TOWN OF VINCENT CLECK'S
CERTIFICATION OF PUBLICATION

I, Joy Marler, Town Clerk of the Town of Vincent, Alabama, hereby certify the attached to be true and correct copy of an ordinance adopted by the Town Council of Vincent. Ordinance No. 2010-001 was approved and adopted on the 15th day of July, 2010. The ordinance was published by posting copies thereof on August 4, 2010 at the public places listed below, which copies remained posted for five business days (through August 13, 2010).

- Vincent Town Hall, 25 Florey Street, Vincent, Alabama 35178
- Vincent Water Board, 26 Florey Street, Vincent, Alabama 35178
- Frontier National Bank, Hwy 25, Vincent, Alabama 35178
- Vincent Public Library, Hwy 25, Vincent, Alabama 35178

Joy Marler, Vincent Town Clerk

TOWN OF VINCENT, INC. INCORPORATED 1897 STATE OF ALABAMA

TOWN OF VINCENT, ALABAMA
ORDINANCE NO. 2010-001
July 15th, 2010

AN ORDINANCE (a) approving an amendment to the Comprehensive Plan of the Town of Vincent, Alabama by designating the future use of the Property described on the survey attached hereto as Exhibit A and commonly known as the "Vincent Hills Quarry" or the "White Rock Quarries Property" as "Industrial" and (b) changing the zoning district designation of such property, presently zoned "AG, Agricultural District" and "RR, Rural Residential District", to "Special District – Other Use (Industrial)" and establishing certain development, operating and environmental procedures and measures for such property for so long as such property or parts thereof shall be so zoned.

BE IT ENACTED AND ORDAINED BY THE MAYOR AND TOWN COUNCIL OF THE TOWN OF VINCENT, ALABAMA:

WHEREAS, White Rock Quarries, LLC ("Applicant") has applied to the Town of Vincent, Alabama (the "Town") to have the zoning district designation of its property described on the Survey attached hereto as Exhibit A and incorporated herein by reference (the "Property") changed from "AG, Agricultural District" and "RR, Rural Residential" to "Special District – Other Uses (Industrial)", to permit development, construction and operation of quarry and mining operations on the Property; and

WHEREAS, the Town Comprehensive Plan includes the Property within the Town property designated for future use as "Agricultural"; and

WHEREAS, the Town Planning Commission has unanimously recommended amending the Town's Comprehensive Plan and related Future Land Use map to designate the future land use of the Property as "Industrial" and changing the zoning district designation of the Property to Special District – Other Uses (Industrial); and

WHEREAS, the Mayor and Town Council have considered carefully (a) the existing future land use designations, the existing uses and zoning of properties adjacent and proximate to the Property, (b) the transportation facilities available to the Property and (c) the existence of a valuable limestone deposit underlying the Property, which if extracted will provide significant benefits to the Town and its citizens, and has determined that the proposed amendment of the Town's Comprehensive Plan designating the future use of the Property as "Industrial" is appropriate; and

WHEREAS, the Mayor and Town Council have considered carefully the Applicant's application, the proposed change of the zoning district designation of the Property, all data, materials and information presented with respect to the proposal by the Applicant and other proponents and opponents of the proposal and have determined that the proposed uses of the Property (a) present unique environmental, development, operational and design considerations, (b) are not expressly covered elsewhere in the Town's Zoning Regulations, and (c) are of such a nature to be considered generally incompatible with most other land usage; and

Posting copies thereof on **August 4, 2010**, at the public places listed below, which copies remained posted for five business days (through **August 13, 2010**).

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WHEREAS, the Town Council has determined that (a) the value and character of other properties in the Town adjacent to the Property will not be adversely impacted by the proposed zoning change; (b) the disposal of sewage using on-site septic facilities is appropriate for the Property and the proposed uses thereof; (c) the proposed uses and development of the Property are consistent with the Town's Comprehensive Plan as amended hereby; (d) the development, operating and environmental procedures and measures proposed to be utilized in connection with the proposed uses are appropriate and adequate to eliminate or effectively minimize any adverse impacts thereof and to maintain the high quality of public health and safety prevalent in the Town; (e) the proposed development and uses of the Property will provide economic, employment and other benefits and advantages to the Town and its citizens, including significant tax revenue; and (f) the public necessity, convenience, general welfare and good zoning practice warrant such amendment and Zoning district change, are in the best interest of the Town, and are consistent with the intent and purpose of the Town's Zoning Regulations to promote the public health, safety, morals and general welfare of the Town and citizens.

1. Amendment of Comprehensive Plan. The Comprehensive Plan of the Town and the Future Land Use Map portion thereof are hereby amended to include the Property within the Town lands designated for "Industrial" future use, as shown on Exhibit B hereto and incorporated herein by reference.

2. Zoning of Property. The zoning district of the Property is hereby changed from AG, Agricultural District and RR, Rural Residential District, as applicable, to Special District – Other Uses (Industrial).

3. Uses. The allowed uses of the Property are:

(a) extraction from the ground by surface or subsurface mining or other means of chert, clay, gravel, limestone, rock, sand, soil, stone aggregate or other materials or minerals for commercial purposes, including quarry, surface and subsurface mining operations, manufacturing and fabrication of plant and mobile equipment, processing of product, crushing, loading, preparation, sizing, transportation, storage, sale and distribution of such materials and minerals;

(b) development and construction of rail, road, walk, sewer or septic, water, electrical, communications and other infrastructure improvements, a quarry, crushing system, conveyor systems, water treatment system, wet suppression system, dust collection, sediment ponds, administrative office buildings, maintenance and storage buildings and other structures and improvements necessary or convenient to accommodate the uses described in paragraph 3(a);

(c) maintaining existing houses on the Property for office/conference facilities and employee housing; and

(d) maintaining existing agricultural uses on the Property until such time as the specific area of the Property is needed for the purposes described in paragraphs 3(a) and (b) above.

4. Development, Construction and Operation. The following requirements, regulations and standards shall be applicable to the development and operation of and construction on the Property with respect to the uses permitted under Sections 3(a) and (b) hereof:

(a) Development and construction on the Property or parts thereof may occur and be commenced and completed in phases. A final Land Development Site Plan for development of each phase of development of the Property (each, a "Land Development Site Plan") shall be submitted to the Town Planning Commission for review and approval in accordance with all requirements of the Town Zoning Regulations and all regulating bodies having jurisdiction and shall be consistent in all material respects with the Master Plan attached hereto as Exhibit C (the "Master Plan"). Without limitation to the foregoing, separate Land Development Site Plans shall be submitted for the mining operation facilities and the water recirculation facility.

(b) Parking, loading, yard and dimensional requirements set out in the Master Plan and in each applicable phase Land Development Site Plan shall be applicable to construction on and development of the Property. Without limitation to other requirements set out in any such plan: (i) the maximum permissible height of inhabitable structures (as defined in Article 3.2 of the Zoning Regulations for the Town of Vincent on the effective date hereof) on the Property shall be 100 feet measured from the surface of the ground surrounding the quarry pit; (ii) the maximum permissible height of habitable structures on the property shall be 45 feet measured from the surface of the ground surrounding the quarry pit and (iii) a twenty-five foot (25') setback shall be maintained from all boundaries of the Property.

(c) Development of the Property shall be substantially as set forth in the Master Plan and shall be developed in accordance with each applicable phase Land Development Site Plan. The areas in which buildings may be constructed, areas which will be developed for parking and the proportionate amount of parking relative to the overall site, the location of roads, driveways and walks, points of ingress and egress, the location and height of walls, the areas for loading activities, the location and size of the initial quarry pit and future pit expansion, the location of berms, the location of the overburden storage area, the location of the water treatment area, the character and number of signs, the location and character of exterior lighting, and the character and extent of landscaping and planting shall be as set out in each phase Land Development Site Plan.

(d) Notwithstanding anything to the contrary contained or implied in the Town Zoning Regulations, the period during which development of and construction upon the Property may be commenced shall be the latest of the following: (1) 5 years from the effective date of this Ordinance, (2) 2 years from the date the Property owner receives all necessary permits and approvals and the time period for appealing those permits and approvals has passed, or (3) 2 years after all litigation concerning the

pre-existing zoning designation except upon application of the owner of the Property.

(e) No hazardous materials as defined by the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. §§ 9610 et seq. as amended) shall be stored or produced at the Property other than petroleum and oil products. If hazardous wastes migrate onto the Property from offsite sources, the Property owner shall comply with all applicable state and federal water regulations for the discharges of such water.

(f) A fire hydrant shall be installed between the scale house and employee parking area indicated on the Master Plan during the development phase.

(g) The Property owner shall comply with all applicable building and construction codes and all applicable local, state and federal rules, regulations and laws regarding the development, construction and operation of any use undertaking on the property.

(h) The Property owner shall use Best Management Practices based on current technology, methods and procedures with regard to all environmental, regulatory and compliance regulations, rules and law.

(i) The Property owner shall comply with all applicable environmental rules, regulations, and laws as they now exist or as they may be hereafter amended, promulgated, replaced or supplemented and shall acquire and maintain all applicable permits for any use undertaken on the Property.

(j) The Property owner shall develop, operate and maintain the Property in full compliance with all applicable federal, state and local rules, regulations, and laws as they now exist or as they may be hereafter amended, promulgated, replaced or supplemented.

(k) The Property owner shall maintain and submit all applicable compliance and regulatory reports and any other report required by law.

(l) The Property owner shall comply with the following general development and operating requirements applicable to the Property:

(i) Berms shall be constructed around the Property and landscaped buffers shall be established between the Property and adjacent property pursuant to the Master Plan.

(ii) Berms around the Property shall be maintained as required by the Town of Vincent and Shelby County.

(iii) After the development phase is completed, the primary crusher for the quarry shall be situated approximately eighty (80) to ninety (90) feet below the level of the ground surrounding the quarry pit to minimize noise.

(90) feet below the level of the ground surrounding the quarry pit to minimize noise.

(iv) Strobe lights or other inaudible safety mechanisms shall be used at night on mobile equipment in lieu of an audible warning system to the extent allowed by the Mining Health and Safety Administration (MHSA) and applicable regulations.

(v) High pressure low sodium directional light fixtures shall be used for exterior plant lighting on the Property.

(vi) After the development phase, facility tours shall be conducted for groups of neighbors, public officials, students and teachers, including observation of a blast and various phases of the mining operation, at such reasonable times and frequency when such tours can be mutually scheduled and after completion of safety training and signing of waiver for damages.

(vii) After the development phase is completed, all rail load-out activities shall occur in one or more enclosed buildings with operational controls to limit rail noise and primarily while trains are in motion. After the development phase, all trucks shall be loaded within a bermed area.

(viii) All development and operations shall be conducted in accordance with all applicable federal, state, county and town statutes, laws, regulations, ordinances and rules.

(ix) A reclamation bond in a reasonable amount and appropriate for similar mining activities shall be provided for the Property by the Property owner and any future owners of the Property using the property pursuant to this ordinance.

(x) Trucks leaving the Property shall comply with all applicable state and federal weight limits.

(xi) Operators of commercial trucks hauling product from the Property shall be informed that the single lane tunnel on Shelby County Road 62 shall not be used by such trucks.

(xii) The existing railroad crossings along routes to be taken by the commercial trucks coming to or leaving the Property shall be evaluated to determine if upgrading is necessary under applicable local or state law, and if so, such crossings shall be so upgraded.

(xiii) All laws applicable to construction of the new railroad spur planned to cross Shelby County Road 62 shall be complied with.

(m) The Property owner shall comply with the following measures relative to blasting at the Property:

(i) On-line notification shall be provided of days and time frames of production blasting schedules and personal notification of the same shall be provided to certain neighbors, upon request. Blasts shall not occur between 5:00 P.M. and 9:00 A.M., Central Time, or at any time on Sundays or on any of the following Federal Holidays: New Years Day, Martin Luther King, Jr. Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, and Christmas Day. Production blasting schedules shall be altered as necessary to take into account strong wind conditions. Provided that access is granted to the Property owner in writing, Seismographs and/or strain gauges shall be installed at certain offsite locations on which structures are situated nearest to the Property so that a third party geotechnical engineering firm can measure production blasting events.

(ii) Electronic detonators, computer-controlled sequential blasting machines, drill logs, and laser profilers shall be used for production blasts.

(iii) A third party geotechnical engineering firm shall be retained to document and maintain the records of each production blast and a copy of results shall be maintained at the Property.

(iv) All blasts shall comply with all applicable local, state and federal laws.

(v) Blasting techniques utilized shall include placing blast materials in the rock rather than in the soil.

(vi) Any mobile equipment and all combustible materials other than blast agents shall be removed from the area within 200 feet of the blast source during scheduled production blasts.

(vii) A pre-production blast survey shall be performed of all accessible structures within 1.5 miles of the quarry pit. In addition, upon request of the owner of property further than 1.5 miles from the quarry pit but within a 2 mile radius of the center of the Property, a pre-production blast survey of such owner's property shall be performed, as illustrated on the Baseline Survey Areas Map attached as Exhibit D hereto and incorporated herein by reference (the "Baseline Survey Areas Map"). A production blast monitoring program shall be established as described below (the "Production Blast Monitoring Plan"), monitoring data from production blasting and complaints of production blasting damage to structures on

property with the Baseline Survey Area outlined on the Baseline Survey Areas Map.

(viii) The Property owner shall maintain a Blast Damage Hotline for complaints by owners of structures within the area of the Baseline Survey Areas Map regarding production blast damage to such a structure.

(ix) The Property Owner shall provide a response to all complaints received from the owner of a structure regarding possible blasting damage within the Baseline Survey Area pursuant to the following:

(A) Once information is received on the Blast Damage Hotline regarding alleged structural damage from blasting, the Property owner shall record and produce a written report of the complaint. A representative of Property owner shall attempt to contact the structure owner within 72 hours of receipt of the Hotline Report. An independent geotechnical consultant and an independent licensed general contractor shall be retained by the Property owner and such consultant, contractor and a representative of Property owner shall review the report within 7 days of receipt of the Hotline Report.

(B) Within 14 days of receipt of the Hotline Report, the consultant, the contractor and the representative of Property owner shall investigate the complaint and inspect the structure to determine whether there is structural damage that has been caused by production blasting on the Property. Without limitation, such determination shall include reviewing baseline data obtained prior to production blasting, data regarding each production blast since the date of the last production blast survey of the structure to the extent applicable, and information obtained during the inspection of the structure after the complaint.

(C) If the Property owner's production blasting caused the damage in question, the Property owner shall be responsible for repairing the structural damage.

