LANCE R. LEFLEUR
DIRECTOR

KAY IVEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov
1400 Coliseum Blvd. 36110-2400 ▪ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ▪ FAX (334) 271-7950

MAR 04 2022

Michael Will
Senior Environmental Engineer
Lhoist North America of Alabama, LLC
7444 Highway 25 South
Calera, AL 35040

RE: Draft Permit
Eagle Quarry
NPDES Permit No. AL0079308
Shelby County (117)

Dear Mr. Will:

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 reissue 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.

Please be aware that Part I.D of your permit requires that you apply for participation in the Department's web-based electronic reporting system for submittal of DMRs upon issuance of this permit unless valid justification as to why you cannot participate is submitted in writing. The Department has transitioned from the E2 Reporting System to the Alabama Environmental Permitting and Compliance System (AEPACS) for the submittal of DMRs and other required applications, registrations, and certifications. AEPACS can be accessed at (https://aepacs.adem.alabama.gov/nviro/ncore/external/home).

Should you have any questions concerning this matter, please contact Ange Boatwright by email at maboatwright@adem.alabama.gov or by phone at (334) 274-4208.

Sincerely,

Eric Reidy, Chief
Mining and Natural Resource Section
Stormwater Management Branch
Water Division

EJR/mab File: DPER/36148

Enclosure

cc: Ange Boatwright, 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

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

ADEM
Alabama Department of Environmental Management

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM INDIVIDUAL PERMIT

PERMITTEE:	Lhoist North America of Alabama, LLC 7444 Hwy 25 South Calera, AL 35040
FACILITY LOCATION:	Eagle Quarry 3223 County Road 20 Calera, AL 35040 Shelby County T24N, R13E, S3, 4, 5, 8, 9, 10, 15
PERMIT NUMBER:	AL0079308
DSN & RECEIVING STREAM:	001-1 Unnamed Tributary to Buxahatchee Creek 002-1 Unnamed Tributary to Dry Creek 003-1 Unnaemd Tributary to Dry Creek 004-1 Unnamed Tributary to Dry Creek 005-1 Unnamed Tributary to Dry Creek 006-1 Unnamed Tributary to Dry Creek 007-1 Unnamed Tributary to Buxahatchee Creek 008-1 Unnamed Tributary to Dry Creek 009-1 Buxahatchee Creek 010-1 Unnamed Tributary to Dry 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

TABLE OF CONTENTS

PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

1. 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 **Outfalls 001-1**, 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 00400	6.0 s.u.	-------	8.5 s.u.	Grab	2/Month
Solids, Total Suspended 00530	-------	25.0 mg/L	45.0 mg/L	Grab	2/Month
Oil & Grease 00556	-------	Report mg/L	15.0 mg/L	Grab	2/Month
Nitrogen, Kjeldahl Total, (as N) 00625	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Nitrite Plus Nitrate Total 1 Det. (as N) 00630	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Phosphours, Total (as P)[2] 00665	-------	0.066 mg/L	Report mg/L	Grab	2/Month
Phosphours, Total (as P)[3] 00665	-------	Report mg/L	Report mg/L	Grab	2/Month
Flow, In Conduit or Thru Treatment Plant[4] 50050	-------	Report MGD	Report MGD	Instantaneous	2/Month

1 See Part I.C.2. for further measurement frequency requirements.
2 Discharge limitations for Phosphorus (as P) are 0.066 mg/L and Report for the months of **April through October**.
3 Discharge limitations for Phosphorus (as P) are Report only for the months of **November through March**.
4 Flow must be determined at the time of sample collection by direct measurement, calculation, or other method acceptable to the Department.

2. 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 **Outfalls 002-1** 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[5]
pH 00400	6.0 s.u.	——	8.5 s.u.	Grab	2/Month
Total Suspended Solids 00530	——	25.0 mg/l	45.0 mg/l	Grab	2/Month
Oil & Grease 00556	-------	Report mg/L	15.0 mg/L	Grab	2/Month
Nitrogen, Kjeldahl Total, (as N) 00625	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Nitrite Plus Nitrate Total 1 Det. (as N) 00630	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Phosphorus, Total (as P) 00665	-------	Report mg/L	Report mg/L	Grab	2/Month
Flow, In Conduit or Thru Treatment Plant[6] 50050	——	Report MGD	Report MGD	Instantaneous	2/Month

3. 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 **Outfall 003-1 through 006-1, 008-1, and 010-1** 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[5]
pH 00400	6.0 s.u.	——	8.5 s.u.	Grab	2/Month
Total Suspended Solids 00530	——	25.0 mg/l	45.0 mg/l	Grab	2/Month
Nitrogen, Kjeldahl Total, (as N) 00625	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Nitrite Plus Nitrate Total 1 Det. (as N) 00630	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Phosphorus, Total (as P) 00665	-------	Report mg/L	Report mg/L	Grab	2/Month
Flow, In Conduit or Thru Treatment Plant[6] 50050	——	Report MGD	Report MGD	Instantaneous	2/Month

[5] See Part I.C.2. for further measurement frequency requirements.

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

4. 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 **Outfall 007-1 and 009-1** 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[7]
pH 00400	6.0 s.u.	-------	8.5 s.u.	Grab	2/Month
Solids, Total Suspended 00530	-------	25.0 mg/L	45.0 mg/L	Grab	2/Month
Nitrogen, Kjeldahl Total, (as N) 00625	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Nitrite Plus Nitrate Total 1 Det. (as N) 00630	-------	Report mg/L	Report mg/L	Grab	1/Quarter
Phosphours, Total (as P)[8] 00665	-------	0.066 mg/L	Report mg/L	Grab	2/Month
Phosphours, Total (as P)[9] 00665	-------	Report mg/L	Report mg/L	Grab	2/Month
Flow, In Conduit or Thru Treatment Plant[10] 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.

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

8 Discharge limitations for Phosphorus (as P) are 0.066 mg/L and Report for the months of **April through October**.

9 Discharge limitations for Phosphorus (as P) are Report only for the months of **November through March**.

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

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 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.j.

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.

1. 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

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, the information indicated in ADEM Admin. Code r. 335-6-9-.03 and ADEM Admin. Code ch. 335-6-9 Appendices A and 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).

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 required by applicable state (ADEM Admin. Code r. 335-6-6-.12(r)) and federal (40 C.F.R. §§112.1-.7) regulations. The Permittee shall implement appropriate structural and/or non-structural spill prevention, control, and/or management 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. Careful consideration should be applied for tanks or containers located near treatment ponds, water bodies, or high traffic areas. In most situations this would require construction of a containment system if the cumulative storage capacity of petroleum products or other pollutants at the facility is greater than 1320 gallons. 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 applicant shall maintain onsite or have readily available flotation booms to contain, and sufficient material to 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 an approved manner.

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.8 of this Permit:

a. 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.D.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.

b. 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.

c. 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.

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 ACTIVIES 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. 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:	Lhoist North America, LLC
Facility Name:	Eagle Quarry
County:	Shelby
Permit Number:	AL0079308
Prepared by:	Ange Boatwright
Date:	February 7, 2022
Receiving Waters:	Buxahatchee Creek, Unnamed Tributary to Buxahatchee Creek, Unnamed Tributary to Dry Creek
Permit Coverage:	Crushed and Broken Limestone Quarry, Dry 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 reissuance of this permit.

This proposed permit covers a dry preparation crushed and broken limestone mine, transportation and storage, and associated areas which discharge to surface waters of the state.

The proposed permit authorizes treated discharges into Buxahatchee Creek, an unnamed tributary to Buxahatchee Creek, and an unnamed tributary to Dry Creek, all classified as Fish and Wildlife (F&W) per ADEM Admin. Code ch. 335-6-11. 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 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.

The proposed permit covers discharges from 10 outfalls. Outfalls 001-1 and 007-1 discharge to an unnamed tributary to Buxahatchee Creek and Outfall 009 discharges to Buxhatchee Creek. All three are located in the Coosa River (Lay Lake) Watershed. Outfalls 002, 003 through 006, 008, and 010 discharge to an unnamed tributary to Dry Creek and are located in the Cahaba River Watershed.

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 TBELs for the Crushed Stone Subcategory 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). These limitations are more stringent than those required by the Cahaba River Watershed Total Maximum Daily Load (TMDL) for siltation developed by the Department.

40 CFR 436.22 includes the TBEL of 6.0 – 9.0 s.u. for pH. However, the applicable State water quality criteria for pH in streams classified as F&W is 6.0 – 8.5 s.u. per ADEM Admin. Code r. 335-6-10-.09. A daily maximum pH limit of 9.0 s.u., as was previously permitted for Outfalls 003-1 through 007-1 and 009-1, is allowed by the Department for discharges that occur as a result of rain events due to the low discharge/stream flow ratio. However, information in the Permittee's application indicates that discharges from Outfalls 003-1 through 007-1 and 009-1 may occur during low flow conditions when the discharge stream ratio may be high. Therefore, the pH limitation of 6.0 – 8.5 s.u. is used at all outfalls. Under no circumstances may the discharge from any outfall cause the in-stream pH to deviate more than 1.0 s.u. from the normal or natural pH, nor be less than 6.0 s.u. nor greater than 8.5 s.u.

Monitoring and reporting of the nutrient-related parameters Total Kjeldahl Nitrogen (TKN) and Nitrite plus Nitrate-Nitrogen (NO_2+NO_3-N) are imposed on all outfalls so that sufficient information will be available regarding any possible nutrient contribution from these point sources, should it be necessary at some later time to establish additional nutrient limits on these discharges.

Daily maximum limitations for Oil and Grease (O&G) are imposed at Outfalls 001-1 and 002-1 due to the basin receiving water from a truck wash. This is indicative of the pollutants typically discharged from this type of facility and has been shown to be protective of water quality.

A monthly average limitation of 0.066 mg/L for Total Phosphorus (TP) is imposed at Outfalls 001-1, 007-1, and 009-1 based on the EPA approved Final Buxahatchee Creek Nutrient TMDL and the Final Coosa River (Lay Lake) TMDL developed by the Department. This limitation applies only between the months of April through October. However, monitoring is required year round.

Monitoring and reporting of TP is imposed on Outfalls 002, 003 through 006, 008, and 010 due to the EPA approved Final Nutrient TMDL for the Cahaba River Watershed. Monitoring is being required so that sufficient information will be available regarding any possible nutrient contribution from these point sources, should it be necessary at some later time to impose additional nutrient limits on these discharges. No limitations are proposed at this time as the facility is not expected to contribute to the nutrient impairment of the Cahaba River due to the facilities distance from the river and because it was not listed as a source of the impairment in the TMDL.

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 proposing discharges of pollutants within the Coosa River (Lay Lake) Watershed, the Cahaba River Watershed, and the Buxahatchee Creek Watershed, all watersheds of the state with approved TMDL's for nutrients in discharges in Shelby County. The Cahaba River Watershed also has an approved TMDL for Siltation in discharges in Shelby County. The Buxahatchee Creek Watershed also has a TMDL for pathogens (E. coli). E. coli is not a pollutant expected in significant concentrations from this type of facility. 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 a violation of the approved TMDL's set forth by the Alabama Department of Environmental Management.

The applicant is not proposing discharges into a stream segment or other State water that is included on Alabama's current CWA §303(d) list.

The applicant is not proposing new discharges of pollutant(s) to an ADEM identified Tier I water.

The proposed permit does not authorize new or increased discharges of pollutants to a Tier II water. Therefore, the Antidegradation Policy (ADEM Admin. Code 335-6-10-.04) does not apply to this permit.

Permit Renewal

NPDES Permit No. AL0079308
Lhoist North America of Alabama, LLC – Eagle Quarry

August 2019

RECEIVED
AUG 02 2019
STORM WATER
MANAGEMENT BRANCH

Lhoist North America
Lhoist Group

October 21, 2019

Ange Boatwright
Industrial / Mining Section
Water Division
Alabama Department of Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36110-2059

Re: Lhoist North America of Alabama, LLC.
Eagle Quarry NPDES Permit Application Fee

Dear Ms. Boatwright:

Lhoist North America of Alabama, LLC (LNA) owns and operates the Eagle Quarry in Shelby County, Alabama pursuant to NPDES Permit No. AL0079308. Please find enclosed with this letter a check for the permit application fee of $5,820 (Check No. 200385536).

If you have any questions regarding the permit application or need additional information, please feel free to contact me at (205) 444-4905.

Sincerely,

Lhoist North America of Alabama, LLC

Michael Will
Senior Environmental Engineer, Alabama Operations

ALABAMA DEPARTMENT OF ENVIRONMENTAL
PO BOX 301463
MONTGOMERY AL 361301463

CHECK PAYMENT NBR. 2000385536 **DATE** 10/16/2019

INVOICE	DESCRIPTION	DATE	DOC. NO.	GROSS AMT.	DISCOUNT	NET AMOUNT
100119EAGLE	AL0079308	10/01/2019	5219002697	5,820.00	0.00	5,820.00

R#20-50159

RECEIVED
OCT 22 2019
STORM WATER
MANAGEMENT BRANCH

TOTAL	5,820.00	0.00	5,820.00

Lhoist North America
Lhoist Group

August 1, 2019

Ms. Ange Boatwright
Alabama Department of Environmental Management
Mining and Natural Resource Section – Stormwater Management Branch
PO Box 301463
Montgomery, Alabama 36130-1463

Re: Permit Renewal
NPDES Permit No. AL0079308
Lhoist North America of Alabama, LLC – Eagle Quarry
Shelby & Chilton Counties

Dear Ms. Boatwright:

Lhoist North America of Alabama, LLC (Lhoist) owns and operates the Eagle Quarry located in Shelby and Chilton Counties, Alabama pursuant to National Pollutant Discharge Elimination System (NPDES) Permit No. AL0079308 with an expiration date of January 31, 2020. The current NPDES Permit requires Lhoist to submit a complete permit application within 180 days of the expiration date. Enclosed please find an application for the renewal of the NPDES permit for the Eagle Quarry site located in Calera, Alabama.

As part of the NPDES permit renewal, Lhoist is requesting a waiver for completion of the modified EPA Form 2C, pursuant to 40 CFR 122.21. Currently a pond and a berm have been constructed on the North side of the site. The Eagle Quarry site is currently not in operation, and, as such, discharges from the site will consist only of storm water. Lhoist does not anticipate developing the site during the lifetime of the new permit; however, if Lhoist does choose to develop the site, a permit amendment will be submitted to ADEM with a completed EPA Form 2C at that time. Oil and petroleum products are not currently stored at the site, so a Spill Prevention, Control, and Countermeasure (SPCC) Plan is not required at this time. An SPCC Plan will be developed for the facility prior to initiation of operations and storage of petroleum products at the site. Safety Data Sheets (SDSs) will be kept on site and provided to ADEM when substances and products requiring an SDS are brought on site.

If you have any questions or need additional information, please contact me at (205) 444-4905, or our consultant, Dan White of TRC Environmental Corporation, at (205) 527-9815.

Sincerely,

Michael Will
Senior Environmental Engineer, Alabama Operations

Attachments: I – ADEM Form 315
II – Lhoist Compliance History (2016-2019)
III – Existing ADEM Permits Held by Lhoist North America of Alabama
IV – Pollution Abatement Plan

Cc: Craig Gordinier, Montevallo Plant Manager (Lhoist)
Steve Curreri, Regional Environmental Manager (Lhoist)
Dan White, TRC Environmental Corporation
Kent Nilsson, P.E., TRC Environmental Corporation

Attachment I – ADEM Form 315

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

RECEIVED

AUG 02 2019

STORM WATER MANAGEMENT BRANCH

I. GENERAL INFORMATION

NPDES Permit Number (Not applicable if initial permit application):	County(s) in which Facility is Located:
AL 0079308	Shelby and Chilton

Company/Permittee Name:			Facility Name (*e.g.*, Mine Name, Pit Name, *etc.*):		
Lhoist North American of Alabama, LLC			Eagle Quarry		
Mailing Address of Company/Permittee:			Physical Address of Facility (as near as possible to entrance):		
7444 Hwy 25 South			3223 County Road 20		
City:	State:	Zip:	City:	State:	Zip:
Calera	AL	35040	Calera	AL	35040
Permittee Phone Number:	Permittee Fax Number:		Latitude and Longitude of entrance:		
205-655-1251	205-665-7606		LAT 33.088231, LONG -86.775521		

Responsible Official (as described on page 12 of this application):			Responsible Official Title:		
Craig Gordinier			Montevallo Plant Manager		
Mailing Address of Responsible Official:			Physical Address of Responsible Official:		
7444 Hwy 25 South			7444 Hwy 25 South		
City:	State:	Zip:	City:	State:	Zip:
Calera	AL	35040	Calera	AL	35040
Phone Number of Responsible Official:	Fax Number of Responsible Official:		Email Address of Responsible Official:		
205-444-4913	205-665-7606		craig.gordinier@lhoist.com		

Facility Contact:			Facility Contact Title:	
Michael Will			Senior Environmental Engineer	
Physical Address of Facility Contact:			Phone Number of Facility Contact:	Fax Number of Facility Contact:
7444 Hwy 25 South			205-444-4905	205-665-7606
City:	State:	Zip:	Email Address of Facility Contact:	
Calera	AL	35040	michael.will@lhoist.com	

II. MEMBER INFORMATION

A. Identify the name, title/position, and unless waived in writing by the Department, the residence address of every officer, 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 (P.O. Box is Not Acceptable)
Craig Gordinier	Montevallo Plant Manager	724 Helena Station Dr., Helena, AL 35080
Grant Nintzel	Director of Regional Operations	3533 Countrywood Ln., Vestavia Hills, AL 35243
Roger Fawcett	VP/General Manager, East Lime	1044 Stoneykirk Road, Pelham, AL 35124

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:
N/A		

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 or single proprietorship, 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: Lhoist North America of Alabama, LLC

D. Land Owner(s): Lhoist North America of Alabama, LLC

E. Mining Sub-contractor(s)/Operator(s), if known: N/A

IV. COMPLIANCE HISTORY

A. Has the applicant ever had any of the following:

	Yes	No
(1) An Alabama NPDES, SID, or UIC permit suspended or terminated?	☐	☒
(2) An Alabama license to mine suspended or revoked?	☐	☒
(3) An Alabama or federal mining permit suspended or terminated?	☐	☒
(4) A reclamation bond, or similar security deposited in lieu of a bond, or portion thereof, forfeited?	☐	☒
(5) A bond or similar security deposited in lieu of a bond, or portion thereof, the purpose of which was to secure compliance with any requirement of the Alabama Water Improvement Commission or Alabama Department of Environmental Management, 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 months) 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:

See Attachment II - Lhoist Compliance History (2016-2019)

V. OTHER PERMITS/AUTHORIZATIONS

A. 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 Surface Mining Commission (ASMC), Alabama Department of Labor (ADOL), US Army Corp of Engineers (USACE), or other agency, to the applicant, parent corporation, subsidiary, or LLC member for this facility whether presently effective, expired, suspended, revoked, or terminated:

AL0079308

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, ASMC, ADOL or USACE, to the applicant, parent corporation, subsidiary, or LLC member for other facilities whether presently effective, expired, suspended, revoked, or terminated:

See Attachment III - Existing ADEM Permits Held by Lhoist North America of Alabama

VI. PROPOSED SCHEDULE

Anticipated Activity Commencement Date: Spring 2022 Anticipated Activity Completion Date: 2122

VII. ACTIVITY DESCRIPTION & INFORMATION

A. Proposed Total Area of the Permitted Site: 1040 acres Proposed Total Disturbed Area of the Permitted Site: 620 acres

B. Township(s), Range(s), Section(s): Township 24N, Range 13E, Sections 3, 4, 5, 8, 9,10, and 15

C. Detailed Directions to Site: I-65 North to Exit 231 - Turn left onto Highway towards Calera - Turn right onto Highway 25 - Turn left onto Green Acres Road

D. Is/ will this facility:

		Yes	No
(1)	an existing facility which currently results in discharges to State waters?	☐	☒
(2)	a proposed facility which will result in a discharge to State waters?	☒	☐
(3)	be located within any 100-year flood plain?	☒	☐
(4)	discharge to Municipal Separate Storm Sewer?	☐	☒
(5)	discharge to waters of or be located in the Coastal Zone?	☐	☒
(6)	need/have ADEM UIC permit coverage?	☐	☒
(7)	be located on Indian/ historically significant lands?	☐	☒
(8)	need/have ADEM SID permit coverage?	☐	☒
(9)	need/have ASMC permit coverage?	☐	☒
(10)	need/have ADOL permit coverage?	☐	☒
(11)	generate, treat, store, or dispose of hazardous or toxic waste ? (If "Yes," attach a detailed explanation.)	☐	☒
(12)	be located in or discharge to a Public Water Supply (PWS) watershed or be located within ½ 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.**

20% Dirt &/or Chert	____ Sand &/or Gravel	____ Chalk	____ Talc	____ Crushed rock (other)
____ Bentonite	____ Industrial Sand	____ Marble	____ Shale &/or Common Clay	____ Sandstone
____ Coal	____ Kaolin	____ Coal fines/refuse recovery	____ Coal product, coke	____ Slag, Red Rock
____ Fire clay	____ Iron ore	____ Dimension stone	____ Phosphate rock	____ Granite
____ Bauxitic Clay	____ Bauxite Ore	80% Limestone, crushed limestone and dolomite		

____ Gold, other trace minerals:_____ ____ Other:_____

____ Other:_____ ____ Other:_____

____ Other:_____ ____ Other:_____

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):

- [x] Surface mining
- [x] Underground mining
- [x] Quarrying
- [ ] Auger mining
- [ ] Hydraulic mining
- [ ] Within-bank mining
- [ ] Solution mining
- [x] Mineral storing
- [ ] Lime production
- [ ] Cement production
- [ ] Synthetic fuel production
- [ ] Alternative fuels operation
- [x] Mineral dry processing (crushing & screening)
- [ ] Mineral wet preparation
- [ ] Other beneficiation & manufacturing operations
- [x] Mineral loading
- [ ] Chemical processing or leaching
- [ ] Construction related temporary borrow pits/areas
- [x] Mineral transportation [ ] rail [ ] barge [x] truck
- [ ] Preparation plant waste recovery
- [ ] Hydraulic mining, dredging, instream or between stream-bank mining
- [x] Grading, clearing, grubbing, *etc.*
- [x] Pre-construction ponded water removal
- [x] Excavation
- [x] Pre-mining logging or land clearing
- [ ] Waterbody relocation or other alteration
- [x] Creek/stream crossings
- [x] Onsite construction debris or equipment storage/disposal
- [x] Onsite mining debris or equipment storage/disposal
- [x] Reclamation of disturbed areas
- [ ] Chemicals used in process or wastewater treatment (coagulant, biocide, etc.)
- [ ] Adjacent/associated asphalt/concrete plant(s)
- [ ] Low volume sewage treatment package plant
- [x] Other: Truck Wash Station

B. Primary SIC Code: 1422 NAICS Code: _____ Description: Production of crushed limestone

Secondary SIC Code(s): 1429 NAICS Code: _____ Description: Production of crushed & broken stone (dirt/chert)

C. Narrative Description of the Activity: Surface mining and crushing of limestone; Transporting limestone to other Lhoist facilities and customer sites; See Attachment IV - Pollution Abatement Plan for more details.

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 [x] No

B. If "Yes," identify the fuel, chemicals, compounds, or liquid waste and indicate the volume of each:

Volume	*Contents*	*Volume*	*Contents*	*Volume*	*Contents*
_____gallons	_____	_____gallons	_____	_____gallons	_____
_____gallons	_____	_____gallons	_____	_____gallons	_____

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. [x] 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 [x] 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 is 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 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) Buildings and structures, including fuel/water tanks
(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), whether or not the stream is included in a TMDL, latitude and longitude (to seconds) of location(s) of each discharge point, distance of receiving water from outfall in feet, number of disturbed acres, the number of drainage acres which will drain through each treatment system, outfall, or BMP, and if the outfall discharges to an ADEM listed CWA Section 303(d) waterbody segment at the time of application submittal.

Action	Outfall E/P	Receiving Water	Latitude	Longitude	Distance to Rec. Water	Disturbed Acres	Drainage Acres	ADEM WUC	303(d) Segment (Y/N)	TMDL Segment* (Y/N)
Reissue	001P	Trib. to Buxahatchee Cr.	33.0830555	86.7794444	700 ft	116	116	F&W	N	
Reissue	002P	Tributary to Dry Creek	33.0833333	86.7877777	50 ft	116	116	F&W	N	
Reissue	003P	Tributary to Dry Creek	33.0863888	86.7891666	50 ft	27	27	F&W	N	
Reissue	004P	Tributary to Dry Creek	33.0827777	86.7886111	500 ft	37	37	F&W	N	
Reissue	005P	Tributary to Dry Creek	33.0838888	86.7905555	500 ft	24	24	F&W	N	
Reissue	006P	Tributary to Dry Creek	33.0780555	86.7838888	150 ft	34	34	F&W	N	
Reissue	007P	Trib. to Buxahatchee Cr.	33.0875000	86.7747222	0 ft	195	195	F&W	N	
Reissue	008P	Tributary to Dry Creek	33.0833333	86.7877777	50 ft	195	195	F&W	N	
Reissue	009P	Buxahatchee Creek	33.0866666	86.7680555	130 ft	94	94	F&W	N	
Reissue	010P	Tributary to Dry Creek	33.0833333	86.7877777	50 ft	94	94	F&W	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, etc.); (2) Monitoring results for the pollutant(s) of concern which have not previously been submitted to the Department (sample collection dates, analytical results (mass and concentration), methods utilized, MDL/ML, etc. should be reported as available); (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 Modified EPA Form 2C Submittal

☒ Yes, pursuant to 40 CFR §122.21, the applicant requests a waiver for completion of EPA Form 2C, EPA Form 2D, and the modified EPA Form 2C and certifies that the operating facility will discharge treated stormwater only, unless waived in writing by the Department on a programmatic, categorical, or individual compound/chemical basis that chemical/compound additives are not used, and that there are no process, manufacturing, or other industrial operations or wastewaters, including but not limited to lime or cement production, synfuel operations, *etc.*, 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 modified EPA Form 2C is attached.

B. The applicant is required to supply the following information separately for every P or E outfall. If necessary, attach extra sheets. 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 (C), average pH in standard units, average daily discharge in pounds per day of BOD_5, Total Suspended Solids, Total Iron, Total Manganese, and Total Aluminum (if bauxite or bauxitic clay):

Outfall E/P	Information Source - # of Samples	Flow cfs	Flow gpd	Frequency hours/day	Frequency days/month	Sum/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

C. The applicant is required to supply the following information separately for every P or E outfall. If necessary, attach extra sheets. Identify and list expected average daily discharge in pounds per day of any other pollutant(s) listed in EPA Form 2C, Item V – Intake And Effluent Characteristics, Parts A, B, & C that are not referenced in Part XV.B., 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	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	

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	Other
001P	48" concrete pipes	7, 9, and 10	Yes	No	Crusher Dust Sup	Controlled	No	N/A
002P	24" pipe	7, 9, and 10	Yes	No	Crusher Dust Sup	Pumped	No	N/A
003P	48" concrete pipe	9 and 10	Yes	No	None	Controlled	No	N/A
004P	48" concrete pipe	9 and 10	Yes	No	None	Controlled	No	N/A
005P	48" concrete pipe	9 and 10	Yes	No	None	Controlled	No	N/A
006P	48" concrete pipe	9 and 10	Yes	No	None	Controlled	No	N/A
007P	48" concrete	9 and 10	Yes	No	None	Controlled	No	N/A
008P	24" pipe	9 and 10	Yes	No	None	Pumped	No	N/A
009P	48" concrete pipe	9 and 10	Yes	No	None	Controlled	No	N/A
010P	24" pipe	9 and 10	Yes	No	None	Pumped	No	N/A

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, or **(10) Other** (describe below).

storm water runoff from quarry site

XVIII. PROPOSED NEW OR INCREASED DISCHARGES

A. Pursuant to ADEM Admin. Code Chapter 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 (XVII.B.), ADEM Form 311-Alternative Analysis, and either ADEM Form 312 or ADEM Form 313-Calculation of Total Annualized Project Costs (Public-Section 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?

