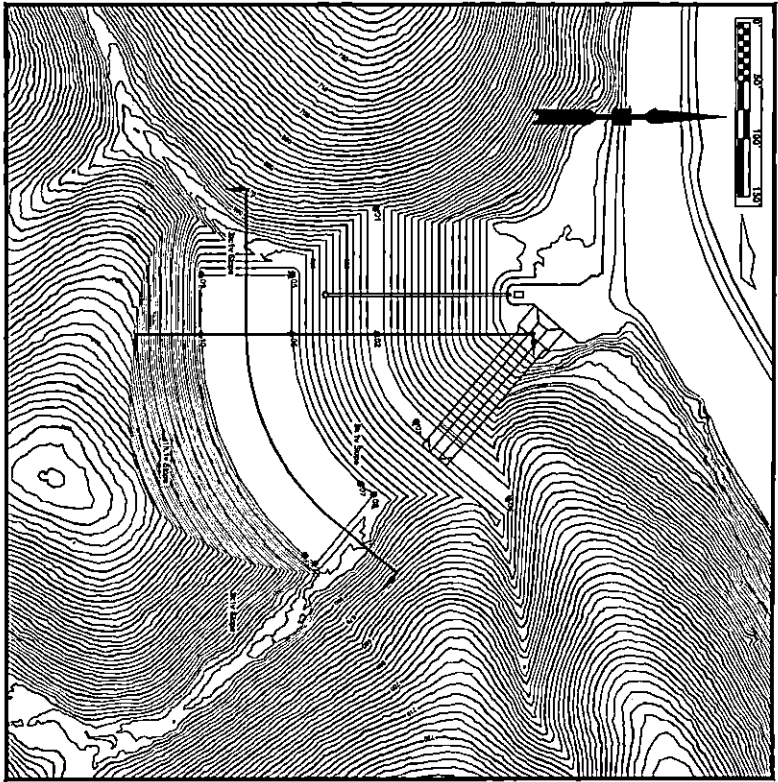


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 PLOTTED: NA

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 SHEET 1 OF 1

02

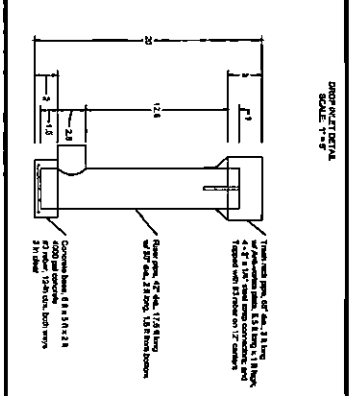
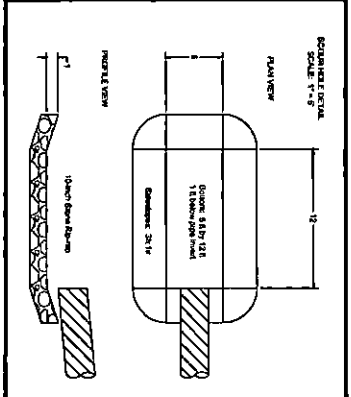
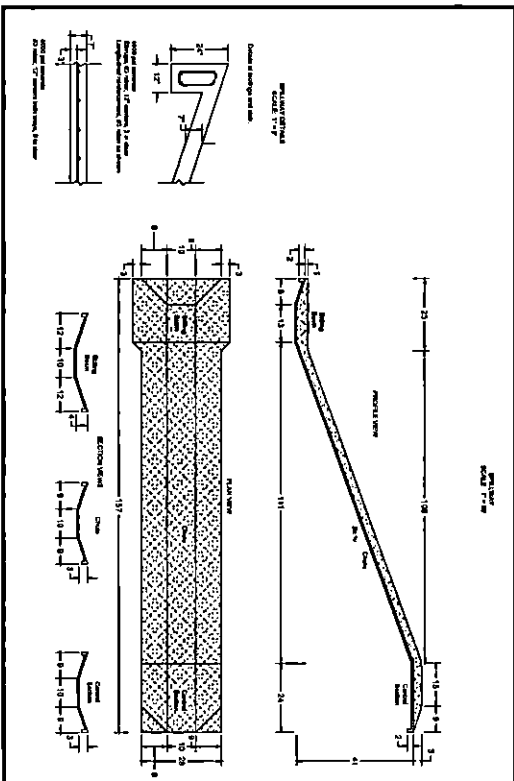
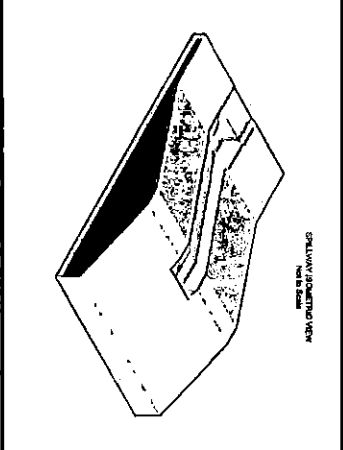


EXISTING ELEVATIONS
SCALE: 1" = 20'

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Point 102.00

CONTROL POINTS
Station Name, Elevation, East, West

Point	Line	Station	Elevation	East	West
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03	101.13	101.13	101.13	101.13	101.13
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08	101.18	101.18	101.18	101.18	101.18
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PROJECT INFO:
INSITE JOB NO. 2108700
PLOTTER: NA

THIS SHEET CONTAINS:

SCALE: VARIOUS
SHEET 1 OF 1
03

431 Quarry Pond 002

Pillar Materials, LLC: Heflin, AL 36264

INSITE ENGINEERING

1118 UNIVERSITY BLVD. SUITE 101
HEFLIN, AL 36264
OFFICE: 205.726.8888
FAX: 205.726.8888
CELL: 205.726.8888
RESIDENTIAL

8. Forms

8.1. Introduction

The ADEM forms associated with the application are included in this chapter.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM)
NPDES INDIVIDUAL PERMIT APPLICATION (MINING OPERATIONS)**

Instructions: This form should be used to submit an application for an NPDES individual permit to authorize discharges from surface & underground mineral, ore, or mineral product mining, quarrying, excavation, borrowing, hydraulic mining, storage, processing, preparation, recovery, handling, loading, storing, or disposing activities, and associated areas including pre-mining site development, construction, excavation, clearing, disturbance, and reclamation. Please complete all questions. Respond with "N/A" as appropriate. Incomplete or incorrect answers or missing signatures will delay processing. Attach additional comments or information as needed. If space is insufficient, continue on an attached sheet(s) as necessary. Commencement of activities applied for as detailed in this application are not authorized until permit coverage has been issued by the Department. Please type or print legibly in blue or black ink.