(n) The Property owner shall comply with the following measures relative to limiting dust leaving the Property:

(i) All conveyors and product transfer points shall be covered.

(ii) Wet suppression and dust collection systems shall be used at all conveyors, transfer points, crushers, and screen towers.

(iii) The wheels and undercarriages of all commercial trucks shall be rinsed prior to such trucks' leaving the Property.

(iv) The entrance/exit road to the Property shall be paved and automated sprinkler systems shall be used.

(v) Dust shall be collected from dust suppression equipment associated with materials handling and loading and shall be used as recovered product or stored properly on the Property.

(vi) Mobile water-trucks shall be used during the initial development and operational phases as necessary to control dust.

(vii) The owner of the Property shall assure that all commercial trucks utilize tarps as they exit the Property with product.

(viii) All state and federal air permits necessary for operation of the Property shall be obtained and complied with.

(ix) After the development phase, product leaving the Property by train shall be loaded in an enclosed building using a wet dust suppression system.

(o) The Property owner shall comply with the following measures relative to employment at the Property:

(i) An employment policy shall be adopted and adhered to, which shall state as follows: "Our Company is firmly committed to complying with all state and federal laws regarding equal employment opportunity. As part of our ongoing business practices in the Town of Vincent, we will use good faith efforts to ensure that our workplace remains free of unlawful discrimination and to ensure that our workforce is diverse and representative of the local availability of qualified employees."

(ii) A comprehensive program to train new employees for employment at the Property shall be developed and implemented.

(p) The Property owner shall comply with the following measures relative to water resources protection:

(i) A pre-development inventory of water-supply wells shall be conducted of all properties within 1.5 miles of the quarry pit as shown on the Baseline Survey Areas Map, provided that access is granted to Property owner in writing. In addition, upon request of the owner of property further than 1.5 miles from the quarry pit but within a 2 mile radius of the center of the Property, the owner of the Property will conduct a pre-development inventory of water wells on such property. A copy of such pre-development water-supply well inventory shall be provided to the Vincent Water Board. After such inventory is completed, the Property owner shall determine 'sensitive areas' based on groundwater use and anticipated groundwater impact areas and shall determine the

depth to groundwater in existing wells surrounding the Property. A well monitoring program shall be established as described in the Groundwater Monitoring Plan attached hereto as Exhibit E and incorporated herein by reference (the "Groundwater Monitoring Plan"), monitoring both existing domestic/abandoned water supply wells and additional wells drilled by the Property owner outside of the Property provided that access is granted to Property owner pursuant to a written agreement.

(ii) All complaints received from a resident regarding such resident's water well shall be provided a response pursuant to the Groundwater Monitoring Plan specifically:

(A) Step 1: In the event of a resident's complaint about their water well, a rapid in-house screening of the well and complaint shall be conducted to determine whether there actually is any damage or problems with the water level or quality. Baseline data obtained prior to mining will be used for this determination.

(B) Step 2: If there proves to be a problem, an independent, technically qualified firm, recognized as having expertise and experience and approved by the Town, shall investigate the well to determine if the problem(s) were caused by the quarry operations. If this screening determines that the quarry operation caused the problem, action shall be taken pursuant to Step 3.

(C) Step 3: Should the problem(s) be deemed to be the result of the quarry operations:

I. Within 24 hours, a temporary drinking water source shall be provided for any impacted residential household by supplying bottled water.

II. Within 24 hours, drinking water shall be provided for livestock if the impact affects an agricultural site.

III. Within 72 hours, intermediate water supplies shall be provided to an impacted residential site, which may be in the form of a temporary tank plumbed into a residential household site utilizing water supplied from the Vincent Water Board.

IV. Within 72 hours, an intermediate, alternative livestock drinking supply shall be provided to an impacted agricultural site, which may be accomplished using a water tank to supply livestock with water supplied by the Vincent Water Board or other acceptable surface water sources.

V. A long-term solution shall be implemented to provide permanent, alternative water supplies for both domestic household water supply to residential sites and to livestock for agricultural sites by establishing either groundwater or public water supplies to an impacted site.

VI. The Property owner shall endeavor through the foregoing plan to minimize any impact of its operations upon groundwater resources and provide the best solution available in the event of a negative impact of such operations on groundwater resources.

(iii) If the Town's water supply is impacted by activities at the Property, the owner of the Property shall work with the Town and the Vincent Water Board to remedy the situation either by location and drilling of a municipal water well, providing water from the quarry or by identifying alternative water sources or other measures agreed to by such owner, the Town, and the Vincent Water Board.

(iv) Baseline data shall be gathered from streams, springs and monitoring wells outside of the Property, from rainfall, streams and monitoring wells within the Property and from monitoring at Spring Creek. A pre-development hydrogeological evaluation and report shall be performed on Spring Creek. A stream monitoring gage shall be located along Spring Creek between the Property and the Town water supply to monitor its water levels. All water monitoring information shall be shared with the Vincent Water Board, the Town, and their consultants in a timely manner and access for independent monitoring shall be made available at any reasonable time to Vincent Water Board and Town representatives when accompanied by a Property owner representative. Vincent Water Board and Town representatives shall be given access to offsite monitoring sites, such as wells and gauging stations with in-site data collection devices or remote access monitoring devices, that are accessible only by the Property owner's representatives or third party experts, with proper supervision, insurance and MSHA training at reasonable times and accompanied by a Property owner representative.

(v) Water quality monitoring shall be included in Property owner's monitoring and reporting, using such parameters as the Property owner shall determine based on the pre-development water well inventory, including without limitation, monitoring in compliance with its stormwater and discharge permits.

(q) The Property owner shall comply with the following measures relative to subsidence monitoring at the Property:

(i) After the development phase, a geophone shall be installed and monitored at the Town's water tank on Shelby County Highway 85, provided that the Town's Water Board grants written permission to the Property owner for such installation and monitoring.

(ii) A pre-development subsidence inventory of property shall be conducted of all accessible properties within 1.5 miles of the quarry pit as shown on the Baseline Survey Areas Map. In addition, upon request of the owner of property further than 1.5 miles from the quarry pit but within a 2 mile radius of the center of the Property, a pre-development subsidence survey of such owner's property shall be performed, as described in the Subsidence Monitoring and Mitigation Plan attached hereto as Exhibit F and incorporated herein by reference (the "Subsidence Monitoring Plan") and as shown on the Baseline Survey Areas Map. Such subsidence inventory shall include commercial and industrial properties and railroads, and shall include visual observation along roadways, rail lines, industrial sites and private property to which Property owner has been granted access in writing.

(iii) The owner of the Property shall respond to all complaints of subsidence pursuant to the Subsidence Monitoring Plan.

(iv) A subsidence monitoring and notification plan shall be established for the rail lines adjacent to the Property.

(v) Information regarding existing subsidence features on the Property gathered by the Property owner based on mapping and site work performed through the date hereof shall be made available for review by the Vincent Water Board and its consultants upon request. Additional existing subsidence features identified during the pre-operation subsidence surveys conducted in accordance with paragraph 4(l)(ii) shall also be provided to the Vincent Water Board upon request.

(vi) After the development phase, a dedicated telephone line shall be established to receive from the community any complaints, any notices of concern, reports of subsidence incidents and requests of the owner of the Property for an examination of an area of concern. The contact information for such line shall be posted on a site-specific website for the Property. Such site-specific website shall be a database that can be accessed by Town officials and shall have as part of its purpose early warning and communication of a possible subsidence hazard. Immediate notification to the Shelby County Sheriff's Department, the Town, the Vincent Water Board and adjacent railroads shall be provided in the event that

subsidence or structure failure is observed by the Property owner on or near public roads or railroads.

(r) The Property owner shall comply with the following measures relative to protection of wetlands, springs and water courses:

(i) A buffer shall be established between the Property boundary and jurisdictional wetlands on the Property as follows:

A 50 foot buffer around each of the 2 jurisdictional wetlands in the southern portion of the Property as indicated in the Master Plan and a 25 foot setback around the jurisdictional wetland in the northwest corner of the Property in the form of a berm between the jurisdictional wetland and the operating facility on the Property.

(ii) Open bottom culverts shall be used to cross any jurisdictional stream with mining activities, as will be more fully described in the Land Development Site Plan submitted for each phase of development.

(iii) Best Management Practices existing on the date hereof shall be used to the extent reasonable around all jurisdictional wetlands.

(s) The Property owner shall comply with the following measures relative to prevention of water treatment pond sediment or petroleum products leaving the Property:

(i) A lower bench shall be excavated in the quarry pit and a sump shall be installed to collect and pump groundwater that enters the quarry and to store water that flows into the quarry during rain events at rates that exceed the pump capacity.

(ii) Above-ground storage tanks ("ASTs") shall be utilized to contain any fuels and other products typically used for operating equipment in accordance with a site specific SPCC Plan (spill prevention) that shall be prepared in accordance with 40 CFR 112.7 and an ADEM-issued NPDES permit.

(iii) Fuels and petroleum products shall be located at a higher elevation than the highest elevation within the quarry pit. Fuels and other petroleum products stored in containers exceeding 55 gallons shall be stored either in double-walled ASTs or within secondary containment structures large enough to contain 110% of the contents of the largest container in the secondary containment.

above ground storage tanks

(iv) A series of cascading water treatment ponds shall be installed on the Property, consisting of smaller initial sediment ponds for primary treatment, followed by larger synthetically lined ponds for secondary treatment and storage.

(v) Sediment removed from treatment ponds shall be dried in drying beds located in close proximity to the ponds, and upon drying, shall be moved to the overburden storage area or used for onsite construction and will not be stored near streams or rivers.

(vi) Routine monitoring and sampling shall be conducted of discharges from treatment ponds in accordance with all applicable permits and regulations.

(vii) A copy of the Property owner's Discharge Monitoring Reports that are submitted to the Alabama Department of Environmental Management (ADEM) shall be provided to the Town on a quarterly basis.

5. Duration, Applicability and Binding Effect. This Ordinance, including without limitation, the requirements, regulations and standards of Section 4 hereof, shall be effective and applicable to the Property only during such time as the Property shall be zoned Special District – Other Use (Industrial) in accordance herewith. This Ordinance shall be binding upon the Town and any party that may from time to time own the Property at the time any action regulated hereby is taken or failed to be taken in accordance with this Ordinance.

6. Severability. If any requirement, standard, regulation or other provision of Section 4 hereof shall, to any extent, be invalid or unenforceable, the remainder of this Ordinance shall not be affected thereby and shall be valid and remain in full effect.

Council Member Larry King moved that Ordinance No 2010-001 be adopted, which motion was seconded by Council Member Johnny Edwards and upon vote, the results were as follows:

AYES: 5 (five)

NAYS: 1 (one)

Adopted this 15th day of July, 2010.