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

(3) How much reduction in employment will the discharger be avoiding?

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

(5) What public service to the community will the discharger be providing?

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

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 001P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 002P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Embankments will be compacted to 95% of Standard Proctor. Intake pipe (suction) for pump will be positioned below the water surface to accomplish subsurface withdrawal. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series. Treated water will be pumped from the sedimentation pond to outfall. The treated water must be pumped at a flow rate of less than or equal to 25 cubic feet per second (cfs), which is less than the peak flow rate produced by the 1 year, 24 hour storm event. Since treated water will be pumped through an above grade pipe to the outfall, anti-seep collars are not required.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 003P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 004P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 005P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 006P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 007P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 008P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Embankments will be compacted to 95% of Standard Proctor. Intake pipe (suction) for pump will be positioned below the water surface to accomplish subsurface withdrawal. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series. Treated water will be pumped from the sedimentation pond to outfall. The treated water must be pumped at a flow rate of less than or equal to 25 cubic feet per second (cfs), which is less than the peak flow rate produced by the 1 year, 24 hour storm event. Since treated water will be pumped through an above grade pipe to the outfall, anti-seep collars are not required.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 009P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 010P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Embankments will be compacted to 95% of Standard Proctor. Intake pipe (suction) for pump will be positioned below the water surface to accomplish subsurface withdrawal. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series. Treated water will be pumped from the sedimentation pond to outfall. The treated water must be pumped at a flow rate of less than or equal to 25 cubic feet per second (cfs), which is less than the peak flow rate produced by the 1 year, 24 hour storm event. Since treated water will be pumped through an above grade pipe to the outfall, anti-seep collars are not required.

XX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN REVIEW CHECKLIST

Y	N	N/A	
X			PE Seal with License #
X			Name and Address of Operator
X			Legal Description of Facility
			General Information:
X			Name of Company
X			Number of Employees
X			Products to be Mined
X			Hours of Operation
X			Water Supply and Disposition
			Topographic Map:
X			Mine Location
X			Location of Prep Plant
X			Location of Treatment Basins
X			Location of Discharge Points
X			Location of Adjacent Streams
			1"- 500' or Equivalent Facility Map:
X			Drainage Patterns
X			Mining Details
X			All Roads, Structures Detailed
X			All Treatment Structures Detailed
			Detailed Design Diagrams:
X			Plan Views
X			Cross-section Views
X			Method of Diverting Runoff to Treatment Basins
			Narrative of Operations:
X			Raw Materials Defined
X			Processes Defined
X			Products Defined
			Schematic Diagram:
X			Points of Waste Origin
X			Collection System
X			Disposal System
			Post Treatment Quantity and Quality of Effluent:
X			Flow
X			Suspended Solids
X			Iron Concentration
X			pH
			Description of Waste Treatment Facility:
X			Pre-Treatment Measures
X			Recovery System
X			Expected Life of Treatment Basin
X			Schedule of Cleaning and/or abandonment
			Other:
X			Precipitation/Volume Calculations/Diagram Attached
X			BMP Plan for Haul Roads
X			Measures for Minimizing Impacts to Adjacent Stream i.e., Buffer Strips, Berms, etc.
X			Methods for Minimizing Nonpoint Source Discharges
X			Facility Closure Plans
X			PE Rationale(s) For Alternate Standards, Designs or Plans

IDENTIFY AND PROVIDE DETAILED EXPLANATION FOR ANY "N" OR "N/A" RESPONSE(s):

XXI. 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 NPDES Permit prior to commencement of any land disturbance. Such 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
www.adem.alabama.gov

XXII. 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."

Address 50 International Dive, Suite 150, Greenville, SC 29615 — PE Registration # 20390

Name and Title (type or print) R. Kent Nilsson — Phone Number 864-414-5233

Signature [signature] — Date Signed 7/29/19

XXIII. RESPONSIBLE OFFICIAL SIGNATURE*

This application must be signed 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."

Name (type or print) Craig Gordinier Official Title Montevallo Plant Manager

Signature _____ Date Signed 8-1-2019

*335-6-6-.09 Signatories to Permit Applications and Reports.

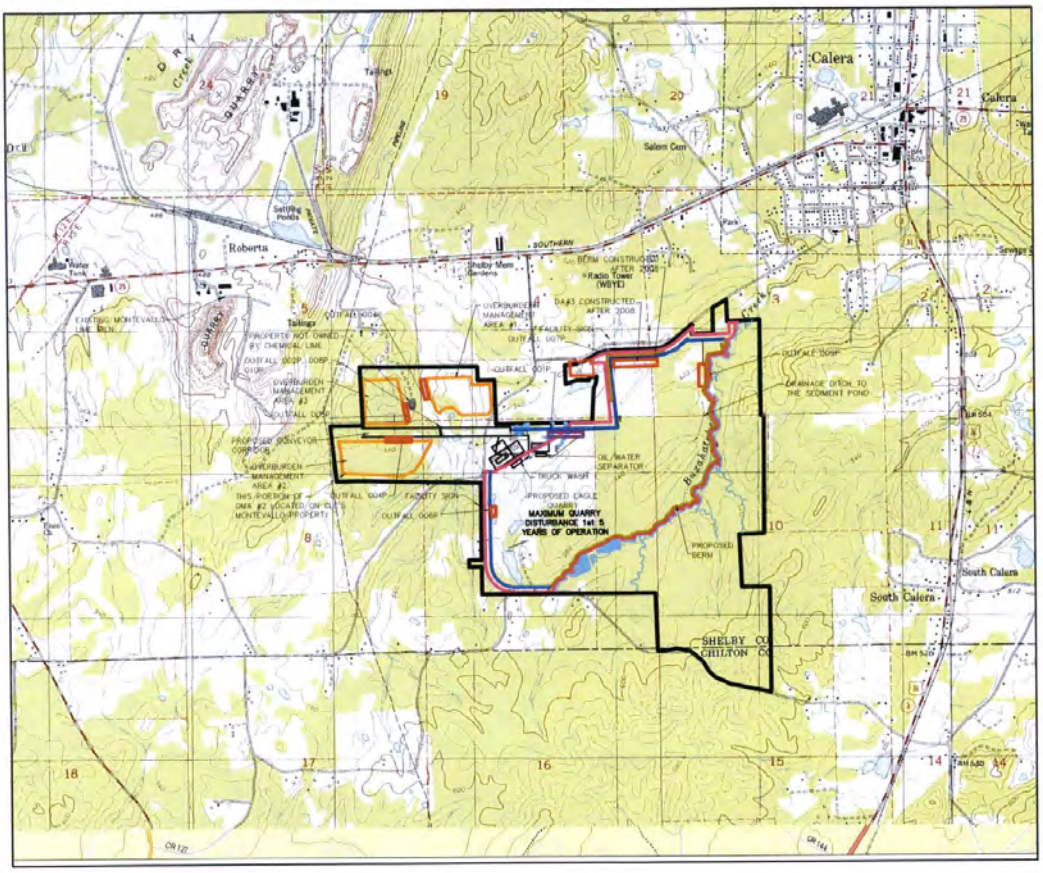
(1) The application for an NPDES permit shall be signed by a responsible official, as indicated below:

(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.



LEGEND

- APPROX. PROPERTY BOUNDARY
- PROPOSED BERM
- OVERBURDEN MANAGEMENT AREAS
- PIT BOUNDARY
- SEDIMENT CONTROL POND
- PROCESS WASTEWATER SEDIMENTATION POND
- DIVERSION BERM
- STREAM CROSSING LOCATIONS
- DIRECTION OF QUARRY PROGRESSION

NOTE

PROPOSED QUARRY IS LOCATED IN SHELBY AND CHILTON COUNTY, TOWNSHIP 24 N, RANGE 13 E, SECTIONS 3, 4, 5, 8, 9, 10 AND 15

MAP DERIVED FROM DELORME'S MONTEVALLO (AL) 1980 7.5' USGS TOPOGRAPHIC QUADRANGLE

ALL PROPERTY BOUNDARIES AND LIMITS SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED BY OTHERS

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:

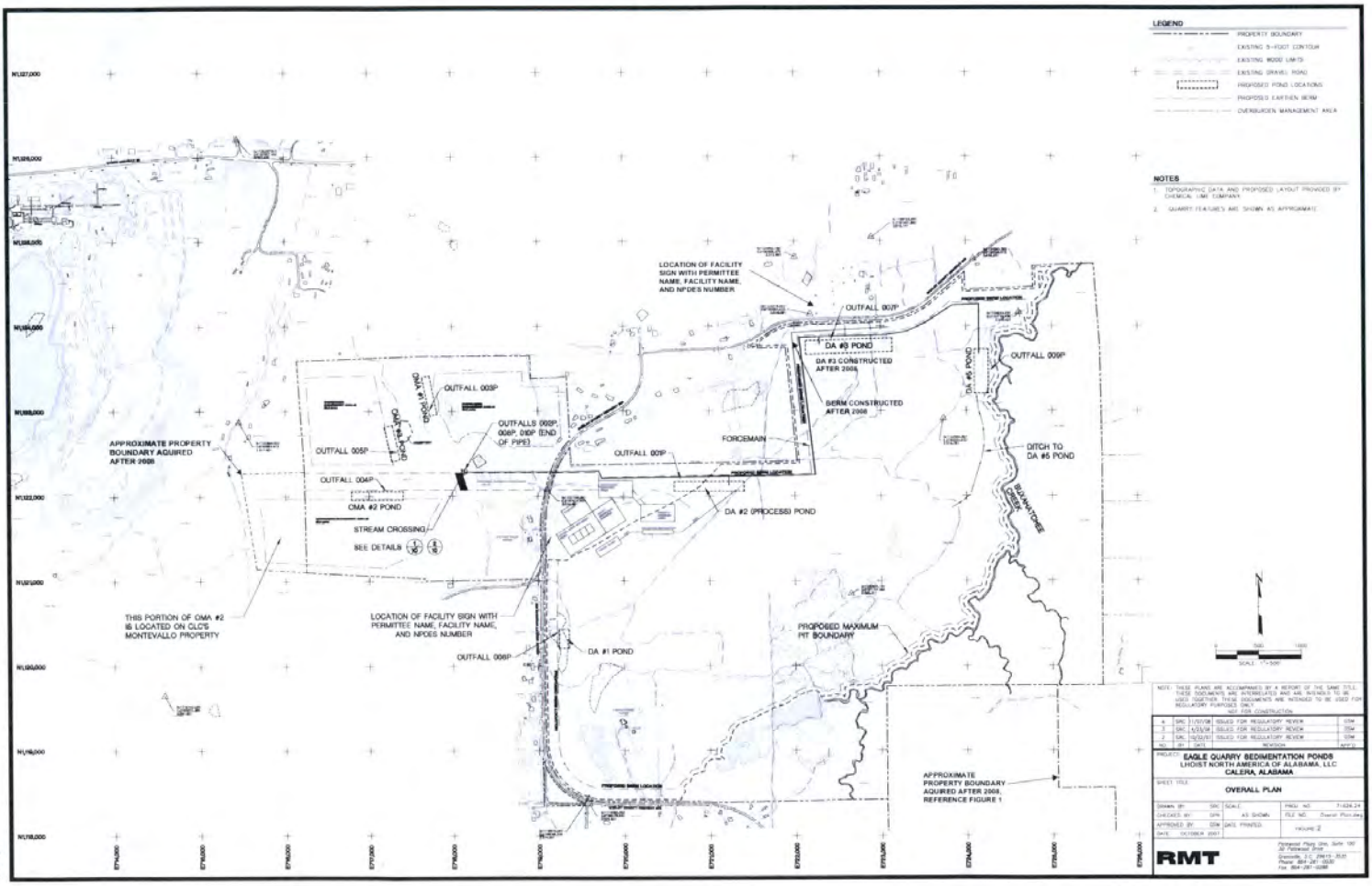
LHOIST NORTH AMERICA OF ALABAMA, LLC
EAGLE QUARRY
CALERA, ALABAMA

TITLE:

SITE LOCATION MAP

DRAWN BY:	A PEEBLES
CHECKED BY:	K KJOS
APPROVED BY:	
DATE:	JULY 2019
PROJ. NO.:	350991.0.0
FILE:	350991_Figure_1.dwg

FIGURE 1


LEGEND
PROPERTY BOUNDARY
EXISTING 5-FOOT CONTOUR
EXISTING WOOD LINE
EXISTING GRAVEL ROAD
PROPOSED POND LOCATIONS
PROPOSED EARTHEN BERM
OVERBURDEN MANAGEMENT AREA
NOTES
1. TOPOGRAPHIC DATA AND PROPOSED LAYOUT PROVIDED BY CHEMICAL LIME COMPANY.
2. QUARRY FEATURES ARE SHOWN AS APPROXIMATE
LOCATION OF FACILITY SIGN WITH PERMITTEE NAME, FACILITY NAME, AND NPDES NUMBER
OUTFALL 007P
DA #3 POND
DA #3 CONSTRUCTED AFTER 2008
DA #5 POND
OUTFALL 009P
BERM CONSTRUCTED AFTER 2008
FORCEMAIN
DITCH TO DA #5 POND
BUCKHORN CREEK
OUTFALL 003P
DA #4 POND
OUTFALLS 002P, 008P, 010P (END OF PIPE)
APPROXIMATE PROPERTY BOUNDARY AQUIRED AFTER 2008
OUTFALL 005P
OUTFALL 007P
OUTFALL 004P
CMA #2 POND
DA #2 (PROCESS) POND
STREAM CROSSING
SEE DETAILS
THIS PORTION OF CMA #2 IS LOCATED ON CLC'S MONTEVALLO PROPERTY
LOCATION OF FACILITY SIGN WITH PERMITTEE NAME, FACILITY NAME, AND NPDES NUMBER
PROPOSED MAXIMUM PIT BOUNDARY
OUTFALL 006P
DA #1 POND
APPROXIMATE PROPERTY BOUNDARY AQUIRED AFTER 2008, REFERENCE FIGURE 1
N
SCALE 1" = 500'
NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER. THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION.
4 SRC 7/07/08 ISSUED FOR REGULATORY REVIEW DSM
3 SRC 4/23/08 ISSUED FOR REGULATORY REVIEW DSM
2 SRC 10/22/07 ISSUED FOR REGULATORY REVIEW DSM
NO. BY DATE REVISION APP'D
PROJECT: EAGLE QUARRY SEDIMENTATION PONDS
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA
SHEET TITLE: OVERALL PLAN
Drawn BY: SRC
CHECKED BY: DPK
APPROVED BY: DSM
DATE: OCTOBER 2007
SCALE: AS SHOWN
PROJ. NO. 7-624.24
FILE NO. Overall Plan.dwg
DATE PRINTED:
VOLUME 2
RMT
Richmond Plaza One, Suite 100
201 Richmond Drive
Greenville, S.C. 29615-3531
Phone 864-287-0530
Fax 864-287-0288

Attachment II – Lhoist Compliance History (2016-2019)

Lhoist North America Compliance History for Facilities Operating in Alabama
(July 2016 through July 2019)

November 9, 2018

O'Neal Plant & Quarry - Notice of Violation (Water)

Limestone mud discharge to Camp Branch Creek due to a failed check valve. Remediation was performed on stream and failed valve was replaced.

September 11, 2018

Montevallo Plant - Notice of Violation (Water)

Unpermitted discharge of untreated runoff water. Maintenance was performed on drainage system and a wall was installed around the external drain that overflowed to prevent future discharges.

January 24, 2018

Montevallo Plant - Proposed Consent Order (Air)

Failed particulate matter compliance test on Kiln 2. Facility demonstrated that failed test resulted from a malfunction of scrubber. Additionally facility conducted testing at an increased frequency and installed access and platforms on both Kiln 1 and Kiln 2 stacks.

August 7, 2018

Montevallo Plant - Notice of Violation (Air)

Improper loading of customer trucks. Bulk loaders were retrained on proper method to load customer trucks.

July 19, 2017

O'Neal Plant & Quarry - Notice of Violation (Air)

Records for weekly visible emissions were missing certain sources. Also Semi-Annual and Annual reports were missing sources associated to permit X037. Training was conducted for personnel responsible for performing observations and associated forms were updated.

April 14, 2017

Montevallo Plant - Notice of Deficiency (Land)

Illegal dumping on property resulting in unauthorized dump areas. Areas were cleaned up and signs were posted and were possible roads were barricade to limit access.

October 14, 2016

Montevallo Plant - Consent Order (Air)

Failed particulate matter compliance tests on Kiln 1 and Kiln 2. Facility conducted testing at an increased frequency and paid a penalty.

Attachment III – Existing ADEM Permits Held by Lhoist North America of Alabama

Existing ADEM Permits Held by Lhoist North America for Facilities Operating in Alabama

Site: Alabaster Plant
Master ID: 2788
Permit(s): AL0024473
411-0017
ALR000025981

Site: Alabaster Minerals
Master ID: 15309
Permit(s): 411-0049

Site: Brierfield Quarry
Master ID: 2791
Permit(s): AL0067831
ALR000053603

Site: Eagle Quarry
Master ID: 36148
Permit(s): AL0079308

Site: Montevallo Plant
Master ID: 2789
Permit(s): AL0003336
411-0008
ALR000018721

Site: O'Neal Plant & Quarry
Master ID: 2790
Permit(s): AL0056073
411-00392788
ALR000018739

Attachment IV – Pollution Abatement Plan

Pollution Abatement Plan (PAP)

Lhoist North America of Alabama, LLC

Eagle Quarry, Calera, Alabama 35040

August 2019

R. Kent Nilsson, P.E.
Project Engineer

Daniel J. White
Project Manager

TRC | Lhoist North America of Alabama, LLC
PAP - Eagle Quarry

\\GREENVILLE-FP1\WPGVL\PJT2\350991\0000\R3509910000-001.DOCX

50 International Drive, Suite 150 • Greenville, SC 29615-3535 • (864) 281-0030 • (864) 281-0288 FAX • www.trccompanies.com

Table of Contents

List of Figures

List of Appendices

Certification

I hereby certify that I have examined the property for the proposed Eagle Quarry, and being familiar with the provisions of Alabama Department of Environmental Management (ADEM) Administrative Code 335-6-9, attest that this Pollution Abatement Plan (PAP) has been prepared in accordance with good engineering practice.

R. Kent Nilsson
Name of Professional Engineer

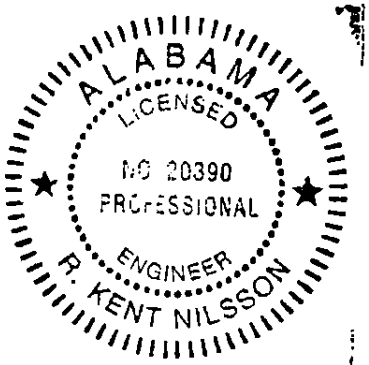
Signature

20390
Registration Number

Alabama
State

7/29/19
Date

Seal



Section 1
Introduction

This pollution abatement plan (PAP) is an update of the original PAP that was prepared for Lhoist North America of Alabama, LLC (LNA) by RMT, Inc. (RMT) and submitted in November 2008 in accordance with the requirements of Alabama Department of Environmental Management (ADEM) Administrative Code 335-6-9-.03. In June 2012 RMT was acquired by TRC Companies, Inc. (TRC) and the 2008 plan has been updated under TRC's direction. This update also included a recent site visit to verify current conditions of the site. The berm has been constructed on the north side of the quarry property, and the remaining sections of the berm are planned to be constructed prior to initiating quarry operations. Pond DA #3 has been constructed, but the pond was designed so water does not discharge from the impoundment. In some areas of the site, soil has been disturbed and transported off site. No outfalls have been constructed at the site.

This plan has been organized similar to the outline of ADEM Administrative Code (AAC) 335-6-9-.03. The information in this plan is provided to satisfy the requirements of AAC 335-6-9-.03 as well as the sedimentation control and haul road guidelines published by ADEM as Appendixes A and B, respectively, to AAC 335-6-9-.03. In accordance with the requirements of AAC 335-6-3, a registered professional engineer employed by TRC that is licensed to practice engineering in the State of Alabama has prepared and certified this plan.

Section 2
Facility Information

LNA intends to own and operate a limestone quarry in Calera, Alabama. Crushing operations and a limestone quarry will be located at this site. This section provides the owner information and describes future quarry operations and surface water drainage through the facility.

2.1 Owner/Operator Information

Eagle Quarry is owned and operated by LNA with business offices located at the following address:

Lhoist North America of Alabama, LLC
7444 Highway 25 South
Calera, Alabama 35040

The physical address of the Eagle Quarry is:

Lhoist North America of Alabama, LLC
3223 County Road (CR) 20
Calera, Alabama 35040

LNA has corporate offices location at:

Lhoist North America of Alabama, LLC
5600 Clearfork Main Street, Suite 300
Fort Worth, Texas 76109

Eagle Quarry is located in Sections 3, 4, 5, 8, 9, 10 and 15 of Township 24 North, Range 13 East, in Shelby County, Alabama. The facility and property boundary are shown on Figure 1; a more detailed facility map is provided in Figure 2.

The LNA officials responsible for the implementation of the PAP are as follows:

Grant Nintzel
Director of Regional Operations
Lhoist North America of Alabama, LLC
(205) 402-1531

Craig Gordinier
Montevallo Plant Manager
Lhoist North America of Alabama, LLC
(205) 444-4913

Michael Will
Senior Environmental Engineer
Lhoist North America of Alabama, LLC
(205) 444-4905

2.2 General Facility Description

The Eagle Quarry will mine, crush, and transport raw limestone to other LNA facilities and customer sites. LNA will employ approximately 50 personnel at the Eagle Quarry and will operate up to 24 hours per day.

A 1 inch = 2,000 feet topographic map that indicates the facility property boundary, quarry, discharge outfalls, overburden areas, Buxahatchee Creek, and tributaries to Dry Creek is shown as Figure 1. A more detailed facility map (1 inch = 500 feet) is provided as Figure 2. This map incorporates all the information shown on Figure 1 as well as the topography, buildings, fuel tanks, and sedimentation ponds.

A single stream crossing is proposed at this time. The location of this stream crossing is shown in Figures 1 and 2. A detail of these stream crossings is shown on Sheet 10 of 10 in Appendix A.

2.3 Method of Diverting Surface Runoff

Figure 2 illustrates the facility layout as well as the topography and drainage system around the limestone quarry. Surface water runoff from the quarrying operations will be directed to the process wastewater sedimentation pond. Outfall 001P will be the gravity discharge structure from the process wastewater sedimentation pond to a tributary of Buxahatchee Creek. Outfall 002P will be a pumped discharge from the process wastewater sedimentation pond to a tributary of Dry Creek located west of CR 20 and CR 75. Water from quarry dewatering activities, crushing operations, and stone washing will be treated by the process wastewater sedimentation pond and discharged from either Outfall 001P or 002P.

Storm water runoff from land-disturbing activities associated with the quarry will also drain (in addition to the process wastewater sedimentation pond) to three sedimentation ponds; two located east of the process wastewater sedimentation pond, and one located southwest of the process wastewater sedimentation pond. Storm water treated by the ponds located east of the process pond will discharge from Outfalls 007P to a tributary of Buxahatchee Creek and 009P to Buxahatchee Creek. Treated storm water from these sedimentation ponds can also be pumped to Outfalls 008P and 010P to a tributary of Dry Creek. Storm water from land-disturbing activities treated by the sedimentation pond located southwest of the process wastewater is discharged from Outfall 006P to a tributary of Dry Creek.

Storm water runoff from overburden management areas (OMAs) #1, #2, and #3 located west of CR 20 and CR 75 will drain to storm water sedimentation ponds associated with each of these OMAs. These sedimentation ponds will discharge through Outfalls 003P, 004P, and 005P to a tributary of Dry Creek.

The portion of OMA #2 located west of the Eagle Quarry property line is located on LNA's Montevallo Plant property.

Storm water from mining operations will be routed to the quarry pit through diversion channels or by berms. Storm water runoff from the limestone crushing area will be captured in the crusher pits and will be transferred to the process wastewater sedimentation pond by pumps for treatment. In cases where it is not practical to use berms or diversion channels, natural vegetation, hay berms, silt fencing, or other equally effective systems may be utilized. Drawings provided in Appendix A show design details for the process and storm water ponds. Typical diversion berm and silt fence details are provided on Figure 1. Sedimentation controls, including sediment ponds, will meet the specifications provided in Appendix B.

2.4 Raw Materials, Processes, and Products

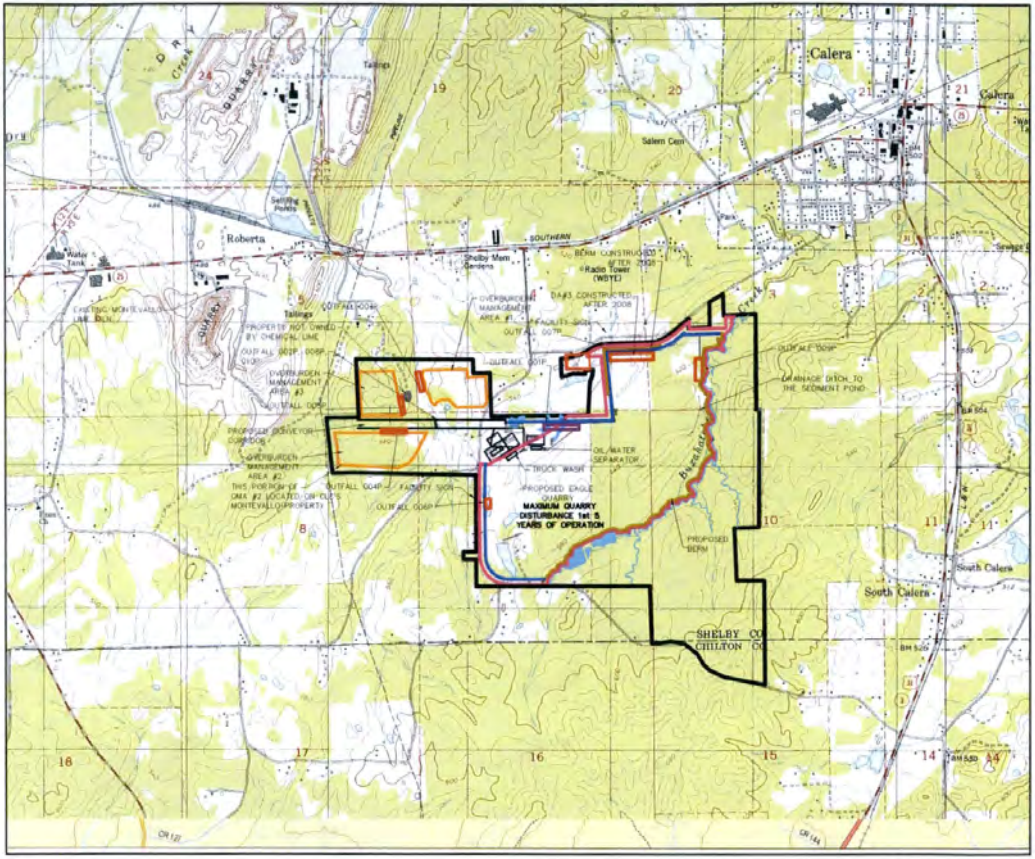
Raw limestone will be mined and crushed at the site prior to being transported to other LNA facilities or customer sites. Surface water runoff from quarrying operations will drain to the sedimentation ponds located east of the process wastewater sedimentation pond, the crusher pits, or the quarry pit. Storm water draining to the crusher pits or the quarry pit is transferred to the process wastewater sedimentation pond. Process water from crushing and stone washing operations will be transferred to the process wastewater sedimentation pond for treatment prior to being discharged to a tributary of Buxahatchee Creek from Outfall 001P or to a tributary of Dry Creek from Outfall 002P.