Purpose of this Application

- Initial Permit Application for New Facility Initial Permit Application for Existing Facility (e.g., facility previously permitted less than 5 acres)
 Modification of Existing Permit Reissuance of Existing Permit Reissuance & Modification Existing Permit
 Reissuance & Transfer of Existing Permit Revocation and Reissuance of Existing Permit Other _____

I. GENERAL INFORMATION

NPDES Permit Number (Not applicable if initial permit application): AL N/A	County(s) in which Facility is Located: Calhoun, Cleburne
--	--

Company/Permittee and Facility Information					
Company/Permittee Name Pillar Materials, LLC			Facility Name 431 Quarry		
Mailing Address of Company/Permittee: P.O. Box 3424			Physical Address of Operation (as near as possible to main entrance): 2255 Highway 78 East		
City Oxford	State AL	Zip Code 36203	City Heflin	State AL	Zip 36264
Permittee Phone Number (256) 835-1800		Permittee Fax Number: (256) 835-1803		Latitude and Longitude of Main Entrance: 33.61030°, -85.72307°	

Responsible Official (RO) Information					
RO Name (as described on Page 12 of this application): K. Lance Taylor			RO Official Title: President		
Mailing Address: P.O. Box 3424			Physical Address: 2255 Highway 78 East		
City Oxford	State AL	Zip Code 36203	City Heflin	State AL	Zip Code 36264
Phone Number: (256) 835-1800		Fax Number: (256) 835-1803		Email Address: lance@taylorcorporation.com	

Facility Contact Information					
Facility Contact Name: K. Lance Taylor			Facility Contact Title: President		
Physical Address: P.O. Box 3424			Phone Number: (256) 835-1800		Fax Number: (256) 835-1803
City Oxford	State AL	Zip Code 36203	Email Address: lance@taylorcorporation.com		

II. MEMBER INFORMATION

A. Identify the name, title/position, and unless waived in writing by the Department, the resident address of every officer (a PO Box is not acceptable), general partner, LLP partner, LLC member, investor, director, or person performing a function similar to a director, of the applicant, and each person who is the record or beneficial owner of 10 percent or more of any class of voting stock of the applicant, or any other responsible official(s) of the applicant with legal or decision making responsibility or authority for the facility:

Name	Title/Position	Physical Address of Residence
K. Lance Taylor	President	1361 Evans Bridge Road; Heflin, AL 36264

B. Other than the "Company/Permittee" listed in Part I, identify the name of each corporation, partnership, association, and single proprietorship for which any individual identified in Part II.A. is or was an officer, general partner, LLP partner, LLC member, investor, director, or individual performing a function similar to a director, or principal (10% or more) stockholder, that had an Alabama NPDES permit at any time during the five year (60 month) period immediately preceding the date on which this form is signed:

Name of Corporation, Partnership, Association, or Single Proprietorship	Name of Individual from Part II.A	Title/Position in Corporation, Partnership, Association, or Single Proprietorship
Pillar Materials, LLC	K. Lance Taylor	President

III. LEGAL STRUCTURE OF APPLICANT

A. Indicate the legal structure of the "Company/Permittee" listed in Part I:

- Corporation
 Association
 Individual
 Single Proprietorship
 Partnership
 LLP
 LLC
 Government Agency
 Other _____

B. If not an individual, single proprietorship, or government agency, is the "Company/Permittee" listed in Part I. properly registered and in good standing with the Alabama Secretary of State's office. (If the answer is "No," attach a letter of explanation.) Yes No

C. Parent Corporation and Subsidiary Corporations of Applicant, if any:

None

D. Landowner(s):

Pillar Holdings, LLC

E. Sub-contractor(s)/Operator(s), if known:

None

IV. COMPLIANCE HISTORY

A. Has the applicant ever had any of the following:

- | Yes | No | |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (1) An Alabama NPDES, SID, or UIC permit suspended or terminated? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (2) An Alabama or federal environmental permit suspended/terminated? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (3) An Alabama State Oil & Gas Board permit or other approval suspended or terminated? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (4) An Alabama or federal performance/environmental bond, or similar security deposited in lieu of a bond, or portion thereof, forfeited? |

(If the response to any item of Part IV.A. is "Yes," attach a letter of explanation.)

B. Identify every Warning Letter, Notice of Violation (NOV), Administrative Action, or litigation issued to the applicant, parent corporation, subsidiary, general partner, LLP partner, or LLC Member and filed by ADEM or EPA during the three year (36 month) period preceding the date on which this form is signed. Indicate the date of issuance, briefly describe alleged violations, list actions (if any) to abate alleged violations, and indicate date of final resolution:

None

V. OTHER PERMITS/AUTHORIZATIONS

A. List any other NPDES, State Oil & Gas Board (OGB) Class II Injection well permits, or other environmental permits (including permit numbers), authorizations, or certifications that have been applied for or issued within the State by ADEM, EPA, Alabama Surface Mining Commission (ASMC), Alabama Department of Labor (ADOL), or other agency, to the applicant, parent corporation, subsidiary, or LLC member for this operation whether presently effective, expired, suspended, revoked or terminated:

None

B. List any other NPDES or other ADEM permits (including permit numbers), authorizations, or certifications that have been applied for or issued within the State by ADEM, EPA, OGB, ASMC, or ADOL to the applicant, parent corporation, subsidiary, or LLC member for other facilities whether presently effective, expired, suspended, revoked, or terminated:

None

VI. PROPOSED SCHEDULE

Anticipated Activity Commencement Date: June 2023 Anticipated Activity Completion Date: 2040

VII. ACTIVITY DESCRIPTION & INFORMATION

A. Proposed Total Area of the Permitted Site: 384 acres Proposed Total Disturbed Area of the Permitted Site: 91 acres

B. Township(s), Range(s), Section(s): T16S, R9E, S 29 & 30

C. Detailed Directions to Site:

Begin at int. of US-78 and AL-21 in Oxford. East on US-78 for 6.3 miles to AL-301 (to US-431). Turn right. South on AL-301 for 0.4 miles to US-431. Continue straight. South on US-431 for 0.6 miles to a gated driveway and turn right. Pit lies behind (further west) the Scenic Drive RV Park.

D. Is/will this operation:

- | Yes | No | |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (1) an existing facility which currently results in discharges to State waters? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | (2) a proposed facility which will result in a discharge to State waters? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (3) be located within any 100-year flood plain? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (4) discharge to Municipal Separate Storm Sewer? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (5) discharge to waters of or be located in the Coastal Zone? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (6) need/have ADEM UIC permit coverage? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (7) be located on Indian/historically significant lands? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (8) need/have ADEM SID permit coverage? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (9) need/have ASMC permit coverage? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (10) need/have ADOL permit coverage? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | (11) generate, treat, store, or dispose of hazardous or toxic waste? (If "Yes," attach a detailed explanation.) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | (12) be located in or discharge to a Public Water Supply (PWS) watershed or be located within 1/2 mile of any PWS well? |

VIII. MATERIAL TO BE REMOVED, PROCESSED, OR TRANSLOADED

List relative percentages of the mineral(s) or mineral product(s) that are proposed to be and/or are currently mined, quarried, recovered, prepared, processed, handled, transloaded, or disposed at the facility. If more than one mineral is to be mined, list the relative percentages of each mineral by tonnage for the life of the mine.

