BIOLOGICAL HABITAT ASSESSMENT

ALDEN RESOURCES, LLC

KIMBERLY MINE

Prepared For:
ALDEN RESOURCES, LLC

470 acres +/-
Sections 27, 33, & 34 Township 14 South, Range 3 West
Section 3, Township 15 South, Range 3 West

ALL IN
JEFFERSON COUNTY ALABAMA

November 26th, 2013

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Executive Summary

McGehee Engineering Corporation performed a biological habitat assessment survey for habitat and the possible presence of the species federally listed as endangered, threatened, or of concern in September, October and November of 2013. The study was conducted on the proposed Alden Resources LLC – Kimberly Mine project area. The proposed project area consists of approximately 470 acres located in Section 3, Township 15 South, Range 3 West, and Sections 27, 33, & 34, Township 14 South, and Range 3 West all in Jefferson County.

The proposed Alden Resources, LLC – Kimberly Mine project area consists of upland area disturbed through previous residence, mining and silvaculture and current field maintenance, hunting and residence. Pritchett Road via Sardis Road allows access to the proposed project area. The upland road allows access to the central portion of the project area and old silvaculture and mine roads allow access to the upper portion along Locust Fork. The central and lower portions of the proposed project area are residence, maintained fields and hunting area. The fringes and pockets of these maintained fields have been timbered in recent years, many in the past few months. The upper portion of the area is dominated with semi-maintained fields abutting old highwalls. Some of these highwalls have open water collections at the base of them. The area has gently inclined slopes that are vegetated with planted pines, young hardwoods and many nonnative invasive species. The proposed project is located partially on a previously mined area and current mining has taken place near the proposed boundary. The proposed project will highwall mine the old highwalls and surface mine the central portion.

The biological habitat assessment survey focused in on T, E & C species listed in Jefferson County as can be found in Table 2.1 along with the Indiana Bat, Bald Eagle, Wood Stork and the Red Cockaded Woodpecker.

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Chapter 1. Proposed Project Review

1.1 Introduction

McGehee Engineering Corporation performed a biological habitat assessment survey for habitat and the possible presence of the species federally listed as endangered, threatened, or of concern on September, October and November of 2013. The study was conducted on the proposed Alden Resources, LLC – Kimberly project area. The proposed project area consists of approximately 470 acres located in Section 3, Township 15 South, Range 3 West, and Sections 27, 33, & 34, Township 14 South, Range 3 West, all on the Warrior, Alabama U.S.G.S Quadrangle as found in Jefferson County, Alabama. The proposed site location is shown on the attached 2000' scale project area map attachment "B".

The proposed Alden Resources, LLC – Kimberly Mine project area consists of upland area disturbed through previous residence, mining and silvaculture and current field maintenance, hunting and residence. Pritchett Road via Sardis Road allows access to the proposed project area. The upland road allows access to the central portion of the project area and old silvaculture and mine roads allow access to the upper portion along Locust Fork. The central and lower portions of the proposed project area are residence, maintained fields and hunting area. The fringes and pockets of these maintained fields have been timbered in recent years, many in the past few months. The upper portion of the area is dominated with semi-maintained fields abutting old highwalls. Some of these highwalls have open water collections at the base of them. The area has gently inclined slopes that are vegetated with pines, hardwoods and many nonnative invasive species. The proposed project is located partially on a previously mined area and current mining has taken place near the proposed boundary. The proposed project will highwall mine the old highwalls and surface mine the central portion.

1.2 Project Location

Alden Resources, LLC – Kimberly Mine consists of approximately 470 acres and is located in Section 3, Township 15 South, Range 3 West, and Sections 27, 33, & 34, Township 14 South, and Range 3 West as located in Jefferson County, Alabama on the Warrior, Alabama U.S.G.S Quadrangle. The proposed site location is shown below on the attached project area map Figure 1. (Appendix "A")