Surface water runoff from land-disturbing activities associated with the quarry is captured in three sedimentation ponds; two of these ponds are located east of the process wastewater sedimentation pond and one sedimentation pond is located southwest of the process sedimentation pond. Surface water runoff captured in the sedimentation pond (DA #1 Pond) located southwest of the process wastewater sedimentation pond will discharge through Outfall 006P to a tributary of Dry Creek. Surface water runoff captured by the sedimentation ponds (DA #3 and DA #5 Ponds) located east of the process wastewater sedimentation pond will discharge through Outfall 007P to a tributary of Buxahatchee Creek and Outfall 009 to Buxahatchee Creek. These sedimentation ponds can also discharge through Outfalls 008P and 010P to a tributary of Dry Creek.

Water collected in the quarry and the process sedimentation basin may also be used to supply process operations.

The primary waste products that will be generated at this facility include screened fines reject, overburden rock, material from sediment pond cleanout, and sediment from the mining and processing operations. Any unsold material will be transported to the OMAs or used in quarry reclamation activities.

8.5x11 --- USER: KKjos ---
DRAWING NAME: REFS: border --- ATTACHED IMAGES: EAGLE QUARRY BOUNDOUTLINE, monmetric
\\oist\350991 - Eagle Quarry\0000\ 350991_Figure_1.dwg --- PLOT DATE: July 29, 2019 - 3:16PM --- LAYOUT: Figure_1



LEGEND

- APPROX. PROPERTY BOUNDARY
- PROPOSED BERM
- OVERBURDEN MANAGEMENT AREAS
- PIT BOUNDARY
- SEDIMENT CONTROL POND
- PROCESS WASTEWATER SEDIMENTATION POND
- DIVERSION BERM
- STREAM CROSSING LOCATIONS
- DIRECTION OF QUARRY PROGRESSION

NOTE

PROPOSED QUARRY IS LOCATED IN SHELBY AND CHILTON COUNTY, TOWNSHIP 24 N, RANGE 13 E, SECTIONS 3, 4, 5, 8, 9, 10 AND 15

MAP DERIVED FROM DELORME'S MONTEVALLO (AL) 1980 7.5' USGS TOPOGRAPHIC QUADRANGLE

ALL PROPERTY BOUNDARIES AND LIMITS SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED BY OTHERS

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:

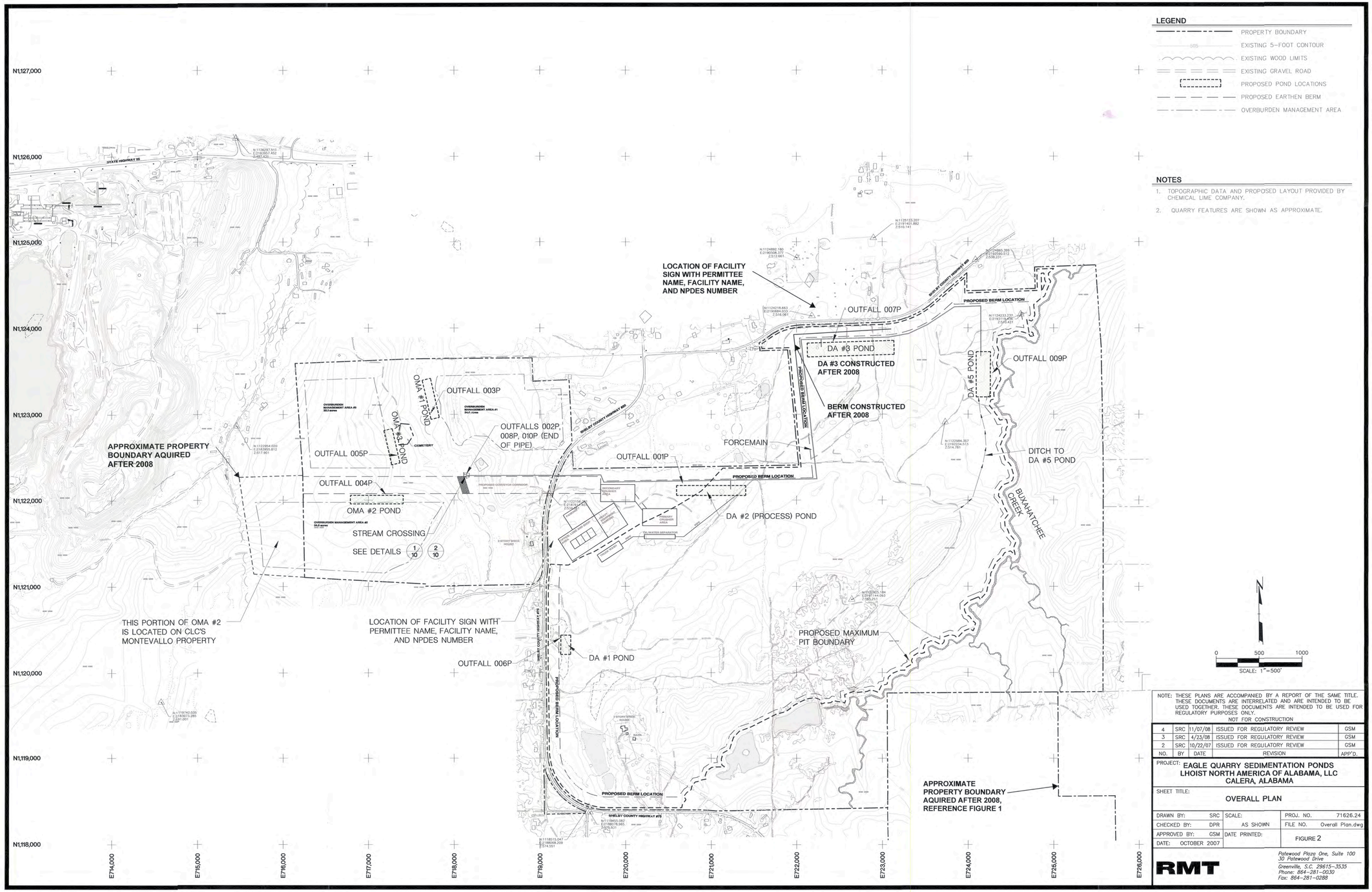
LHOIST NORTH AMERICA OF ALABAMA, LLC
EAGLE QUARRY
CALERA, ALABAMA

TITLE:

SITE LOCATION MAP

DRAWN BY:	A PEEBLES
CHECKED BY:	K KJOS
APPROVED BY:	
DATE:	JULY 2019
PROJ. NO.:	350991.0.0
FILE:	350991_Figure_1.dwg

FIGURE 1



LEGEND

- PROPERTY BOUNDARY
- 505 EXISTING 5-FOOT CONTOUR
- EXISTING WOOD LIMITS
- EXISTING GRAVEL ROAD
- PROPOSED POND LOCATIONS
- PROPOSED EARTHEN BERM
- OVERBURDEN MANAGEMENT AREA

NOTES

1. TOPOGRAPHIC DATA AND PROPOSED LAYOUT PROVIDED BY CHEMICAL LIME COMPANY.
2. QUARRY FEATURES ARE SHOWN AS APPROXIMATE.

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER. THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY.

NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION	APP'D.
4	SRC	11/07/08	ISSUED FOR REGULATORY REVIEW	GSM
3	SRC	4/23/08	ISSUED FOR REGULATORY REVIEW	GSM
2	SRC	10/22/07	ISSUED FOR REGULATORY REVIEW	GSM

PROJECT: **EAGLE QUARRY SEDIMENTATION PONDS**
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE: **OVERALL PLAN**

DRAWN BY:	SRC	SCALE:	PROJ. NO. 71626.24
CHECKED BY:	DPR	AS SHOWN	FILE NO. Overall Plan.dwg
APPROVED BY:	GSM	DATE PRINTED:	FIGURE 2
DATE:	OCTOBER 2007		

RMT
Patewood Plaza One, Suite 100
30 Patewood Drive
Greenville, S.C. 29615-3535
Phone: 864-281-0030
Fax: 864-281-0288

AutoCAD Drawing Name: x
Operator Name: x
Date Stored: x
Plot Date: x
Attached Xref's: x
Attached Image's: x

Section 3
Waste Treatment Information

3.1 Water Supply and Use

Drinking water will be purchased from the City of Calera and will be used at the office and other buildings. "Quarry use" or "service" water will be obtained from groundwater wells. Water from the quarry pit or treated water from the process sedimentation basin may also be used to supply process demands. A water balance for this facility is shown in Figure 3.

3.2 Description of Process Wastewater Sedimentation Pond

Waste treatment facilities at the Eagle Quarry will include a process wastewater (DA #2) sedimentation pond and six additional sedimentation ponds to treat runoff from OMAs and land-disturbing activities associated with the quarry. Process wastewater will include discharges from quarry dewatering, stone washing, and crushing activities. Storm water falling in the quarry pit will be collected in the quarry pit and pumped to the process sedimentation basin during quarry dewatering. Storm water runoff from areas adjacent to the quarry will drain to the process wastewater sedimentation pond and the quarry pit. Storm water runoff from the crusher area will be collected in the crusher pit and will be pumped to the process wastewater sedimentation pond. Water from the truck wash will be directed to an oil/water separator for treatment prior to flowing to the process wastewater sedimentation pond.

The process wastewater sedimentation pond will be approximately 9 feet deep and will have a surface area of approximately 2.8 acres. In accordance with ADEM Administrative Code R, 335-6-9 (Appendix A), LNA will periodically cleanout this basin to ensure that the sediment accumulation does not exceed 60 percent of the design capacity. The process wastewater sedimentation pond will discharge through Outfall 001P to a tributary of Buxahatchee Creek. A pumped discharge from the process wastewater sedimentation pond will discharge through Outfall 002P to the tributary of Dry Creek located west of CR 20 and CR 75.

The process wastewater pond will be earthen and will be constructed in substantial compliance with ADEM rules and regulations. Guidelines for the pond construction, including engineering design details of the sedimentation pond, are presented in Appendix A. The area draining to the process wastewater pond is approximately 116 acres. The 20.2 acre-feet will provide storage for a drainage area of 12 disturbed acres (see Design Criteria provided in Appendix A) and; therefore, meets the storage requirements established in ADEM Administrative Code R 3345-6-9, Appendix A (3).

3.3 Description of Overburden Management Area Sedimentation Ponds

Storm water runoff from OMA #1 will drain to a sedimentation pond located west of this OMA. This sedimentation pond will be earthen and will be constructed in accordance with ADEM rules and

regulations. The outfall from this pond, Outfall 003P, will discharge to a tributary of Dry Creek. This pond will be approximately 10 feet deep and will have a surface area of 1.2 acres. The 7.0 acre-feet will provide storage for a drainage area of 2.4 disturbed acres (see Design Criteria provided in Appendix A) and; therefore, meets the storage requirements established by ADEM. In accordance with ADEM Administrative Code R 335-6-9, LNA will periodically cleanout this basin to ensure that the sediment accumulation does not exceed 60 percent of this design capacity.

Storm water runoff from OMA #2 will drain to a sedimentation pond located north of this OMA. This sedimentation pond will be earthen and will be constructed in accordance with ADEM rules and regulations. The outfall from this pond, Outfall 004P, will discharge to a tributary of Dry Creek. This pond will be approximately 10 feet deep and will have a surface area of approximately 1.4 acres. The 9.2 acre-feet will provide storage for a drainage area of 3.5 disturbed acres and; therefore, meets the storage requirements established by ADEM. In accordance with ADEM Administrative Code R 335-6-9, LNA will periodically cleanout this basin to ensure the sediment accumulation does not exceed 60 percent of the design capacity. The portion of OMA #2 located west of the Eagle Quarry property line is located on LNA's Montevallo property.

Storm water runoff from OMA #3 will drain to a sedimentation pond located east of this OMA. This sedimentation pond will be earthen and will be constructed in accordance with ADEM rules and regulations. The outfall from this pond, Outfall 005P, will discharge to a tributary of Dry Creek. This pond will be approximately 10 feet deep and will have a surface area of approximately 0.9 acres. The 5.7 acre-feet will provide storage for a drainage area of 1.8 disturbed acres and; therefore, meets the storage requirements established by ADEM. LNA will periodically cleanout this basin to ensure the sediment accumulation does not exceed 60 percent of the design capacity.

3.4 Description of Sedimentation Ponds Associated with Land-disturbing Activities

Surface water runoff from land-disturbing activities associated with the quarry will be treated, in addition to the process wastewater sedimentation pond, in three sedimentation ponds. Two of these sedimentation ponds will be located east of the process wastewater sedimentation pond, and one will be located southwest of the process wastewater sedimentation pond. Storm water treated by the ponds located east of the process pond will be discharged from Outfall 007P to a tributary of Buxahatchee Creek and 009P to Buxahatchee Creek. Treated storm water from these ponds can be pumped and discharged from Outfalls 008P and 010P to a tributary of Dry Creek. The sedimentation pond discharging from Outfalls 007P and 008P will have a depth of about 13 feet and a surface area of approximately 3.3 acres. This sedimentation pond will provide a storage volume of 32.0 acre-feet for a drainage area of 20 disturbed acres (see Design Criteria provided in Appendix A) and; therefore, meets storage requirements established by ADEM.

The sedimentation pond associated with Outfalls 009P and 010P will have a depth of approximately 10 feet and a surface area of 1.7 acres. This sedimentation pond provides a storage volume of 13.0 acre-

feet for a drainage area of 10 disturbed acres and; therefore, meets storage requirements established by ADEM.

The sedimentation pond located southwest of the process pond will discharge through Outfall 006P to a tributary of Dry Creek. The sedimentation pond will have a depth of 6 feet and a surface area of approximately 0.5 acres. This sedimentation pond will provide a storage volume of 2.3 acre-feet for a drainage area of 2 disturbed acres and; therefore, meets ADEM storage requirements.

A generalized facility water balance (Figure 3) shows the average daily water use for the Eagle Quarry. Figures 1 and Figure 2 show the proposed location of each outfall at this facility (Outfalls 001P, 002P, 003P, 004P, 005P, 006P, 007P, 008P, 009P, and 010P).

3.5 Quantity and Quality of Effluent After Treatment

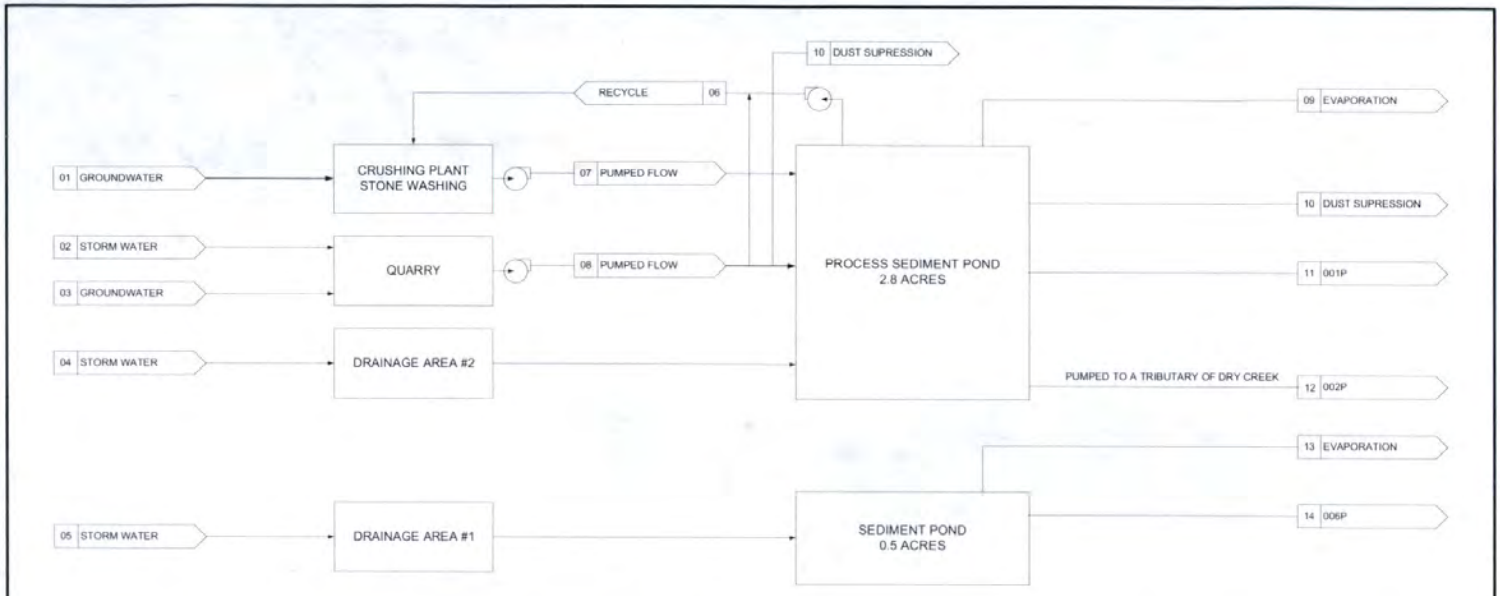
The quantity of water that will be discharged through Outfall 001P is estimated to average 4,600 gpm, with an anticipated maximum discharge of 12,100 gpm. Outfall 002P will discharge an average of 4,600 gpm, with an anticipated maximum discharge of 11,250 gpm. The process wastewater sedimentation pond will be capable of removing solids to compliance levels with the National Pollutant Discharge Elimination System (NPDES) permit for total suspended solids (TSS).

The quantity of water to be discharged from Outfall 003P is estimated to average 100 gpm with an anticipated maximum discharge of 1,400 gpm. Outfall 004P is estimated to discharge an average of 100 gpm with an estimated maximum discharge of 1,800 gpm. Outfall 005P will discharge an estimated 100 gpm with an anticipated maximum discharge of 1,200 gpm. These sedimentation ponds will be capable of removing suspended solids to compliance levels with the NPDES permit for TSS.

Outfall 006P will discharge an average of 100 gpm with an anticipated maximum discharge of 1,100 gpm. Outfall 007P will discharge an average of 2,800 gpm with an anticipated maximum discharge of 12,400 gpm. Outfall 008P will discharge an average of 2,800 gpm with an anticipated maximum discharge of 11,250 gpm. Outfall 009P will discharge an average of 100 gpm with an anticipated maximum discharge of 5,600 gpm. Outfall 010P will discharge an average of 100 gpm with an anticipated maximum discharge of 11,250 gpm. The sedimentation ponds associated with these outfalls will be capable of removing suspended solids to compliance levels with the NPDES permit for TSS.

TSS concentrations are anticipated to average 25 mg/L with a daily maximum of 45 mg/L. Based on analytical results from a similar LNA quarry, pH is expected to be <8.0, and iron is anticipated to be less than 0.15 mg/L. The design criteria used in sizing the sedimentation ponds is provided in Appendix A.

Outfalls 001P, 002P, 003P, 004P, 005P, 006P, 007P, 008P, 009P, and 010P will be inspected at least twice per month. During the inspections, water samples will be collected if water is discharging through the outfalls, and the results will be submitted to ADEM in discharge monitoring reports (DMRs) in accordance with the quarry's NPDES permit. Water samples will be analyzed for NPDES permit parameters. In addition, flow measurements will be made at the discharge outfalls.



NOTES

1. ALL FLOW RATES ARE PRESENTED IN UNITS OF GALLONS PER MINUTE (GPM).
2. VOLUME OF STORM WATER AND GROUNDWATER ENTERING QUARRY WILL INCREASE AS QUARRY PROGRESSES FROM WEST TO EAST.
3. Q_{1YA} REPRESENTS THE ANTICIPATED AVERAGE RATE OF DISCHARGE OVER A 24-HOUR PERIOD. FOR STORM WATER RUNOFF, A 1-INCH RAINFALL OVER A 24-HOUR PERIOD WAS USED TO ESTIMATE THE AVERAGE RATE OF RUNOFF.
4. Q_{1Y24} REPRESENTS THE ANTICIPATED AVERAGE RATE OF DISCHARGE OVER A 24-HOUR PERIOD PRODUCED BY A 1-YEAR, 24-HOUR EVENT.
5. Q_{25Y24} REPRESENTS THE ANTICIPATED AVERAGE RATE OF DISCHARGE OVER A 24-HOUR PERIOD PRODUCED BY A 25-YEAR, 24-HOUR EVENT.
6. Q_{DESIGN} REPRESENTS THE AVERAGE RATE OF RUNOFF PRODUCED BY A 50-YEAR, 24-HOUR STORM EVENT FOR DRAINAGE AREAS. Q_{DESIGN} REPRESENTS THE PEAK RATE OF DISCHARGE FROM THE SEDIMENT PONDS DURING THE 50-YEAR, 24 HOUR STORM EVENT.
7. PUMPED FLOWS ASSUME A MAXIMUM PUMPING RATE OF 11,250 GPM.
8. BPE MEANS BEST PROFESSIONAL ESTIMATE, ENS MEANS ENGINEERING STUDY, AND DSP MEANS DATA FROM SIMILAR PLANTS.

NUMBER	01	02	03	04	05	06	07	08	09	10	11	12	13	14
Q_{1YA}	2,500			2,200	230	2,500	2,500	1,700	7	150	4,600	4,600	1.2	100
Q_{1Y24}	-			3,900	332	-	-	-	-	-	7,400	11,250	-	171
Q_{25Y24}	-			12,100	1,100	-	-	-	-	-	12,100	11,250	-	1,100
Q_{DESIGN}	2,500			13,200	1,200	2,500	2,500	6,700	7	150	118,000	11,250	1.2	11,000
CODE	DSP			ENS	ENS	DSP	DSP	ENS	BPE	DSP	ENS	ENS	BPE	ENS

NO.	BY	DATE	REVISION	APP'D
C	MES	11/06/08	FOR REGULATORY REVIEW	GSM
B	JAF	10/27/07	FOR REGULATORY REVIEW	GSM
A	JAF	10/10/07	FOR CLIENT REVIEW	GSM

CHEMICAL LIME COMPANY OF ALABAMA, INC.
EAGLE QUARRY

FIGURE 3
WATER BALANCE DIAGRAM

DRAWN BY: JAF	SCALE: NONE	PROJ. NO: 716624.12	
CHECKED BY: DJW		FILE: 716624-D01.VSD	
APPROVED BY: GSM	DATE PRINTED: 11/06/08	716624.D01.A SHEET 1 OF 3	
DATE: 10/03/08			

RMT
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30 PATEWOOD DRIVE
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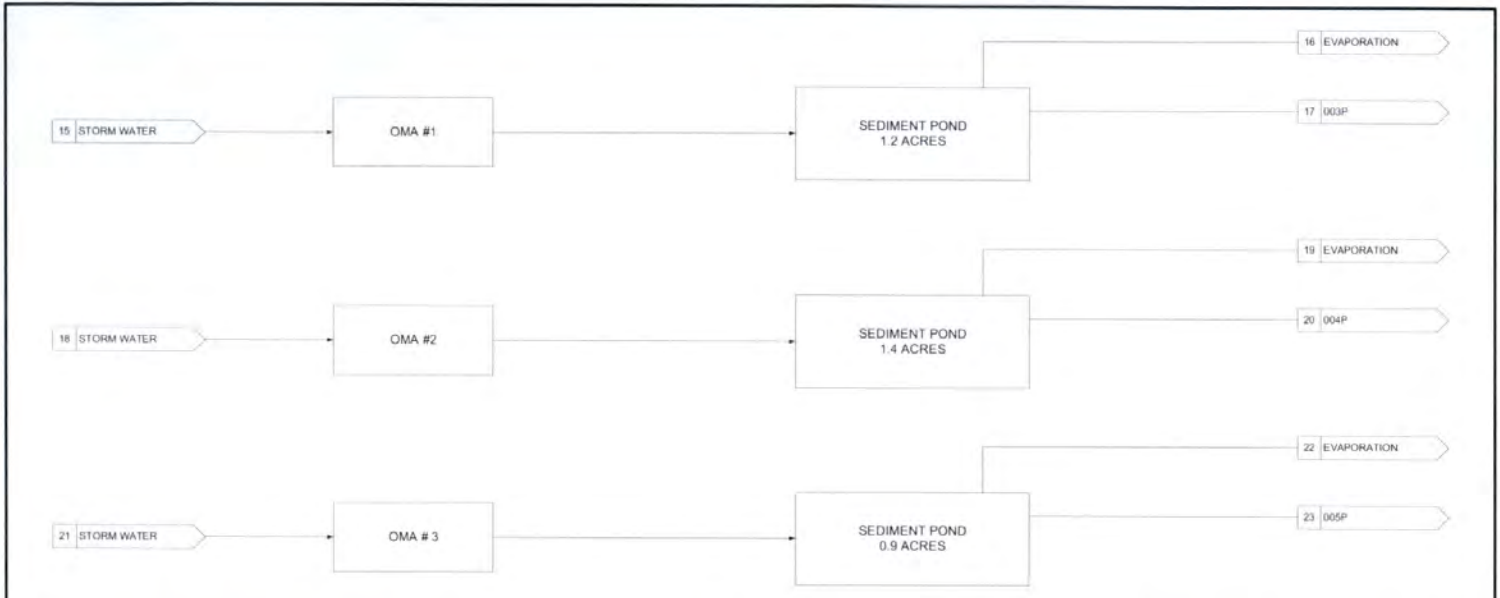
PHONE: 864-281-0030
FAX: 864-281-0288

I:\WP\DVL\PJT-00\716624\00002\V00\716624-001.VSD



NOTES:
1. ALL FLOW RATES ARE PRESENTED IN UNITS OF GALLONS PER MINUTE (GPM).
2. VOLUME OF STORM WATER AND GROUNDWATER ENTERING QUARRY WILL INCREASE AS QUARRY PROGRESSES FROM WEST TO EAST.
3. $Q_{1/A}$ REPRESENTS THE ANTICIPATED AVERAGE RATE OF DISCHARGE OVER A 24-HOUR PERIOD. FOR STORM WATER RUNOFF, A 1-INCH RAINFALL OVER A 24-HOUR PERIOD WAS USED TO ESTIMATE THE AVERAGE RATE OF RUNOFF.
4. $Q_{1/24}$ REPRESENTS THE ANTICIPATED AVERAGE RATE OF DISCHARGE OVER A 24-HOUR PERIOD PRODUCED BY A 1-YEAR, 24-HOUR EVENT.
5. $Q_{25/24}$ REPRESENTS THE ANTICIPATED AVERAGE RATE OF DISCHARGE OVER A 24-HOUR PERIOD PRODUCED BY A 25-YEAR, 24-HOUR EVENT.
6. Q_{DESIGN} REPRESENTS THE AVERAGE RATE OF RUNOFF PRODUCED BY A 50-YEAR, 24-HOUR STORM EVENT FOR DRAINAGE AREAS. Q_{DESIGN} REPRESENTS THE PEAK RATE OF DISCHARGE FROM THE SEDIMENT PONDS DURING THE 50-YEAR, 24 HOUR STORM EVENT.
7. PUMPED FLOWS ASSUME A MAXIMUM PUMPING RATE OF 11,250 GPM.
8. BPE MEANS BEST PROFESSIONAL ESTIMATE, ENS MEANS ENGINEERING STUDY, AND DSP MEANS DATA FROM SIMILAR PLANTS.