<u> </u> Dirt &/or Chert	<u> </u> Sand &/or Gravel	<u> </u> Coal product, coke	<u> </u> Talc	<u> 40 </u> Crushed rock (other)
<u> </u> Bentonite	<u> </u> Industrial Sand	<u> </u> Shale &/or Common Clay	<u> </u> Marble	<u> </u> Sandstone
<u> </u> Coal	<u> </u> Kaolin	<u> </u> Coal fines/refuse recovery	<u> </u> Chalk	<u> </u> Slag, Red Rock
<u> </u> Fire clay	<u> </u> Iron ore	<u> </u> Dimension stone	<u> </u> Granite	<u> </u> Phosphate rock
<u> </u> Bauxitic Clay	<u> </u> Bauxite Ore	<u> 60 </u> Limestone, crushed limestone and dolomite		
<u> </u> Gold, other trace minerals:		Other: <u> </u>		
Other: <u> </u>		Other: <u> </u>		
Other: <u> </u>		Other: <u> </u>		

IX. PROPOSED ACTIVITY TO BE CONDUCTED

A. Type(s) of activity presently conducted at applicant's existing facility or proposed to be conducted at facility (check all that apply):

<input checked="" type="checkbox"/> Surface mining	<input type="checkbox"/> Underground mining	<input checked="" type="checkbox"/> Quarrying	<input type="checkbox"/> Auger mining	<input type="checkbox"/> Hydraulic mining
<input type="checkbox"/> Within-bank mining	<input type="checkbox"/> Solution mining	<input checked="" type="checkbox"/> Mineral storing	<input type="checkbox"/> Lime production	<input type="checkbox"/> Cement production
<input type="checkbox"/> Synthetic fuel production	<input type="checkbox"/> Alternative fuels operation	<input checked="" type="checkbox"/> Mineral dry processing (crushing & screening)	<input checked="" type="checkbox"/> Mineral wet preparation	
<input type="checkbox"/> Other beneficiation & manufacturing operations		<input checked="" type="checkbox"/> Mineral loading	<input type="checkbox"/> Chemical processing or leaching	
<input checked="" type="checkbox"/> Grading, clearing, grubbing, etc.		<input type="checkbox"/> Pre-construction ponded water removal	<input checked="" type="checkbox"/> Excavation	
<input checked="" type="checkbox"/> Pre-mining logging or land clearing		<input type="checkbox"/> Waterbody relocation or other alteration	<input type="checkbox"/> Creek/stream crossings	
<input type="checkbox"/> Construction related temporary borrow pits/areas		<input checked="" type="checkbox"/> Mineral transportation: <input type="checkbox"/> rail <input type="checkbox"/> barge <input checked="" type="checkbox"/> truck		
<input type="checkbox"/> Preparation plant waste recovery		<input type="checkbox"/> Hydraulic mining, dredging, instream or between stream-bank mining		
<input type="checkbox"/> Onsite construction debris or equipment storage/disposal		<input type="checkbox"/> Onsite mining debris or equipment storage/disposal		
<input type="checkbox"/> Reclamation of disturbed areas		<input type="checkbox"/> Chemicals used in process or wastewater treatment (coagulant, biocide, etc.)		
<input type="checkbox"/> Adjacent/associated asphalt/concrete plant(s)		<input type="checkbox"/> Low volume sewage treatment package plant		
<input type="checkbox"/> Other (Please describe):				

B. Primary SIC Code: 1422 NAICS Code: 212312 Description: Crushed/Broken Limestone (includes Dolomite)
 Secondary SIC Code: _____ NAICS Code: _____ Description: _____

C. Narrative Description of the Activity:

X. FUEL – CHEMICAL HANDLING, STORAGE & SPILL PREVENTION CONTROL & COUNTERMEASURES (SPCC) PLAN

A. Will fuels, chemicals, compounds, or liquid waste be used or stored onsite? Yes No

B. If "Yes," identify the fuel, chemicals, compounds, or liquid waste and indicate the volume of each:

Volume (gallons)	Contents	Volume (gallons)	Contents	Volume (gallons)	Contents
1,000	Diesel				
1,000	Diesel				

C. If "Yes", a detailed SPCC Plan with acceptable format and content, including diagrams, must be attached to application in accordance with ADEM Admin. Code R. 335-6-6-.12(r). Unless waived in writing by the Department on a programmatic, categorical, or individual compound/chemical basis, Material Safety Data Sheets (MSDS) for chemicals/compounds used or proposed to be used at the facility must be included in the SPCC Plan submittal.

XI. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN

A. For non-coal mining facilities, a PAP Plan in accordance with ADEM Admin. Code r. 335-6-9-.03 has been completed and is attached as part of this application. Yes No

B. For coal mining facilities, a detailed PAP Plan has been submitted to ASMC according to submittal procedures for ASMC regulated facilities. Yes No

(1) If "Yes" to Part XI.B., provide the date that the PAP Plan was submitted to ASMC: _____

(2) If "No" to Part XI.B., provide the anticipated date that the PAP Plan will be submitted to ASMC: _____

XII. ASMC REGULATED ENTITIES

A. Is this coal mining operation regulated by ASMC? Yes No

B. If "Yes," provide copies as part of this application of any pre-mining hydrologic sampling reports and Hydrologic Monitoring Reports which have been submitted to ASMC within the 36 months prior to submittal of this application.

XIII. TOPOGRAPHIC MAP SUBMITTAL

Attach to this application a 7.5 minute series U.S.G.S. topographic map(s) or equivalent map(s) no larger than, or folded to a size of 8.5 by 11 inches (several pages may be necessary), of the area extending to at least one mile beyond property boundaries. The topographic or equivalent map(s) must include a caption indicating the name of the topographic map, name of the applicant, facility name, county, and township, range, & section(s) where the facility are located. Unless approved in advance by the Department, the topographic or equivalent map(s), at a minimum, must show:

- (a) An accurate outline of the area to be covered by the permit
- (b) An outline of the facility
- (c) All existing and proposed disturbed areas
- (d) Location of intake and discharge areas
- (e) Proposed and existing discharge points
- (f) Perennial, intermittent, and ephemeral streams
- (g) Lakes, springs, water wells, wetlands
- (h) All known facility dirt/improved access/haul roads
- (i) All surrounding unimproved/improved roads
- (j) High-tension power lines and railroad tracks
- (l) Contour lines, township-range-section lines
- (m) Drainage patterns, swales, washes
- (n) All drainage conveyance/treatment structures (ditches, berms, etc.)
- (o) Any other pertinent or significant feature

XIV. DETAILED FACILITY MAP SUBMITTAL

Attach to this application a 1:500 scale or better, detailed auto-CAD map(s) or equivalent map(s) no larger than, or folded to a size of 8.5 by 11 inches (several pages may be necessary), of the facility. The facility map(s) must include a caption indicating the name of the facility, name of the applicant, facility name, county, and township, range, & section(s) where the facility is located. Unless approved in advance by the Department, the facility or equivalent map(s), at a minimum, must show:

- (a) Information listed in Item XIII (a) – (o) above
- (b) If noncoal, detailed, planned mining progression
- (c) If noncoal, location of topsoil storage areas
- (d) Location of ASMC bonded increments (if applicable)
- (e) Location of mining or pond cleanout waste storage/disposal areas
- (f) Other information relevant to facility or operation
- (g) Location of facility sign showing Permittee name, facility name, and NPDES Number

XV. RECEIVING WATERS

List the requested permit action for each outfall (issue, reissue, add, delete, move, etc.); outfall designation including denoting "E" for existing and "P" for proposed outfalls; name of receiving water(s); latitude and longitude (to seconds) of location(s) of each discharge point; distance of receiving water from the discharge point; number of disturbed acres; the number of drainage acres which will drain through each outfall; and if the outfall discharges to an ADEM listed CWA Section 303(d) waterbody segment or is included in a TMDL at the time of application submittal.