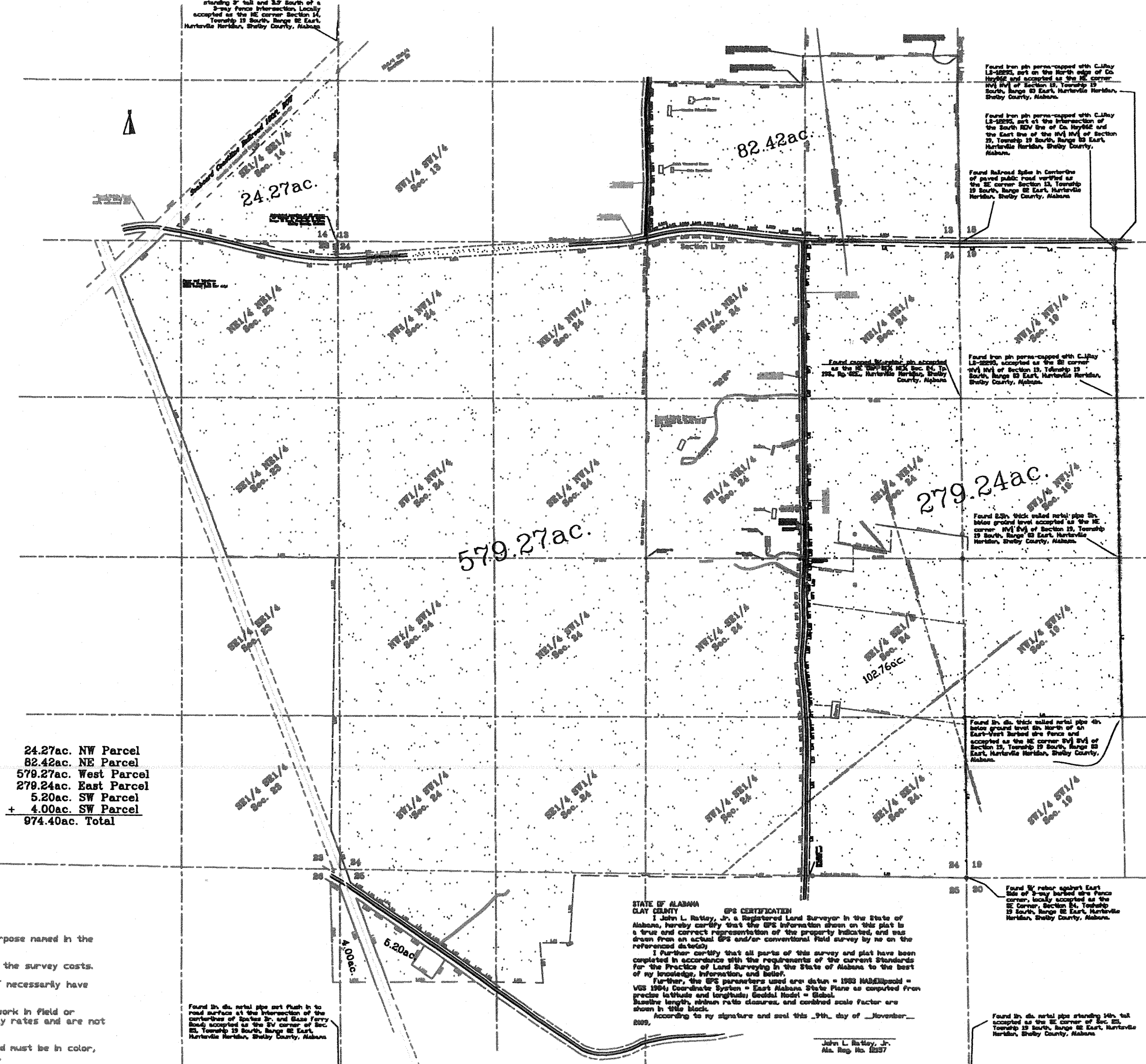
_____, Clerk
Town of Vincent, AL

_____, Mayor
Town of Vincent, AL

Survey of the Property

L49	S 00°00'01" E	411.60 ft
L50	S 00°21'32" E	482.57 ft
L51	S 00°04'11" W	413.62 ft
L52	S 00°14'05" W	324.23 ft
L53	S 00°05'03" W	352.11 ft
L54	S 00°35'29" W	174.35 ft
L55	S 03°21'08" E	134.32 ft
L56	S 00°50'43" E	140.30 ft
L57	S 01°00'24" W	208.74 ft
L58	S 02°37'33" W	130.20 ft
L59	S 03°20'20" W	135.35 ft
L60	S 00°20'32" E	73.62 ft
L61	S 00°52'11" E	83.68 ft
L62	S 00°52'13" E	101.98 ft
L63	S 00°12'00" W	66.77 ft
L64	S 06°05'08" W	83.69 ft
L65	S 05°57'29" W	158.57 ft
L66	S 03°25'49" E	119.81 ft
L67	S 05°52'43" E	134.17 ft
L68	S 06°55'49" E	69.63 ft
L69	S 02°17'25" E	71.82 ft
L70	S 03°22'51" E	163.31 ft
L71	S 01°36'41" E	55.38 ft
L72	S 00°51'14" E	80.22 ft
L73	S 00°18'23" W	90.79 ft
L74	S 01°04'38" W	421.67 ft
L75	S 01°01'17" W	589.18 ft
L76	S 02°08'05" W	8.17 ft
L77	S 88°50'40" W	696.03 ft
L78	N 89°07'05" W	1211.67 ft
L79	S 04°08'41" W	555.72 ft
L80	S 68°53'55" W	15.39 ft
L81	S 89°41'08" W	232.30 ft
L82	S 03°57'49" E	334.47 ft
L83	N 89°00'08" W	423.02 ft
L84	N 54°47'48" W	98.90 ft
L85	N 54°38'26" W	127.28 ft
L86	N 54°13'58" W	103.41 ft
L87	N 54°47'00" W	127.87 ft
L88	N 55°34'42" W	118.43 ft
L89	N 54°50'34" W	40.34 ft
L90	N 55°45'47" W	116.38 ft
L91	N 55°56'31" W	74.16 ft
L92	N 56°17'38" W	202.34 ft
L93	N 56°20'52" W	75.91 ft
L94	N 56°21'51" W	50.02 ft
L95	N 56°10'39" W	73.73 ft
L96	N 56°02'17" W	96.33 ft
L97	N 56°27'42" W	155.04 ft
L98	N 20°46'15" W	463.41 ft
L99	N 00°53'58" E	1831.40 ft
L100	N 00°53'53" E	450.17 ft
L101	N 89°25'38" W	907.10 ft
L102	N 20°47'38" W	2509.45 ft
L103	N 46°04'22" E	508.39 ft
L104	S 77°25'58" E	389.62 ft
L105	N 85°44'23" E	206.63 ft
L106	N 86°36'58" E	1607.92 ft
L107	N 86°19'52" E	551.30 ft
L108	N 76°55'46" E	44.14 ft
L109	N 77°11'07" E	65.28 ft
L110	N 78°06'10" E	63.64 ft
L111	N 81°14'05" E	102.29 ft
L112	N 85°38'57" E	101.10 ft
L113	N 89°17'54" E	77.79 ft
L114	S 85°49'58" E	112.22 ft
L115	S 83°34'52" E	95.39 ft
L116	S 83°32'45" E	121.41 ft
L117	S 83°37'56" E	192.75 ft
L118	S 83°48'22" E	107.29 ft
L119	S 84°54'31" E	198.00 ft
L165	S 00°21'12" W	107.33 ft
L166	N 78°07'35" W	399.90 ft
L167	N 46°05'23" E	1876.51 ft
L168	S 00°30'05" W	1429.74 ft

NUMBER	DEGREE OF CURVE - ARC	DEGREE OF CURVE - CHORD	CHORD DIRECTION	RADIUS	ARC LENGTH	CHORD LENGTH
C1	00°59'57"	00°59'57"	S 78°16'33" E	5734.71	634.98	634.66
C2	03°00'14"	03°00'15"	S 84°34'44" E	1907.46	443.98	442.98
C3	02°39'41"	02°39'42"	N 81°33'40" E	2152.80	292.91	292.68
C4	03°05'43"	03°05'45"	N 85°03'37" W	1851.01	414.56	413.69
C5	00°45'10"	00°45'10"	N 77°35'36" W	7610.48	548.13	548.01



NUMBER	DIRECTION	DISTANCE
L1	S 86°53'18" E	34.03 ft
L2	S 89°00'49" E	1284.05 ft
L3	N 90°00'00" E	209.71 ft
L4	S 89°07'22" E	1112.15 ft
L5	S 00°05'15" E	1275.54 ft
L6	S 00°08'37" E	1323.43 ft
L7	S 00°07'08" E	1326.04 ft
L8	N 89°46'20" W	1320.95 ft
L9	S 00°06'42" E	1325.73 ft
L10	N 89°16'31" W	1334.98 ft
L11	N 01°01'13" E	594.09 ft
L12	N 01°03'05" E	298.27 ft
L13	N 01°08'27" E	123.73 ft
L14	N 00°18'22" E	91.85 ft
L15	N 00°51'14" W	81.22 ft
L16	N 01°36'42" W	56.70 ft
L17	N 03°22'51" W	163.67 ft
L18	N 02°17'25" W	73.68 ft
L19	N 06°55'47" W	71.52 ft
L20	N 06°32'29" W	80.76 ft
L21	N 04°50'28" W	51.59 ft
L22	N 03°25'50" W	113.60 ft
L23	N 05°57'29" E	153.12 ft
L24	N 06°07'23" E	86.62 ft
L25	N 00°11'56" E	70.97 ft
L26	N 00°52'11" W	123.42 ft
L27	S 00°52'11" E	123.42 ft
L28	N 00°52'11" W	123.42 ft
L29	N 00°52'08" W	62.62 ft
L30	N 00°30'42" W	71.42 ft
L31	N 00°00'00" E	54.70 ft
L32	N 07°22'38" E	45.23 ft
L33	N 00°00'00" E	33.72 ft
L34	N 03°49'54" E	144.30 ft
L35	N 01°17'37" E	89.11 ft
L36	N 00°02'01" W	71.44 ft
L37	N 00°46'58" W	181.14 ft
L38	N 00°00'00" E	179.94 ft
L39	N 01°28'20" W	204.34 ft
L40	N 00°46'58" W	23.00 ft
L41	N 00°10'01" E	530.18 ft
L42	N 00°40'12" E	173.27 ft
L43	N 00°07'07" W	220.43 ft
L44	N 00°25'59" W	342.25 ft
L45	N 00°16'40" W	204.70 ft
L46	N 00°14'48" W	156.93 ft
L47	N 00°15'21" E	124.63 ft
L48	N 00°08'35" E	125.63 ft
L120	N 54°20'21" W	313.45 ft
L121	S 34°19'09" W	194.90 ft
L122	N 55°41'27" W	209.91 ft
L123	N 34°18'29" E	195.04 ft
L124	N 54°53'54" W	164.38 ft
L125	N 56°17'38" W	202.01 ft
L126	N 56°17'21" W	199.62 ft
L127	N 56°03'57" W	139.90 ft
L128	S 20°46'07" E	749.47 ft
L129	N 89°41'17" E	746.92 ft
L130	N 89°31'20" E	357.39 ft
L131	N 20°50'19" W	848.26 ft
L132	N 59°53'48" W	89.74 ft
L133	S 01°29'58" E	841.04 ft
L134	N 89°00'49" W	1284.05 ft
L135	N 86°45'33" W	62.58 ft
L136	N 85°15'56" W	101.26 ft
L137	N 84°41'25" W	121.88 ft
L138	N 83°48'22" W	106.55 ft
L139	N 83°37'56" W	192.57 ft
L140	N 83°32'45" W	121.40 ft
L141	N 83°34'52" W	96.96 ft
L142	N 85°23'53" W	106.14 ft
L143	S 89°22'49" W	94.83 ft
L144	S 85°38'57" W	106.73 ft
L145	S 81°14'05" W	107.56 ft
L146	S 78°06'10" W	66.47 ft
L147	S 77°08'50" W	77.65 ft
L148	N 01°28'34" E	81.52 ft
L149	N 02°41'15" E	173.70 ft
L150	N 02°25'00" E	174.37 ft
L151	N 01°20'41" W	21.68 ft
L152	N 01°56'41" W	181.27 ft
L153	N 01°03'26" W	147.87 ft
L154	N 01°26'44" W	144.46 ft
L155	N 01°26'44" W	90.75 ft
L156	N 01°29'18" E	73.04 ft
L157	N 04°51'33" E	169.65 ft
L158	S 88°03'11" E	372.70 ft
L159	S 89°00'59" E	267.28 ft
L160	S 89°00'59" E	633.95 ft
L161	N 01°08'09" E	243.52 ft
L162	N 89°54'35" E	1323.45 ft
L163	S 00°37'03" E	898.78 ft
L164	S 00°37'42" E	630.48 ft

24.27ac. NW Parcel
82.42ac. NE Parcel
579.27ac. West Parcel
279.24ac. East Parcel
5.20ac. SW Parcel
\+ 4.00ac. SW Parcel
974.40ac. Total

STATE OF ALABAMA
CLAY COUNTY
GPS CERTIFICATION

I John L. Ratley, Jr. a Registered Land Surveyor in the State of Alabama, hereby certify that the GPS information shown on this plat is a true and correct representation of the property indicated, and was drawn from an actual GPS and/or conventional field survey by me on the referenced date(s).

I further certify that all parts of this survey and plat have been completed in accordance with the requirements of the current Standards for the Practice of Land Surveying in the State of Alabama to the best of my knowledge, information, and belief.

Further, the GPS parameters used are datum = 1983 NAD;Ellipsoid = WGS 1984; Coordinate System = East Alabama State Plane as computed from precise latitude and longitude; Geoidal Model = Global. Baseline length, minimum ratio closures, and combined scale factor are shown in title block.

According to my signature and seal this _9th_ day of __November__ 2009.

John L. Ratley, Jr.
Ala. Reg. No. 12157

WARRANTY AND DISCLAIMERS

This Plat is warranted only to the original purchaser.

The warranty on this survey plat is limited to the purpose named in the title block.

Liability is accepted only for the monetary amount of the survey costs.

Plats stating GPS corner and/or point location DO NOT necessarily have lines between corners/points marked.

All surveys are done on a time basis only, additional work in field or office AND COURT TESTIMONY are done at the same daily rates and are not included in the cost of the initial survey.

Only Original surveys are warranted to be correct and must be in color, and must show original clear seal marks and signature.

Legend

Found Iron Pin — Set Iron Pin — Set Lightard Knot — Found Lightard Knot — Found Stone Corner — Set Stone Corner — Found Concrete Monument — Utility Pole — Utility Pole Anchor — Transmission Tower — Telephone Jct. Box — Gas Meter — Gas Valve — Water Meter — Water Valve — Well or Pump — Fire Hydrant — Sanitary Sewer Manhle. — Storm Sewer Inlet — Storm Drain Manhle. — Drop Inlet — GPS Control Monument — GPS Control Point — Azimuth Point — Percolation Test — Soil Boring Test — Electrical Lines — Fence Line — Property Line — Sewer Line — Telephone Line

BEARINGS BASED ON TRUE NORTH AS DETERMINED BY DUAL SOLUTION STATIC & RTK GPS

DRAWN BY: Patrick S. Ratley
Plat Date: 16 October 09
Field Work Dates: 2007-2009
Office Work: Autocad/Eaglepoint w/Epson plotter

Plat & Field Work By:
John L. Ratley, Jr. - RLS. # 12157
P.O. Box 727 - Ashland AL 36251
Phone: (256)354-2009 19 Cheyenne St.
Fax : (256)354-2009 Ashland, AL 36251

Original Client: Bio Fuels Holdings LLC.

Purpose and Type of Survey: Surveyed and Estimated Acreage with Locations
Source of Information & Reference: All prior plats for BioEnergy

Method of Survey: Conventional And Dual Solution GPS
File Name: BioEnergyBoundaryPDF.dwg
File Location: PSR 80
Scale: 1" = 747' (on 17"x22" paper)
Unadjusted Error of Linear Closure: 149,846
Unadjusted Error of Angular Closure: 00°00'02"

Conventional surveys are conducted with a properly adjusted electronic recording total station. GPS surveys are conducted with survey-grade Leica instruments. Field procedures are designed to meet or exceed the minimum required accuracies with recommended redundancy to prove correctness and precision.