NUMBER	15	16	17	18	19	20	21	22	23
$Q_{1/A}$	350	2.9	0	510	3.4	0	330	2.2	0
$Q_{1/24}$	680	-	0	800	-	0	530	-	0
$Q_{25/24}$	2,300	-	1,400	2,900	-	1,800	1,900	-	1,200
Q_{DESIGN}	2,600	2.9	26,000	3,200	3.4	27,500	2,100	2.2	12,000
CODE	ENS	BPE	ENS	ENS	BPE	ENS	ENS	BPE	ENS

NO	BY	DATE	REVISION	APP'D
C	MES	11/06/08	FOR REGULATORY REVIEW	GSM
B	JAP	10/22/07	FOR REGULATORY REVIEW	GSM
A	JAP	10/10/07	FOR CLIENT REVIEW	GSM

CHEMICAL LIME COMPANY OF ALABAMA, INC
EAGLE QUARRY

FIGURE 3
WATER BALANCE DIAGRAM

DRAWN BY: JAP	SCALE: NONE	PROJ. NO: 71626.24.12	
CHECKED BY: DJW		FILE: 716262401.VSD	
APPROVED BY: GSM	DATE PRINTED: 11/06/08	716262401.A SHEET 2 OF 3	
DATE: 10/03/08			

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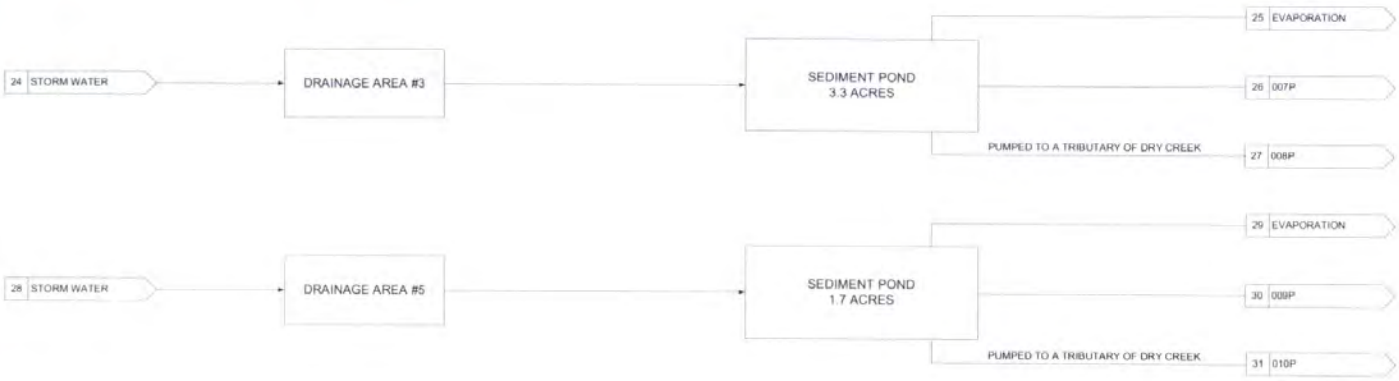
I:\WPGVL\PJT\00.716262\400002\V007162624-001.VSD



NOTES:
1. ALL FLOW RATES ARE PRESENTED IN UNITS OF GALLONS PER MINUTE (GPM).
2. VOLUME OF STORM WATER AND GROUNDWATER ENTERING QUARRY WILL INCREASE AS QUARRY PROGRESSES FROM WEST TO EAST.
3. $Q_{1.1A}$ REPRESENTS THE ANTICIPATED AVERAGE RATE OF DISCHARGE OVER A 24-HOUR PERIOD. FOR STORM WATER RUNOFF, A 1-INCH RAINFALL OVER A 24-HOUR PERIOD WAS USED TO ESTIMATE THE AVERAGE RATE OF RUNOFF.
4. $Q_{1/24}$ REPRESENTS THE ANTICIPATED AVERAGE RATE OF DISCHARGE OVER A 24-HOUR PERIOD PRODUCED BY A 1-YEAR, 24-HOUR EVENT.
5. $Q_{25/24}$ REPRESENTS THE ANTICIPATED AVERAGE RATE OF DISCHARGE OVER A 24-HOUR PERIOD PRODUCED BY A 25-YEAR, 24-HOUR EVENT.
6. Q_{DESIGN} REPRESENTS THE AVERAGE RATE OF RUNOFF PRODUCED BY A 50-YEAR, 24-HOUR STORM EVENT FOR DRAINAGE AREAS. Q_{DESIGN} REPRESENTS THE PEAK RATE OF DISCHARGE FROM THE SEDIMENT PONDS DURING THE 50-YEAR, 24 HOUR STORM EVENT.
7. PUMPED FLOWS ASSUME A MAXIMUM PUMPING RATE OF 11,250 GPM.
8. BPE MEANS BEST PROFESSIONAL ESTIMATE, ENS MEANS ENGINEERING STUDY, AND DSP MEANS DATA FROM SIMILAR PLANTS.

NUMBER	24	25	26	27	28	29	30	31
$Q_{1.1A}$	3,700	7.9	2,800	300	1,800	4.1	100	100
$Q_{1/24}$	5,200	-	4,400	11,250	2,100	-	180	11,250
$Q_{25/24}$	17,200	-	12,400	11,250	7,500	-	5,600	11,250
Q_{DESIGN}	124,000	7.9	124,000	11,250	8,300	4.1	60,000	11,250
CODE	ENS	BPE	ENS	ENS	ENS	BPE	ENS	ENS

NO	BY	DATE	REVISION	APPD
C	MES	11/06/08	FOR REGULATORY REVIEW	DSM
B	JAF	10/22/07	FOR REGULATORY REVIEW	DSM
A	JAF	10/10/07	FOR CLIENT REVIEW	DSM

CHEMICAL LIME COMPANY OF ALABAMA, INC.
EAGLE QUARRY

FIGURE 3
WATER BALANCE DIAGRAM

DRAWN BY: JAF	SCALE:	PROJ. NO.: 716624.T2
CHECKED BY: DJW	NONE	FILE: 716624.001.VSD
APPROVED BY: DSM	DATE PRINTED:	716624.001.A
DATE: 10/03/08	11/06/08	SHEET 3 OF 3

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I:\WPGVL\PJT\00-716262\400002\V007162624.001.VSD

Section 4
Pollution Prevention Plan

Eagle Quarry will implement practices to prevent sediment pollution from haul and access roads to protect the water quality of nearby surface waters and to minimize the effects of non-point source pollution from limestone stockpiles. Pollution prevention practices that will be administered by the facility are discussed in the following sections.

4.1 Sediment Control for Haul and Access Roads

The haul and access roads are shown on Figure 2. Haul roads within the quarry will drain back to the quarry pit, where collected storm water runoff will be pumped to the process wastewater sedimentation pond. Runoff from haul roads may also be directed to one of the sedimentation ponds. Hauls road around the overburden areas will drain to sedimentation ponds associated with each of the overburden management areas. Access roads will be maintained such that they are crowned to shed surface runoff to diversion channels or berms that will drain back to either the sediment ponds or the quarry pit. Where this is not possible, basins, silt fences, or hay filters will be placed to intercept runoff. A haul road detail is provided on the drawings contained in Appendix A.

4.2 Protection of Stream Water Quality

As shown in Figure 2, Buxahatchee Creek runs southwest to northeast across the property and drains the eastern portion of the property. A tributary to Buxahatchee Creek currently receives storm water runoff from the western portion of the property (approximately 1/3 of the property drains to the tributary, while the remaining property drains to Buxahatchee Creek). No land-disturbing activities are planned at this time east of Buxahatchee Creek.

OMAs #1, 2, and #3 are located west of CRs 20 and 75. These OMAs drain to tributaries of Dry Creek. Storm water runoff from these areas will be directed using diversion channels, berms, or other drainage structures to sedimentation ponds associated with the OMAs.

Storm water runoff from disturbed areas on the property will be diverted via earthen berms or other drainage structures either to the quarry pit, the process sedimentation pond, or the storm water sedimentation ponds. Storm water that accumulates in the quarry pit will be pumped to the process sedimentation pond during quarry dewatering operations prior to being discharged. The volume of the process sedimentation pond is sufficient to prevent the discharge of water that has not been properly treated. Water from the truck wash will be directed to an oil/water separator for treatment prior to flowing to the process wastewater sedimentation pond.

LNA has established a procedure for cleaning the sedimentation ponds that will prevent the ponds from discharging during sediment removal events. Design of future sediment ponds will conform to the specifications in Appendix B and will be submitted to ADEM for approval prior to construction.

4.3 Non-point Source Pollution Prevention

Due to the anticipated presence of truck traffic and the accumulation of limestone and overburden around the quarry, storm water contacting quarry activities and access roads will contain suspended solids. Site grading will be conducted to promote the drainage of storm water to collection ponds and/or sumps to prevent non-point sources of pollution. Additional preventative measures that may be employed include the use of silt fencing, hay bales, mulching, and vegetation as needed or dictated by periodic site inspections.

A berm will be constructed along a portion of Buxahatchee Creek to contain non-point source storm water runoff from an area of the quarry not draining to a sedimentation pond. This berm will not be constructed until land-disturbing activities begin to encroach within 100 feet of Buxahatchee Creek. Storm water accumulating in low areas along the berm will be allowed to infiltrate or will be pumped to a sedimentation pond. As stripping activities progress, the ground surface elevation in this area will be lowered allowing storm water runoff to be directed to the quarry pit.

A conveyor system will be used to transport crushed limestone to LNA's Montevallo Plant from the Eagle Quarry. This conveyor and associated access roads will cross a tributary of Dry Creek. The location of this crossing is shown on Figure 2 and a detail of the crossing is provided on Sheet 10 of 10 in Appendix A. Eagle Quarry personnel will inspect the conveyor corridor on a weekly basis for the accumulation of limestone fines beneath the conveyor. These fines will be removed using shovels or other means and transported for proper management.

4.4 Spill Prevention Control and Countermeasures Plan

A Spill Prevention Control and Countermeasure (SPCC) plan was previously prepared for the facility under separate cover. However, ADEM has determined that an updated SPCC plan is not required to be submitted with the August 2019 NPDES Individual Permit Renewal Application. Oil and petroleum products are not currently stored at the site, so a SPCC plan is not required at this time. An SPCC plan will be developed for the facility prior to initiation of operations and storage of petroleum products at the site. Safety Data Sheets (SDSs) will be kept on site and provided to ADEM when substances and products requiring an SDS are brought on site.

4.5 Management Practices and Reclamation Procedures

Periodic inspections will be conducted by LNA to determine the effectiveness of the facility's sedimentation ponds during normal operation, as well as during storm events. These inspections will be

reviewed by the mine manager and modifications to site activities will be made, as needed. Pollution control activities to be used will be in accordance with United States Environmental Protection Agency's (USEPA's) Storm Water Management for Industrial Activities (USEPA 832-R-92-006) or the most current revision thereof.

At the conclusion of the limestone quarrying activities, this facility will be reclaimed to provide for long-term stabilization that will meet or exceed water quality standards as they apply to this permit in accordance with ADEM Administrative Code R. 335-6-9-.03(g). Disturbed slopes (outside quarry areas) will be graded so that water does not pool or stand on its surface. The existing sediment ponds will be maintained until vegetation is established. The facility will be vacated of all fuels, fuel tanks, containers, equipment, and debris. LNA will then provide ADEM with an inspection report describing the facility's reclamation activities and request a release from monitoring and termination of the facility's NPDES Permit. Reclamation will be considered complete in accordance with the facility's permit upon receipt of ADEM's approval.

Appendix A
Pollution Abatement Treatment Measures and Sediment Control Structures Certification Report

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 001P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 002P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Embankments will be compacted to 95% of Standard Proctor. Intake pipe (suction) for pump will be positioned below the water surface to accomplish subsurface withdrawal. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series. Treated water will be pumped from the sedimentation pond to outfall. The treated water must be pumped at a flow rate of less than or equal to 25 cubic feet per second (cfs), which is less than the peak flow rate produced by the 1 year, 24 hour storm event. Since treated water will be pumped through an above grade pipe to the outfall, anti-seep collars are not required.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 003P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 004P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 005P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 006P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 007P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 008P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Embankments will be compacted to 95% of Standard Proctor. Intake pipe (suction) for pump will be positioned below the water surface to accomplish subsurface withdrawal. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series. Treated water will be pumped from the sedimentation pond to outfall. The treated water must be pumped at a flow rate of less than or equal to 25 cubic feet per second (cfs), which is less than the peak flow rate produced by the 1 year, 24 hour storm event. Since treated water will be pumped through an above grade pipe to the outfall, anti-seep collars are not required.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 009P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Pond will discharge through a concrete spillway equipped with a skimmer board. Use of concrete spillway does not require use of anti-seep collars. Embankments will be compacted to 95% of Standard Proctor. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series.

XIX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN SUMMARY (must be completed for all outfalls)

Y	N	N/A	Outfall(s): 010P
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
X			Width of top of dam greater than 12'
X			Side slopes of dam no steeper than 3:1
		X	Cutoff trench at least 8' wide
		X	Side slopes of cutoff trench no less than 1:1
		X	Cutoff trench located along the centerline of the dam
		X	Cutoff trench extends at least 2' into bedrock or impervious soil
		X	Cutoff trench filled with impervious material
X			Embankments and cutoff trench 95% compaction standard proctor ASTM
X			Embankment free of roots, tree debris, stones >6" diameter, etc.
X			Embankment constructed in lifts no greater than 12"
		X	Spillpipe sized to carry peak flow from a one year storm event
X			Spillpipe will not chemically react with effluent
X			Subsurface withdrawal
		X	Anti-seep collars extend radially at least 2' from each joint in spillpipe
X			Splashpad at the end of the spillpipe
X			Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
X			Emergency overflow at least 20' long
X			Side slopes of emergency spillway no steeper than 2:1
X			Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X	All emergency overflows are sized to handle entire drainage area for ponds in series
X			Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
X			Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			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):

Pond will be constructed mostly in cut with minimum fill. Berms constructed in fill will not exceed approximately 5 feet in height above existing elevations. Therefore, due to the low hydrostatic head incurred on the berms, a cutoff trench is not necessary. Fill will be tied into the existing ground surface through normal clearing, benching, and scarification. Embankments will be compacted to 95% of Standard Proctor. Intake pipe (suction) for pump will be positioned below the water surface to accomplish subsurface withdrawal. Pond does not discharge to a public water supply classified stream. No ponds will be constructed in series. Treated water will be pumped from the sedimentation pond to outfall. The treated water must be pumped at a flow rate of less than or equal to 25 cubic feet per second (cfs), which is less than the peak flow rate produced by the 1 year, 24 hour storm event. Since treated water will be pumped through an above grade pipe to the outfall, anti-seep collars are not required.

XX. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN REVIEW CHECKLIST

Y	N	N/A	
X			PE Seal with License #
X			Name and Address of Operator
X			Legal Description of Facility
			General Information:
X			Name of Company
X			Number of Employees
X			Products to be Mined
X			Hours of Operation
X			Water Supply and Disposition
			Topographic Map:
X			Mine Location
X			Location of Prep Plant
X			Location of Treatment Basins
X			Location of Discharge Points
X			Location of Adjacent Streams
			1"- 500' or Equivalent Facility Map:
X			Drainage Patterns
X			Mining Details
X			All Roads, Structures Detailed
X			All Treatment Structures Detailed
			Detailed Design Diagrams:
X			Plan Views
X			Cross-section Views
X			Method of Diverting Runoff to Treatment Basins
			Narrative of Operations:
X			Raw Materials Defined
X			Processes Defined
X			Products Defined
			Schematic Diagram:
X			Points of Waste Origin
X			Collection System
X			Disposal System
			Post Treatment Quantity and Quality of Effluent:
X			Flow
X			Suspended Solids
X			Iron Concentration
X			pH
			Description of Waste Treatment Facility:
X			Pre-Treatment Measures
X			Recovery System
X			Expected Life of Treatment Basin
X			Schedule of Cleaning and/or abandonment
			Other:
X			Precipitation/Volume Calculations/Diagram Attached
X			BMP Plan for Haul Roads
X			Measures for Minimizing Impacts to Adjacent Stream i.e., Buffer Strips, Berms, etc.
X			Methods for Minimizing Nonpoint Source Discharges
X			Facility Closure Plans
X			PE Rationale(s) For Alternate Standards, Designs or Plans

IDENTIFY AND PROVIDE DETAILED EXPLANATION FOR ANY "N" OR "N/A" RESPONSE(s):

Sedimentation Pond Design Basis
Proposed Eagle Quarry

Six sedimentation ponds and one process wastewater sedimentation pond will be constructed at Eagle Quarry to capture and treat storm water runoff and process water generated by quarrying operations. The process wastewater sedimentation basin and drainage area #1, #3, and #5 sedimentation ponds (DA #1, DA #3, and DA #5) will be located east of County Road (CR) 20 and CR 75 and are within the footprint of the proposed quarry. Three sedimentation ponds will be located west of CR 20 and CR 75 will capture storm water runoff from overburden management areas (OMAs #1, #2, and #3). This narrative provides the design basis and assumptions used in designing the sedimentation ponds for the proposed Eagle quarry.

Process Wastewater Sedimentation Basin (DA #2)

Sources of process water will be water used to suppress dust generated by the crushing operations, water used to wash the crushed limestone, water from limestone screening operations, and water from quarry dewatering activities. These sources will be routed to the process wastewater sedimentation basin for treatment prior to being discharged to a surface water. The process wastewater sedimentation basin can discharge by gravity to a tributary of Buxahatchee Creek or by pumping to a tributary of Dry Creek. Surface water runoff from 116 acres also drains to this pond.

For the purposes of designing the process wastewater sedimentation pond, RMT, Inc. (RMT) assumed 10 percent of the 116-acre drainage area would be disturbed at any one time. Chemical Lime Company of Alabama, Inc. (LNA) will open the quarry pit just south of the proposed shop area. As overburden material is removed and the surface elevation of the pit decreases, the quarry pit will become a natural sink for surface water runoff. LNA generally intends to advance the quarry to the northeast clearing small (10 acres) plots of land and removing overburden from these plots promoting the drainage of storm water to the quarry pit. The quarry pit will provide storage for storm water runoff contacting the quarry and the advancing face minimizing the disturbed area draining directly to the process wastewater sedimentation basin. Storage of storm water runoff in the quarry pit will result in some settling of solids prior to this water being pumped to the process wastewater sedimentation basin during quarry dewatering activities.

RMT calculated the anticipated sediment load to the pond from washing, crushing, and screening operations as well as from disturbed and undisturbed areas. Using the Kentucky Department for Surface Mining Reclamation and Enforcement Technical Reclamation Memorandum TRM #10 and PondPack (a hydrologic model), RMT estimated the appropriate pond dimensions that would result in an effluent quality of 25 mg/L of total suspended solids (TSS) during the 25-year, 24-hour storm event. TRM #10 uses the Universal Soil Loss Equation (USLE) to estimate sediment load from disturbed and undisturbed areas

from the 25-year, 24-hour event. RMT used the hydrologic model PondPack to estimate the volume and peak rates of storm water runoff to the pond during the 1-, 2-, 5-, 10-, 25-, and 50-year, 24-hour storm events and pond routing. RMT used the volume and peak rate of runoff from the 25-year event predicted by PondPack and the sediment load predicted by TRM #10 from the 25-year, 24-hour storm event to estimate the appropriate pond dimensions to produce an effluent quality of 25 mg/L of TSS.

Drainage Area #1, #3, and #5 Sedimentation Ponds

DA #1, DA #3, and DA #5 will capture and treat storm water runoff from quarry activities. DA #1 pond will discharge to a tributary of Dry Creek. DA #3 will discharge by gravity to a tributary of Buxahatchee Creek or can be pumped to a tributary of Dry Creek. DA #5 can discharge to Buxahatchee Creek or can be pumped to a tributary of Dry Creek. As with the process wastewater sedimentation basin (DA #2), RMT assumed 10 percent of the drainage areas to these ponds would be disturbed at any one time. As the quarry pit advances, it will act like a sink for storm water runoff and will effectively be an equalization basin for storm water runoff. RMT used the same methodology (TRM #10 and PondPack) to calculate sediment load and hydraulic (storm water) load to the pond and estimated the appropriate pond dimensions that would allow these ponds to meet the current NPDES permit limits for LNA's Dolomite and O'Neal Quarries (25 mg/L monthly average concentration and 45 mg/L daily maximum concentration of TSS).

Overburden Management Areas #1, #2, and #3 Sedimentation Ponds

These ponds are designed to capture and treat storm water runoff from overburden management areas. Storm water runoff treated by these ponds will be discharged to a tributary of Dry Creek. The OMAs will be constructed in lifts. Therefore, the entire footprint of the OMAs should not be disturbed at any one time. As one lift is completed, the lift will be seeded to establish vegetation and minimize the disturbed area draining to the sedimentation pond. RMT assumed a maximum of two lifts (including slopes) would be disturbed at any one time and used the longest side of each OMA to estimate the disturbed acreage draining to the sedimentation ponds at any one time. RMT used TRM #10 and PondPack to predict the sediment load and hydraulic load to the sedimentation ponds. Using these tools, RMT estimated the appropriate pond dimensions that would produce an effluent quality of 25 mg/L during the 25-year, 24-hour storm event.

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Calera, Alabama

Return Event	Total Depth in	Rainfall Type	RNF ID
Dev 1	3.5000	Synthetic Curve	TypeIII 24hr
Dev 2	4.5000	Synthetic Curve	TypeIII 24hr
Dev 5	5.5000	Synthetic Curve	TypeIII 24hr
Dev 10	6.5000	Synthetic Curve	TypeIII 24hr
Dev 25	7.5000	Synthetic Curve	TypeIII 24hr
Dev 50	8.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DISTURBED AREA	AREA	1	.212		12.1000	2.53		
DISTURBED AREA	AREA	2	.291		12.1000	3.42		
DISTURBED AREA	AREA	5	.372		12.1000	4.30		
DISTURBED AREA	AREA	10	.454		12.1000	5.17		
DISTURBED AREA	AREA	25	.536		12.1000	6.04		
DISTURBED AREA	AREA	50	.577		12.1000	6.48		
NORTH	AREA	1	.491		12.6000	2.81		
NORTH	AREA	2	.790		12.6000	4.69		
NORTH	AREA	5	1.116		12.6000	6.71		
NORTH	AREA	10	1.462		12.6000	8.83		
NORTH	AREA	25	1.821		12.6000	11.01		
NORTH	AREA	50	2.004		12.6000	12.11		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*OUT 10	JCT	1	.111		20.8500	.38		
*OUT 10	JCT	2	.870		13.9500	2.98		
*OUT 10	JCT	5	1.687		13.1000	9.56		
*OUT 10	JCT	10	2.543		12.8500	16.34		
*OUT 10	JCT	25	3.426		12.7500	21.76		
*OUT 10	JCT	50	3.876		12.7000	24.19		
POND 10 IN	POND	1	1.467		12.1000	6.91		
POND 10 IN	POND	2	2.226		12.1000	10.07		
POND 10 IN	POND	5	3.043		12.6000	13.96		
POND 10 IN	POND	10	3.899		12.6000	18.24		
POND 10 IN	POND	25	4.782		12.6000	22.64		
POND 10 IN	POND	50	5.232		12.6000	24.86		
POND 10 OUT	POND	1	.111		20.8500	.38	543.01	1.359
POND 10 OUT	POND	2	.870		13.9500	2.98	543.06	1.379
POND 10 OUT	POND	5	1.687		13.1000	9.56	543.18	1.430
POND 10 OUT	POND	10	2.543		12.8500	16.34	543.30	1.484
POND 10 OUT	POND	25	3.426		12.7500	21.76	543.41	1.527
POND 10 OUT	POND	50	3.876		12.7000	24.19	543.45	1.547
POND SURFACE	AREA	1	.272		12.1000	2.92		
POND SURFACE	AREA	2	.355		12.1000	3.77		
POND SURFACE	AREA	5	.439		12.1000	4.61		
POND SURFACE	AREA	10	.522		12.1000	5.46		
POND SURFACE	AREA	25	.605		12.1000	6.30		
POND SURFACE	AREA	50	.647		12.1000	6.73		
SOUTH	AREA	1	.491		12.7500	2.55		
SOUTH	AREA	2	.790		12.7500	4.23		
SOUTH	AREA	5	1.116		12.7500	6.04		
SOUTH	AREA	10	1.462		12.7000	7.94		
SOUTH	AREA	25	1.821		12.7000	9.90		
SOUTH	AREA	50	2.004		12.7000	10.90		

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.5000	in
Slope	.040000	ft/ft

Avg.Velocity 2.68 ft/sec

Segment #1 Time: .0311 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	100.00	ft
Slope	.040000	ft/ft

Unpaved

Avg.Velocity 3.23 ft/sec

Segment #2 Time: .0086 hrs

==========
Total Tc: .0397 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.6000	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.0000	in
Slope	.040000	ft/ft
Avg.Velocity	.10	ft/sec

Segment #1 Time: .8081 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	500.00	ft
Slope	.040000	ft/ft
Unpaved		
Avg.Velocity	3.23	ft/sec

Segment #2 Time: .0430 hrs

==========
Total Tc: .8511 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	1.00	ft
2yr, 24hr P	4.0000	in
Slope	.005000	ft/ft
Avg.Velocity	.35	ft/sec

Segment #1 Time: .0008 hrs

==========
Total Tc: .0008 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.6000
Hydraulic Length	300.00 ft
2yr, 24hr P	4.0000 in
Slope	.030000 ft/ft

Avg.Velocity .09 ft/sec

Segment #1 Time: .9066 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1000.00 ft
Slope	.030000 ft/ft
Unpaved	

Avg.Velocity 2.79 ft/sec

Segment #2 Time: .0994 hrs

==========
Total Tc: 1.0060 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Newly graded area (pervious only -	91	1.000			91.00
COMPOSITE AREA & WEIGHTED CN --->		1.000			91.00 (91)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Woods - fair	73	5.000			73.00
COMPOSITE AREA & WEIGHTED CN --->		5.000			73.00 (73)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	1.000			98.00
COMPOSITE AREA & WEIGHTED CN --->		1.000			98.00 (98)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Woods - fair	73	5.000			73.00
COMPOSITE AREA & WEIGHTED CN --->		5.000			73.00 (73)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

POND VOLUME CALCULATION FOR TRAPEZOIDAL BASIN

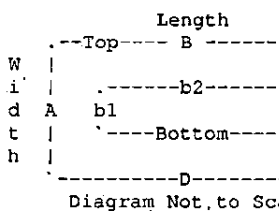

Diagram Not to ScaleW

Top Elev. = 545.00 ft
Top Length = 208.00 ft (A to C)
Top Width = 104.00 ft (B to D)

Bottom Elev. = 539.00 ft
Bottom Length = 172.00 ft
Bottom Width = 68.00 ft

Width Offset = .00 ft (B to b2)
Length Offset = .00 ft (A to b1)