Action	Outfall E/P	Receiving Water	Latitude	Longitude	Distance to Rec. Water (ft)	Disturbed Area (acres)	Drainage Area (acres)	ADEM WUC	303(d) Segment (Y/N)	TMDL Segment* (Y/N)
Issue	001P	Chocolocco Creek	33.60582°	85.73965°	150	38	42	FW / PWS	Y	N
Issue	002P	Chocolocco Creek	33.61173°	85.73102°	100	53	65	FW / PWS	Y	N
Issue	003P	Jackson Creek	33.61016°	85.72319°	150	5	157	FW	N	N

*If a TMDL Compliance Schedule is requested, the following should be attached as supporting documentation: (1) Justification for the requested Compliance Schedule (e.g., time for design and installation of control equipment); (2) Monitoring results for the pollutant(s) of concern which have not previously been submitted to the Department including sample collection dates, analytical results in mass and concentration, methods utilized, and RL and MDL; (3) Requested interim limitations, if applicable; (4) Date of final compliance with the TMDL limitations; and (5) Any other additional information available to support the requested compliance schedule.

XVI. DISCHARGE CHARACTERIZATION

A. EPA Form 2C, EPA Form 2D, and/or ADEM Form 567 Submittal

- Yes, pursuant to 40 CFR 122.21, the applicant requests a waiver for completion of EPA Form 2C, EPA Form 2D, and ADEM Form 567 and certifies that the operating facility will discharge treated stormwater only; that chemical/compound additives are not used (unless waived in writing by the Department on a programmatic, categorical, or individual compound/chemical basis); that there are no process, manufacturing, or other industrial operations or wastewaters, including but not limited to lime or cement production and synfuel operations; and that coal and coal products are not mined nor stored onsite.
- No, the applicant does not request a waiver and a complete EPA Form 2C, EPA Form 2D, and/or ADEM Form 567 is attached.

B. The applicant is required to supply the following information separately for every proposed or existing outfall. (Attach extra sheets if necessary.) List expected average daily discharge flow rate in cfs and gpd; frequency of discharge in hours per day and days per month; average summer and winter temperature of discharge(s) in degrees centigrade; average pH in standard units; and average daily discharges in pounds per day of BOD₅, Total Suspended Solids, Total Iron, Total Manganese, and Total Aluminum (if bauxite or bauxitic clay or if otherwise believed present):

Outfall E/P	Information Source - # of Samples	Flow (cfs)	Flow (gpd)	Frequency (hours/day)	Frequency (days/month)	Sun/Win Temp. (°C)	pH (s.u.)	BOD ₅ (lbs/day)	TSS (lbs/day)	Tot Fe (lbs/day)	Tot Mn (lbs/day)	Tot Al (lbs/day)
001P	BPE	0.13	84000	24	30	21/19	7.5	1.40	5.60	0.14	0.01	0
002P	BPE	0.20	130000	24	30	21/19	7.5	2.17	8.67	0.22	0.02	0
003P	BPE	0.49	314000	24	30	21/19	7.5	5.24	20.95	0.52	0.05	0

C. The applicant is required to supply the following information separately for every proposed or existing outfall. (Attach extra sheets if necessary.) Identify and list expected average daily discharge of any other pollutant(s) listed in EPA Form 2C Tables A, B, C, D, and E that are not referenced in Part XVI.B. or otherwise submitted elsewhere, that you know is present or have reason to believe could be present in the discharge(s) at levels of concern:

Outfall E/P	Reason Believed Present	Information Source - # of Samples								
			lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L

XVII. DISCHARGE STRUCTURE DESCRIPTION & POLLUTANT SOURCE

The applicant is required to supply outfall number(s) as it appears on the map(s) required by this application [if this application is for a modification to an existing permit do not change the numbering sequence of the permitted outfalls], describe each, (e.g., pipe, spillway, channel, tunnel, conduit, well, discrete fissure, or container), and identify the origin of pollutants. The response must be precise for each outfall. If the discharge of pollutants from any outfall is the result of commingling of waste streams from different origins, each origin must be completely described.

Outfall	Discharge structure Description	Description of Origin of pollutants	Surface Discharge	Groundwater Discharge	Wet Prep -Other Production Plant	Pumped or Controlled Discharge	Low Volume STP
001P	Pipe (Pond)	7,8,9,10,11,12	Yes	No	No	Yes	No
002P	Pipe (Pond)	7,8,9,10,11,12	Yes	No	Yes	Yes	No
003P	Pile (Road Culvert)	12	Yes	NO	No	No	No

Origin of Pollutants – typical examples: (1) Discharge of drainage from the underground workings of an underground coal mine, (2) Discharge of drainage from a coal surface mine, (3) Discharge of drainage from a coal preparation plant and associated areas, (4) Discharge of process wastewater from a gravel-washing plant, (5) Discharge of wastewater from an existing source coal preparation plant, (6) Discharge of drainage from a sand and gravel pit, (7) Pumped discharge from a limestone quarry, (8) Controlled surface mine drainage (pumped or siphoned), (9) Discharge of drainage from mine reclamation, (10) Other (please describe):

10. Discharge of drainage from an aggregate pit. 11. Runoff from an aggregate crushing & sizing processing area. 12. Runoff from a construction site (e.g., pond or haul road).

XVIII. COOLING WATER

A. Does your facility use cooling water? Yes No

B. If "Yes," identify the source of the cooling water:

XIX. VARIANCE REQUEST

A. Do you intend to request or renew one or more of the CWA technology variances authorized at 40 CFR 122.21(m)? Yes No

B. If "Yes," select all that apply:

- Fundamentally different factors (CWA Section 301(n))
- Water quality related effluent limitations (CWA Section 302(b)(2))
- Non-conventional pollutants (CWA Section 301(c) and (g))
- Thermal discharges (CWA Section 316(a))

XX. PROPOSED NEW OR INCREASED DISCHARGES

A. Pursuant to ADEM Admin. Code ch. 335-6-10-.12(9), responses to the following questions must be provided by the applicant requesting NPDES permit coverage for new or expanded discharges of pollutant(s) to Tier 2 waters (except discharges eligible for coverage under general permits). As part of the permit application review process, the Department is required to consider, based on the applicant's demonstration, whether the proposed new or increased discharge to Tier 2 waters is necessary for important economic or social development in the area in which the waters are located.

- Yes. New/increased discharges of pollutant(s) or discharge locations to Tier 2 waters are proposed.
- No. New/increased discharges of pollutants(s) or discharge locations to Tier 2 waters are not proposed.

B. If "Yes," complete Items 1 through 6 of this Part (XIII.B.), ADEM Form 311-Alternative Analysis, and either ADEM Form 312 or ADEM Form 313-Calculation of Total Annualized Project Costs (Public-Sector or Private-Sector, whichever is applicable). ADEM Form 312 or ADEM Form 313, whichever is applicable, should be completed for each technically feasible alternative evaluated on ADEM Form 311. ADEM Forms can be found on the Department's website at www.adem.alabama.gov/DeptForms. Attach additional sheets/documentation and supporting information as needed.