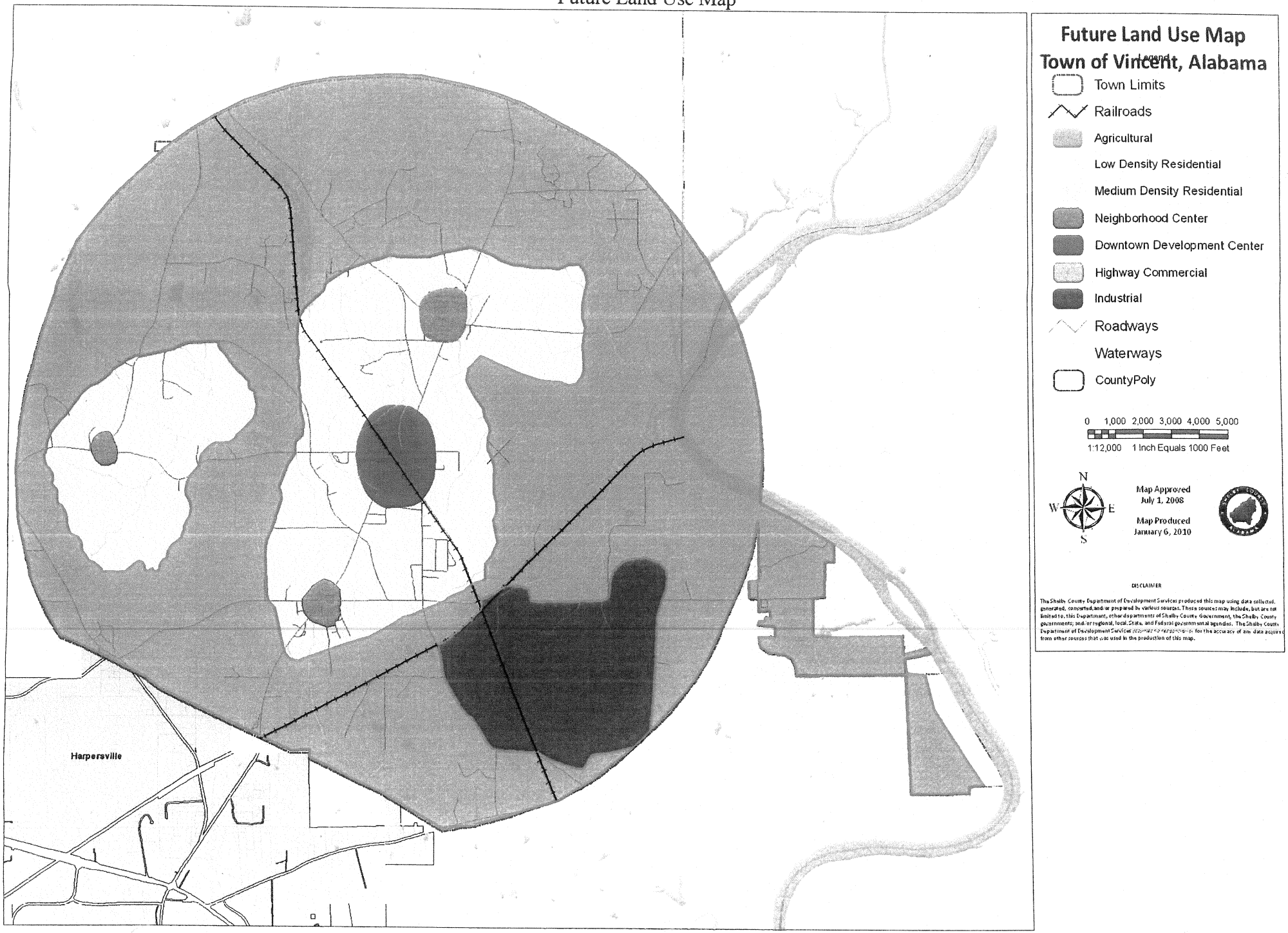
Set Iron Pins are 1/2 inch Rebar X 18 inches bearing the name John L. Ratley, Jr., RLS 12157

SHT. NO. 1

EXHIBIT B
Future Land Use Map

Current Future Land Use Map

Proposed Revision to the
Future Land Use Map



Future Land Use Map
Town of Vincent, Alabama

Legend

- Town Limits
- Railroads
- Agricultural
- Low Density Residential
- Medium Density Residential
- Neighborhood Center
- Downtown Development Center
- Highway Commercial
- Industrial
- Roadways
- Waterways
- CountyPoly

0 1,000 2,000 3,000 4,000 5,000

1:12,000 1 Inch Equals 1000 Feet

N W E S

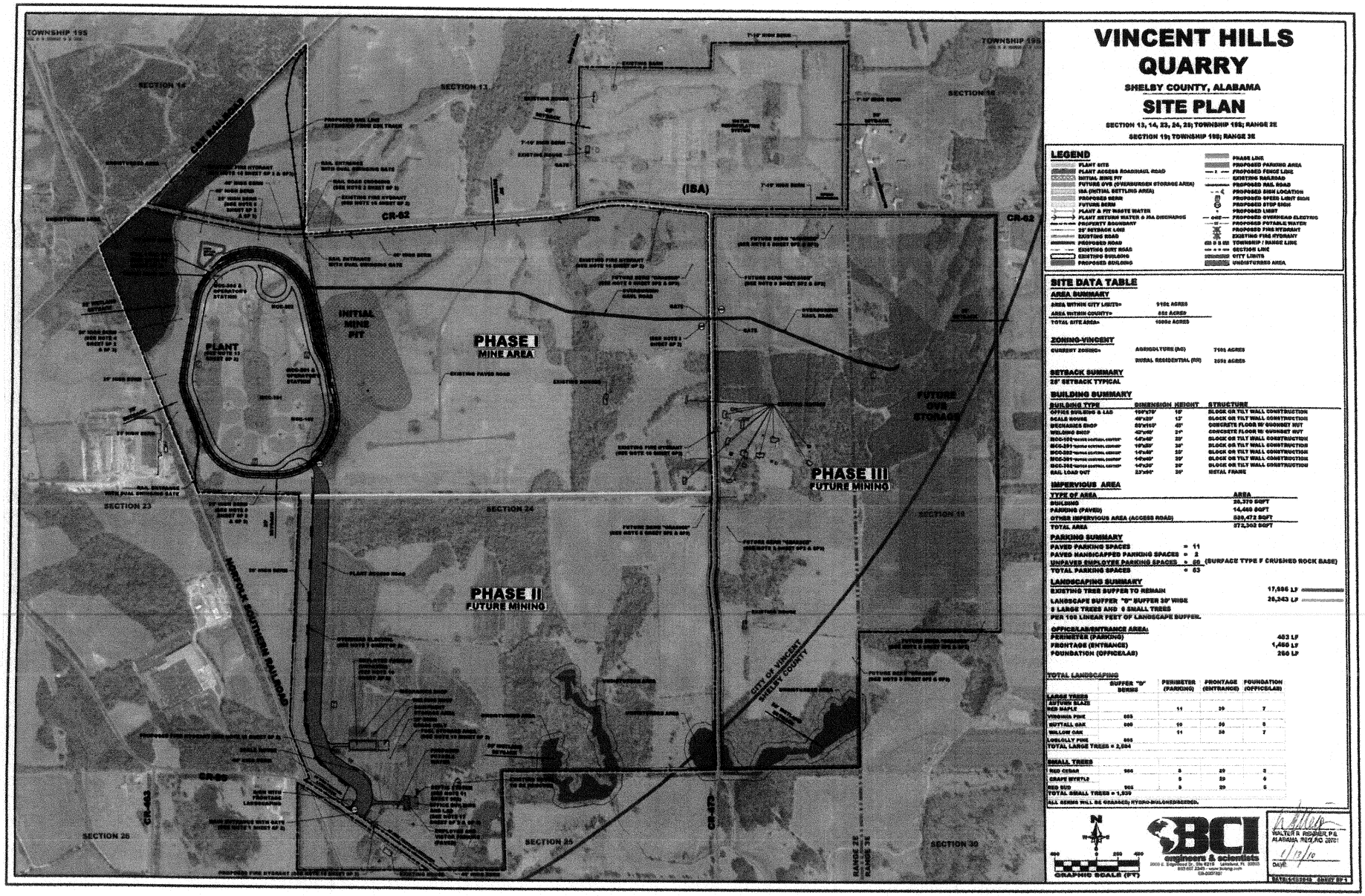
Map Approved
July 1, 2008

Map Produced
January 6, 2010

DISCLAIMER

The Shelby County Department of Development Services produced this map using data collected, generated, converted, and/or prepared by various sources. These sources may include, but are not limited to, this Department, other departments of Shelby County Government, the Shelby County government, and/or regional, local, State, and Federal governmental agencies. The Shelby County Department of Development Services assumes no responsibility for the accuracy of any data acquired from other sources that was used in the production of this map.

EXHIBIT C
Master Plan



VINCENT HILLS QUARRY

SHELBY COUNTY, ALABAMA

SITE PLAN

SECTION 13, 14, 23, 24, 25; TOWNSHIP 19S; RANGE 2E

SECTION 19; TOWNSHIP 19S; RANGE 3E

LEGEND

- PLANT SITE
- PLANT ACCESS ROAD/HAUL ROAD
- INITIAL MINE PIT
- FUTURE OVB (OVERBURDEN STORAGE AREA)
- ISA (INITIAL SETTLING AREA)
- PROPOSED BERM
- FUTURE BERM
- PLANT & PIT WASTE WATER
- PLANT RETURN WATER & ISA DISCHARGE
- PROPERTY BOUNDARY
- 25' SETBACK LINE
- EXISTING ROAD
- PROPOSED ROAD
- EXISTING DIRT ROAD
- EXISTING BUILDING
- PROPOSED BUILDING
- PHASE LINE
- PROPOSED PARKING AREA
- PROPOSED FENCE LINE
- EXISTING RAILROAD
- PROPOSED RAIL ROAD
- PROPOSED SIGN LOCATION
- PROPOSED SPEED LIMIT SIGN
- PROPOSED STOP SIGN
- PROPOSED LIGHT
- PROPOSED OVERHEAD ELECTRIC
- PROPOSED POTABLE WATER
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT
- TOWNSHIP / RANGE LINE
- SECTION LINE
- CITY LIMITS
- UNDISTURBED AREA

SITE DATA TABLE

AREA SUMMARY

AREA WITHIN CITY LIMITS=	9100 ACRES	
AREA WITHIN COUNTY=	691 ACRES	
TOTAL SITE AREA=	10000 ACRES	

ZONING-VINCENT

CURRENT ZONING=	AGRICULTURE (AG)	7101 ACRES
	RURAL RESIDENTIAL (RR)	2291 ACRES

SETBACK SUMMARY

25' SETBACK TYPICAL

BUILDING SUMMARY

BUILDING TYPE	DIMENSION	HEIGHT	STRUCTURE
OFFICE BUILDING & LAB	100'x70'	15'	BLOCK OR TILT WALL CONSTRUCTION
SCALE HOUSE	40'x20'	12'	BLOCK OR TILT WALL CONSTRUCTION
MECHANICS SHOP	60'x100'	45'	CONCRETE FLOOR W/ GUNNIGET NUT
WELDING SHOP	40'x60'	21'	CONCRETE FLOOR W/ GUNNIGET NUT
SCC-101 (MOTOR CONTROL CENTER)	12'x20'	20'	BLOCK OR TILT WALL CONSTRUCTION
SCC-201 (MOTOR CONTROL CENTER)	10'x20'	20'	BLOCK OR TILT WALL CONSTRUCTION
SCC-202 (MOTOR CONTROL CENTER)	10'x30'	20'	BLOCK OR TILT WALL CONSTRUCTION
SCC-301 (MOTOR CONTROL CENTER)	12'x20'	20'	BLOCK OR TILT WALL CONSTRUCTION
SCC-302 (MOTOR CONTROL CENTER)	10'x30'	20'	BLOCK OR TILT WALL CONSTRUCTION
SAIL LOAD OUT	137'x50'	20'	METAL FRAME

IMPERVIOUS AREA

TYPE OF AREA	AREA
BUILDING	20,370 SQFT
PARKING (PAVED)	14,460 SQFT
OTHER IMPERVIOUS AREA (ACCESS ROAD)	539,472 SQFT
TOTAL AREA	572,302 SQFT

PARKING SUMMARY

PAVED PARKING SPACES	= 11	
PAVED HANDICAPPED PARKING SPACES	= 2	
UNPAVED EMPLOYEE PARKING SPACES	= 50	(SURFACE TYPE F CRUSHED ROCK BASE)
TOTAL PARKING SPACES	= 63	

LANDSCAPING SUMMARY

EXISTING TREE BUFFER TO REMAIN	17,696 LF
LANDSCAPE BUFFER "D" BUFFER 30' WIDE	26,243 LF
9 LARGE TREES AND 6 SMALL TREES	
PER 100 LINEAR FEET OF LANDSCAPE BUFFER.	

OFFICE/LAB/ENTRANCE AREA:

PERIMETER (PARKING)	403 LF
FRONTAGE (ENTRANCE)	1,460 LF
FOUNDATION (OFFICE/LAB)	260 LF

TOTAL LANDSCAPING

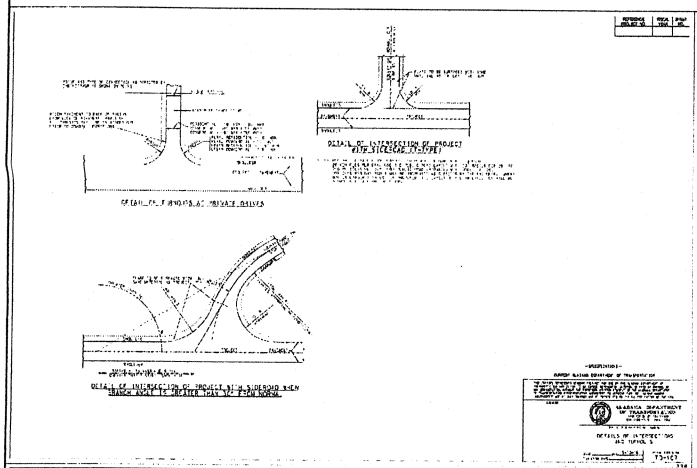
	BUFFER "D" DENSE	PERIMETER (PARKING)	FRONTAGE (ENTRANCE)	FOUNDATION (OFFICE/LAB)
LARGE TREES				
AUTUMN BLAZE RED MAPLE		11	39	7
VIRGINIA PINE	865			
WUTTALL OAK	865	10	39	6
WILLOW OAK		11	39	7
LOBLOLLY PINE	865			
TOTAL LARGE TREES = 2,594				
SMALL TREES				
RED CEDAR	865	8	39	6
CRAPE MYRTLE		9	39	6
RED BUD	865	8	39	6
TOTAL SMALL TREES = 1,929				

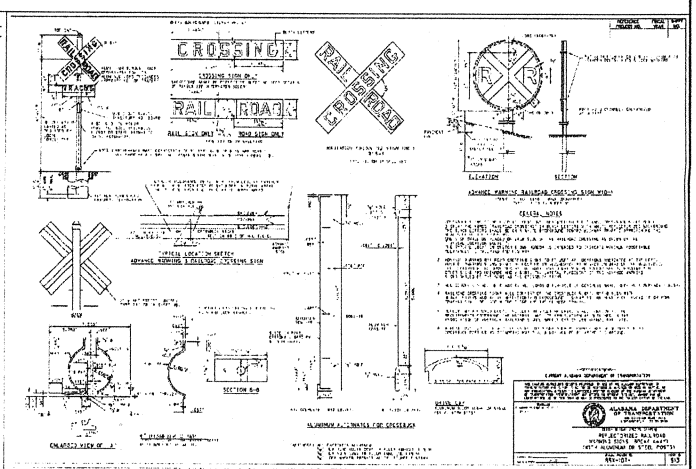
ALL BERMS WILL BE GRASSED/ HYDRO-MULCHED/SEEDED.