Vertical Incr.= 1.00 ft

Computed Side Slopes:
Side A: .000:1 (horizontal : vertical)
Side B: .000:1 " "
Side C: 6.000:1 " "
Side D: 6.000:1 " "

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
539.00	-----	.2685	.0000	.000	.000
540.00	-----	.3024	.8558	.285	.285
541.00	-----	.3379	.9600	.320	.605
542.00	-----	.3751	1.0691	.356	.962
543.00	-----	.4140	1.1831	.394	1.356
544.00	-----	.4545	1.3021	.434	1.790
545.00	-----	.4966	1.4261	.475	2.265

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 539.00 ft
Increment = 1.00 ft
Max. Elev.= 545.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	W1	--->	TW	543.000	545.000
TW SETUP, DS Channel					

OUTLET STRUCTURE INPUT DATA

Structure ID = W1
Structure Type = Weir-Rectangular

# of Openings = 1
Crest Elev. = 543.00 ft
Weir Length = 20.00 ft
Weir Coeff. = 2.680000

Weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = W1 (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev,Device Q Tail Water Notes

WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
539.00	.00	Free Outfall		HW & TW below Inv.El.=543.000
540.00	.00	Free Outfall		HW & TW below Inv.El.=543.000
541.00	.00	Free Outfall		HW & TW below Inv.El.=543.000
542.00	.00	Free Outfall		HW & TW below Inv.El.=543.000
543.00	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
544.00	53.60	Free Outfall		H=1.00; Htw=.00; Qfree=53.60;
545.00	151.60	Free Outfall		H=2.00; Htw=.00; Qfree=151.60;

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
539.00	.00	Free Outfall		None contributing
540.00	.00	Free Outfall		None contributing
541.00	.00	Free Outfall		None contributing
542.00	.00	Free Outfall		None contributing
543.00	.00	Free Outfall		W1
544.00	53.60	Free Outfall		W1
545.00	151.60	Free Outfall		W1

Type.... Pond E-V-Q Table
Name.... POND 10
File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#1_POSTDEVELOPMENT.PPW

LEVEL POOL ROUTING DATA

HYG Dir = G:\HD Stuff\Projects\CLC - Eagle Quarry\
Inflow HYG file = work_pad.hyg - POND 10 IN Dev 1
Outflow HYG file = work_pad.hyg - POND 10 OUT Dev 1

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	539.00 ft
Starting Volume	=	.000 ac-ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
539.00	.00	.000	.2685	.00	.00	.00
540.00	.00	.285	.3024	.00	.00	138.07
541.00	.00	.605	.3379	.00	.00	292.95
542.00	.00	.962	.3751	.00	.00	465.43
543.00	.00	1.356	.4140	.00	.00	656.31
544.00	53.60	1.790	.4545	.00	53.60	919.99
545.00	151.60	2.265	.4966	.00	151.60	1248.07

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Calera, Alabama

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Dev 1	3.5000	Synthetic Curve	TypeIII 24hr
Dev 2	4.5000	Synthetic Curve	TypeIII 24hr
Dev 5	5.5000	Synthetic Curve	TypeIII 24hr
Dev 10	6.5000	Synthetic Curve	TypeIII 24hr
Dev 25	7.5000	Synthetic Curve	TypeIII 24hr
Dev 50	8.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DISTURBED	AREA	1	2.541		12.2500	21.81		
DISTURBED	AREA	2	3.498		12.2500	29.64		
DISTURBED	AREA	5	4.468		12.2500	37.42		
DISTURBED	AREA	10	5.447		12.2500	45.14		
DISTURBED	AREA	25	6.430		12.2500	52.83		
DISTURBED	AREA	50	6.924		12.2500	56.66		
NORTH	AREA	1	9.537		12.7000	51.37		
NORTH	AREA	2	14.737		12.7000	80.83		
NORTH	AREA	5	20.310		12.7000	111.93		
NORTH	AREA	10	26.128		12.6500	144.07		
NORTH	AREA	25	32.118		12.6500	176.87		
NORTH	AREA	50	35.162		12.6500	193.39		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID		Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*OUT 10		JCT	1	17.176		12.8500	70.17		
*OUT 10		JCT	2	25.585		12.8500	108.64		
*OUT 10		JCT	5	34.498		12.8500	152.36		
*OUT 10		JCT	10	43.744		12.8000	196.65		
*OUT 10		JCT	25	53.222		12.8000	240.80		
*OUT 10		JCT	50	58.027		12.8000	262.93		
POND 10	IN	POND	1	17.176		12.5500	78.44		
POND 10	IN	POND	2	25.586		12.5500	120.94		
POND 10	IN	POND	5	34.498		12.5500	165.78		
POND 10	IN	POND	10	43.744		12.5500	211.97		
POND 10	IN	POND	25	53.222		12.5500	258.95		
POND 10	IN	POND	50	58.027		12.5500	282.62		
POND 10	OUT	POND	1	17.176		12.8500	70.17	522.47	13.475
POND 10	OUT	POND	2	25.585		12.8500	108.64	522.85	14.449
POND 10	OUT	POND	5	34.498		12.8500	152.36	523.21	15.351
POND 10	OUT	POND	10	43.744		12.8000	196.65	523.52	16.165
POND 10	OUT	POND	25	53.222		12.8000	240.80	523.83	16.990
POND 10	OUT	POND	50	58.027		12.8000	262.93	523.99	17.408
POND SURFACE		AREA	1	2.368		12.1000	25.39		
POND SURFACE		AREA	2	3.091		12.1000	32.77		
POND SURFACE		AREA	5	3.815		12.1000	40.13		
POND SURFACE		AREA	10	4.539		12.1000	47.49		
POND SURFACE		AREA	25	5.264		12.1000	54.84		
POND SURFACE		AREA	50	5.626		12.1000	58.51		
SOUTH		AREA	1	2.730		12.8000	13.93		
SOUTH		AREA	2	4.259		12.8000	22.12		
SOUTH		AREA	5	5.905		12.7000	30.98		
SOUTH		AREA	10	7.630		12.7000	40.14		
SOUTH		AREA	25	9.409		12.7000	49.49		
SOUTH		AREA	50	10.315		12.7000	54.21		

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.5000	in
Slope	.020000	ft/ft

Avg.Velocity 2.03 ft/sec

Segment #1 Time: .0410 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	2800.00	ft
Slope	.020000	ft/ft

Unpaved

Avg.Velocity 2.28 ft/sec

Segment #2 Time: .3409 hrs

==========
Total Tc: .3819 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.0000	in
Slope	.020000	ft/ft
Avg.Velocity	.11	ft/sec

Segment #1 Time: .7709 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1800.00	ft
Slope	.020000	ft/ft
Unpaved		
Avg.Velocity	2.28	ft/sec

Segment #2 Time: .2191 hrs

==========
Total Tc: .9900 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	1.00	ft
2yr, 24hr P	4.0000	in
Slope	.005000	ft/ft
Avg.Velocity	.35	ft/sec

Segment #1 Time: .0008 hrs

==========
Total Tc: .0008 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.5000	in
Slope	.020000	ft/ft

Avg.Velocity .11 ft/sec

Segment #1 Time: .7268 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	2800.00	ft
Slope	.020000	ft/ft
Unpaved		

Avg.Velocity 2.28 ft/sec

Segment #2 Time: .3409 hrs

==========
Total Tc: 1.0677 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ====

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ====

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Newly graded area (pervious only -	91	12.000	-		91.00
COMPOSITE AREA & WEIGHTED CN -->		12.000			91.00 (91)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Woods - grass combination - fair	76	75.000			76.00
Impervious Areas - Gravel (w/ right	85	5.000			85.00
COMPOSITE AREA & WEIGHTED CN --->		80.000			76.56 (77)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	8.700			98.00
COMPOSITE AREA & WEIGHTED CN --->		8.700			98.00 (98)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Woods - grass combination - fair	76	24.000			76.00
COMPOSITE AREA & WEIGHTED CN --->		24.000			76.00 (76)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

POND VOLUME CALCULATION FOR TRAPEZOIDAL BASIN

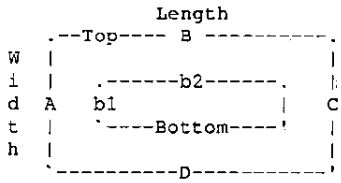

Diagram Not to ScaleW

Top Elev. = 525.00 ft
Top Length = 820.00 ft (A to C)
Top Width = 150.00 ft (B to D)

Bottom Elev. = 516.00 ft
Bottom Length = 766.00 ft
Bottom Width = 96.00 ft

Width Offset = .00 ft (B to b2)
Length Offset = .00 ft (A to b1)

Vertical Incr.= 1.00 ft

Computed Side Slopes:
Side A: .000:1 (horizontal : vertical)
Side B: .000:1 " "
Side C: 6.000:1 " "
Side D: 6.000:1 " "

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
516.00	-----	1.6882	.0000	.000	.000
517.00	-----	1.8077	5.2428	1.748	1.748
518.00	-----	1.9289	5.6040	1.868	3.616
519.00	-----	2.0518	5.9701	1.990	5.606
520.00	-----	2.1763	6.3412	2.114	7.719
521.00	-----	2.3025	6.7173	2.239	9.958
522.00	-----	2.4303	7.0983	2.366	12.325
523.00	-----	2.5598	7.4843	2.495	14.819
524.00	-----	2.6909	7.8752	2.625	17.444
525.00	-----	2.8237	8.2711	2.757	20.201

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 516.00 ft
Increment = 1.00 ft
Max. Elev.= 525.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	W1	--->	TW	521.500	525.000
TW SETUP, DS Channel					

OUTLET STRUCTURE INPUT DATA

Structure ID = W1
Structure Type = Weir-Rectangular

# of Openings = 1
Crest Elev. = 521.50 ft
Weir Length = 25.00 ft
Weir Coeff. = 2.680000

Weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = W1 (Weir-Rectangular)
Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
516.00	.00	Free Outfall		HW & TW below Inv.El.=521.500
517.00	.00	Free Outfall		HW & TW below Inv.El.=521.500
518.00	.00	Free Outfall		HW & TW below Inv.El.=521.500
519.00	.00	Free Outfall		HW & TW below Inv.El.=521.500
520.00	.00	Free Outfall		HW & TW below Inv.El.=521.500
521.00	.00	Free Outfall		HW & TW below Inv.El.=521.500
521.50	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
522.00	23.69	Free Outfall		H=.50; Htw=.00; Qfree=23.69;
523.00	123.09	Free Outfall		H=1.50; Htw=.00; Qfree=123.09;
524.00	264.84	Free Outfall		H=2.50; Htw=.00; Qfree=264.84;
525.00	438.71	Free Outfall		H=3.50; Htw=.00; Qfree=438.71;

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#2_POSTDEVELOPMENT_NEW.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
516.00	.00	Free Outfall		None contributing
517.00	.00	Free Outfall		None contributing
518.00	.00	Free Outfall		None contributing
519.00	.00	Free Outfall		None contributing
520.00	.00	Free Outfall		None contributing
521.00	.00	Free Outfall		None contributing
521.50	.00	Free Outfall		W1
522.00	23.69	Free Outfall		W1
523.00	123.09	Free Outfall		W1
524.00	264.84	Free Outfall		W1
525.00	438.71	Free Outfall		W1

LEVEL POOL ROUTING DATA

HYG Dir = G:\HD Stuff\Projects\CLC - Eagle Quarry\
Inflow HYG file = work_pad.hyg - POND 10 IN Dev 1
Outflow HYG file = work_pad.hyg - POND 10 OUT Dev 1

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 521.50 ft
Starting Volume = 11.126 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout = .00 cfs
Time Increment = .0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
516.00	.00	.000	1.6882	.00	.00	.00
517.00	.00	1.748	1.8077	.00	.00	845.84
518.00	.00	3.616	1.9289	.00	.00	1749.94
519.00	.00	5.606	2.0518	.00	.00	2713.12
520.00	.00	7.719	2.1763	.00	.00	3736.18
521.00	.00	9.958	2.3025	.00	.00	4819.90
521.50	.00	11.126	2.3660	.00	.00	5384.76
522.00	23.69	12.325	2.4303	.00	23.69	5988.78
523.00	123.09	14.819	2.5598	.00	123.09	7295.65
524.00	264.84	17.444	2.6909	.00	264.84	8707.93
525.00	438.71	20.201	2.8237	.00	438.71	10216.21

Index of Starting Page Numbers for ID Names

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Calera, Alabama

Return Event	Total Depth in	Rainfall Type	RNF ID
Dev 1	3.5000	Synthetic Curve	TypeIII 24hr
Dev 2	4.5000	Synthetic Curve	TypeIII 24hr
Dev 5	5.5000	Synthetic Curve	TypeIII 24hr
Dev 10	6.5000	Synthetic Curve	TypeIII 24hr
Dev 25	7.5000	Synthetic Curve	TypeIII 24hr
Dev 50	8.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DA #3	AREA	1	18.773		13.2000	72.77		
DA #3	AREA	2	29.285		13.2000	115.84		
DA #3	AREA	5	40.603		13.0500	162.39		
DA #3	AREA	10	52.461		13.0000	210.92		
DA #3	AREA	25	64.696		13.0000	260.60		
DA #3	AREA	50	70.921		13.0000	285.70		
DISTURBED	AREA	1	3.497		12.5000	23.33		
DISTURBED	AREA	2	5.005		12.5000	33.18		
DISTURBED	AREA	5	6.560		12.5000	43.12		
DISTURBED	AREA	10	8.144		12.5000	53.07		
DISTURBED	AREA	25	9.746		12.5000	62.99		
DISTURBED	AREA	50	10.552		12.5000	67.94		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*OUT 10	JCT	1	1.510		23.5000	5.08		
*OUT 10	JCT	2	13.696		15.4500	34.26		
*OUT 10	JCT	5	26.736		14.1500	93.57		
*OUT 10	JCT	10	40.344		13.7000	165.48		
*OUT 10	JCT	25	54.347		13.5000	239.34		
*OUT 10	JCT	50	61.462		13.4500	273.08		
POND 10 IN	POND	1	22.815		13.0000	84.06		
POND 10 IN	POND	2	35.001		13.0000	132.76		
POND 10 IN	POND	5	48.041		13.0000	184.46		
POND 10 IN	POND	10	61.648		13.0000	237.90		
POND 10 IN	POND	25	75.652		13.0000	292.39		
POND 10 IN	POND	50	82.767		13.0000	319.88		
POND 10 OUT	POND	1	1.510		23.5000	5.08	518.09	21.564
POND 10 OUT	POND	2	13.696		15.4500	34.26	518.55	22.917
POND 10 OUT	POND	5	26.736		14.1500	93.57	519.05	24.418
POND 10 OUT	POND	10	40.344		13.7000	165.48	519.60	26.148
POND 10 OUT	POND	25	54.347		13.5000	239.34	520.04	27.527
POND 10 OUT	POND	50	61.462		13.4500	273.08	520.24	28.167
POND SURFACE	AREA	1	.544		12.1000	5.84		
POND SURFACE	AREA	2	.711		12.1000	7.53		
POND SURFACE	AREA	5	.877		12.1000	9.23		
POND SURFACE	AREA	10	1.044		12.1000	10.92		
POND SURFACE	AREA	25	1.210		12.1000	12.61		
POND SURFACE	AREA	50	1.293		12.1000	13.45		

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.4000	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.0000	in
Slope	.013000	ft/ft
Avg.Velocity	.09	ft/sec

Segment #1 Time: .9159 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	4700.00	ft
Slope	.013000	ft/ft
Unpaved		
Avg.Velocity	1.84	ft/sec

Segment #2 Time: .7097 hrs

==========
Total Tc: 1.6256 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0900	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.5000	in
Slope	.010000	ft/ft

Avg.Velocity .29 ft/sec

Segment #1 Time: .2908 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	2400.00	ft
Slope	.010000	ft/ft
Unpaved		

Avg.Velocity 1.61 ft/sec

Segment #2 Time: .4132 hrs

==========
Total Tc: .7040 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	1.00	ft
2yr, 24hr P	4.5000	in
Slope	.050000	ft/ft

Avg.Velocity .94 ft/sec

Segment #1 Time: .0003 hrs

Total Tc: .0003 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Woods - grass combination - fair	76	165.000			76.00
COMPOSITE AREA & WEIGHTED CN --->		165.000			76.00 (76)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Newly graded area (pervious only -	86	20.000			86.00
COMPOSITE AREA & WEIGHTED CN --->		20.000			86.00 (86)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	2.000			98.00
COMPOSITE AREA & WEIGHTED CN --->		2.000			98.00 (98)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

POND VOLUME CALCULATION FOR TRAPEZOIDAL BASIN

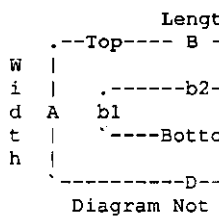

Diagram Not to ScaleW

Top Elev. = 521.50 ft
Top Length = 1000.00 ft (A to C)
Top Width = 150.00 ft (B to D)

Bottom Elev. = 508.50 ft
Bottom Length = 746.00 ft
Bottom Width = 96.00 ft

Width Offset = .00 ft (B to b2)
Length Offset = .00 ft (A to b1)

Vertical Incr.= 1.00 ft

Computed Side Slopes:
Side A: .000:1 (horizontal : vertical)
Side B: .000:1 " "
Side C: 19.538:1 " "
Side D: 4.154:1 " "

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
508.50	-----	1.6441	.0000	.000	.000
509.50	-----	1.7601	5.1053	1.702	1.702
510.50	-----	1.8799	5.4591	1.820	3.521
511.50	-----	2.0034	5.8241	1.941	5.463
512.50	-----	2.1307	6.2002	2.067	7.530
513.50	-----	2.2616	6.5875	2.196	9.725
514.50	-----	2.3963	6.9860	2.329	12.054
515.50	-----	2.5348	7.3957	2.465	14.519
516.50	-----	2.6769	7.8165	2.606	17.125
517.50	-----	2.8228	8.2486	2.750	19.874
518.50	-----	2.9724	8.6918	2.897	22.772
519.50	-----	3.1257	9.1461	3.049	25.820
520.50	-----	3.2827	9.6117	3.204	29.024

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
521.50	-----	3.4435	10.0885	3.363	32.387

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 508.50 ft
Increment = 1.00 ft
Max. Elev.= 521.50 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	W1	--->	TW	518.000	521.500

TW SETUP, DS Channel

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = W1
Structure Type = Weir-Rectangular

# of Openings = 1
Crest Elev. = 518.00 ft
Weir Length = 30.00 ft
Weir Coeff. = 2.680000

Weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = W1 (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q	Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
508.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
509.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
510.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
511.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
512.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
513.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
514.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
515.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
516.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
517.50	.00	Free Outfall		HW & TW below Inv.El.=518.000
518.00	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
518.50	28.43	Free Outfall		H=.50; Htw=.00; Qfree=28.43;
519.50	147.70	Free Outfall		H=1.50; Htw=.00; Qfree=147.70;
520.50	317.81	Free Outfall		H=2.50; Htw=.00; Qfree=317.81;
521.50	526.45	Free Outfall		H=3.50; Htw=.00; Qfree=526.45;

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#3_POSTDEVELOPMENT_NEW.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
508.50	.00	Free Outfall		None contributing
509.50	.00	Free Outfall		None contributing
510.50	.00	Free Outfall		None contributing
511.50	.00	Free Outfall		None contributing
512.50	.00	Free Outfall		None contributing
513.50	.00	Free Outfall		None contributing
514.50	.00	Free Outfall		None contributing
515.50	.00	Free Outfall		None contributing
516.50	.00	Free Outfall		None contributing
517.50	.00	Free Outfall		None contributing
518.00	.00	Free Outfall		W1
518.50	28.43	Free Outfall		W1
519.50	147.70	Free Outfall		W1
520.50	317.81	Free Outfall		W1
521.50	526.45	Free Outfall		W1

LEVEL POOL ROUTING DATA

HYG Dir = G:\HD Stuff\Projects\CLC - Eagle Quarry\
Inflow HYG file = work_pad.hyg - POND 10 IN Dev 1
Outflow HYG file = work_pad.hyg - POND 10 OUT Dev 1

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	508.50 ft
Starting Volume	=	.000 ac-ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
508.50	.00	.000	1.6441	.00	.00	.00
509.50	.00	1.702	1.7601	.00	.00	823.66
510.50	.00	3.521	1.8799	.00	.00	1704.40
511.50	.00	5.463	2.0034	.00	.00	2644.01
512.50	.00	7.530	2.1307	.00	.00	3644.31
513.50	.00	9.725	2.2616	.00	.00	4707.10
514.50	.00	12.054	2.3963	.00	.00	5834.17
515.50	.00	14.519	2.5348	.00	.00	7027.34
516.50	.00	17.125	2.6769	.00	.00	8288.41
517.50	.00	19.874	2.8228	.00	.00	9619.17
518.00	.00	21.304	2.8971	.00	.00	10311.26
518.50	28.43	22.772	2.9724	.00	28.43	11049.87
519.50	147.70	25.820	3.1257	.00	147.70	12644.72
520.50	317.81	29.024	3.2827	.00	317.81	14365.52
521.50	526.45	32.387	3.4435	.00	526.45	16201.76

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Calera, Alabama

Return Event	Total Depth in	Rainfall Type	RNF ID
Dev 1	3.5000	Synthetic Curve	TypeIII 24hr
Dev 2	4.5000	Synthetic Curve	TypeIII 24hr
Dev 5	5.5000	Synthetic Curve	TypeIII 24hr
Dev 10	6.5000	Synthetic Curve	TypeIII 24hr
Dev 25	7.5000	Synthetic Curve	TypeIII 24hr
Dev 50	8.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DA #5	AREA	1	6.721		13.1000	26.90		
DA #5	AREA	2	11.158		12.9500	47.36		
DA #5	AREA	5	16.095		12.9500	70.13		
DA #5	AREA	10	21.381		12.9500	94.30		
DA #5	AREA	25	26.919		12.9500	119.41		
DA #5	AREA	50	29.762		12.9500	132.22		
DISTURBED	AREA	1	1.749		12.1500	18.56		
DISTURBED	AREA	2	2.503		12.1500	26.39		
DISTURBED	AREA	5	3.280		12.1500	34.28		
DISTURBED	AREA	10	4.072		12.1500	42.17		
DISTURBED	AREA	25	4.873		12.1500	50.03		
DISTURBED	AREA	50	5.276		12.1500	53.95		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID		Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*OUT 10		JCT	1	.768		21.8500	2.49		
*OUT 10		JCT	2	6.125		14.7500	17.62		
*OUT 10		JCT	5	12.006		13.7500	46.60		
*OUT 10		JCT	10	18.250		13.4000	82.69		
*OUT 10		JCT	25	24.756		13.2000	117.05		
*OUT 10		JCT	50	28.085		13.1500	132.43		
POND 10	IN	POND	1	9.014		12.9500	30.12		
POND 10	IN	POND	2	14.372		12.9500	51.86		
POND 10	IN	POND	5	20.252		12.9500	75.79		
POND 10	IN	POND	10	26.496		12.9500	101.13		
POND 10	IN	POND	25	33.002		12.9500	127.39		
POND 10	IN	POND	50	36.331		12.9500	140.78		
POND 10	OUT	POND	1	.768		21.8500	2.49	512.04	8.300
POND 10	OUT	POND	2	6.125		14.7500	17.62	512.26	8.633
POND 10	OUT	POND	5	12.006		13.7500	46.60	512.70	9.283
POND 10	OUT	POND	10	18.250		13.4000	82.69	513.13	9.948
POND 10	OUT	POND	25	24.756		13.2000	117.05	513.41	10.388
POND 10	OUT	POND	50	28.085		13.1500	132.43	513.53	10.587
POND SURFACE		AREA	1	.544		12.1000	5.84		
POND SURFACE		AREA	2	.711		12.1000	7.53		
POND SURFACE		AREA	5	.877		12.1000	9.23		
POND SURFACE		AREA	10	1.044		12.1000	10.92		
POND SURFACE		AREA	25	1.210		12.1000	12.61		
POND SURFACE		AREA	50	1.293		12.1000	13.45		

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.6000	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.5000	in
Slope	.014000	ft/ft
Avg.Velocity	.07	ft/sec

Segment #1 Time: 1.1595 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1700.00	ft
Slope	.014000	ft/ft
Unpaved		
Avg.Velocity	1.91	ft/sec

Segment #2 Time: .2474 hrs

==========
Total Tc: 1.4068 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.5000	in
Slope	.013000	ft/ft

Avg.Velocity 1.71 ft/sec

Segment #1 Time: .0487 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1100.00	ft
Slope	.013000	ft/ft

Unpaved

Avg.Velocity 1.84 ft/sec

Segment #2 Time: .1661 hrs

==========
Total Tc: .2148 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110
Hydraulic Length	1.00 ft
2yr, 24hr P	4.5000 in
Slope	.005000 ft/ft
Avg.Velocity	.37 ft/sec

Segment #1 Time: .0007 hrs

Total Tc: .0007 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Woods - good	70	80.000			70.00
COMPOSITE AREA & WEIGHTED CN --->		80.000			70.00 (70)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Newly graded area (pervious only -	86	10.000			86.00
COMPOSITE AREA & WEIGHTED CN --->		10.000			86.00 (86)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	2.000			98.00
COMPOSITE AREA & WEIGHTED CN --->		2.000			98.00 (98)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

POND VOLUME CALCULATION FOR TRAPEZOIDAL BASIN

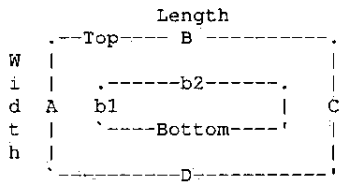

Diagram Not to ScaleW

Top Elev. = 515.00 ft
Top Length = 500.00 ft (A to C)
Top Width = 150.00 ft (B to D)

Bottom Elev. = 505.00 ft
Bottom Length = 440.00 ft
Bottom Width = 90.00 ft

Width Offset = .00 ft (B to b2)
Length Offset = .00 ft (A to b1)

Vertical Incr.= 1.00 ft

Computed Side Slopes:
Side A: .000:1 (horizontal : vertical)
Side B: .000:1 " "
Side C: 6.000:1 " "
Side D: 6.000:1 " "

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
505.00	-----	.9091	.0000	.000	.000
506.00	-----	.9829	2.8373	.946	.946
507.00	-----	1.0584	3.0613	1.020	1.966
508.00	-----	1.1355	3.2902	1.097	3.063
509.00	-----	1.2143	3.5241	1.175	4.238
510.00	-----	1.2948	3.7630	1.254	5.492
511.00	-----	1.3769	4.0068	1.336	6.828
512.00	-----	1.4606	4.2556	1.419	8.246
513.00	-----	1.5460	4.5093	1.503	9.749
514.00	-----	1.6331	4.7680	1.589	11.339
515.00	-----	1.7218	5.0316	1.677	13.016

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 505.00 ft
Increment = 1.00 ft
Max. Elev.= 515.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular		--->	TW	512.000	515.000

TW SETUP, DS Channel

OUTLET STRUCTURE INPUT DATA

Structure ID =
Structure Type = Weir-Rectangular

# of Openings = 1
Crest Elev. = 512.00 ft
Weir Length = 25.00 ft
Weir Coeff. = 2.680000

Weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
505.00	.00	Free Outfall		HW & TW below Inv.El.=512.000
506.00	.00	Free Outfall		HW & TW below Inv.El.=512.000
507.00	.00	Free Outfall		HW & TW below Inv.El.=512.000
508.00	.00	Free Outfall		HW & TW below Inv.El.=512.000
509.00	.00	Free Outfall		HW & TW below Inv.El.=512.000
510.00	.00	Free Outfall		HW & TW below Inv.El.=512.000
511.00	.00	Free Outfall		HW & TW below Inv.El.=512.000
512.00	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
513.00	67.00	Free Outfall		H=1.00; Htw=.00; Qfree=67.00;
514.00	189.50	Free Outfall		H=2.00; Htw=.00; Qfree=189.50;
515.00	348.14	Free Outfall		H=3.00; Htw=.00; Qfree=348.14;