(1) What environmental or public health problem will the discharge be correcting?

None

(2) How much will the discharger be increasing employment (at its existing facility or as a result of locating a new facility)?

Increased employment by 10 employees.

(3) How much reduction in employment will the discharger be avoiding?

None.

(4) How much additional state or local taxes will the discharger be paying?

The following amounts have been estimated: Income tax withheld from and paid on employees, \$20,000; tax on company, \$25,000; real estate tax, \$3,000; sales/use tax, \$5,000; personal property tax, \$5,000; business license tax, \$1,000. The equipment used to mine and process the materials use energy. Taxes are also paid on the energy. For example, almost half of the cost of diesel or gasoline is tax. The estimated fuel tax is \$4,200. In addition to the direct taxes paid, numerous support facilities and vendors also pay taxes.

(5) What public service to the community will the discharger be providing?

The discharger plans to be a contributing and cohesive part of the local community of Oxford. Community relations and development is a major goal of the facility. Local organizations and charities will be provided with contributions from Taylor Corporation through various projects. An additional public service provided to the community includes environmental protection for Choccolocco Creek, a water of the state designated for fish and wildlife habitat in a public water supply watershed. Preventing pollution to Choccolocco Creek will provide the ability to preserve the water of the state for current and future area residences. Of course, the money provided to employees, the taxes paid to government, and the production of stone aggregate all have the potential to lead to public service to the community.

(6) What economic or social benefit will the discharger be providing to the community?

Obviously, employment provides very important economic and social benefits to the community. The discharger will employ people from Oxford and the surrounding communities. In addition to the direct employment, the discharger creates indirect economic social benefits through other companies that provide support services. The Oxford Pit will provide material for construction projects. The construction projects could result in improved infrastructure could be a critical part of economic growth within the region. The company will make charitable contributions. Employees also make charitable contributions, including church tithes.

XXI. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Yes	No	N/A	Outfall(s):	001P
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	Runoff from all areas of disturbance is controlled
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.	Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.	Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.	Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.	Trees, boulders, and other obstructions removed from pond during initial construction
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.	Width of top of dam greater than 12'
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.	Side slopes of dam no steeper than 3:1
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.	Cutoff trench at least 8' wide
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	Side slopes of cutoff trench no less than 1:1
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.	Cutoff trench located along the centerline of the dam
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.	Cutoff trench extends at least 2' into bedrock or impervious soil
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12.	Cutoff trench filled with impervious material
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13.	Embankments and cutoff trench 95% compaction standard proctor ASTM
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14.	Embankment free of roots, tree debris, stones >6" diameter, etc.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.	Embankment constructed in lifts no greater than 12"
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.	Spillpipe sized to carry peak flow from a one year storm event
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17.	Spillpipe will not chemically react with effluent
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18.	Subsurface withdrawal
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19.	Anti-seep collars extend radially at least 2' from each joint in spillpipe
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20.	Splashpad at the end of the spillpipe
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	21.	Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22.	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23.	Emergency overflow at least 20' long
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24.	Side slopes of emergency spillway no steeper than 2:1
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25.	Emergency spillway lined with riprap or concrete
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26.	Minimum of 1.5' of freeboard between normal overflow and emergency overflow
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27.	Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28.	All emergency overflows are sized to handle entire drainage area for ponds in series
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	29.	Dam stabilized with permanent vegetation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30.	Sustained grade of haul road <10%
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31.	Maximum grade of haul road <15% for no more than 300'
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32.	Outer slopes of haul road no steeper than 2:1
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33.	Outer slopes of haul road vegetated or otherwise stabilized
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34.	Detail drawings supplied for all stream crossings
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35.	Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36.	Long-Term Stabilization/Grading And Permanent Reclamation or Water Quality Remediation Plans

IDENTIFY AND PROVIDE DETAILED EXPLANATION FOR ANY "N" OR "N/A" RESPONSE(s):

21. Emergency spillway is adequate for 25-yr event, but sized for the larger 50-yr event.

XXI. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Yes	No	N/A	Outfall(s):	002P
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Runoff from all areas of disturbance is controlled	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Trees, boulders, and other obstructions removed from pond during initial construction	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Width of top of dam greater than 12'	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Side slopes of dam no steeper than 3:1	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Cutoff trench at least 8' wide	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. Side slopes of cutoff trench no less than 1:1	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Cutoff trench located along the centerline of the dam	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. Cutoff trench extends at least 2' into bedrock or impervious soil	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Cutoff trench filled with impervious material	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Embankments and cutoff trench 95% compaction standard proctor ASTM	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. Embankment free of roots, tree debris, stones >6" diameter, etc.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. Embankment constructed in lifts no greater than 12"	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16. Spillpipe sized to carry peak flow from a one year storm event	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17. Spillpipe will not chemically react with effluent	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18. Subsurface withdrawal	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19. Anti-seep collars extend radially at least 2' from each joint in spillpipe	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20. Splashpad at the end of the spillpipe	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	21. Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. Emergency overflow at least 20' long	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. Side slopes of emergency spillway no steeper than 2:1	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25. Emergency spillway lined with riprap or concrete	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26. Minimum of 1.5' of freeboard between normal overflow and emergency overflow	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27. Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28. All emergency overflows are sized to handle entire drainage area for ponds in series	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	29. Dam stabilized with permanent vegetation	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30. Sustained grade of haul road <10%	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31. Maximum grade of haul road <15% for no more than 300'	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32. Outer slopes of haul road no steeper than 2:1	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33. Outer slopes of haul road vegetated or otherwise stabilized	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34. Detail drawings supplied for all stream crossings	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35. Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36. Long-Term Stabilization/Grading And Permanent Reclamation or Water Quality Remediation Plans	

IDENTIFY AND PROVIDE DETAILED EXPLANATION FOR ANY "N" OR "N/A" RESPONSE(s):

21. Emergency spillway is adequate for 25-yr event, but sized for the larger 50-yr event.

XXI. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Yes	No	N/A	Outfall(s):	003P
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	Runoff from all areas of disturbance is controlled
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2.	Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3.	Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4.	Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5.	Trees, boulders, and other obstructions removed from pond during initial construction
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.	Width of top of dam greater than 12'
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	7.	Side slopes of dam no steeper than 3:1
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8.	Cutoff trench at least 8' wide
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	9.	Side slopes of cutoff trench no less than 1:1
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10.	Cutoff trench located along the centerline of the dam
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11.	Cutoff trench extends at least 2' into bedrock or impervious soil
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.	Cutoff trench filled with impervious material
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.	Embankments and cutoff trench 95% compaction standard proctor ASTM
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.	Embankment free of roots, tree debris, stones >6" diameter, etc.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.	Embankment constructed in lifts no greater than 12"
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	16.	Spillpipe sized to carry peak flow from a one year storm event
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	Spillpipe will not chemically react with effluent
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	Subsurface withdrawal
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	19.	Anti-seep collars extend radially at least 2' from each joint in spillpipe
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20.	Splashpad at the end of the spillpipe
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	21.	Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22.	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	23.	Emergency overflow at least 20' long
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	24.	Side slopes of emergency spillway no steeper than 2:1
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	25.	Emergency spillway lined with riprap or concrete
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	26.	Minimum of 1.5' of freeboard between normal overflow and emergency overflow
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	27.	Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	28.	All emergency overflows are sized to handle entire drainage area for ponds in series
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	29.	Dam stabilized with permanent vegetation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30.	Sustained grade of haul road <10%
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31.	Maximum grade of haul road <15% for no more than 300'
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32.	Outer slopes of haul road no steeper than 2:1
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33.	Outer slopes of haul road vegetated or otherwise stabilized
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34.	Detail drawings supplied for all stream crossings
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35.	Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36.	Long-Term Stabilization/Grading And Permanent Reclamation or Water Quality Remediation Plans

IDENTIFY AND PROVIDE DETAILED EXPLANATION FOR ANY "N" OR "N/A" RESPONSE(s):

1. No disturbance, other than the haul road, is proposed in the watershed drained by Outfall 003P. The runoff from the haul road will be controlled by BMPs.
 2. - 29. No proposed sedimentation pond.