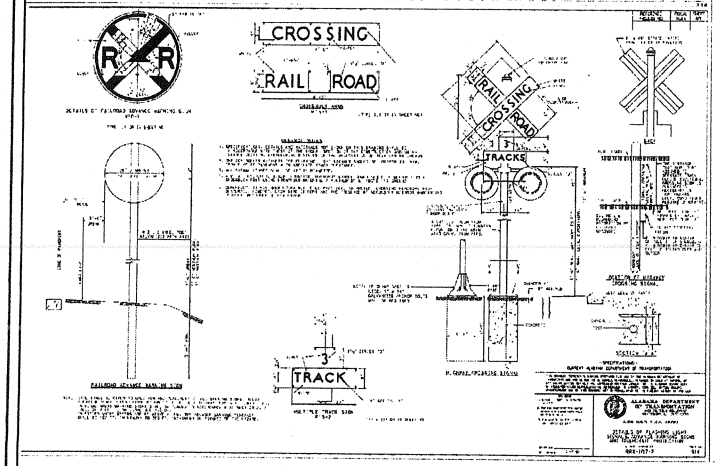
GRAPHIC SCALE (FT)

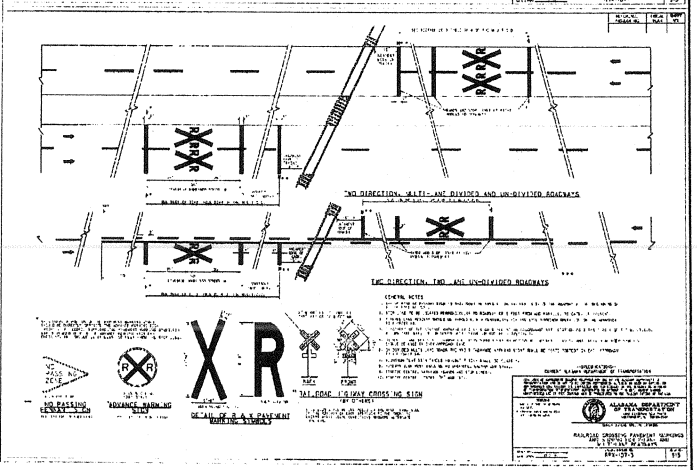
BCI engineers & scientists

WALTER R. REBNER, P.E.
ALABAMA REG. NO. 20701
DATE: 1/17/12









VINCENT HILLS QUARRY

SHELBY COUNTY, ALABAMA

DETAILS (1 OF 3)

SECTION 13, 14, 23, 24, 25; TOWNSHIP 19S; RANGE 2E

SECTION 19; TOWNSHIP 19S; RANGE 3E

NOTES:

1. COUNTY ROAD 85 PLANT ENTRANCE - A TRAFFIC STUDY IS PROVIDED IN CONJUNCTION WITH THIS PROJECT. IMPROVEMENTS TO THE ENTRANCE WILL BE INSTALLED AS REQUIRED PER THIS STUDY. ALL IMPROVEMENTS, IF ANY, WILL MEET ALABAMA DEPARTMENT OF TRANSPORTATION 2009 STANDARDS FOR HIGHWAY CONSTRUCTION. SEE DETAILS ON SHEET SP 2 & SP 3 FOR INTERSECTIONS AND SIGNAGE CONTROLS. ALDOT DESIGN BUREAU SPECIAL DRAWING 70-107, INDEX # 1230,1229, AND 1301.
2. COUNTY ROAD 52 RAILROAD ENTRANCE AND CROSSINGS - THE RAIL CROSSING WILL MEET THE 2009 ALABAMA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIAL DRAWING REQUIREMENTS FOR HIGHWAY CONSTRUCTION; INDEX SHEETS 900-999 BARRICADES, STOPS AND RAILROAD CROSSINGS. SEE DETAILS SHEETS 1 & 2 FOR INTERSECTION AND SIGNAGE CONTROL. ALDOT DESIGN BUREAU SPECIAL DRAWINGS 70-107, INDEX # 910, 914, 915, 1230,1229, & 1301.
3. COUNTY ROAD 473 EQUIPMENT CROSSING - HEAVY EQUIPMENT WILL BE CROSSING THE HIGHWAY PERIODICALLY AS RELATED TO MINE ACTIVITY. THIS CROSSING WILL MEET THE 2009 ALABAMA DEPARTMENT OF TRANSPORTATION STANDARDS FOR HIGHWAY CONSTRUCTION. SEE DETAILS ON SHEET 1 & 2 FOR INTERSECTIONS AND SIGNAGE CONTROLS. ALDOT DESIGN BUREAU SPECIAL DRAWING 70-107, INDEX # 1230,1229, AND 1301
4. 20' BERM (HEIGHT), WEST SIDE OF PLANT - THE HEIGHT OF THIS BERM IS CONTROLLED BY THE WIDTH OF THE BERM BASE WHICH WILL ALLOW SAFE CLEARANCE OF THE RAIL AROUND THE OPERATING PLANT AND FURTHER TO MINIMIZE IMPACT TO A HEAVILY VEGETATED AREA WEST OF THE BERM. THE BERM WILL BE CONSTRUCTED AT A 2' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED. SEE LANDSCAPE PLAN SHEET SP-4
5. 20' BERM (HEIGHT), NORTH SIDE OF PLANT - THE HEIGHT OF THIS BERM IS CONTROLLED BY THE WIDTH OF THE BERM BASE WHICH WILL ALLOW SAFE CLEARANCE OF THE RAIL AROUND THE OPERATING PLANT. THE BERM WILL BE CONSTRUCTED AT A 2' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED. SEE LANDSCAPE PLAN SHEET SP-4
6. 20' BERM (HEIGHT), SOUTH SIDE OF PLANT - THE HEIGHT OF THIS BERM IS CONTROLLED BY THE WIDTH OF THE BERM BASE WHICH WILL ALLOW SAFE CLEARANCE OF THE RAIL AROUND THE OPERATING PLANT. THE BERM WILL BE CONSTRUCTED AT A 2' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED. SEE LANDSCAPS PLAN SHEET SP-4
7. THE MAIN POWERLINE ACCESS FOR THE PLANT WILL ENTER FROM THE MAIN ENTRANCE ALONG COUNTY ROAD 85 AND FOLLOW THE ENTRANCE ROAD NORTH TO THE PLANT. THIS PORTION WILL BE CONSTRUCTED ON POLES. ONCE THE POWERLINE REACHES THE PLANT SITE, ALL SERVICES WILL BE UNDERGROUND. CONSTRUCTION SPECIFICATIONS WILL MEET ALABAMA POWER COMPANY REQUIREMENTS.
8. FUTURE BERMS WILL BE CONSTRUCTED WITH A 10' TOP WIDTH. THE TIMING OF CONSTRUCTION OF THESE BERMS WILL BE DEPENDENT ON THE RATE OF MINING. THESE BERMS WILL BE CONSTRUCTED AT A 2' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED. FUTURE BERMS WILL BE LANDSCAPED ACCORDING TO THE LANDSCAPE PLAN.
9. ENTRANCE SIGNAGE - THE FACILITY ENTRANCE SIGN WILL BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF VINCENT ZONING REQUIREMENTS AS SHOWN IN ARTICLE XIX SIGN REGULATIONS. FRONTAGE AREA WILL BE LANDSCAPED PER THE VINCENT ZONING, SECTION 6.7.1, FRONTAGE LANDSCAPING REQUIREMENTS.
10. BERM LOCATED ON THE EAST SIDE OF THE OVERBURDEN STORAGE AREA ALONG THE PROPERTY LINE - THIS BERM WILL BE GRASSED ONLY. THE OVERBURDEN MATERIAL WILL BE STOCKPILED ADJACENT TO THE EAST PROPERTY BOUNDARY IN LAYERS AS MATERIAL BECOMES AVAILABLE. AS THIS BERM AND STORAGE AREA INCREASE IN HEIGHT IT WILL BE GRASSED FOR EROSION CONTROL LANDSCAPING.
11. OFFICE / LAB SEPTIC TANK - THE FACILITY WILL HAVE ONE SEPTIC SYSTEM CONSTRUCTED WHEN THE OFFICE IS BUILT. THE SEPTIC SYSTEM WILL MEET THE SHELBY COUNTY HEALTH DEPARTMENT AND TOWN OF VINCENT REGULATIONS FOR THE INSTALLATION OF THE SYSTEM.
12. VISUAL BUFFERS WILL BE CONSTRUCTED AROUND THE INITIAL SETTLING AREA (ISA) AT 7-10 FEET IN HEIGHT AS A VISUAL BUFFER. THE BERM WILL BE CONSTRUCTED AT A 2' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED . THE EAST SIDE OF THE ISA WILL BE LANDSCAPE IN ACCORDANCE TO THE LANDSCAPE BUFFER DESIGN. SEE LANDSCAPE PLAN SHEET SP 4.
13. PLANT SITE; PLANT SITE EQUIPMENT WILL BE BOLTED TO FOOTERS AND WILL NEED TO BE PORTABLE FOR POSSIBLE RELOCATION, REPAIR AND PHYSICAL ADJUSTMENTS.
14. COUNTY ROAD 85 HAS CITY/COUNTY WATER SERVICE; THIS SERVICE WILL SUPPLY THE OFFICE AND SCALE HOUSE.
15. A RAIL LOAD OUT BUILDING WILL BE CONSTRUCTED SO AS TO PERMIT RAIL CARS TO ENTER FOR LOADING. THIS WILL ASSIST IN MINIMIZING NOISE AND POTENTIAL DUST. A DUST COLLECTOR SYSTEM WILL BE INSTALLED ON TOP OF THIS BUILDING.
16. PLANT EMPLOYEE PARKING WILL HAVE SPACES FOR 50 EMPLOYEE VEHICLES. THIS AREA WILL NOT BE PAVED. AN UNPAVED EQUIPMENT STORAGE AREA WILL ALSO BE LOCATED ADJACENT TO THE EMPLOYEE PARKING AREA.
17. OFFICE/LAB PARKING WILL BE PAVED AND LANDSCAPED PER LAND DEVELOPMENT CODE; ARTICLE6; SECTION 6.7, PAGES 34-40.
18. FIRE PROTECTION PLAN; THE MAIN ENTRANCE WILL BE SERVICED BY THE CITY OF VINCENT WATER HYDRANT SYSTEM AS SHOWN ON SITE PLAN OR SUPPLIED BY A ONSITE FIRE PROTECTION WELL. THE OFFICE/LAB WILL BE DESIGNED TO MEET THE CITY OF VINCENT FIRE CODE. THE PLANT WILL BE SERVICED OFF OF COUNTY ROAD 52 WHERE TWO EXISTING HYDRANTS ARE LOCATED, OR A FIRE SUPPLY WELL WILL BE INSTALLED TO SERVICE THIS AREA.
19. THE FUEL STORAGE AREA TO BE CONCRETE SLAB ONLY. ABOVE GROUND FUEL STORAGE TANKS WILL BE DOUBLE WALLED, FIRE RATED WITH OVERFILL PROTECTION AND SELF CONTAINED UNITS.

BCI engineers & scientists
3000 S. Edgewood Dr., Ste #215 Lakeland, FL 33803
863.687.3305 - www.bcieng.com
EB-0007867

WALTER R. REIGNER P.E.
ALABAMA REG. NO. 26701
1/13/10
DATE

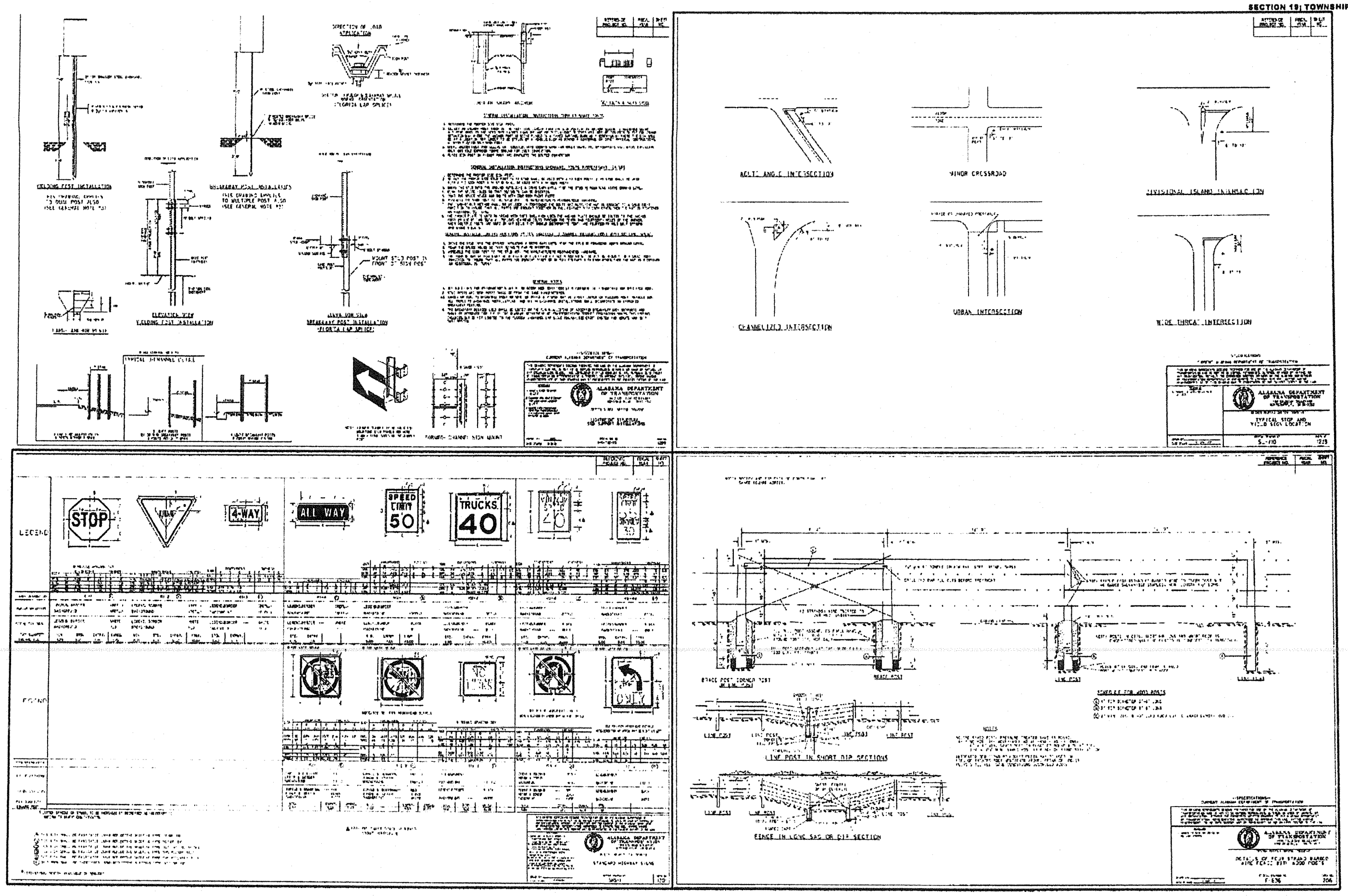
DATE: 1/13/2010 SHEET SP 2

VINCENT HILLS QUARRY

SHELBY COUNTY, ALABAMA

DETAILS (2 OF 3)

SECTION 13, 14, 23, 24, 25; TOWNSHIP 19S; RANGE 2E
SECTION 19; TOWNSHIP 19S; RANGE 3E



BCI engineers & scientists
2003 E. Edgewood Dr., Ste #215 Lakeland, FL 33803
863.667.2345 • www.bcieng.com
EB-0007867

WALTER R. REIGNER, P.E.
ALABAMA REG. NO. 29701
DATE 1/13/10

DATE 1/12/2010 SHEET SP 3

VINCENT HILLS QUARRY

SHELBY COUNTY, ALABAMA

DETAILS (3 OF 3)

SECTION 13, 14, 23, 24, 25; TOWNSHIP 19S; RANGE 2E

SECTION 19; TOWNSHIP 19S; RANGE 3E

LANDSCAPE PLAN

TOTAL LANDSCAPING

	BUFFER "D" BERMS	PERIMETER (PARKING)	FRONTAGE (ENTRANCE)	FOUNDATION (OFFICE/LAB)
LARGE TREES				
AUTUMN BLAZE RED MAPLE		11	39	7
VIRGINIA PINE	805			
NUTTALL OAK	806	10	39	6
WILLOW OAK		11	38	7
LOBLOLLY PINE	805			

TOTAL LARGE TREES = 2,564

SMALL TREES				
RED CEDAR	906	8	29	5
CRAPE MYRTLE		9	29	5
RED BUD	905	8	30	6

TOTAL SMALL TREES = 1,939

ALL BERMS WILL BE GRASSED; HYDRO-MULCHED/SEEDED.