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_QUARRY_DA#5_POSTDEVELOPMENT_NEW.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
505.00	.00	Free Outfall		None contributing
506.00	.00	Free Outfall		None contributing
507.00	.00	Free Outfall		None contributing
508.00	.00	Free Outfall		None contributing
509.00	.00	Free Outfall		None contributing
510.00	.00	Free Outfall		None contributing
511.00	.00	Free Outfall		None contributing
512.00	.00	Free Outfall		
513.00	67.00	Free Outfall		
514.00	189.50	Free Outfall		
515.00	348.14	Free Outfall		

LEVEL POOL ROUTING DATA

HYG Dir = G:\HD Stuff\Projects\CLC - Eagle Quarry\
Inflow HYG file = work_pad.hyg - POND 10 IN Dev 1
Outflow HYG file = work_pad.hyg - POND 10 OUT Dev 1

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	505.00 ft
Starting Volume	=	.000 ac-ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
505.00	.00	.000	.9091	.00	.00	.00
506.00	.00	.946	.9829	.00	.00	457.75
507.00	.00	1.966	1.0584	.00	.00	951.64
508.00	.00	3.063	1.1355	.00	.00	1482.46
509.00	.00	4.238	1.2143	.00	.00	2051.02
510.00	.00	5.492	1.2948	.00	.00	2658.12
511.00	.00	6.828	1.3769	.00	.00	3304.55
512.00	.00	8.246	1.4606	.00	.00	3991.12
513.00	67.00	9.749	1.5460	.00	67.00	4785.62
514.00	189.50	11.339	1.6331	.00	189.50	5677.36
515.00	348.14	13.016	1.7218	.00	348.14	6647.77

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Calera, Alabama

Return Event	Total Depth in	Rainfall Type	RNF ID
Dev 1	3.5000	Synthetic Curve	TypeIII 24hr
Dev 2	4.5000	Synthetic Curve	TypeIII 24hr
Dev 5	5.5000	Synthetic Curve	TypeIII 24hr
Dev 10	6.5000	Synthetic Curve	TypeIII 24hr
Dev 25	7.5000	Synthetic Curve	TypeIII 24hr
Dev 50	8.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DISTURBED	AREA	1	1.093		12.2000	11.13		
DISTURBED	AREA	2	1.564		12.2000	15.78		
DISTURBED	AREA	5	2.050		12.2000	20.45		
DISTURBED	AREA	10	2.545		12.2000	25.12		
DISTURBED	AREA	25	3.046		12.1500	29.80		
DISTURBED	AREA	50	3.298		12.1500	32.15		
NORTH	AREA	1	.747		12.3000	6.12		
NORTH	AREA	2	1.255		12.3000	10.82		
NORTH	AREA	5	1.824		12.2500	16.11		
NORTH	AREA	10	2.435		12.2500	21.77		
NORTH	AREA	25	3.077		12.2500	27.66		
NORTH	AREA	50	3.407		12.2500	30.66		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*OUT 10	JCT	1	.000		.0500	.00		
*OUT 10	JCT	2	.511		19.3000	1.29		
*OUT 10	JCT	5	2.259		14.0500	6.04		
*OUT 10	JCT	10	4.101		12.8500	18.35		
*OUT 10	JCT	25	6.012		12.6000	44.15		
*OUT 10	JCT	50	6.987		12.5000	57.60		
POND 10 IN	POND	1	2.996		12.2000	24.26		
POND 10 IN	POND	2	4.609		12.2000	38.63		
POND 10 IN	POND	5	6.357		12.2000	54.09		
POND 10 IN	POND	10	8.199		12.2000	70.24		
POND 10 IN	POND	25	10.109		12.2000	86.85		
POND 10 IN	POND	50	11.084		12.2000	95.27		
POND 10 OUT	POND	1	.000		1.3000	.00	505.15	2.992
POND 10 OUT	POND	2	.511		19.3000	1.29	506.53	4.121
POND 10 OUT	POND	5	2.259		14.0500	6.04	506.63	4.209
POND 10 OUT	POND	10	4.101		12.8500	18.35	506.89	4.439
POND 10 OUT	POND	25	6.012		12.6000	44.15	507.21	4.730
POND 10 OUT	POND	50	6.987		12.5000	57.60	507.34	4.855
POND SURFACE	AREA	1	.408		12.1000	4.38		
POND SURFACE	AREA	2	.533		12.1000	5.65		
POND SURFACE	AREA	5	.658		12.1000	6.92		
POND SURFACE	AREA	10	.783		12.1000	8.19		
POND SURFACE	AREA	25	.908		12.1000	9.45		
POND SURFACE	AREA	50	.970		12.1000	10.09		
SOUTH	AREA	1	.748		12.3000	5.92		
SOUTH	AREA	2	1.256		12.3000	10.56		
SOUTH	AREA	5	1.825		12.3000	15.69		
SOUTH	AREA	10	2.436		12.3000	21.13		
SOUTH	AREA	25	3.079		12.3000	26.78		
SOUTH	AREA	50	3.409		12.3000	29.66		

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.5000	in
Slope	.330000	ft/ft
Avg.Velocity	6.24	ft/sec

Segment #1 Time: .0134 hrs

Segment #2: Tc: TR-55 Channel

Flow Area	20.0000	sq.ft
Wetted Perimeter	16.65	ft
Hydraulic Radius	1.20	ft
Slope	.005000	ft/ft
Mannings n	.0500	
Hydraulic Length	2000.00	ft
Avg.Velocity	2.38	ft/sec

Segment #2 Time: .2333 hrs

==========
Total Tc: .2467 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ====

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))
```

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS Channel Flow ====