XXII. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN REVIEW CHECKLIST

Yes	No	N/A	
General Information:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PE Seal with License #
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Name and Address of Operator
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Legal Description of Facility
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Name of Company
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Number of Employees
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Products to be Mined
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hours of Operation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Water Supply and Disposition
Maps:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Topographic Map including Information from Part XIII (a) – (o) of this Application
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1" – 500' or Equivalent Facility Map including Information from Part XIV of this Application
Detailed Design Diagrams:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plan Views
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cross-section Views
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Method of Diverting Runoff to Treatment Basins
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Line Drawing of Water Flow through Facility with Water Balance or Pictorial Description of Water Flow
Narrative of Operations:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Raw Materials Defined
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Processes Defined
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Products Defined
Schematic Diagram:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Points of Waste Origin
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Collection System
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Disposal System
Post Treatment Quantity and Quality of Effluent:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Flow
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suspended Solids
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Iron Concentration
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pH
Description of Waste Treatment Facility:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pre-Treatment Measures
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Recovery System
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Expected Life of Treatment Basin
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Measures for Ensuring Access to All Treatment Structures and Related Appurtenances including Outfall Locations
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Schedule of Cleaning and/or Abandonment
Other:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Precipitation/Volume Calculations/Diagram Attached
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BMP Plan for Haul Roads
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Measures for Minimizing Impacts to Adjacent Stream (e.g., Buffer Strips, Berms)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Measures for Ensuring Appropriate Setbacks are Maintained at All Times
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Methods for Minimizing Nonpoint Source Discharges
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If Chemical Treatment Used, Methods for Ensuring Appropriate Dosage
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Facility Closure Plans
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PE Rationale(s) For Alternate Standards, Designs or Plans

IDENTIFY AND PROVIDE DETAILED EXPLANATION FOR ANY "N" OR "N/A" RESPONSE(S):

No chemical treatment planned.

XXIII. INFORMATION

Contact the Department prior to submittal with any questions or to request acceptable alternate content/format.

Be advised that you are not authorized to commence regulated activity until this application can be processed, publicly noticed, and approval to proceed is received in writing from the Department.

EPA Form(s) 1 and 2F need not be submitted unless specifically required by the Department. EPA Form(s) 2C and/or 2D are required to be submitted unless the applicant is eligible for a waiver and the Department grants a waiver, or unless the relevant information required by EPA Form(s) 2C and/or 2D are submitted to the Department in an alternative format acceptable to the Department.

Planned/proposed mining sites that are greater than 5 acres, that mine/process coal or metallic mineral/ore, or that have wet or chemical processing, must apply for and obtain coverage under an Individual or General NPDES Permit prior to commencement of any land disturbance. Such Individual NPDES Permit coverage may be requested via this ADEM Form 315.

The applicant is advised to contact:

- (1) The Alabama Surface Mining Commission (ASMC) if coal, coal fines, coal refuse, or other coal related materials are mined, transloaded, processed, etc.;
- (2) The Alabama Department of Labor (ADOL) if conducting non-coal mining operations;
- (3) The Alabama Historical Commission for requirements related to any potential historic or culturally significant sites;
- (4) The Alabama Department of Conservation and Natural Resources (ADCNR) for requirements related to potential presence of threatened/endangered species; and
- (5) The US Army Corps of Engineers, Mobile or Nashville Districts, if this project could cause fill to be placed in federal waters or could interfere with navigation.

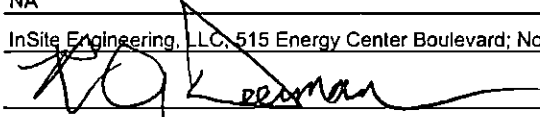
The Department must be in receipt of a completed version of this form, including any supporting documentation, and the appropriate processing fee [including Greenfield Fee and Biomonitoring & Toxicity Limits fee(s), if applicable], prior to development of a draft NPDES permit. The completed form, supporting documentation, and the appropriate fees must be submitted to:

Water Division
Alabama Department of Environmental Management
Post Office Box 301463
Montgomery, Alabama 36130-1463
Phone: (334) 271-7823
Fax: (334) 279-3051
h2omail@adem.alabama.gov
adem.alabama.gov

XXIV. PROFESSIONAL ENGINEER (PE) CERTIFICATION

A detailed, comprehensive Pollution Abatement & Prevention (PAP) Plan must be prepared, signed, and certified by a professional engineer (PE), registered in the State of Alabama, and the PE must certify as follows:

"I certify on behalf of the applicant, that I have completed an evaluation of discharge alternatives (Item XVIII) for any proposed new or increased discharges of pollutant(s) to Tier 2 waters and reached the conclusions indicated. I certify under penalty of law that technical information and data contained in this application, and a comprehensive PAP Plan including any attached SPCC plan, maps, engineering designs, etc. acceptable to ADEM, for the prevention and minimization of all sources of pollution in stormwater and authorized related process wastewater runoff has been prepared under my supervision for this facility utilizing effective, good engineering and pollution control practices and in accordance with the provisions of ADEM Admin. Code Division 335-6, including Chapter 335-6-9 and Appendices A & B. If the PAP Plan is properly implemented and maintained by the Permittee, discharges of pollutants can reasonably be expected to be effectively minimized to the maximum extent practicable and according to permit discharge limitations and other permit requirements. The applicant has been advised that appropriate pollution abatement/prevention facilities and structural & nonstructural management practices or Department approved equivalent management practices as detailed in the PAP Plan must be fully implemented and regularly maintained as needed at the facility in accordance with good sediment, erosion, and other pollution control practices, permit requirements, and other ADEM requirements to ensure protection of groundwater and surface water quality."

Name (type or print):	R. A. (Rick) Deerman, PE	PE Registration #	16938
Title:	NA	Phone Number	(205) 752-4037
Address:	InSite Engineering, LLC, 515 Energy Center Boulevard, Northport, AL 35473		
Signature:			Date Signed
			06/12/23

XXV. RESPONSIBLE OFFICIAL SIGNATURE*

This application must be signed and initialed by a Responsible Official of the applicant pursuant to ADEM Admin. Code Rule 335-6-6.09 who has overall responsibility for the operation of the facility.