LARGE AND SMALL TREES SHALL BE GROUPED IN NATURAL PATTERNS TO AVOID A LINEAR OR HEDGEROW APPEARANCE.

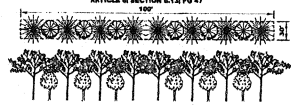
FRONTAGE LANDSCAPING WILL BE CONCENTRATED AT THE TOE OF THE BERMS AS THEY TAPER TO THE MAIN ENTRANCE, THEREFORE SOFTENING THE RISE OF THE BERMS AND HELPING MITIGATE THE IMPACT OF TRUCK TRAFFIC AT THE MAIN ENTRANCE.

LANDSCAPING SUMMARY

EXISTING TREE BUFFER TO REMAIN	17,985 LF
LANDSCAPE BUFFER "D" BUFFER 30' WIDE	28,243 LF
8 LARGE TREES AND 6 SMALL TREES PER 100 LINEAR FEET OF LANDSCAPE BUFFER.	
OFFICE/LAB/ENTRANCE AREA:	
PERIMETER (PARKING)	403 LF
FRONTAGE (ENTRANCE)	1,450 LF
FOUNDATION (OFFICE/LAB)	260 LF

LANDSCAPE 'D' BUFFER

ARTICLE 9; SECTION 6.13; PG 47



PLANT SCHEDULE		
	PLANT TYPE SYMBOL	NO. REQUIRED (100 LINEAR FEET)
LARGE TREES		8
SMALL TREES		6

SCREENING SCRUBS REQUIREMENTS HAVE BEEN REMOVED PER PLANNING STAFF COMMENTS DUE TO BUFFER BEING PLACED ON OR ADJACENT TO 20-40 FOOT HIGH GRASSED BERM.

LANDSCAPE NOTES:

4. 20' BERM (HEIGHT), WEST SIDE OF PLANT - THE HEIGHT OF THIS BERM IS CONTROLLED BY THE WIDTH OF THE BERM BASE WHICH WILL ALLOW SAFE CLEARANCE OF THE RAIL AROUND THE OPERATING PLANT AND FURTHER TO MINIMIZE IMPACT TO A HEAVILY VEGETATED AREA WEST OF THE BERM. THE BERM WILL BE CONSTRUCTED AT A 3' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED. SEE LANDSCAPE PLAN SHEET SP-4.
5. 25' BERM (HEIGHT), NORTH SIDE OF PLANT - THE HEIGHT OF THIS BERM IS CONTROLLED BY THE WIDTH OF THE BERM BASE WHICH WILL ALLOW SAFE CLEARANCE OF THE RAIL AROUND THE OPERATING PLANT. THE BERM WILL BE CONSTRUCTED AT A 2' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED. SEE LANDSCAPE PLAN SHEET SP-4.
6. 25' BERM (HEIGHT), SOUTH SIDE OF PLANT - THE HEIGHT OF THIS BERM IS CONTROLLED BY THE WIDTH OF THE BERM BASE WHICH WILL ALLOW SAFE CLEARANCE OF THE RAIL AROUND THE OPERATING PLANT. THE BERM WILL BE CONSTRUCTED AT A 3' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED. SEE LANDSCAPE PLAN SHEET SP-4.
8. FUTURE BERMS WILL BE CONSTRUCTED WITH A 10' TOP WIDTH. THE TIMING OF CONSTRUCTION OF THESE BERMS WILL BE DEPENDENT ON THE RATE OF MINING. THESE BERMS WILL BE CONSTRUCTED AT A 2' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED. FUTURE BERMS WILL BE LANDSCAPED ACCORDING TO THE LANDSCAPE PLAN.
9. ENTRANCE SIGNAGE - THE FACILITY ENTRANCE SIGN WILL BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF VINCENT ZONING REQUIREMENTS AS SHOWN IN ARTICLE XIX SIGN REGULATIONS, FRONTAGE AREA WILL BE LANDSCAPED PER THE VINCENT ZONING, SECTION 6.7.1, FRONTAGE LANDSCAPING REQUIREMENTS.
10. BERM LOCATED ON THE EAST SIDE OF THE OVERBURDEN STORAGE AREA ALONG THE PROPERTY LINE - THIS BERM WILL BE GRASSED ONLY. THE OVERBURDEN MATERIAL WILL BE STOCKPILED ADJACENT TO THE EAST PROPERTY BOUNDARY IN LAYERS AS MATERIAL BECOMES AVAILABLE. AS THIS BERM AND STORAGE AREA INCREASE IN HEIGHT IT WILL BE GRASSED FOR EROSION CONTROL LANDSCAPING.
12. VISUAL BUFFERS WILL BE CONSTRUCTED AROUND THE INITIAL SETTLING AREA (ISA) AT 7-10 FEET IN HEIGHT AS A VISUAL BUFFER. THE BERM WILL BE CONSTRUCTED AT A 2' HORIZONTAL TO 1' VERTICAL SLOPE AND GRASSED . THE EAST SIDE OF THE ISA WILL BE LANDSCAPE IN ACCORDANCE TO THE LANDSCAPE BUFFER DESIGN. SEE LANDSCAPE PLAN SHEET SP 4.
17. OFFICE/LAB PARKING WILL BE PAVED AND LANDSCAPED PER LAND DEVELOPMENT CODE; ARTICLE6; SECTION 6.7, PAGES 34-40.

IRRIGATION PLAN:

1. ALL BERMS AND BUFFERS WILL BE WATERED BY MOBILE WATER TRUCK, UNTIL VEGETATION IS ESTABLISHED.
2. LANDSCAPING AROUND THE OFFICE AND PARKING WILL BE IRRIGATED BY SPRINKLER SYSTEM CONNECTED TO OFFICE WATER SUPPLY.

STATE OF ALABAMA — LAWRENCE LEE BATES — 265 — REGISTERED LANDSCAPE ARCHITECT

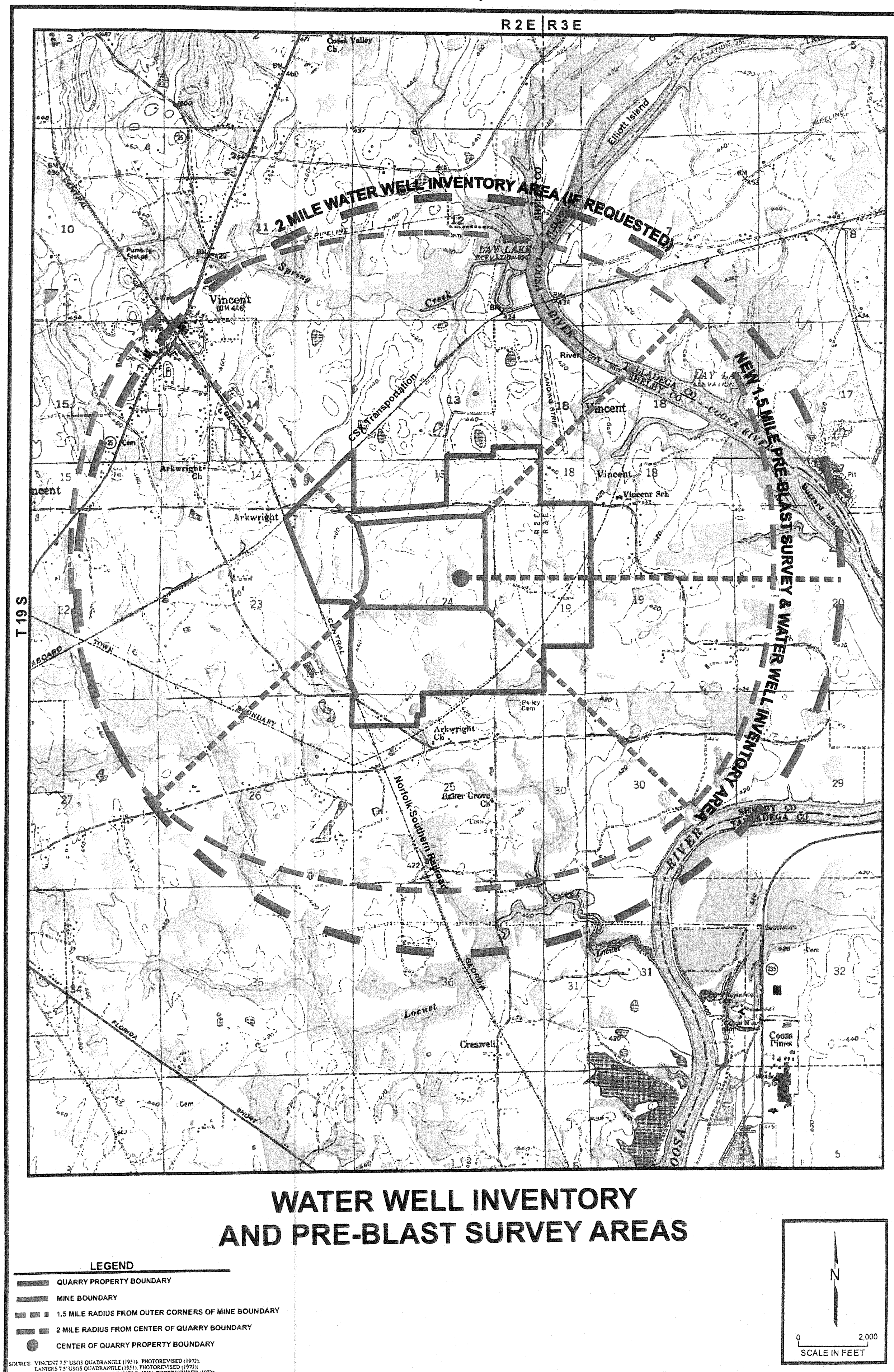
LAWRENCE LEE BATES
LANDSCAPE ARCHITECT
ALABAMA REG. NO. 265
DATE: 12 January 2019

BCI engineers & scientists
2900 E. Bayshore Dr., Ste 1210 Lakeland, FL 33803
863.667.2345 www.bcieng.com
CA 0001567

WALTER R. REIGNER, P.E.
ALABAMA REG. NO. 29701
DATE:

DATE: 1/11/2019 SHEET SP 4

Baseline Survey Areas Map



Appendix B: Groundwater Monitoring Plan

White Rock Quarries, LLC ("White Rock"), has established this groundwater monitoring plan for its proposed Vincent Hills Quarry and surrounding area. The purpose of this plan is to establish a monitoring plan for the groundwater before and during quarry operations. The data gathered will then be available to determine areas that may be impacted from quarry dewatering. This information will also allow White Rock to monitor sensitive areas for possible subsidence. This plan will include locating all domestic, industrial, or municipal water-supply wells in the area outlined on the map, establishing a system of monitoring wells, and providing water supply in the event of a water-well problem caused by the quarry. This monitoring plan will consist of a number of different steps:

Phase 1

- White Rock will conduct a water-well inventory of water-supply wells within the area outlined on the attached map (See Attachment 1, Inventory Area Map and Attachment 2, Water Well Inventory Form). Initially, the water-well inventory involves locating inventory data from maps showing old structures, aerial photographs, and water-well records supplied by the Geological Survey of Alabama.

- After the initial study, a door-to-door investigation will occur by traveling to each residence within the 1 ½ mile radius of the property (See Attachment 1; Inventory Area Map) as indicated on the map, to make contact and Seek permission (Note: White Rock will also survey other wells beyond the 1 ½ mile radius upon request by the land owner). If the homeowner is not present, a letter request to inventory their private well will be left with White Rock's contact information. Once permission is obtained, the private domestic water-supply well will be inventoried to determine the total depth, depth to water, and water quality parameters. This

inventory will establish the current and past uses of the well and will be used as a reference for that water-supply well in the event of a possible problem arising in the future. Attachment 2 is an example well inventory form that lists the types of data that are typically collected during an inventory.

- Additionally, private domestic water-supply wells that are not in use will be evaluated for possible use as monitoring wells.

- White Rock will install and monitor wells specifically for determining the groundwater surface elevation in specific areas surrounding the proposed Vincent Hills Quarry. The number and location will be determined after inventory, after preliminary aquifer testing, and other site investigations. This work will be done prior to quarry or plant construction activities and will be on-going throughout the life of the project. In the event that monitoring sites become insufficient for determining the hydrological conditions of the quarry site and surrounding area, new wells will be installed, as needed, to monitor groundwater responses.

Phase 2

- White Rock will install monitoring wells around the quarry, particularly in the areas toward heavier groundwater use, near sensitive surface areas such as buildings and public corridors, and according to the orientation of the preferred groundwater flow paths. These are likely to be controlled by direction of bedrock strike, presence of fracture concentrations, by fracture traces, and/or lineaments and proximity to valleys. These monitoring wells, in addition to the monitoring wells that were formerly used as domestic water-supply wells, will be used to periodically monitor the water levels and water quality of the groundwater surrounding the

quarry. Some of these wells will be monitored on a continuing basis throughout the life of the quarry; others will be periodic.