```
R  = Aq / Wp
V  = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)
```

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2000	
Hydraulic Length	200.00	ft
2yr, 24hr P	4.0000	in
Slope	.330000	ft/ft
Avg.Velocity	.53	ft/sec

Segment #1 Time: .1043 hrs

Segment #2: Tc: TR-55 Channel

Flow Area	20.0000	sq.ft
Wetted Perimeter	16.65	ft
Hydraulic Radius	1.20	ft
Slope	.005000	ft/ft
Mannings n	.0500	
Hydraulic Length	2150.00	ft
Avg.Velocity	2.38	ft/sec

Segment #2 Time: .2508 hrs

==========
Total Tc: .3551 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS Channel Flow ==========

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	1.00	ft
2yr, 24hr P	4.0000	in
Slope	.005000	ft/ft
Avg.Velocity	.35	ft/sec

Segment #1 Time: .0008 hrs

Total Tc: .0008 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2000	
Hydraulic Length	300.00	ft
2yr, 24hr P	4.0000	in
Slope	.330000	ft/ft
Avg.Velocity	.58	ft/sec

Segment #1 Time: .1443 hrs

Segment #2: Tc: TR-55 Channel

Flow Area	20.0000	sq.ft
Wetted Perimeter	16.65	ft
Hydraulic Radius	1.20	ft
Slope	.005000	ft/ft
Mannings n	.0500	
Hydraulic Length	2100.00	ft
Avg.Velocity	2.38	ft/sec

Segment #2 Time: .2450 hrs

==========
Total Tc: .3893 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS Channel Flow ==========

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Newly graded area (pervious only -	86	6.250			86.00
COMPOSITE AREA & WEIGHTED CN --->		6.250			86.00 (86)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Open space (Lawns,parks etc.) - Fai	69	9.400			69.00
COMPOSITE AREA & WEIGHTED CN --->		9.400			69.00 (69)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	1.500			98.00
COMPOSITE AREA & WEIGHTED CN --->		1.500			98.00 (98)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Open space (Lawns,parks etc.) - Fai	69	9.400			69.00
COMPOSITE AREA & WEIGHTED CN --->		9.400			69.00 (69)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

POND VOLUME CALCULATION FOR TRAPEZOIDAL BASIN

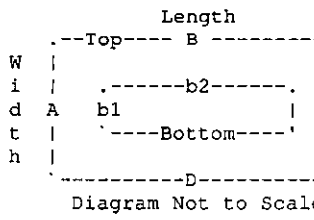

Diagram Not to ScaleW

Top Elev. = 510.00 ft
Top Length = 500.00 ft (A to C)
Top Width = 100.00 ft (B to D)

Bottom Elev. = 500.00 ft
Bottom Length = 440.00 ft
Bottom Width = 40.00 ft

Width Offset = .00 ft (B to b2)
Length Offset = .00 ft (A to b1)

Vertical Incr.= 1.00 ft

Computed Side Slopes:
Side A: .000:1 (horizontal : vertical)
Side B: .000:1 " "
Side C: 6.000:1 " "
Side D: 6.000:1 " "

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
500.00	-----	.4040	.0000	.000	.000
501.00	-----	.4710	1.3113	.437	.437
502.00	-----	.5396	1.5147	.505	.942
503.00	-----	.6098	1.7230	.574	1.516
504.00	-----	.6817	1.9363	.645	2.162
505.00	-----	.7553	2.1546	.718	2.880
506.00	-----	.8305	2.3778	.793	3.673
507.00	-----	.9073	2.6059	.869	4.541
508.00	-----	.9859	2.8390	.946	5.488
509.00	-----	1.0660	3.0770	1.026	6.513
510.00	-----	1.1478	3.3200	1.107	7.620

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 500.00 ft
Increment = 1.00 ft
Max. Elev.= 510.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	W1	--->	TW	506.500	510.000
TW SETUP, DS Channel					

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = W1
Structure Type = Weir-Rectangular

# of Openings = 1
Crest Elev. = 506.50 ft
Weir Length = 25.00 ft
Weir Coeff. = 2.680000

Weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = W1 (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
500.00	.00	Free Outfall		HW & TW below Inv.El.=506.500
501.00	.00	Free Outfall		HW & TW below Inv.El.=506.500
502.00	.00	Free Outfall		HW & TW below Inv.El.=506.500
503.00	.00	Free Outfall		HW & TW below Inv.El.=506.500
504.00	.00	Free Outfall		HW & TW below Inv.El.=506.500
505.00	.00	Free Outfall		HW & TW below Inv.El.=506.500
506.00	.00	Free Outfall		HW & TW below Inv.El.=506.500
506.50	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
507.00	23.69	Free Outfall		H=.50; Htw=.00; Qfree=23.69;
508.00	123.09	Free Outfall		H=1.50; Htw=.00; Qfree=123.09;
509.00	264.84	Free Outfall		H=2.50; Htw=.00; Qfree=264.84;
510.00	438.71	Free Outfall		H=3.50; Htw=.00; Qfree=438.71;

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_1_POSTDEVELOPMENT.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
500.00	.00	Free Outfall		None contributing
501.00	.00	Free Outfall		None contributing
502.00	.00	Free Outfall		None contributing
503.00	.00	Free Outfall		None contributing
504.00	.00	Free Outfall		None contributing
505.00	.00	Free Outfall		None contributing
506.00	.00	Free Outfall		None contributing
506.50	.00	Free Outfall		W1
507.00	23.69	Free Outfall		W1
508.00	123.09	Free Outfall		W1
509.00	264.84	Free Outfall		W1
510.00	438.71	Free Outfall		W1

LEVEL POOL ROUTING DATA

HYG Dir = G:\HD Stuff\Projects\CLC - Eagle Quarry\
Inflow HYG file = work_pad.hyg - POND 10 IN Dev 1
Outflow HYG file = work_pad.hyg - POND 10 OUT Dev 1

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 500.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
500.00	.00	.000	.4040	.00	.00	.00
501.00	.00	.437	.4710	.00	.00	211.55
502.00	.00	.942	.5396	.00	.00	455.92
503.00	.00	1.516	.6098	.00	.00	733.90
504.00	.00	2.162	.6817	.00	.00	1046.29
505.00	.00	2.880	.7553	.00	.00	1393.90
506.00	.00	3.673	.8305	.00	.00	1777.51
506.50	.00	4.097	.8685	.00	.00	1983.07
507.00	23.69	4.541	.9073	.00	23.69	2221.61
508.00	123.09	5.488	.9859	.00	123.09	2779.04
509.00	264.84	6.513	1.0660	.00	264.84	3417.22
510.00	438.71	7.620	1.1478	.00	438.71	4126.72

Index of Starting Page Numbers for ID Names

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Table of Contents (continued)

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Calera, Alabama

Return Event	Total Depth in	Rainfall Type	RNF ID
Dev 1	3.5000	Synthetic Curve	TypeIII 24hr
Dev 2	4.5000	Synthetic Curve	TypeIII 24hr
Dev 5	5.5000	Synthetic Curve	TypeIII 24hr
Dev 10	6.5000	Synthetic Curve	TypeIII 24hr
Dev 25	7.5000	Synthetic Curve	TypeIII 24hr
Dev 50	8.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DISTURBED	AREA	1	.617		12.4500	4.23		
DISTURBED	AREA	2	.883		12.4500	6.03		
DISTURBED	AREA	5	1.158		12.4500	7.84		
DISTURBED	AREA	10	1.437		12.4500	9.66		
DISTURBED	AREA	25	1.720		12.4000	11.48		
DISTURBED	AREA	50	1.862		12.4000	12.38		
EAST	AREA	1	1.232		12.5000	7.57		
EAST	AREA	2	2.070		12.5000	13.53		
EAST	AREA	5	3.007		12.5000	20.13		
EAST	AREA	10	4.015		12.5000	27.14		
EAST	AREA	25	5.074		12.5000	34.43		
EAST	AREA	50	5.618		12.5000	38.15		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
JUNC 10	JCT	1	3.082		12.4500	20.30		
JUNC 10	JCT	2	5.023		12.4500	34.54		
JUNC 10	JCT	5	7.172		12.4000	50.25		
JUNC 10	JCT	10	9.467		12.4000	66.97		
JUNC 10	JCT	25	11.868		12.4000	84.29		
JUNC 10	JCT	50	13.099		12.4000	93.10		
*OUT 10	JCT	1	.000		.0500	.00		
*OUT 10	JCT	2	.571		20.2500	1.54		
*OUT 10	JCT	5	2.845		14.4500	7.30		
*OUT 10	JCT	10	5.265		13.2500	20.83		
*OUT 10	JCT	25	7.790		12.8500	47.23		
*OUT 10	JCT	50	9.084		12.8000	60.97		
POND 10 IN	POND	1	3.490		12.4500	21.31		
POND 10 IN	POND	2	5.556		12.4500	35.98		
POND 10 IN	POND	5	7.830		12.4500	52.00		
POND 10 IN	POND	10	10.250		12.4500	68.90		
POND 10 IN	POND	25	12.775		12.4000	86.44		
POND 10 IN	POND	50	14.069		12.4000	95.43		
POND 10 OUT	POND	1	.000		1.3000	.00	539.98	3.489
POND 10 OUT	POND	2	.571		20.2500	1.54	541.53	5.019
POND 10 OUT	POND	5	2.845		14.4500	7.30	541.65	5.148
POND 10 OUT	POND	10	5.265		13.2500	20.83	541.94	5.455
POND 10 OUT	POND	25	7.790		12.8500	47.23	542.24	5.783
POND 10 OUT	POND	50	9.084		12.8000	60.97	542.38	5.938
POND SURFACE	AREA	1	.408		12.1000	4.38		
POND SURFACE	AREA	2	.533		12.1000	5.65		
POND SURFACE	AREA	5	.658		12.1000	6.92		
POND SURFACE	AREA	10	.783		12.1000	8.19		
POND SURFACE	AREA	25	.908		12.1000	9.45		
POND SURFACE	AREA	50	.970		12.1000	10.09		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
WEST	AREA	1	1.232		12.4000	8.90		
WEST	AREA	2	2.070		12.4000	15.73		
WEST	AREA	5	3.007		12.3500	23.39		
WEST	AREA	10	4.015		12.3500	31.58		
WEST	AREA	25	5.074		12.3500	40.09		
WEST	AREA	50	5.618		12.3500	44.44		

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	36.00	ft
2yr, 24hr P	4.5000	in
Slope	.440000	ft/ft
Avg.Velocity	4.58	ft/sec

Segment #1 Time: .0022 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	2700.00	ft
Slope	.005000	ft/ft
Unpaved		
Avg.Velocity	1.14	ft/sec

Segment #2 Time: .6574 hrs

==========
Total Tc: .6596 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ====

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ====

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2000	
Hydraulic Length	36.00	ft
2yr, 24hr P	4.5000	in
Slope	.440000	ft/ft

Avg.Velocity .45 ft/sec

Segment #1 Time: .0222 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	2700.00	ft
Slope	.005000	ft/ft

Unpaved

Avg.Velocity 1.14 ft/sec

Segment #2 Time: .6574 hrs

==========
Total Tc: .6796 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	1.00	ft
2yr, 24hr P	4.0000	in
Slope	.005000	ft/ft
Avg.Velocity	.35	ft/sec

Segment #1 Time: .0008 hrs

==========
Total Tc: .0008 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2000	
Hydraulic Length	36.00	ft
2yr, 24hr P	4.0000	in
Slope	.440000	ft/ft

Avg.Velocity .42 ft/sec

Segment #1 Time: .0236 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1900.00	ft
Slope	.005000	ft/ft

Unpaved

Avg.Velocity 1.14 ft/sec

Segment #2 Time: .4626 hrs

==========
Total Tc: .4862 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Newly graded area (pervious only -	86	3.530			86.00
COMPOSITE AREA & WEIGHTED CN --->		3.530			86.00 (86)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Open space (Lawns,parks etc.) - Fai	69	15.500			69.00
COMPOSITE AREA & WEIGHTED CN --->		15.500			69.00 (69)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	1.500			98.00
COMPOSITE AREA & WEIGHTED CN --->		1.500			98.00 (98)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Open space (Lawns,parks etc.) - Fai	69	15.500			69.00
COMPOSITE AREA & WEIGHTED CN --->		15.500			69.00 (69)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

POND VOLUME CALCULATION FOR TRAPEZOIDAL BASIN

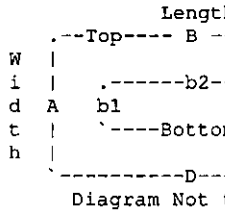

Diagram Not to ScaleW

Top Elev. = 545.00 ft
Top Length = 600.00 ft (A to C)
Top Width = 100.00 ft (B to D)

Bottom Elev. = 535.00 ft
Bottom Length = 540.00 ft
Bottom Width = 40.00 ft

Width Offset = .00 ft (B to b2)
Length Offset = .00 ft (A to b1)

Vertical Incr.= 1.00 ft

Computed Side Slopes:
Side A: .000:1 (horizontal : vertical)
Side B: .000:1 " "
Side C: 6.000:1 " "
Side D: 6.000:1 " "

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
535.00	-----	.4959	.0000	.000	.000
536.00	-----	.5766	1.6072	.536	.536
537.00	-----	.6590	1.8519	.617	1.153
538.00	-----	.7430	2.1016	.701	1.854
539.00	-----	.8287	2.3563	.785	2.639
540.00	-----	.9160	2.6158	.872	3.511
541.00	-----	1.0050	2.8804	.960	4.471
542.00	-----	1.0956	3.1498	1.050	5.521
543.00	-----	1.1879	3.4243	1.141	6.662
544.00	-----	1.2818	3.7037	1.235	7.897
545.00	-----	1.3774	3.9880	1.329	9.226

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 535.00 ft
Increment = 1.00 ft
Max. Elev.= 545.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	W1	--->	TW	541.500	545.000
TW SETUP, DS Channel					

OUTLET STRUCTURE INPUT DATA

Structure ID = W1
Structure Type = Weir-Rectangular

# of Openings = 1
Crest Elev. = 541.50 ft
Weir Length = 25.00 ft
Weir Coeff. = 2.680000

Weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_2_POSTDEVELOPMENT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = W1 (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
535.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
536.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
537.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
538.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
539.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
540.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
541.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
541.50	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
542.00	23.69	Free Outfall		H=.50; Htw=.00; Qfree=23.69;
543.00	123.09	Free Outfall		H=1.50; Htw=.00; Qfree=123.09;
544.00	264.84	Free Outfall		H=2.50; Htw=.00; Qfree=264.84;
545.00	438.71	Free Outfall		H=3.50; Htw=.00; Qfree=438.71;

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
535.00	.00	Free Outfall		None contributing
536.00	.00	Free Outfall		None contributing
537.00	.00	Free Outfall		None contributing
538.00	.00	Free Outfall		None contributing
539.00	.00	Free Outfall		None contributing
540.00	.00	Free Outfall		None contributing
541.00	.00	Free Outfall		None contributing
541.50	.00	Free Outfall		W1
542.00	23.69	Free Outfall		W1
543.00	123.09	Free Outfall		W1
544.00	264.84	Free Outfall		W1
545.00	438.71	Free Outfall		W1

LEVEL POOL ROUTING DATA

HYG Dir = G:\HD Stuff\Projects\CLC - Eagle Quarry\
Inflow HYG file = work_pad.hyg - POND 10 IN Dev 1
Outflow HYG file = work_pad.hyg - POND 10 OUT Dev 1

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	535.00 ft
Starting Volume	=	.000 ac-ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
535.00	.00	.000	.4959	.00	.00	.00
536.00	.00	.536	.5766	.00	.00	259.29
537.00	.00	1.153	.6590	.00	.00	558.07
538.00	.00	1.854	.7430	.00	.00	897.13
539.00	.00	2.639	.8287	.00	.00	1277.27
540.00	.00	3.511	.9160	.00	.00	1699.30
541.00	.00	4.471	1.0050	.00	.00	2164.00
541.50	.00	4.985	1.0498	.00	.00	2412.60
542.00	23.69	5.521	1.0956	.00	23.69	2695.86
543.00	123.09	6.662	1.1879	.00	123.09	3347.71
544.00	264.84	7.897	1.2818	.00	264.84	4086.99
545.00	438.71	9.226	1.3774	.00	438.71	4904.25

Index of Starting Page Numbers for ID Names

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Calera, Alabama

Return Event	Total Depth in	Rainfall Type	RNF ID
Dev 1	3.5000	Synthetic Curve	TypeIII 24hr
Dev 2	4.5000	Synthetic Curve	TypeIII 24hr
Dev 5	5.5000	Synthetic Curve	TypeIII 24hr
Dev 10	6.5000	Synthetic Curve	TypeIII 24hr
Dev 25	7.5000	Synthetic Curve	TypeIII 24hr
Dev 50	8.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
DISTURBED	AREA	1	.315		12.3000	2.71		
DISTURBED	AREA	2	.450		12.2500	3.86		
DISTURBED	AREA	5	.590		12.2500	5.02		
DISTURBED	AREA	10	.733		12.2500	6.18		
DISTURBED	AREA	25	.877		12.2500	7.34		
DISTURBED	AREA	50	.949		12.2500	7.92		
EAST	AREA	1	.811		12.4500	5.64		
EAST	AREA	2	1.362		12.4000	9.96		
EAST	AREA	5	1.979		12.4000	14.81		
EAST	AREA	10	2.642		12.4000	19.96		
EAST	AREA	25	3.339		12.4000	25.31		
EAST	AREA	50	3.697		12.4000	28.04		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
JUNC 10	JCT	1	1.936		12.3500	14.25		
JUNC 10	JCT	2	3.174		12.3500	24.49		
JUNC 10	JCT	5	4.548		12.3500	35.71		
JUNC 10	JCT	10	6.016		12.3500	47.57		
JUNC 10	JCT	25	7.554		12.3000	60.01		
JUNC 10	JCT	50	8.343		12.3000	66.35		
NORTH	AREA	1	.811		12.3500	6.27		
NORTH	AREA	2	1.362		12.3000	11.10		
NORTH	AREA	5	1.979		12.3000	16.55		
NORTH	AREA	10	2.642		12.3000	22.34		
NORTH	AREA	25	3.338		12.3000	28.36		
NORTH	AREA	50	3.697		12.3000	31.43		
*OUT 10	JCT	1	.000		.0500	.00		
*OUT 10	JCT	2	.675		17.2000	1.62		
*OUT 10	JCT	5	2.173		13.6000	6.54		
*OUT 10	JCT	10	3.767		12.8500	20.78		
*OUT 10	JCT	25	5.429		12.6500	42.87		
*OUT 10	JCT	50	6.281		12.5500	53.15		
POND 10 IN	POND	1	2.345		12.3500	15.70		
POND 10 IN	POND	2	3.707		12.3500	26.44		
POND 10 IN	POND	5	5.206		12.3500	38.19		
POND 10 IN	POND	10	6.799		12.3500	50.59		
POND 10 IN	POND	25	8.461		12.3500	63.43		
POND 10 IN	POND	50	9.313		12.3500	69.96		
POND 10 OUT	POND	1	.000		1.3000	.00	540.37	2.338
POND 10 OUT	POND	2	.675		17.2000	1.62	541.53	3.055
POND 10 OUT	POND	5	2.173		13.6000	6.54	541.64	3.123
POND 10 OUT	POND	10	3.767		12.8500	20.78	541.94	3.324
POND 10 OUT	POND	25	5.429		12.6500	42.87	542.19	3.498
POND 10 OUT	POND	50	6.281		12.5500	53.15	542.30	3.570

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
POND SURFACE	AREA	1	.408		12.1000	4.38		
POND SURFACE	AREA	2	.533		12.1000	5.65		
POND SURFACE	AREA	5	.658		12.1000	6.92		
POND SURFACE	AREA	10	.783		12.1000	8.19		
POND SURFACE	AREA	25	.908		12.1000	9.45		
POND SURFACE	AREA	50	.970		12.1000	10.09		

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110	
Hydraulic Length	36.00	ft
2yr, 24hr P	4.5000	in
Slope	.440000	ft/ft
Avg.Velocity	4.58	ft/sec

Segment #1 Time: .0022 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1600.00	ft
Slope	.005000	ft/ft
Unpaved		
Avg.Velocity	1.14	ft/sec

Segment #2 Time: .3896 hrs

==========
Total Tc: .3917 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ====

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ====

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2000	
Hydraulic Length	36.00	ft
2yr, 24hr P	4.5000	in
Slope	.440000	ft/ft

Avg.Velocity .45 ft/sec

Segment #1 Time: .0222 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	2100.00	ft
Slope	.005000	ft/ft

Unpaved

Avg.Velocity 1.14 ft/sec

Segment #2 Time: .5113 hrs

==========
Total Tc: .5335 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2000
Hydraulic Length	36.00 ft
2yr, 24hr P	4.0000 in
Slope	.440000 ft/ft

Avg.Velocity .42 ft/sec

Segment #1 Time: .0236 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1600.00 ft
Slope	.005000 ft/ft

Unpaved

Avg.Velocity 1.14 ft/sec

Segment #2 Time: .3896 hrs

==========
Total Tc: .4131 hrs
==========

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ====

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ====

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110
Hydraulic Length	1.00 ft
2yr, 24hr P	4.0000 in
Slope	.005000 ft/ft
Avg.Velocity	.35 ft/sec

Segment #1 Time: .0008 hrs

Total Tc: .0008 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Newly graded area (pervious only -	86	1.800			86.00
COMPOSITE AREA & WEIGHTED CN --->		1.800			86.00 (86)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Open space (Lawns,parks etc.) - Fai	69	10.200			69.00
COMPOSITE AREA & WEIGHTED CN --->		10.200			69.00 (69)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Open space (Lawns,parks etc.) - Fai	69	10.200			69.00
COMPOSITE AREA & WEIGHTED CN --->		10.200			69.00 (69)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Impervious Areas - Paved parking lo	98	1.500			98.00
COMPOSITE AREA & WEIGHTED CN --->		1.500			98.00 (98)

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

POND VOLUME CALCULATION FOR TRAPEZOIDAL BASIN

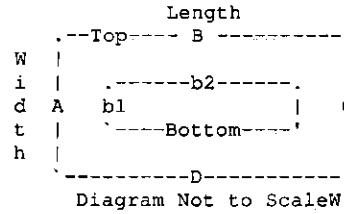

Diagram Not to ScaleW

Top Elev. = 545.00 ft
Top Length = 380.00 ft (A to C)
Top Width = 100.00 ft (B to D)

Bottom Elev. = 535.00 ft
Bottom Length = 320.00 ft
Bottom Width = 40.00 ft

Width Offset = .00 ft (B to b2)
Length Offset = .00 ft (A to b1)

Vertical Incr.= 1.00 ft

Computed Side Slopes:
Side A: .000:1 (horizontal : vertical)
Side B: .000:1 " "
Side C: 6.000:1 " "
Side D: 6.000:1 " "

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
535.00	-----	.2938	.0000	.000	.000
536.00	-----	.3443	.9562	.319	.319
537.00	-----	.3963	1.1100	.370	.689
538.00	-----	.4500	1.2687	.423	1.112
539.00	-----	.5054	1.4324	.477	1.589
540.00	-----	.5624	1.6010	.534	2.123
541.00	-----	.6211	1.7746	.592	2.714
542.00	-----	.6815	1.9532	.651	3.365
543.00	-----	.7434	2.1367	.712	4.078
544.00	-----	.8071	2.3251	.775	4.853
545.00	-----	.8724	2.5185	.840	5.692

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 535.00 ft
Increment = 1.00 ft
Max. Elev.= 545.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	W1	--->	TW	541.500	545.000
TW SETUP, DS Channel					

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = W1
Structure Type = Weir-Rectangular

# of Openings = 1
Crest Elev. = 541.50 ft
Weir Length = 25.00 ft
Weir Coeff. = 2.680000

Weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = W1 (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev,Device Q Tail Water Notes

WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
535.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
536.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
537.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
538.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
539.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
540.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
541.00	.00	Free Outfall		HW & TW below Inv.El.=541.500
541.50	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
542.00	23.69	Free Outfall		H=.50; Htw=.00; Qfree=23.69;
543.00	123.09	Free Outfall		H=1.50; Htw=.00; Qfree=123.09;
544.00	264.84	Free Outfall		H=2.50; Htw=.00; Qfree=264.84;
545.00	438.71	Free Outfall		H=3.50; Htw=.00; Qfree=438.71;

File.... G:\HD Stuff\Projects\CLC - Eagle Quarry\EAGLE_OMA_3_POSTDEVELOPMENT.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
535.00	.00	Free Outfall		None contributing
536.00	.00	Free Outfall		None contributing
537.00	.00	Free Outfall		None contributing
538.00	.00	Free Outfall		None contributing
539.00	.00	Free Outfall		None contributing
540.00	.00	Free Outfall		None contributing
541.00	.00	Free Outfall		None contributing
541.50	.00	Free Outfall		W1
542.00	23.69	Free Outfall		W1
543.00	123.09	Free Outfall		W1
544.00	264.84	Free Outfall		W1
545.00	438.71	Free Outfall		W1

LEVEL POOL ROUTING DATA

HYG Dir = G:\HD Stuff\Projects\CLC - Eagle Quarry\
Inflow HYG file = work_pad.hyg - POND 10 IN Dev 1
Outflow HYG file = work_pad.hyg - POND 10 OUT Dev 1

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 535.00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
535.00	.00	.000	.2938	.00	.00	.00
536.00	.00	.319	.3443	.00	.00	154.26
537.00	.00	.689	.3963	.00	.00	333.34
538.00	.00	1.112	.4500	.00	.00	538.02
539.00	.00	1.589	.5054	.00	.00	769.11
540.00	.00	2.123	.5624	.00	.00	1027.41