"I certify under penalty of law that this document, including technical information and data, the PAP Plan, including any SPCC plan, maps, engineering designs, and all other attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the PE and other person or persons under my supervision who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine or imprisonment for knowing violations.

KT (initial here)

"A comprehensive PAP Plan to prevent and minimize discharges of pollution to the maximum extent practicable has been prepared at my direction by a PE for this facility utilizing effective, good engineering and pollution control practices and in accordance with the provisions of ADEM Admin. Code Division 335-6, including Chapter 335-6-9 and Appendices A & B, and information contained in this application, including any attachments. I understand that regular inspections must be performed by, or under the direct supervision of, a PE and all appropriate pollution abatement/prevention facilities and structural & nonstructural management practices or Department approved equivalent management practices identified by the PE must be fully implemented prior to and concurrent with commencement of regulated activities and regularly maintained as needed at the facility in accordance with good sediment, erosion, and other pollution control practices and ADEM requirements. I understand that the PAP Plan must be fully implemented and regularly maintained so that discharges of pollutants can reasonably be expected to be effectively minimized to the maximum extent practicable and according to permit discharge limitations and other requirements to ensure protection of groundwater and surface water quality. I understand that failure to fully implement and regularly maintain required management practices for the protection of groundwater and surface water quality may subject the Permittee to appropriate enforcement action.

KT (initial here)

"I certify that this form has not been altered, and if copied or reproduced, is consistent in format and identical in content to the ADEM approved form.

KT (initial here)

"I further certify that the discharges described in this application have been tested or evaluated for the presence of non-stormwater discharges and any non-mining associated beneficiation/process pollutants and wastewaters have been fully identified."

KT (initial here)

"I acknowledge my understanding that if coal, coal fines, coal refuse, or other coal related materials are mined, transloaded, processed, etc., that I may be required to obtain a permit from the ASMC.

KT (initial here)

"I acknowledge my understanding that if non-coal, non-limestone materials are mined, transloaded, processed, etc., that I may be required to obtain a permit from the ADOL.

KT (initial here)

"I acknowledge my understanding that if the proposed activities will be conducted in or potentially impact waters of the state or waters of the US (including wetlands), that I may be required to obtain a permit from the USACE."

KT (initial here)

Name (type or print): K. LANCE TAYLOR Official Title: PRESIDENT

Signature: *K. Lance Taylor* Date Signed: 6-9-23

*335-6-6.09 Signatories to Permit Applications and Reports.

- (1) The application for an NPDES permit shall be signed by a responsible official, as indicated below:
 - (a) In the case of a corporation, by a principal executive officer of at least the level of vice president, or a manager assigned or delegated in accordance with corporate procedures, with such delegation submitted in writing if required by the Department, who is responsible for manufacturing, production, or operating facilities and is authorized to make management decisions which govern the operation of the regulated facility;
 - (b) In the case of a partnership, by a general partner;
 - (c) In the case of a sole proprietorship, by the proprietor; or
 - (d) In the case of a municipal, state, federal, or other public entity by either a principal executive officer, or ranking elected official.

4. Pollution Abatement and Prevention Plan

4.1. Introduction

The plan follows the regulatory outline with each section introduced by the applicable portion of Rule 335-6-9-.03 "Pollution Abatement and/or Prevention Plan".

4.2. Name and Address

335-6-9-.03(2)(a) name and address of the operator and a legal description of the area to be mined.

The operator is Pillar Materials, LLC and the mailing address is as follows:

Pillar Materials, LLC
P.O. Box 3424
Oxford, AL 36203

The telephone number for the contact at Pillar Materials, LLC is (256) 835-1800 and the contact person is Mr. Lance Taylor, President. The mine is in Cleburne and Calhoun Counties, Alabama in Sections 29 and 30 of Township 16S and Range 9E. Access to the mine from US Highway 431 will be via a haul road.

4.3. General Information

335-6-9-.03(2)(b) general information, including name and affiliation of company, number of employees, product(s) to be mined, hours of operation and water supply and disposition.

The operator is Pillar Materials, LLC. There may be as many as 10 full-time employees at the pit. Operation will be 8 hours per day, 5 days per week, but weekends and 12-hour days may be scheduled. The 431 Quarry will produce crushed stone aggregate for commercial use. Water from mine de-watering activities and stormwater will be treated in Pond 001 or Pond 002 prior to discharge. Discharges from Outfall 003 will be treated by BMPs.

4.4. Topographic Map

335-6-9-.03(2)(c) topographic map showing location of mine, preparation plant, settling basin and all waste water discharge points.

Figure 1-1 is a topographic map which shows the location of the mine, the settling basins, and the water discharge points. An office, crushing, screening, and other facilities may be located at the site marked "processing area" on the topographic map. A scale house may be located near US Highway 431 along the haul road.

4.5. Diversions

335-6-9-.03(2)(d) method and plan for diverting surface water runoff from operational areas and mineral and refuse storage piles.

No diversions exist and none are proposed.

4.6. Operations

335-6-9-.03(2)(e) narrative account of operation(s) explaining and/or defining raw materials, processes and products. Blockline or schematic diagrams indicating points of waste origin and its collection and disposal shall be included.

Overburden will be removed by excavating equipment to expose the stone (normally, limestone, including dolomite, or phyllite). The overburden that is suitable for use as topsoil may be stockpiled for reclamation or to develop vegetative cover. Overburden that is not suitable for use as topsoil may be used to construct runoff control structures or may be stockpiled separately for use as fill soil.

Heavy equipment, along with drilling and blasting, will be used to mine the stone. Following mining, the broken aggregate will be loaded into trucks and transported. Pillar Materials, LLC may also conduct mineral dry and wet processing (crushing, screening, and washing) within the watershed.

Waste products generated as a result of the mining operation are sediments from disturbed areas, transported by rainfall runoff or pumped discharges. Wet processing may also generate sediments. The source of the wet processing water will be the sedimentation pond and the water will return to the sedimentation pond after use. The sediments will originate in the mine, spoil areas, or other disturbed areas. The sediments will be transported by rainfall runoff, wet process return flow, or by pumping to the sedimentation pond. The sediments will be captured by detaining the water in the sedimentation pond. When necessary, the accumulated sediments will be removed from the sedimentation pond. A schematic is given in Figure 4-1.

4.7. Waste Characteristics

335-6-9-.03(2)(f) quantity and characteristics of waste after treatment with respect to flow, suspended solids, total iron, and pH.

Assuming an average annual rainfall of 54 inches and an average runoff coefficient of 50%, runoff should be approximately 2,000 gallons per day per acre of watershed. Using the factor, the average daily flow from DSN001P will be 84,000 gallons per day (gpd) and the average daily flow from DSN002P will be 130,000 gpd. The average daily flow from DSN003P will be 314,000 gpd, treated with BMPS. Discharged water will comply with permit limits with regard to suspended solids, total iron, and pH.