- White Rock will use a subsidence monitoring form to collect data for any occurrences of sinkholes or indications of subsidence detected during monitoring. Subsidence indications will be monitored concurrently with groundwater levels. Known, newly discovered, and otherwise reported subsidence features will be kept in a database and maintained along with groundwater information. This database will be used to adjust the groundwater monitoring plan at specific sites as necessary.

Communication:

- White Rock will establish a dedicated telephone line to receive water-supply well complaints from the surrounding community. Should a resident have a complaint about their private water-supply well, the telephone number will be available to them for requesting an examination of their water well. This contact information will also be posted on a site-specific website for the proposed Vincent Hills Quarry.

Reaction:

Step 1: In the event of a resident's complaint about their water well, White Rock will first conduct a rapid in-house screening of the well and complaint to determine whether there is actually any damage or problems with the water level or quality. Baseline data obtained prior to mining will be used for this determination.

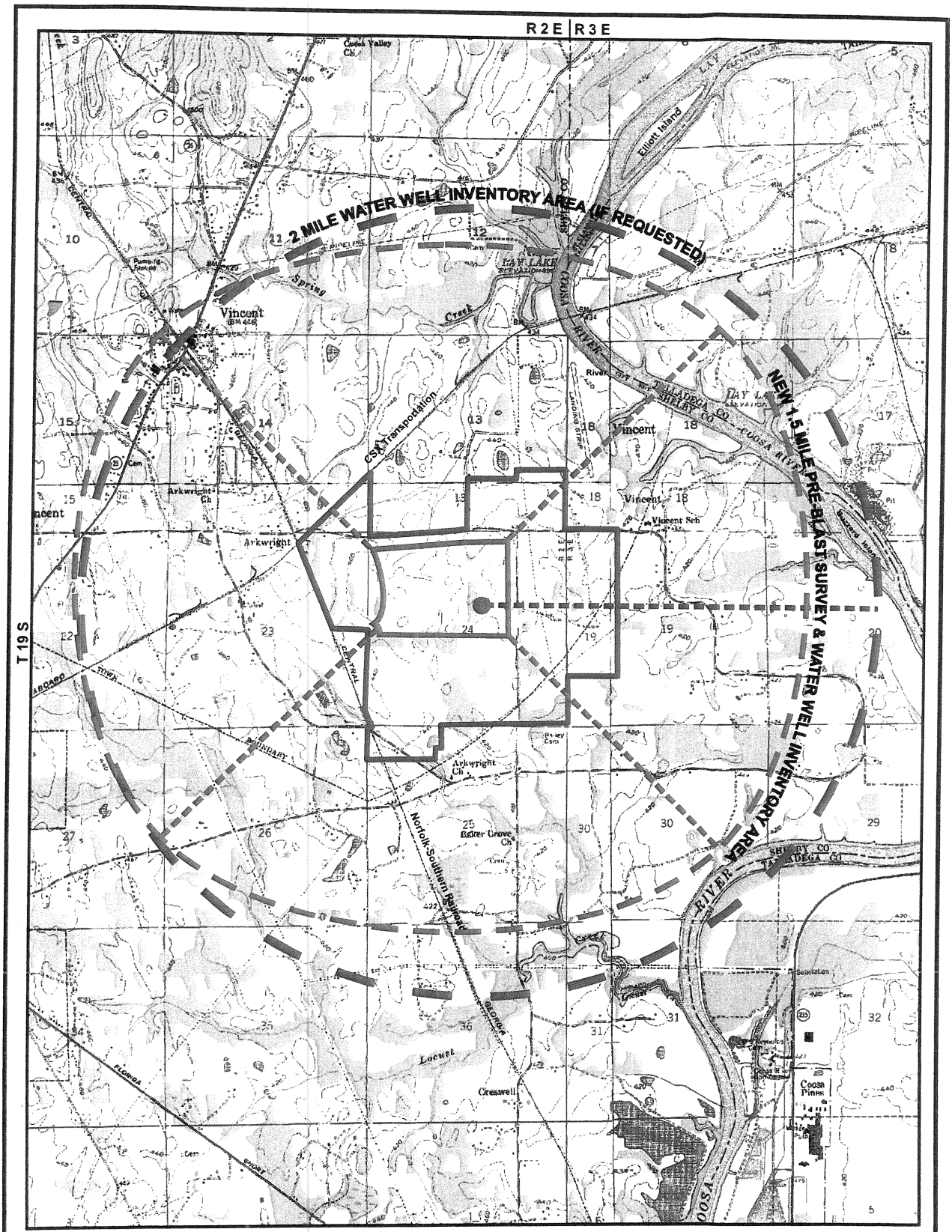
Step 2: If there proves to be a problem, an independent, technically qualified firm, recognized as having expertise and experience, and is a third party will investigate the well to determine if the problem(s) were caused by the quarry operations. If this screening determines that the

quarry operation caused the problem, White Rock will quickly move to Step 3.

Step 3: Should the problem(s) be deemed to be the result of the quarry operations, White Rock will provide an alternative water supply to the residence to remedy the situation. During the interim period, White Rock will take reasonable steps to provide the residence with a temporary water supply until the cause of the well complaint is resolved.

Attachments

Attachment 1	Inventory Area Map
Attachment 2	Water Well Inventory Form



WATER WELL INVENTORY AND PRE-BLAST SURVEY AREAS

LEGEND

- QUARRY PROPERTY BOUNDARY
- MINE BOUNDARY
- 1.5 MILE RADIUS FROM OUTER CORNERS OF MINE BOUNDARY
- 2 MILE RADIUS FROM CENTER OF QUARRY BOUNDARY
- CENTER OF QUARRY PROPERTY BOUNDARY

SOURCE: VINCENT 7.5' USGS QUADRANGLE (1951); PHOTOREVISED (1972).
LANIER 7.5' USGS QUADRANGLE (1951); PHOTOREVISED (1972).
HARPERSVILLE 7.5' USGS QUADRANGLE (1969); PHOTOREVISED (1972).

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SCALE IN FEET

VINCENT HILLS

WATER WELL INVENTORY FORM

Inventoried By: _____

Date: _____ **Project No.:** _____

County: _____ Township Number _____ N or S Range Number _____ E or W Section No. _____ Fraction _____ 1/4 1/4 1/4

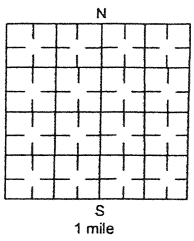
nship

Street Address and City or Distance and Direction from Road Intersections:

Property Owner's Name and Address Phone No.:

Tenant (if different):

Show exact location of well in section grid with an 'X' Sketch map of well location



Well Depth: Datum point from which all measurements are taken:

Method of Drilling:
☐ Cable Tool ☐ Hollow Rod ☐ Driven ☐ Dug
☐ Direct Rotary ☐ Air Rotary ☐ Bucket Auger **Date**
☐ Reverse Rotary ☐ Jetted ☐ Flight Auger **Drilled** _____

Use:
☐ Domestic ☐ Public Supply
☐ Irrigation ☐ Municpal ☐ Commerical **No. of**
☐ Test Well ☐ Heating or Cooling ☐ Monitoring **Residents** _____

Casing Type:
☐ Steel ☐ Threaded Height Above/Below
☐ Galv. ☐ Welded Surface_____
☐ PVC ☐ Solvent Drive Shoe? Yes____ No___
☐ SS Welded Hole Diameter

_____in to _____ ft Wgt _____ lb/ft Sco. No._____ ____ in to ___ ft
_____in to _____ ft Wgt _____ lb/ft Sco. No._____ ____ in to ___ ft
_____in to _____ ft Wgt _____ lb/ft Sco. No._____ ____ in to ___ ft

GPS Location

Source of Data ___GPS ___Topo

(N 33. _ _ _ _ _) ___Other _____

(W -86._ _ _ _ _) **Elevation** _____

General Questions

Further Use Information:

Home_____ # of Occupants _____

Yard _____

Garden _____

Other (livestock, pool, etc.) _____

Problems With Well? ☐ Yes ☐ No If yes, explain:_____

Pump ☐ Yes ☐ No (replaced?) ☐ Yes ☐ No

Water Quality (color, taste, smell) _____

Water Quantity _____

Replacement Well _____

Describe Pumphouse _____

Pumphouse Vented? ☐ Yes ☐ No How? _____

Intake Portion of Well
Screen Type _____ or Open Hole from_____ ft to _____ ft
Manufacturer_____
Material _____ Dia. _____
Fittings _____ Lenght _____
Set Between _____ft and _____ ft Slot _____
_____ ft and _____ ft Slot _____
_____ ft and _____ t Slot _____
Method of Installtion _____

Filert Pack
Source_____ Gradation _____
Mehod of Installation_____ Cpmposition _____
Volume Used _____ Depth to Top of f.p._____

Grout
Used? ☐ Yes ☐ No Volume Used_____
☐ Neal Cement ☐ Bentonite ☐ _____
Methos of Installation_____
Depth from _____ ft to_____ ft
from _____ ft to_____ ft

Development
Method _____ Duration_____
Dates _____ Sand Content After__ hrs _____
Chemicals Used _____

Static Water Level
_____ ft ☐below ☐above grade
Date Measured _____

Pumping Water Level
_____ ft ☐ below ☐ above grade Date _____
After _____ hrs pumping at_____

Specific Capacity
_____ gpm/ft of drawdown at _____
Date_____

Pump
Date Installed _____ Type _____
Manufacturer_____ Model No._____
H.P._____ Volts_____ Capacity _____
Depth of pump intake setting _____ No. of Stages_____
☐ Oil ☐ Water Lubrication Power Source_____
Material of drop pipe_____ Bowls_____
Safting _____ Impellers_____ Bowl Dia_____
Column Pipe Dia_____ Length _____Modifications_____

Well Head Completion
☐Pitless Adaptor ☐ Basement Offset Diastance Above Ground_____

Nearest Sources of Possible Contamination
_____ ft Direction _____ Type _____
Well disinfected upon completion? ☐ Yes ☐ No

Well Ventilation	**FID**
	EXP **LEL** **OXY**

Water Quality
Sample Taken? ☐ Yes ☐ No
Where analyzed _____

Parameter Analyzed _____

Borehole Data

Formation Log	Color	Hardness	From	To

er well within _____ mile radius of quarry _____

Appendix C: Subsidence Monitoring and Mitigation Plan

White Rock Quarries, LLC, ("White Rock") developed this Subsidence Monitoring Plan for its proposed Vincent Hills Quarry, located in the Town of Vincent, Alabama. The purpose of this plan is to establish a monitoring plan for the possible indications or occurrence of subsidence before and during the quarry operation. The data gathered will be used in conjunction with White Rock's groundwater monitoring plan to identify areas that may be impacted from quarry dewatering and possible subsidence, thus allowing White Rock to more effectively monitor sensitive areas for possible subsidence. This plan will include performing a door-to-door and property-by-property inventory of sinkholes within the area outline on the map (See Attachment 1; Inventory Area Map). Concurrently with this effort, White Rock will perform an inventory of domestic water supply wells, drill and install specific groundwater monitor wells, and establish elevation benchmarks in targeted/sensitive areas in order to obtain early indications of subsidence should this occur in the future.

Phase 1

- White Rock will conduct a door-to-door, property-by-property survey of all properties within the areas delineated on the map (See Attachment 1; Inventory Area Map and Attachment 2 Subsidence Inventory/Monitoring Form) to inventory all existing sinkholes and indications of subsidence. This survey will begin by asking those familiar with the properties if they know of or are suspicious of any present or former subsidence/sinkhole features on the subject tracts. A traverse of the properties will be conducted, provided the permission of the property owner is granted. The location, photographs, and descriptions of all karst features found will be obtained, allowing each feature to be cataloged. The Phase I work will be coordinated with Vincent Hills Quarry's background

hydrogeological and topographic information, including historical and current aerial photography and other remote sensing maps.

White Rock will also install state-of-the-art monitoring equipment, designed and maintained to detect the first possible indications of subsidence along nearby roads and other structures in order to provide assurance that the public safety is maintained.

- White Rock has developed a subsidence monitoring form for use at the Vincent Hills Quarry, showing the data that are to be collected for occurrences of sinkholes or indications of subsidence during monitoring. Subsidence indications will be monitored concurrently with groundwater levels. Known, newly discovered, and otherwise reported subsidence features will be kept in a database and maintained along with groundwater information. This database will be used to adjust the groundwater and subsidence monitoring plans at specific sites as necessary.

Communication:

- White Rock will establish a dedicated telephone line to receive complaints and any notices of concern that may indicate subsidence or a sinkhole from the surrounding community. Should a resident have a complaint about subsidence, a telephone number will be available for them to request an examination. This contact information will also be posted on a site-specific website for the proposed Vincent Hills Quarry.

Reaction:

Step 1: In the event of a resident's notice of the occurrence of a possible subsidence along a road or public thoroughfare, White Rock will immediately notify the local sheriff's office. Second, if the public

notified White Rock of subsidence occurrences on private or community land, White Rock will first conduct a prompt in-house screening of the site location and a determination of any immediate measure that may be warranted.

Step 2: An independent, technically qualified third party will investigate the incident to determine if the problem(s) were caused by the Vincent Hills Quarry. If, in fact, the independent third-part investigation determines that the quarry operation caused the problem, White Rock will quickly move to Step 3.

Step 3: Should the problem(s) be determined to have resulted from the operation of Vincent Hills Quarry, White Rock will provide prompt attention, repair, mitigation, and other necessary measures to remedy the situation.

Sinkhole Remediation

- In the event of a sinkhole occurrence, rapid remediation and stabilization will be implemented. Based on the results of geophysical surveys (GPR), test borings, and dye trace studies as appropriate, both the cause and the physical properties of the sinkhole will be quickly evaluated, and the best course of action determined. Stabilization of the sinkhole will generally involve injecting a cement-based grout into subsurface voids, including rock fracture zones and conduits where groundwater is flowing and stabilization/repair by installation of an inverted granular filter (IGF). Dye trace studies may be used to determine the upstream source and the downstream direction and destination of surface and ground water flow.

- Grouting operations involve injecting the grout through grout injection pipes, beginning at a depth below the bottom of the voids or conduit zones in the limestone that induced the raveling and subsidence of the overlying soils. Grout is injected under pressure to fill the voids and stabilize soils associated with the developing sinkhole. Depending upon the size of the sinkhole feature, several injection points will be utilized, at a spacing on the order of 10 feet apart around the collapse zone. In some cases, graded rock fill may initially be placed to stabilize an exposed "throat" leading to underground voids in the limestone bedrock.