541.00	.00	2.714	.6211	.00	.00	1313.72
541.50	.00	3.032	.6509	.00	.00	1467.62
542.00	23.69	3.365	.6815	.00	23.69	1652.52
543.00	123.09	4.078	.7434	.00	123.09	2096.63
544.00	264.84	4.853	.8071	.00	264.84	2613.50
545.00	438.71	5.692	.8724	.00	438.71	3193.69

Index of Starting Page Numbers for ID Names

LHOIST NORTH AMERICA OF ALABAMA, LLC

EAGLE QUARRY SEDIMENTATION PONDS

PREPARED FOR: LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

PREPARED BY: RMT, INC.
GREENVILLE, SOUTH CAROLINA

DATE: NOVEMBER 2008

INDEX

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER. THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY.
NOT FOR CONSTRUCTION

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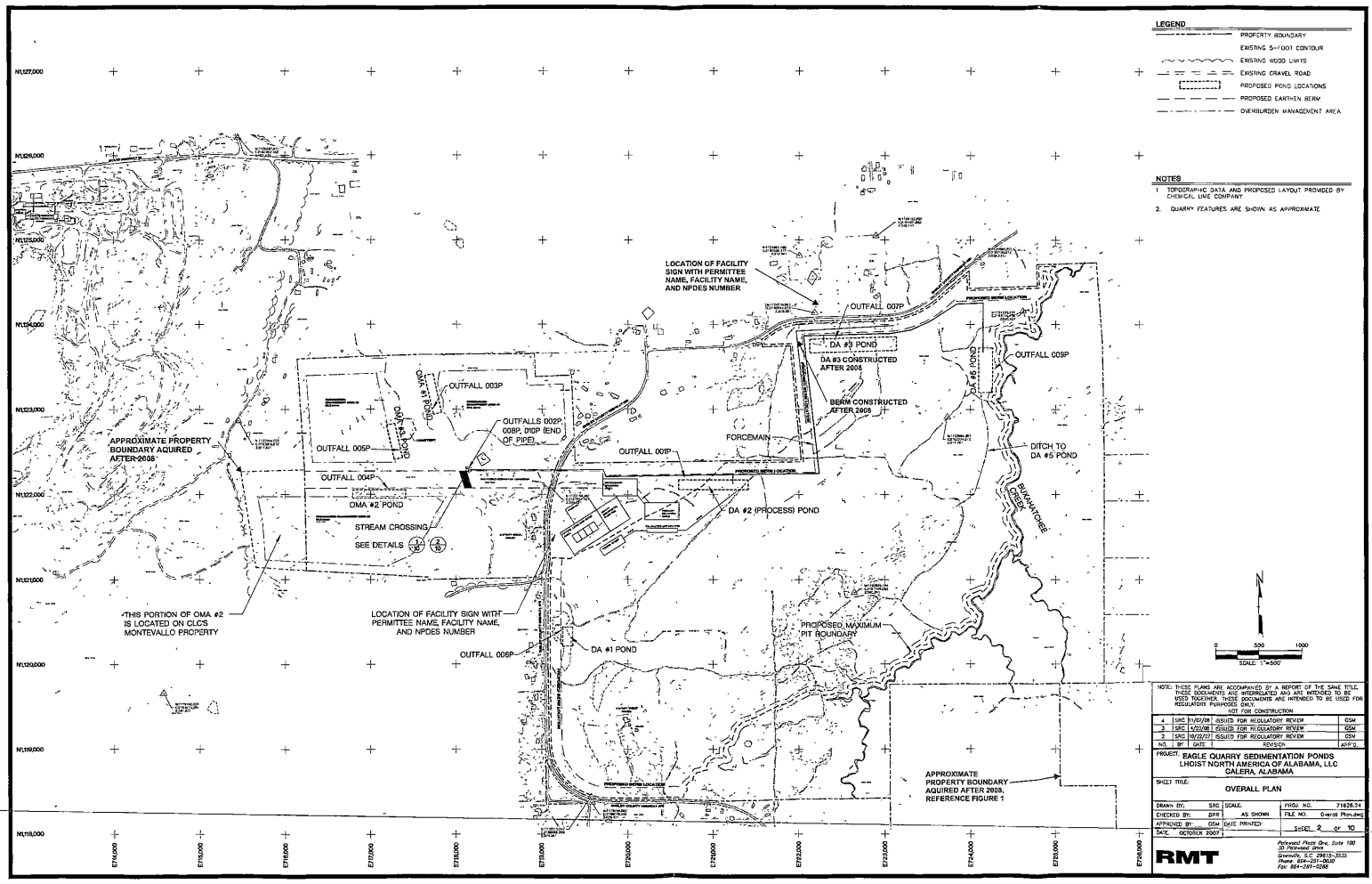

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4	SRC	11/01/08	ISSUED FOR REGULATORY REVIEW	CSM
3	SRC	4/23/08	ISSUED FOR REGULATORY REVIEW	CSM
2	SRC	10/22/07	ISSUED FOR REGULATORY REVIEW	CSM

PROJECT: EAGLE QUARRY SEDIMENTATION PONDS
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE: OVERALL PLAN

DRAWN BY:	SRC	SCALE:	PROJ. NO. 73626.24
CHECKED BY:	DPR	AS SHOWN	FILE NO. Overall Plan.dwg
APPROVED BY:	CSM	DATE PRINTED:	SHEET 2 OF 10
DATE:	OCTOBER 2007		

RMT

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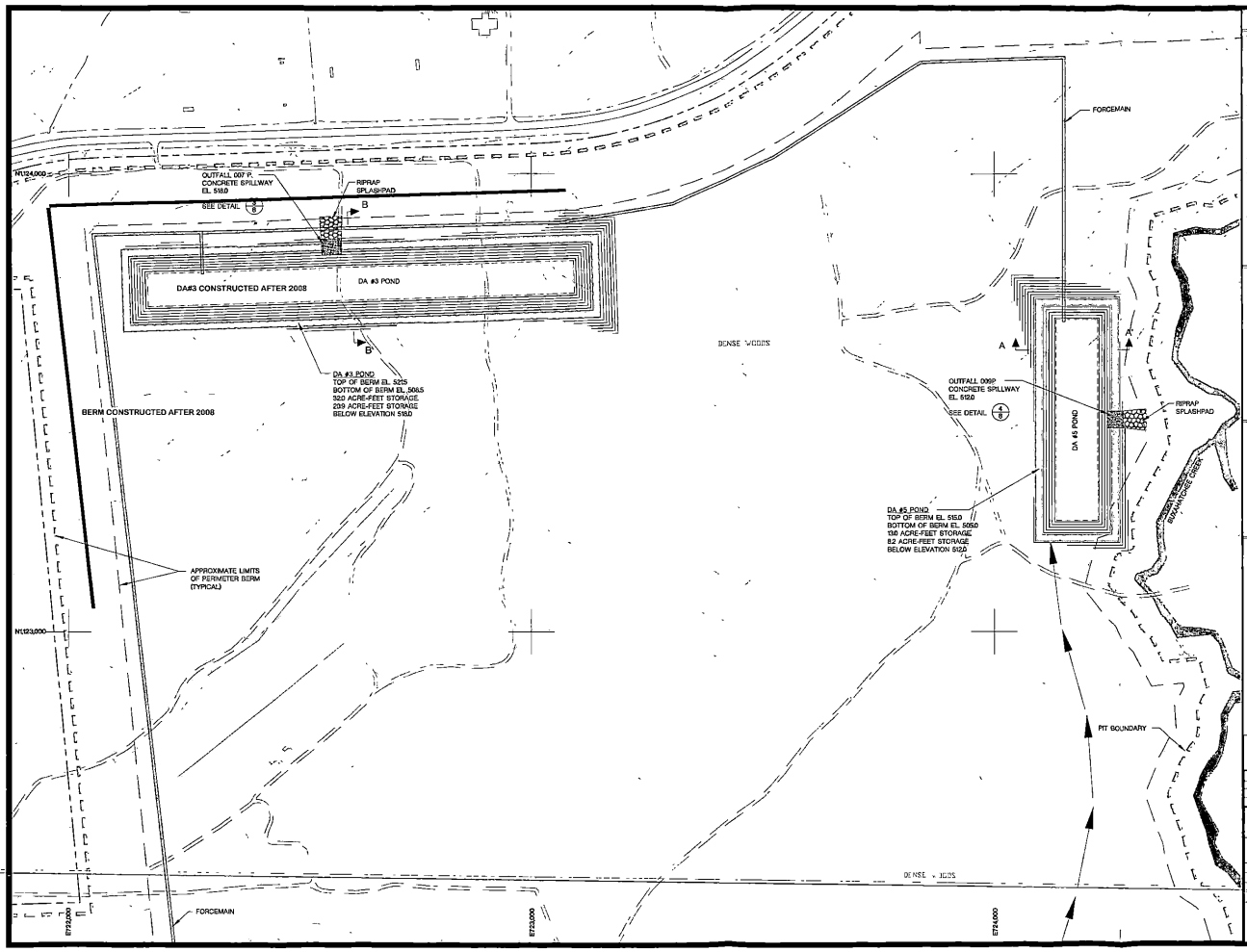

LEGEND

- PROPERTY BOUNDARY
- EXISTING 5-FOOT CONTOUR
- EXISTING WOOD LINES
- EXISTING GRAVEL ROAD
- EXISTING FENCE
- EXISTING DRAINAGEWAY
- EXISTING WATER BODY
- PROPOSED TOP OF POND BERM
- PROPOSED 2-FOOT CONTOUR
- PROPOSED 10-FOOT CONTOUR
- PROPOSED BERM DELINEATION
- PROPOSED RIP RAP
- PROPOSED CONCRETE SPILLWAY
- CROSS SECTION LOCATION
- PROPOSED MAXIMUM PIT BOUNDARY

CONSTRUCTION NOTES

1. TREES, BOULDERS AND OTHER OBSTRUCTIONS SHALL BE REMOVED FROM PONDS DURING INITIAL CONSTRUCTION.
2. THE NATURAL GROUND SURFACE SHALL BE CLEARED OF VEGETATION, THE TOPSOIL REMOVED AND GRUBBED OF ROOTS PRIOR TO PLACEMENT OF FILL.
3. COMPACT EMBANKMENTS TO 95% STANDARD PROCTOR (ASTM D698)
4. EMBANKMENT SHALL BE FREE OF ROOTS, TREE DEBRIS, STONES GREATER THAN 6" DIA.
5. CONSTRUCT EMBANKMENT IN LIFTS NO GREATER THAN 12"
6. STABILIZE DISTURBED AREAS ABOVE POND'S WATER LINE
7. QUARRY FEATURES ARE SHOWN AS APPROXIMATE.

EARTHWORK

DA #3 POND*
- 64,100 CUBIC YARDS (CUT)
- 1,800 CUBIC YARDS (FILL)
- NET = 62,303 CUBIC YARDS (CUT)

DA #5 POND*
- 25,500 CUBIC YARDS (CUT)
- 2,800 CUBIC YARDS (FILL)
- NET = 22,700 CUBIC YARDS (CUT)

* EARTHWORK BASED ON EXISTING 5-FOOT CONTOURS PROVIDED BY AERIAL TOPOGRAPHY.

SEDIMENTATION PONDS NOTES

1. RUNOFF FROM ALL AREAS OF DISTURBANCE SHALL BE CONTROLLED.
2. DRAINAGE FROM PIT AREA, STOCKPILES AND SPOIL AREAS SHALL BE DIRECTED TO A SEDIMENTATION POND.
3. SEDIMENTATION PONDS SHALL BE CLEANED OUT WHEN SEDIMENT ACCUMULATION IS 60% OF DESIGN CAPACITY.

N

0 100 200

SCALE: 1"=100'

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4	SRC	11/07/08	ISSUED FOR REGULATORY REVIEW	GSM
3	SRC	4/23/08	ISSUED FOR REGULATORY REVIEW	GSM
2	SRC	10/22/07	ISSUED FOR REGULATORY REVIEW	GSM

PROJECT: **EAGLE QUARRY SEDIMENTATION PONDS**
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE: **DA #3 AND DA #5 STORM WATER PONDS GRADING PLAN**

DRAWN BY:	SRC	SCALE:	PROJ NO. 71606.24
CHECKED BY:	DPR	AS SHOWN	FILE NO. Grading Plan 01.dwg
APPROVED BY:	GSM	DATE PRINTED:	SHEET 3 OF 10
DATE:	OCTOBER 2007		

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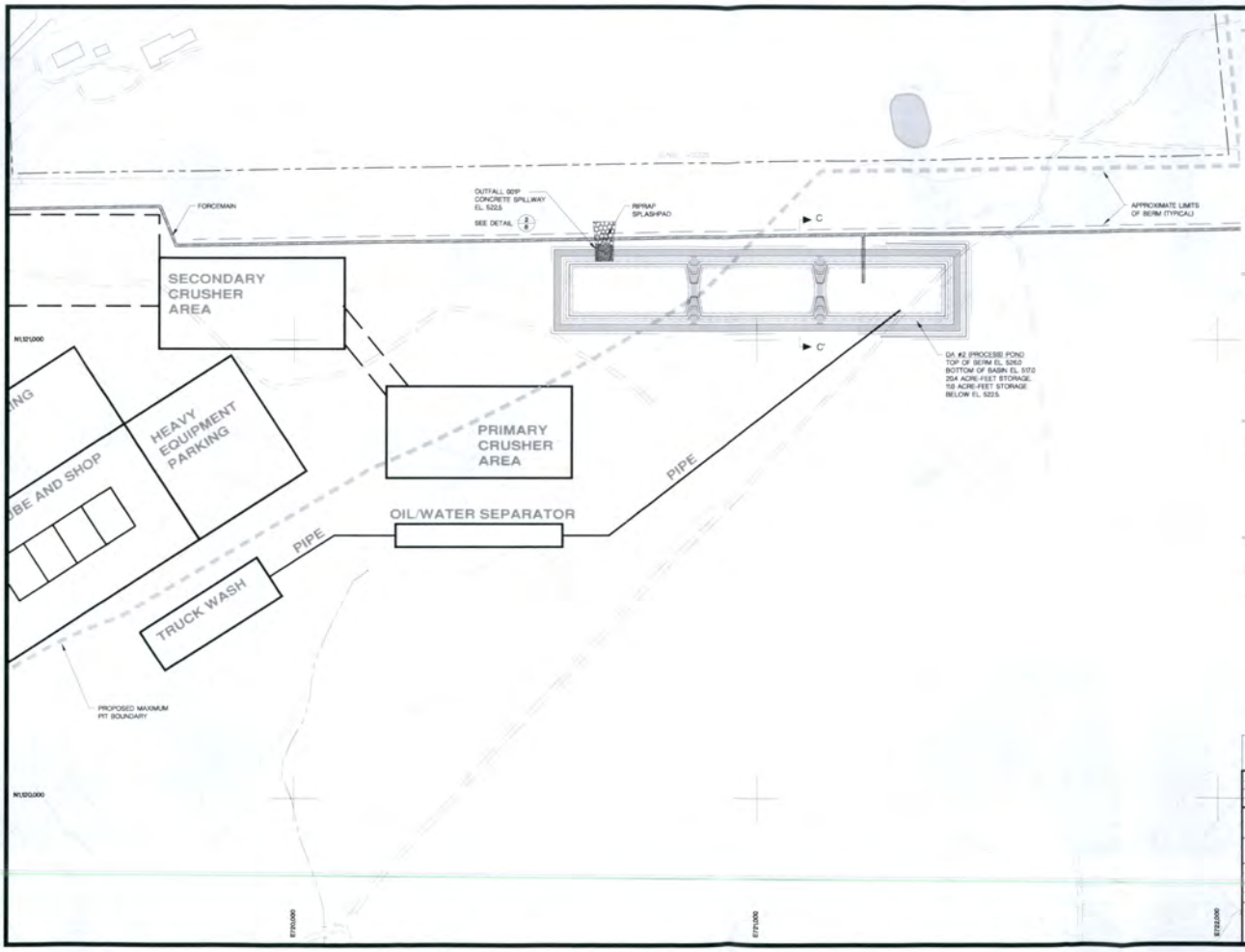

LEGEND

- PROPERTY BOUNDARY
- EXISTING 5-FOOT CONTOUR
- EXISTING WOOD LIMITS
- EXISTING GRAVEL ROAD
- EXISTING FENCE
- EXISTING DRAINAGEWAY
- EXISTING WATER BODY
- PROPOSED TOP OF POND BERM
- PROPOSED 2-FOOT CONTOUR
- PROPOSED 10-FOOT CONTOUR
- PROPOSED BERM DELINEATION
- PROPOSED RIP RAP
- PROPOSED CONCRETE SPILLWAY
- A ▲ ▲ A' CROSS SECTION LOCATION
- PROPOSED MAXIMUM PIT BOUNDARY

CONSTRUCTION NOTES

1. TREES, BOULDERS AND OTHER OBSTRUCTIONS SHALL BE REMOVED FROM PONDS DURING INITIAL CONSTRUCTION.
2. THE NATURAL GROUND SURFACE SHALL BE CLEARED OF VEGETATION, THE TOPSOIL REMOVED AND GRUBBED OF ROOTS PRIOR TO PLACEMENT OF FILL.
3. COMPACT EMBANKMENTS TO 95% STANDARD PROCTOR (ASTM D698).
4. EMBANKMENT SHALL BE FREE OF ROOTS, TREE DEBRIS, STONES GREATER THAN 6" DIA.
5. CONSTRUCT EMBANKMENT IN LIFTS NO GREATER THAN 12".
6. STABILIZE DISTURBED AREAS ABOVE PONDS WATER LINE.
7. QUARRY FEATURES ARE SHOWN AS APPROXIMATE.

EARTHWORK

DA #2 (PROCESS) POND*

- 38,800 CUBIC YARDS (CUT)
- 1,300 CUBIC YARDS (FILL)
- NET - 37,500 CUBIC YARDS (CUT)

* EARTHWORK BASED ON EXISTING 5-FOOT CONTOURS PROVIDED BY AERIAL TOPOGRAPHY.

SEDIMENTATION PONDS NOTES

1. RUNOFF FROM ALL AREAS OF DISTURBANCE SHALL BE CONTROLLED.
2. DRAINAGE FROM PIT AREA, STOCKPILES AND SPOIL AREAS SHALL BE DIRECTED TO A SEDIMENTATION POND.
3. SEDIMENTATION PONDS SHALL BE CLEANED OUT WHEN SEDIMENT ACCUMULATION IS 40% OF DESIGN CAPACITY.

N

0 100 200

SCALE: 1"=100'

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3	SRC	4/23/08	ISSUED FOR REGULATORY REVIEW	DSW
2	SRC	10/22/07	ISSUED FOR REGULATORY REVIEW	DSW

PROJECT
EAGLE QUARRY SEDIMENTATION PONDS
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE
DA #2 (PROCESS)
STORM WATER POND GRADING PLAN

DRAWN BY:	SRC	SCALE:	PROJ. NO. 71E26.24
CHECKED BY:	DPR	AS SHOWN	FILE NO. Grading Plan 02.dwg
APPROVED BY:	DSW	DATE PRINTED:	SHEET 4 OF 10
DATE:	OCTOBER 2007		

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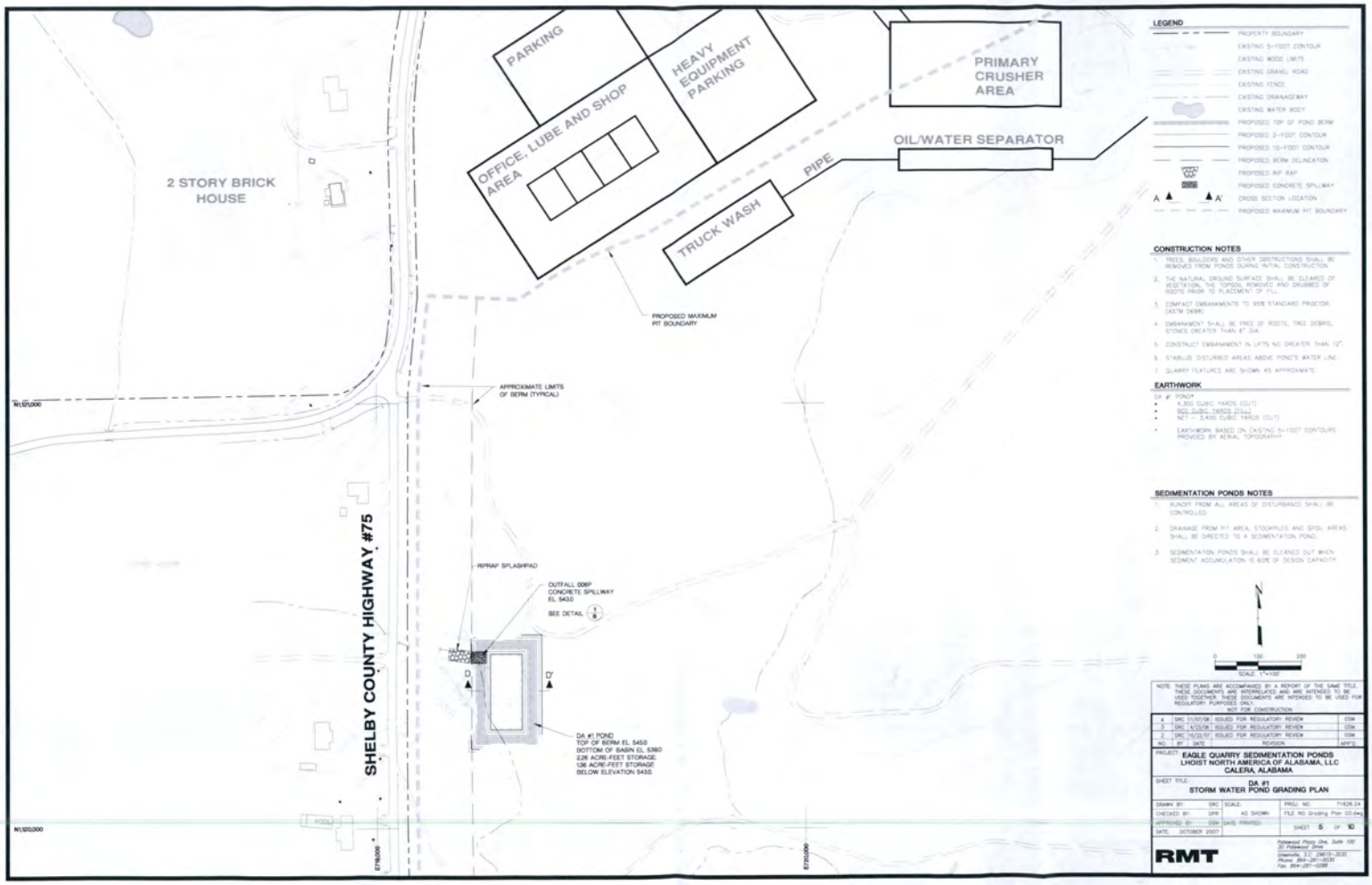

LEGEND

- PROPERTY BOUNDARY
- EXISTING 5-FOOT CONTOUR
- EXISTING WOOD LIMITS
- EXISTING GRAVEL ROAD
- EXISTING FENCE
- EXISTING DRAINAGEWAY
- EXISTING WATER BODY
- PROPOSED TOP OF POND BERM
- PROPOSED 2-FOOT CONTOUR
- PROPOSED 10-FOOT CONTOUR
- PROPOSED BERM DELINEATION
- PROPOSED RIP RAP
- PROPOSED CONCRETE SPILLWAY
- CROSS SECTION LOCATION
- PROPOSED MAXIMUM PIT BOUNDARY

CONSTRUCTION NOTES

1. TREES, BOULDERS AND OTHER OBSTRUCTIONS SHALL BE REMOVED FROM PONDS DURING INITIAL CONSTRUCTION.
2. THE NATURAL GROUND SURFACE SHALL BE CLEARED OF VEGETATION, THE TOPSOIL REMOVED AND DRUMMED OF ROOTS PRIOR TO PLACEMENT OF FILL.
3. COMPACT EMBANKMENTS TO 95% STANDARD PROCTOR (ASTM D698).
4. EMBANKMENT SHALL BE FREE OF ROOTS, TREE DEBRIS, STONES GREATER THAN 6" DIA.
5. CONSTRUCT EMBANKMENT IN LIFTS NO GREATER THAN 12".
6. STABILIZE DISTURBED AREAS ABOVE PONDS WATER LINE.
7. QUARRY FEATURES ARE SHOWN AS APPROXIMATE.

EARTHWORK

DA #1 POND*

- 4,300 CUBIC YARDS (CUT)
- 900 CUBIC YARDS (FILL)
- NET = 3,400 CUBIC YARDS (CUT)

* EARTHWORK BASED ON EXISTING 5-FOOT CONTOURS PROVIDED BY AERIAL TOPOGRAPHY

SEDIMENTATION PONDS NOTES

1. RUNOFF FROM ALL AREAS OF DISTURBANCE SHALL BE CONTROLLED.
2. DRAINAGE FROM PIT AREA, STOCKPILES AND SPOIL AREAS SHALL BE DIRECTED TO A SEDIMENTATION POND.
3. SEDIMENTATION PONDS SHALL BE CLEANED OUT WHEN SEDIMENT ACCUMULATION IS 40% OF DESIGN CAPACITY.

N

0 100 200

SCALE: 1"=100'

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3	SRC	4/23/08	ISSUED FOR REGULATORY REVIEW	CSM
2	SRC	10/22/07	ISSUED FOR REGULATORY REVIEW	CSM

PROJECT: **EAGLE QUARRY SEDIMENTATION PONDS**
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE: **DA #1**
STORM WATER POND GRADING PLAN

DRAWN BY:	SRC	SCALE:	PROJ. NO. 71426.24
CHECKED BY:	DPR	AS SHOWN	FILE NO. Grading Plan 03.dwg
APPROVED BY:	CSM	DATE PRINTED:	SHEET 5 OF 10
DATE:	OCTOBER 2007		

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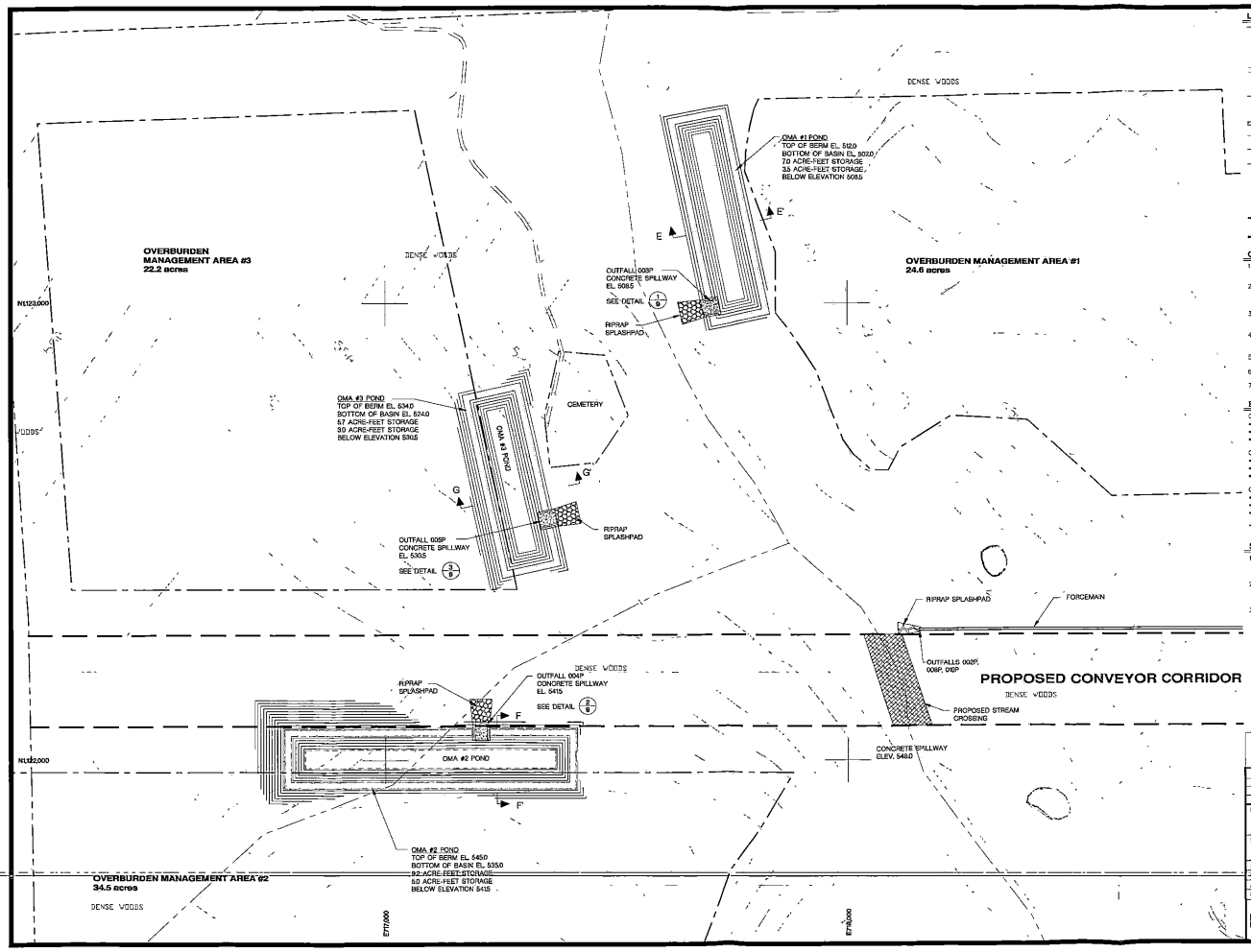

LEGEND

- PROPERTY BOUNDARY
- EXISTING 5-FOOT CONTOUR
- EXISTING WOOD LIMITS
- EXISTING GRAVEL ROAD
- EXISTING FENCE
- EXISTING DRAINAGEWAY
- EXISTING WATER BODY
- PROPOSED TOP OF POND BERM
- PROPOSED 2-FOOT CONTOUR
- PROPOSED 10-FOOT CONTOUR
- PROPOSED BERM DELINEATION
- PROPOSED RIP RAP
- PROPOSED CONCRETE SPILLWAY
- PROPOSED STREAM CROSSING
- PROPOSED MAXIMUM PIT BOUNDARY
- PROPOSED OVERBURDEN MANAGEMENT LIMIT

CONSTRUCTION NOTES

1. TREES, BOULDERS AND OTHER OBSTRUCTIONS SHALL BE REMOVED FROM PONDS DURING INITIAL CONSTRUCTION.
2. THE NATURAL GROUND SURFACE SHALL BE CLEARED OF VEGETATION, THE TOPSOIL REMOVED AND GRUBBED OF ROOTS PRIOR TO PLACEMENT OF FILL.
3. COMPACT EMBANKMENTS TO 95% STANDARD PROCTOR (ASTM D698)
4. EMBANKMENT SHALL BE FREE OF ROOTS, TREE DEBRIS, STONES GREATER THAN 6" DIA.
5. CONSTRUCT EMBANKMENT IN LIFTS NO GREATER THAN 12".
6. STABILIZE DISTURBED AREAS ABOVE POND'S WATER LINE.
7. QUARRY FEATURES ARE SHOWN AS APPROXIMATE

EARTHWORK

OMA #1 POND*
- 6,500 CUBIC YARDS (CUT)
- 2,500 CUBIC YARDS (FILL)
- NET = 4,000 CUBIC YARDS (CUT)

OMA #2 POND*
- 40,100 CUBIC YARDS (CUT)
- 1,200 CUBIC YARDS (FILL)
- NET = 38,900 CUBIC YARDS (CUT)

OMA #3 POND*
- 16,700 CUBIC YARDS (CUT)
- 900 CUBIC YARDS (FILL)
- NET = 15,800 CUBIC YARDS (CUT)

* EARTHWORK BASED ON EXISTING 5-FOOT CONTOURS PROVIDED BY AERIAL TOPOGRAPHY.

SEDIMENTATION PONDS NOTES

1. RUNOFF FROM ALL AREAS OF DISTURBANCE SHALL BE CONTROLLED.
2. DRAINAGE FROM PIT AREA, STOCKPILES AND SPOIL AREAS SHALL BE DIRECTED TO A SEDIMENTATION POND.
3. SEDIMENTATION PONDS SHALL BE CLEANED OUT WHEN SEDIMENT ACCUMULATION IS 60% OF DESIGN CAPACITY.

N

0 100 200

SCALE: 1"=100'

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4	SRC	11/07/06	ISSUED FOR REGULATORY REVIEW	GSM
3	SRC	4/23/06	ISSUED FOR REGULATORY REVIEW	GSM
2	SRC	10/23/07	ISSUED FOR REGULATORY REVIEW	GSM

PROJECT: EAGLE QUARRY SEDIMENTATION PONDS
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE: OMA #1, OMA #2 AND OMA #3
STORM WATER PONDS GRADING PLAN

DRAWN BY:	SRC	SCALE:	PROJ. NO. 71626.24
DESIGNED BY:	GPR	AS SHOWN	FILE NO. Grading Plan 04.dwg
APPROVED BY:	GSM	DATE PRINTED:	SHEET 6 OF 10
DATE:	OCTOBER 2007		

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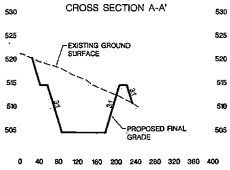
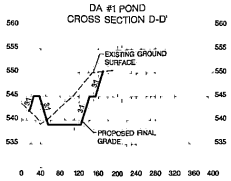
DA #5 POND
CROSS SECTION A-A'



DA #1 POND
CROSS SECTION D-D'



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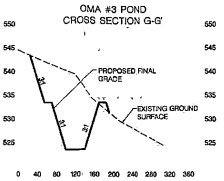

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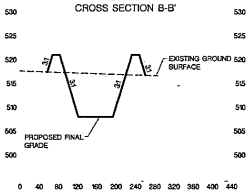

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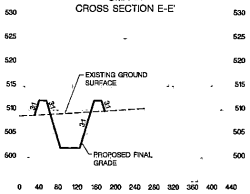

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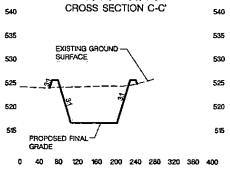

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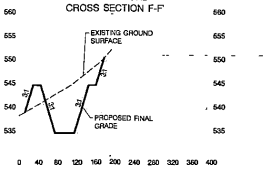

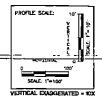

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PROJECT: EAGLE QUARRY SEDIMENTATION PONDS
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE:
CROSS SECTIONS

DRAWN BY:	SRC	SCALE:	PROJ. NO. 71626.24
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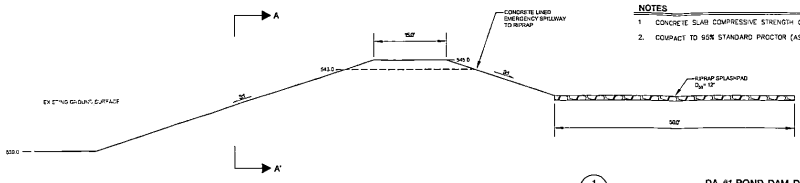
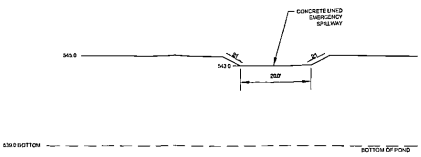


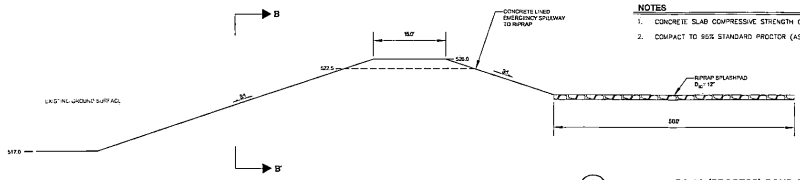
NOTES

1. CONCRETE SLAB COMPRESSIVE STRENGTH OF 4,000 P.S.I.
2. COMPACT TO 95% STANDARD PROCTOR (ASTM D698)

1/8 DA #1 POND DAM DETAIL
(NOT TO SCALE)



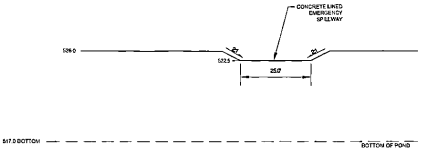
SECTION A-A'



NOTES

1. CONCRETE SLAB COMPRESSIVE STRENGTH OF 4,000 P.S.I.
2. COMPACT TO 95% STANDARD PROCTOR (ASTM D698)

2/8 DA #2 (PROCESS) POND DAM DETAIL
(NOT TO SCALE)



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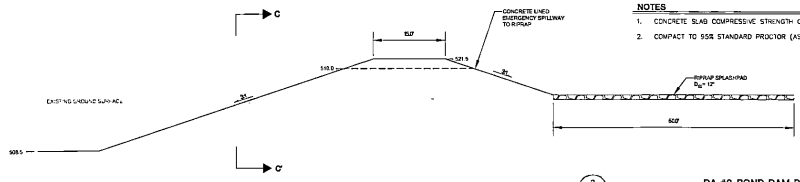
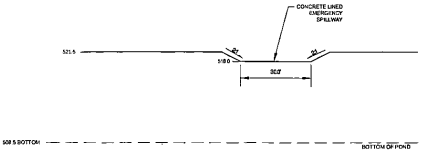


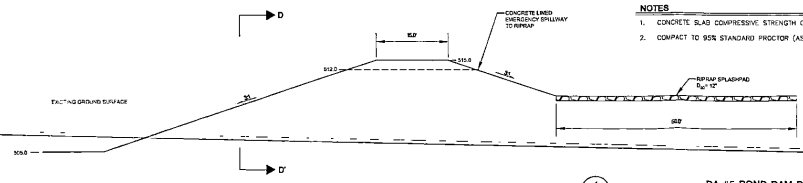
NOTES

1. CONCRETE SLAB COMPRESSIVE STRENGTH OF 4,000 P.S.I.
2. COMPACT TO 95% STANDARD PROCTOR (ASTM D698)

3/8 DA #3 POND DAM DETAIL
(NOT TO SCALE)



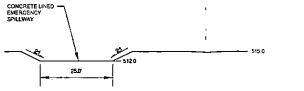
SECTION C-C'



NOTES

1. CONCRETE SLAB COMPRESSIVE STRENGTH OF 4,000 P.S.I.
2. COMPACT TO 95% STANDARD PROCTOR (ASTM D698)

4/8 DA #5 POND DAM DETAIL
(NOT TO SCALE)



SECTION D-D'

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LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE: DETAILS

DRAWN BY:	SRC	SCALE:	PROJ. NO. 71626.24
CHECKED BY:	DMR		FILE NO. 71626401.DWG
APPROVED BY:	GSM	DATE PRINTED:	SHEET 8 OF 10
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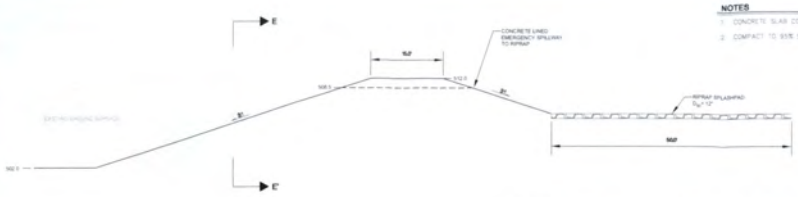

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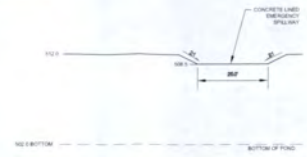
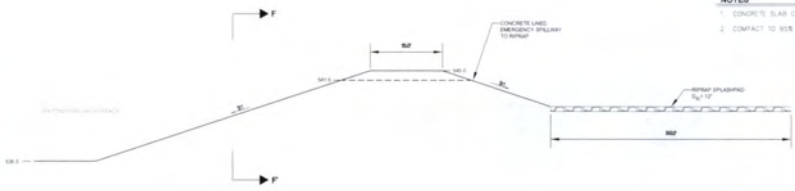
2. COMPACT TO 95% STANDARD PROCTOR (ASTM D698)



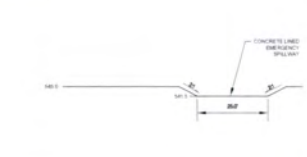
SECTION E-E'

1/9 STORM WATER POND OUTLET DETAIL (OMA #1 POND)
(NOT TO SCALE)



NOTES

1. CONCRETE SLAB COMPRESSIVE STRENGTH OF 4,000 P.S.I.
2. COMPACT TO 95% STANDARD PROCTOR (ASTM D698)



SECTION F-F'

2/9 STORM WATER POND OUTLET DETAIL (OMA #2 POND)
(NOT TO SCALE)

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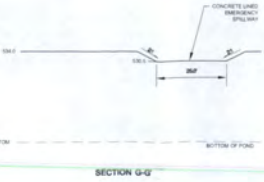
2. COMPACT TO 95% STANDARD PROCTOR (ASTM D698)



SECTION G-G'

3/9 STORM WATER POND OUTLET DETAIL (OMA #3 POND)
(NOT TO SCALE)

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PROJECT: **EAGLE QUARRY SEDIMENTATION PONDS**
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE: **DETAILS**

DRAWN BY:	SRC	SCALE:	PROJ. NO. 71626.24
CHECKED BY:	DPR		FILE NO. 71626402.DWG
APPROVED BY:	CDM	DATE PRINTED:	SHEET 9 OF 10
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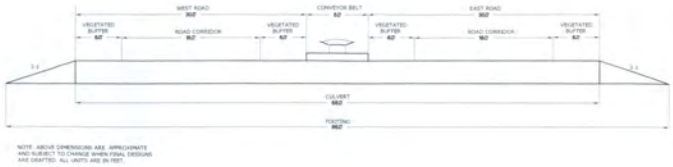
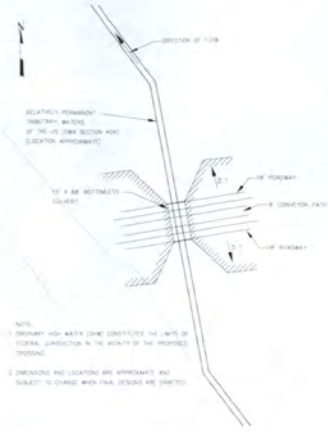


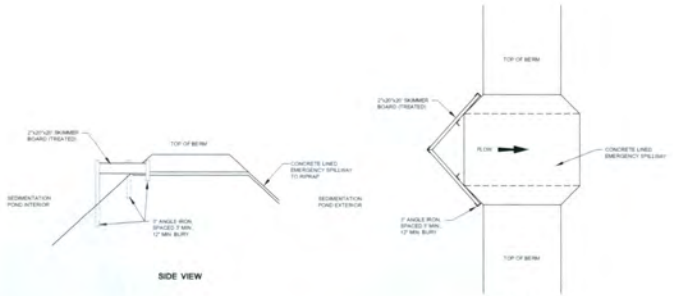
NOTE: ABOVE DIMENSIONS ARE APPROXIMATE AND SUBJECT TO CHANGE WHEN FINAL DESIGNS ARE DRAFTED. ALL UNITS ARE IN FEET.

1/10 STREAM CROSSING SECTION
(NOT TO SCALE)



NOTE:
1. ORDINARY HIGH WATER (OHW) CONSTITUTES THE LIMITS OF FEDERAL JURISDICTION IN THE VICINITY OF THE PROPOSED CROSSING.
2. DIMENSIONS AND LOCATIONS ARE APPROXIMATE AND SUBJECT TO CHANGE WHEN FINAL DESIGNS ARE DRAFTED.

2/10 PROPOSED CONVEYOR STREAM CROSSING
(NOT TO SCALE)



3/10 SKIMMER BOARD
(NOT TO SCALE)

SEEDING SPECIFICATIONS

1. Temporary erosion control blanket shall be installed on all slopes exceeding eight feet in height. Class 1.0 or 2.0 erosion control blanket shall be used.
2. Permanent seeding specifications:

SPECIES	SEEDING RATES RATE/ACRE	DATES
Bermudagrass, common	10 lb/acre	April 1 – July 1
Bermudagrass, Hybrid (Lawn Type)	Solid Sod	Anytime
Bermudagrass, Hybrid (Lawn Type)	Sprigs – 1/sq ft	March 1 – August 1
Fescue, Tall	40 – 50 lb/acre	September 1 – November 1
Sericea	40 – 60 lb/acre	March 15 – July 15
Sericea and Common Bermudagrass	40 – 60 lb/acre 10 lb/acre	March 15 – July 15

3. Seed shall be certified by the Alabama Crop Improvement Association.
3. Apply lime at a rate of 2 tons/acre. Apply 400 lb/acre of 6-24-24 on grasses alone. Apply 800 to 1,200 lb/acre of 5-10-10 on grass/legume mixtures. Apply 400 to 1,200 lb/acre of 0-10-10 on legumes alone.
4. Area shall be disked prior to seeding. Plant seed uniformly with a cyclone spreader, driller, cultipacker seeder, or by hand on a fresh, firm, friable seedbed.
5. 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-inch deep and grasses and legume seed no more than ½-inch deep.
6. Reseed as necessary to maintain vegetative cover.
11. Temporary seeding specifications:

SPECIES	SEEDING RATE/ACRE	DATE
Millet, Browntop or German	40 lb/acre	May 1 – August 1
Ryegrass	30 lb/acre	August 1 – September 15
Rye	3 bushels/acre	September 1 – November 15
Sorghum – Sudan Hybrids	40 lb/acre	May 1 – August 1
Sudangrass	40 lb/acre	May 1 – August 1
Wheat	3 bushels/acre	September 1 – November 1
Common Bermudagrass	10 lb/acre	April 1 – July 1
Crimson Clover	10 lb/acre	September 1 – November 1

- Seed shall be certified by the Alabama Crop Improvement Association.

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PROJECT: **EAGLE QUARRY SEDIMENTATION PONDS**
LHOIST NORTH AMERICA OF ALABAMA, LLC
CALERA, ALABAMA

SHEET TITLE: **DETAILS**

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Appendix B
Specifications for Sedimentation Controls

Guidelines for Sedimentation Controls

1. Pollution abatement facilities should be designed and constructed so as to control both spoil runoff and pit drainage.
2. Pit drainage and spoil runoff should be diverted through the sedimentation basin by means of diversion ditches or normal drainage patterns. In cases where it is not practical to use this system, then natural vegetation, vegetative windrows, hay berms, earthen berms, or other equally effective systems may be utilized.
3. The sediment basin should have a minimum capacity to store 0.25 acre feet/acre of disturbed area in the drainage area. The basin shall be cleaned out when the sediment accumulation approaches 60 percent of the design capacity. All trees, boulders, and other obstructions must be removed from the basin during the initial construction phase to facilitate clean-out.
4. The dam for the sediment basin should be designed and built using the following as minimum criteria:
    - The top of the dam should be no less than 12 feet wide.
    - The slope on either side of the dam should be no steeper than 3:1.
    - The dam should be constructed with a cutoff trench at least 8 feet wide (when dam heights exceed 5 feet above existing grade). The side slopes should be no less than 1:1. The cutoff trench shall be located on the dam centerline and be of sufficient depth (not less than 2 feet) to extend into a relatively impervious layer of soil or to bedrock and shall be filled with a relatively impervious material from which the core of the dam shall be constructed.
    - The entire embankment and cutoff trench shall be compacted to 95 percent density, based on standard Proctor as outlined in American Society for Testing and Materials (ASTM).
    - The material placed in the embankment should be fee of sod, roots, stones over 6 inches in diameter and other objectionable materials. The fill material should be placed and spread over the entire fill area, starting at the lowest point of the foundation, in layers not to exceed 12 inches in thickness. Construction of the fill should be undertaken only at such times that the moisture content of the fill material will permit satisfactory compaction is accordance with the specifications provided above.
    - The spill pipe should be sized to adequately carry the expected peak flow from a one-year frequency storm.
    - The spill pipes should be made of a material capable of withstanding chemical reactions caused by the quality of the water being discharged.
    - The spill pipe should be equipped with a device, or constructed, such as to ensure that subsurface withdrawal is accomplished in order to ensure that no floating solids are discharged.
    - The spill pipes should be equipped with anti-seep collars at each joint which radiate at least 2 feet from the pipe in all directions. The collars and their connections to the pipe should be watertight.

- A splash pad or riprap should be placed under the discharge of the spill pipe, or the location of the discharge set, so as to ensure that the discharge does not erode the dam.
- The emergency spillway should be designed to safely carry the expected peak flow from a 25 year, 24 hour storm or shorter duration. When designing spillways that are in the drainage course of a public water supply, then 50 years, 24 hour or shorter duration data should be used. The slope of the entrance and exit of the emergency overflow should not exceed 3 percent. The emergency overflow should be constructed with a control section at least 20 feet long. The side slopes of the emergency overflow should not be steeper than 2:1. The emergency overflow should be riprapped or concreted in order to prevent erosion.
- There should be a minimum of 1.5 feet of freeboard between the normal overflow and the emergency overflow. There should be at least 1.5 feet of freeboard between the maximum design flow elevation in the emergency overflow and the top of the dam.
- If basins are built in series, then the emergency overflow for each should be designed to accommodate the entire drainage area.
- The dam should be sowed with both perennial and annual grasses in order to ensure erosion is minimized. Hay bales or riprap should be placed at the toe of the dam immediately upon completion of construction.

5. Areas in which surface mined minerals are stockpiled, and areas in which refuse resulting from any type of mining operation is or has been deposited, should be provided with diversion ditches or other appropriate methods of interception surface water in such a way as to minimize the possibility of sediment laden, acidic or toxic waters from such areas, being deposited in streams.

Appendix C
Specifications for Haul Roads

Specifications for the Construction, Maintenance, and Reclamation of Haul Roads

1. To minimize sediment from haul roads (located outside the quarry pit):
   - No sustained grade should exceed 10 percent.
   - The maximum grade should not exceed 15 percent for 300 feet.
   - There should not be more than 300 feet of 15 percent maximum grade for each 1,000 feet of road constructed.
   - The haul road, whenever possible, should be located sot that runoff from the road enters a sediment basin constructed for the mining operation.
   - Outer slopes for haul roads out of the permitted area should not be steeper than 2:1 and should be seeded with annual and perennial grasses with at least 80 percent cover to avoid erosion. Where this is not possible, basins, hay filters or diversion ditches should be cut, built or placed to intercept runoff.
2. Stream crossings should be avoided; however, any crossings which are necessary and which meet technical staff approval should be detailed with drawings and any other pertinent data and submitted to ADEM for approval prior to construction.