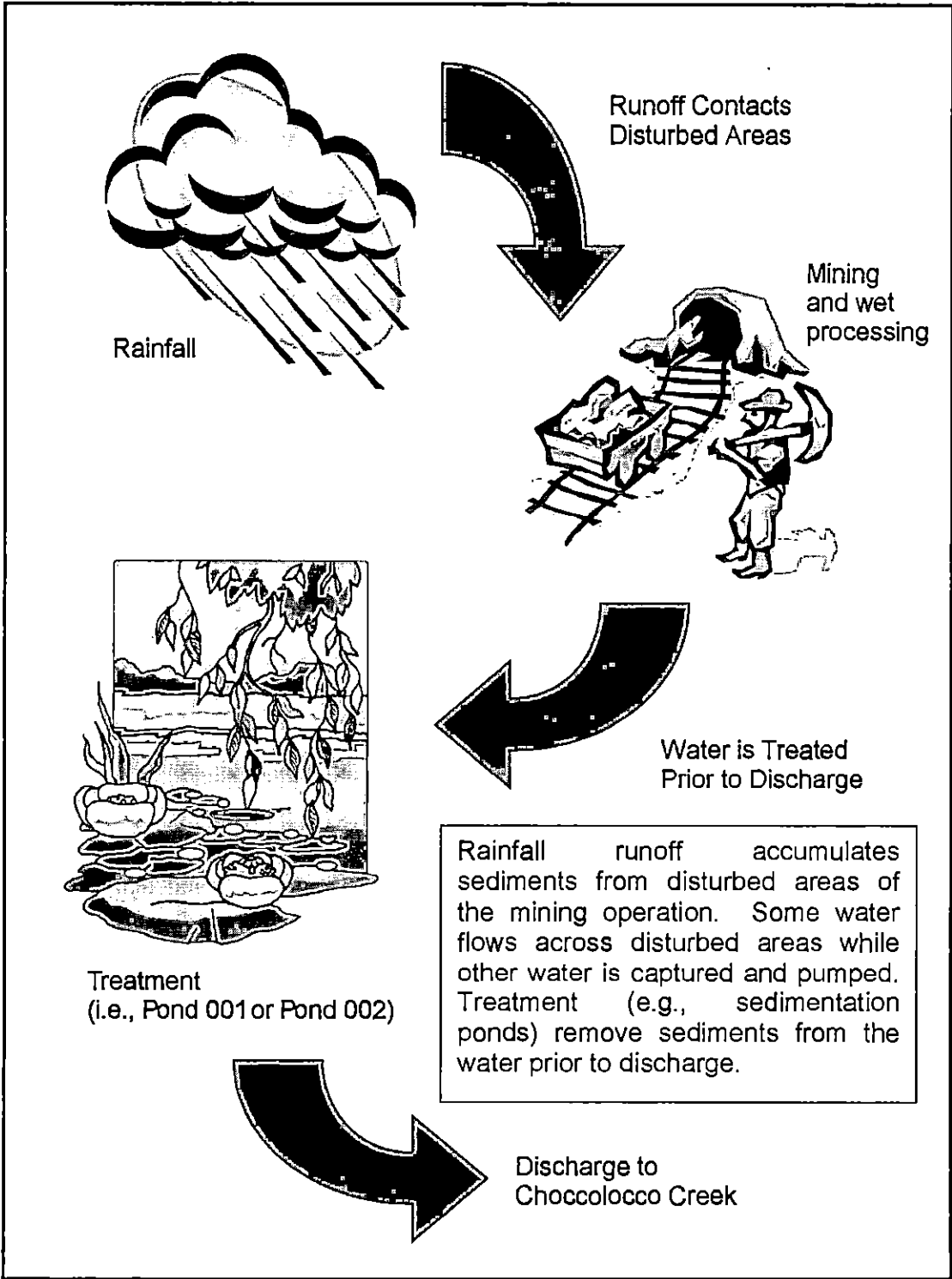


Figure 4-1. Waste Schematic.

4.8. Waste Treatment Facilities

335-6-9-.03(2)(g) description of waste treatment facilities, pretreatment measures and recovery systems including expected life of sedimentation basins and schedules for cleaning or proper abandonment of such basins. If earthen sedimentation basins are a portion of the treatment scheme, plans for the construction of these facilities should meet minimum construction criteria as found in the Guidelines in Appendix A.

The waste treatment facilities consist of the sedimentation controls, especially the sedimentation ponds, described in Chapter 3. The proposed ponds, Pond 001 and Poo2, meet the minimum construction criteria as found in the Guidelines in Appendix A. Pond 001 and Pond 002 will serve to satisfy the regulatory requirements for sediment storage and detention. The expected life of the sedimentation basins is the life of the mine and the ponds will be cleaned out when sediment accumulation is 60% of design capacity. The ponds will be maintained for the life of the permit.

4.9. Haul Road Sediment Control

335-6-9-.03(2)(h) a plan to eliminate or minimize sediment and other pollutants from haul roads must be included and should meet minimum design criteria as established by the Guidelines in Appendix B.

The haul roads meet the specifications listed below:

- 1) No sustained grade will exceed 10 percent;
- 2) The maximum grade will not exceed 15 percent for 300 feet. There will be no more than 300 feet of 15 percent maximum grade for each 1000 feet of road constructed;
- 3) Where possible, the haul road will be constructed so that runoff from the road is routed to a sedimentation basin but for much of its length as it approaches US Highway 431, sediments must be controlled by best management practices;
- 4) Outer slopes for haul roads out of the permitted area will not be steeper than 2:1 and will be lined with natural vegetation to avoid erosion;
- 5) Roads will be surfaced with either slag, chert, crushed limestone, crushed sandrock, or red rock, other than temporary roads for limited access; and
- 6) There will be no creek (perennial stream) crossings, but two intermittent streams will be culverted to allow the haul road to cross them.

4.10. Stream Impact Minimization

335-6-9-.03(2)(I) location of all streams in or adjacent to the mining area and those measures which will be taken to minimize the impact on water quality when the mining operation is located in close proximity to such streams. Such measures may include but not be limited to setbacks, buffer strips, or screens.

The operation drains to Choccolocco Creek. The sedimentation controls, especially the sedimentation ponds, described in Chapter 3 are intended to minimize any negative stream impacts.

4.11. Non-Point Impact Minimization

335-6-9-.03(2)(j) those measures to be employed to minimize the effect of any non point source pollution which may be generated as a result of the surface mining operation.

The surface runoff from mined areas generally drains to Pond 001 or to Pond 002. Any negative impacts from non-point discharges will be minimized using best management practices.

4.12. Construction Certification

335-6-9-.03(2)(k) all pollution abatement facilities must be certified by the design engineer as being constructed in accordance with the approved plans.

All outfalls, but especially the proposed ponds (Pond 001 and Pond 002) will be certified by an engineer after construction.

4.13. Watershed Classification

335-6-9-.03(2)(l) the applicant shall specify if the proposed mining operation is to be constructed in the watershed of an impoundment classified as a public water supply or a direct tributary thereon.

This facility discharges into a stream segment classified as a Public Water Supply (PWS). The mining operation drains to Choccolocco Creek. More specifically, two outfalls discharge to a reach of Choccolocco Creek labeled as PWS. The third outfall discharges to a tributary (Jackson Creek) that joins the same reach of Choccolocco Creek that is labeled as PWS.

4.14. Facility Closure Plan

Specific closure plans will be submitted as necessary at the time of closure. At a minimum all areas will be reclaimed and grassed to the standards established by ADEM.