- Generally grouting will be done in incremental steps from the bottom up, and continued to a specified depth below original ground surface. Grout injection is normally continued in each drill hole at each depth until a pressure increase of 100 psi above the original injection pressure is achieved. The amount of injected grout (termed "take") for each injection point generally varies, ranging from less than 1 cubic yard for a point not within the active sinkhole zone, to more than 100 cubic yards for points intercepting major voids. If large grout takes occur at any injection point, additional points will be placed around that location, expanding the area being grouted so as to encompass all of the contributing voids and conduits.

- Depending upon the results of dye tracer studies, which involve injecting dye into water-filled conduits or voids, coupled with observations of where groundwater is flowing into the quarry, additional grout locations upstream of the sinkhole and between the sinkhole and the quarry may be selected. The intent of the grouting program is to stabilize the conditions that led to formation of the sinkhole, and prevent further sinkhole formation in that location.

- Following remediation of the subsidence feature by grouting, the ground surface will be restored to its original level by placing engineered fill under controlled conditions of moisture content and compaction density. If appropriate, a grass cover or other vegetation will be established, and any damaged paving, walkways, fencing, or other facility will be restored to its original condition.

- Successful grouting programs to prevent incipient sinkholes, as well as to remediate and stabilize active sinkholes, have been implemented in karst terrains around the world. In central Florida, for example, several hundred sinkholes and incipient sinkholes are grouted and stabilized every year, almost all of them beneath houses and other buildings. In those cases, remediation also involves re-leveling the structure and repairing any damaged areas.

- Installation of an inverted granular filter (IGF) will be conducted by excavating the area of collapse to allow for an investigation into the subsurface conduit (pathway between clay overburden and underlying bedrock), or throat of the underlying collapse/void (Sowers, 1996). Once excavation and examination is completed, the area of collapse failure will be repaired by placing stone in and above the bedrock conduit, with progressively smaller stones being place, in layers, toward the surface. Geotextile fabric may also be employed at various stages of construction to assist in stabilizing soils, while allowing water to pass through the IGF. Inverted granular filters allow surface water recharge and perched water to infiltrate though the zone of former collapse without repeating the raveling of subjacent overburden into underlying voids. Near surface stone is ultimately small enough at the top of the IGF to support soil layers. The IGF design is compactable, whereby

buildings and other surface structures may benefit from an improved foundation. Attachment 3, Inverted Granular Filter Schematic, is a diagram illustrating an inverted filter (Sowers, 1996)

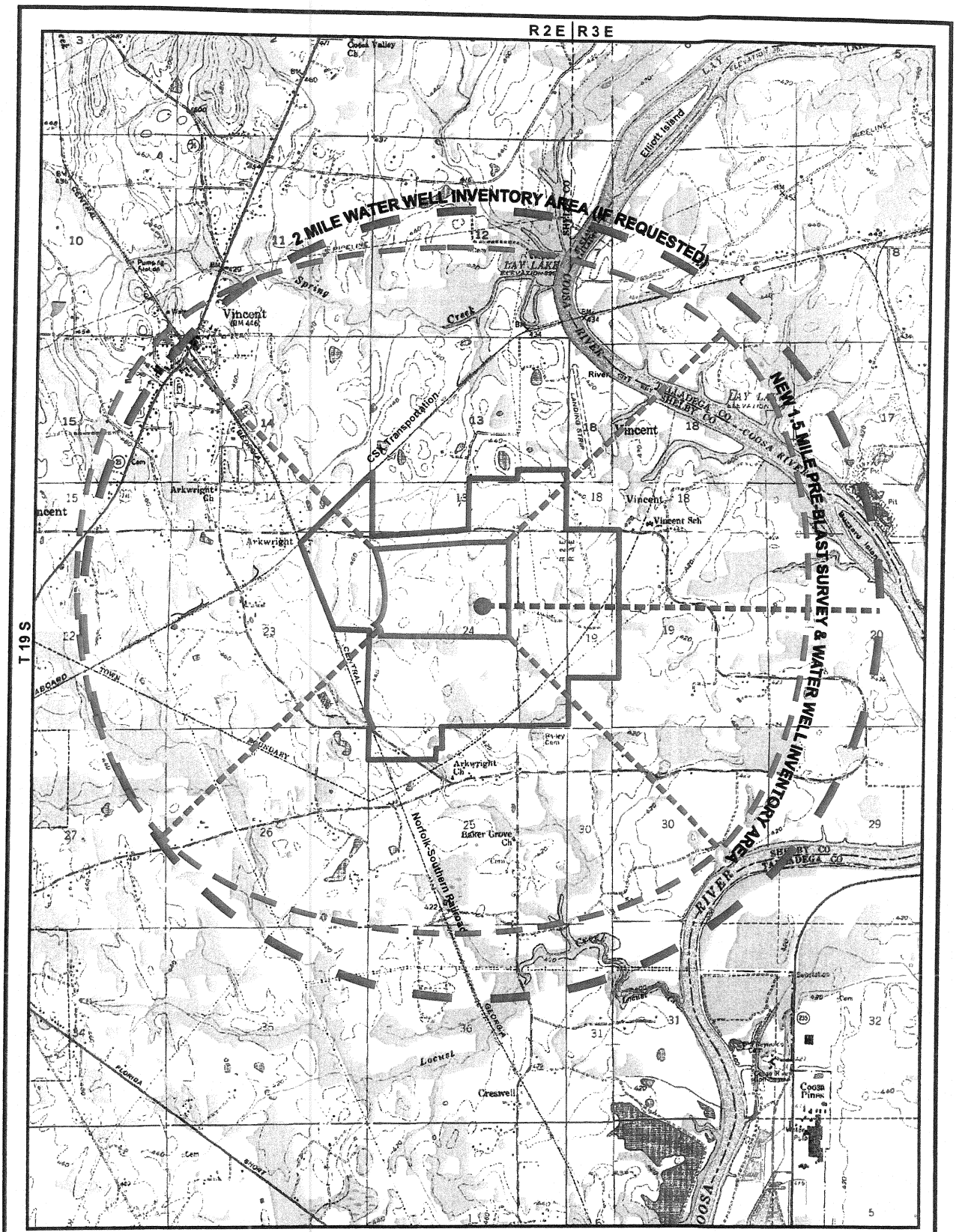
- Quick response to potential problems, and expert evaluation and planning for mitigation measures where needed, will minimize the impact of sinkhole occurrence, should it occur, in the area surrounding the quarry.

REFERENCES:

Sowers, G.F., 1996, *Building on Sinkholes*: American Society of Civil Engineers, New York, New York, pp. 122-123.

Attachments

Attachment 1	Inventory Area Map
Attachment 2	Subsidence Inventory/Monitoring Form
Attachment 3	Inverted Granular Filter (IGF) Schematic



WATER WELL INVENTORY AND PRE-BLAST SURVEY AREAS

LEGEND

- QUARRY PROPERTY BOUNDARY
- MINE BOUNDARY
- 1.5 MILE RADIUS FROM OUTER CORNERS OF MINE BOUNDARY
- 2 MILE RADIUS FROM CENTER OF QUARRY BOUNDARY
- CENTER OF QUARRY PROPERTY BOUNDARY

SOURCE: VINCENT 7.5' USGS QUADRANGLE (1951), PHOTOREVISED (1972).
LANIERS 7.5' USGS QUADRANGLE (1951), PHOTOREVISED (1972);
HARPERSVILLE 7.5' USGS QUADRANGLE (1956), PHOTOREVISED (1972).

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SCALE IN FEET

VINCENT HILLS

Subsidence Inventory/Monitoring Form

INSPECTOR

INSPECTION DATE

GENERAL INFORMATION:

Property Owner Name: _____

Address: _____ **City:** _____ **State** _____ **Zip Code** _____

Home Phone Number: ( ) _____ **Cell Phone Number:** ( ) _____ **Work Phone Number:** ( ) _____

Email Address: _____

Reason for Visit: ☐ Initial Inspection ☐ Complaint ☐ Follow-Up

If Complaint, Describe: _____

_____

_____

Person Interviewed: _____

INSPECTION:

Complete all that apply below:

☐ Own ☐ Rent **Purchased What Year:** _____ **Last Time Remodeled:** _____ **Last Time Painted:** _____

Age of House: Months _____ Years _____

Last Time Maintenance or Any Work Performed: _____

_____

_____

House Type: ☐ 1 Story ☐ 1 1/2 Story ☐ 2 Story ☐ Split Level **Basement:** ☐ Yes ☐ No ☐ Partial

Drainage: ☐ Good ☐ Inadequate (explain) _____

_____

_____

EXTERIOR

☐ Masonry Stone ☐ Stucco ☐ Wood ☐ Vinyl ☐ Other _____

Condition of Exterior: _____

_____

_____

Driveway/Sidewalk: ☐ None ☐ Gravel ☐ Asphalt ☐ Concrete ☐ Other _____

Condition of Driveway/Sidewalk: _____

_____

_____

Patio/Deck: ☐ Wood ☐ Concrete ☐ Other _____

Condition of Patio/Deck: _____

_____

_____

STRUCTURAL

Foundation: ☐ Slab ☐ Crawl ☐ Access ☐ Ventilated ☐ Moisture Barrier ☐ Wet

oting: ☐ Yes ☐ No **Undercut:** ☐ Yes ☐ No

Piers: 8' OC ☐ Yes ☐ No **Floor Framing 2' off Ground:** ☐ Yes ☐ No

Wall Framing Square: ☐ Yes ☐ No **Condition** _____

_____

Roof Framing Ridge Straight: ☐ Yes ☐ No **Condition** _____

_____

_____

Foundation & Crawl Space Condition: _____

_____

_____

INTERIOR

Walls & Ceiling: ☐ Plaster ☐ Drywall ☐ Wood ☐ Other _____

Condition of Walls & Ceiling: _____

_____

_____

Condition of Doors & Windows: _____

_____

_____

Condition of Base & Crown: _____

Floor: ☐ Carpet ☐ Tile ☐ Vinyl ☐ Other _____

Condition of Floor: Level ☐ Yes ☐ No ☐ Other _____

Soil Classifications: _____

_____

_____

Other Observations: _____

_____

_____

_____

_____

Pasture/Woodland Observations: _____

_____

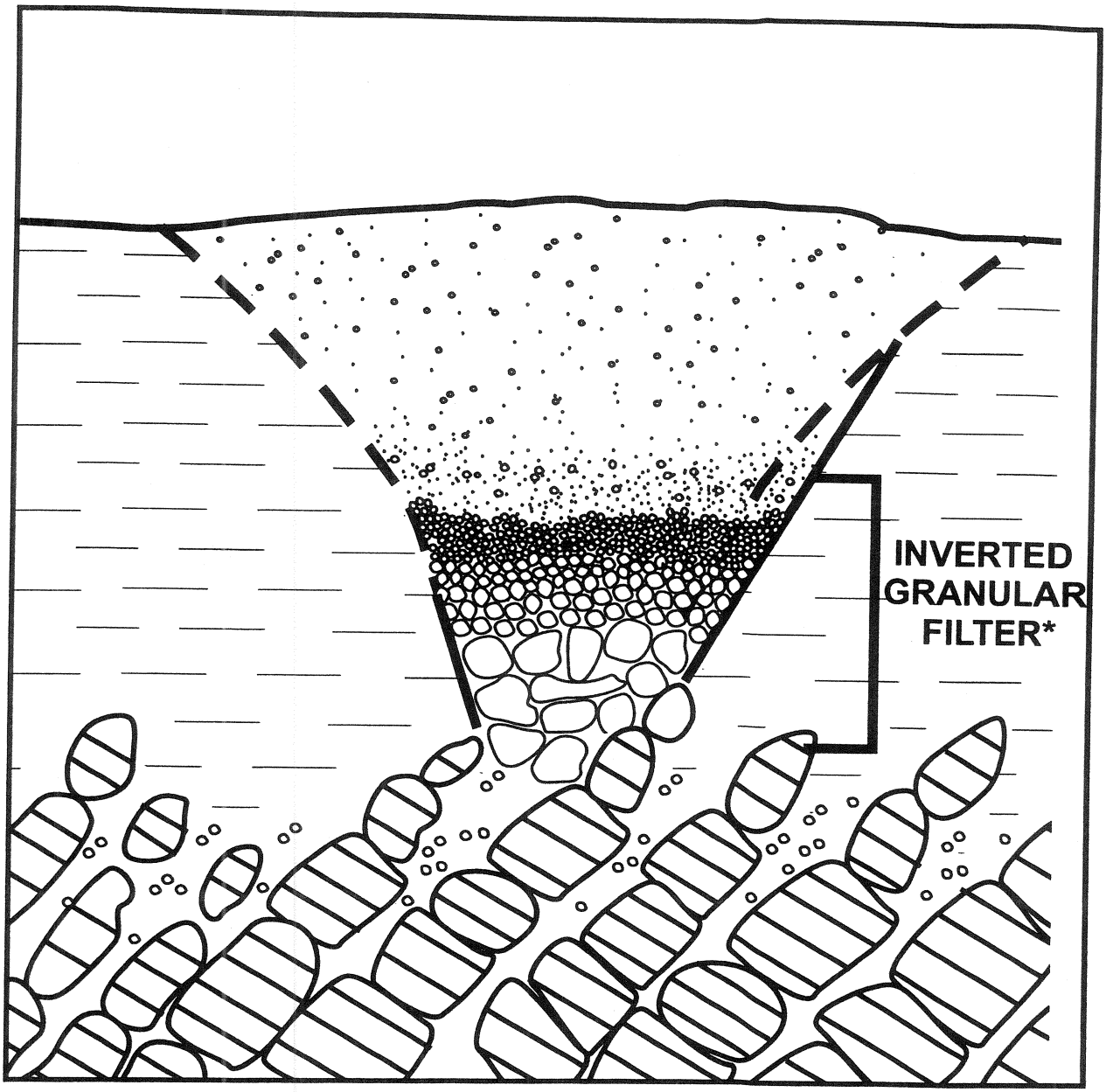
_____

_____

_____

Subsidence Feature Description: ☐ Chimney ☐ Sinkhole ☐ Surface Slump ☐ Circular Cracks in Pavement/Soil

☐ Other _____



APPENDIX C - ATTACHMENT 3
INVERTED GRANULAR FILTER SCHEMATIC

* Geotextile Fabric May Be Used at Various Stages of Construction

SOURCE:
Modified from: Sowers, 1996.