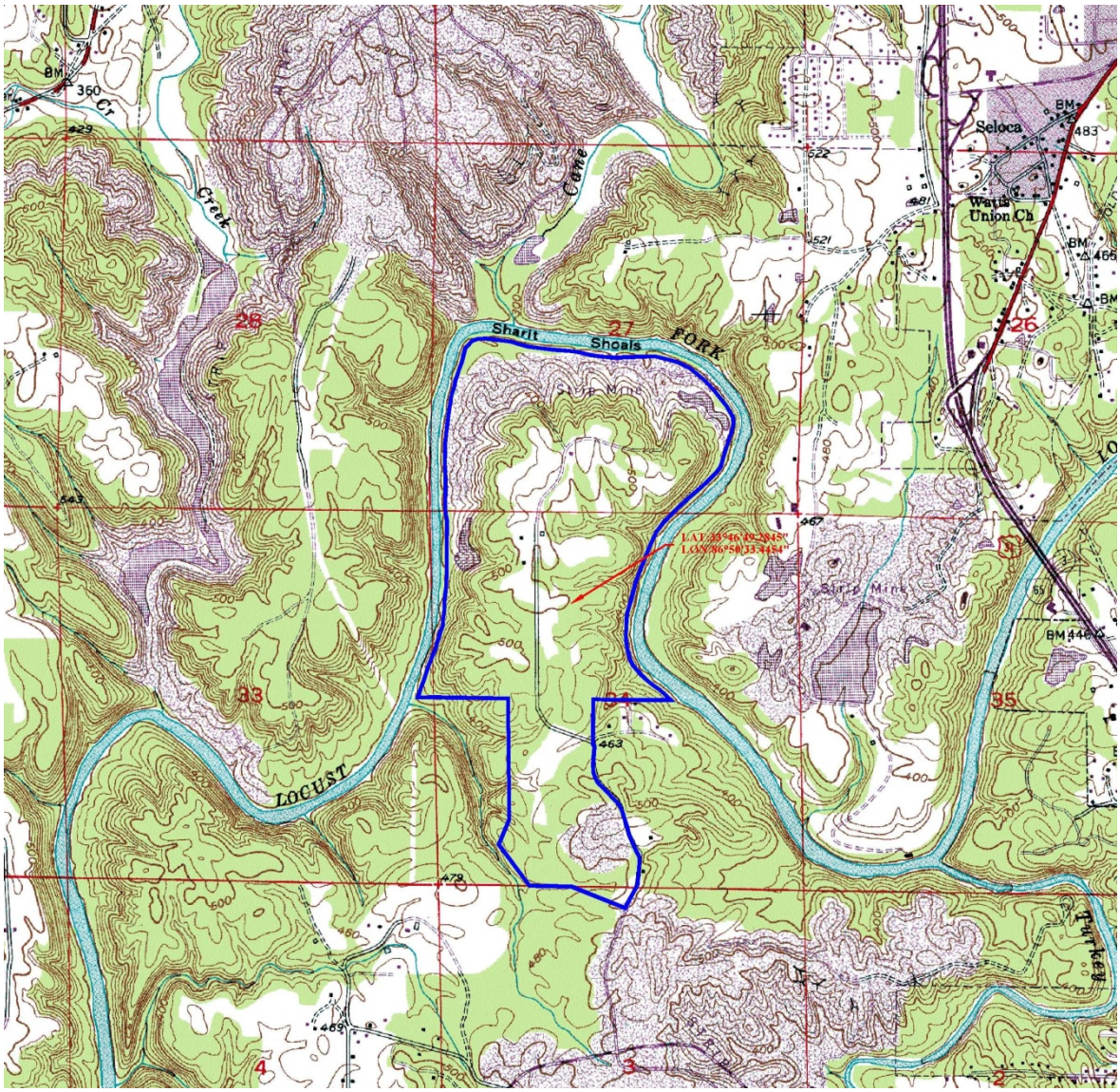

Figure 1. Project Area Map. *(not to scale)*

Chapter 2. Threatened & Endangered Species

2.1 Species Identification

The U.S. Fish and Wildlife Service (USFWS) threatened, endangered, and candidate species list for Jefferson County was reviewed by a qualified biologist in order to determine species potentially occurring in the project vicinity (Table 2.1). In addition, the Alabama Natural Heritage Section Database that contains numerous records of sensitive species in Alabama was queried to provide a list of special status species and habitats that may have been documented as occurring within the project area and/or the project vicinity.

Table 2.1. List of Threatened, Endangered and Candidate Species for Jefferson County.

Common Name *Scientific Name*	**Status**	**General Habitat**
Bald eagle *Haliaeetus leucocephalus*	*BGEPA*	Large open bodies of water where adequate food exist and human disturbance is limited
Wood stork *Mycteria americana*	*E*	Freshwater and estuarine wetlands, primarily nesting in cypress or mangrove swamps. Narrow tidal creeks or flooded tidal pools where fish become concentrated
Red-cockaded woodpecker *Picoides borealis*	*E*	Open, mature and old growth pine ecosystems with minimal hardwood overstory and midstory
Indiana Bat *Myotis sodalis*	*E*	Lives in a variety of habitats including floodplain and riparian zones for roosting with upland area nearby and caves and sometimes mines for hibernating and mating
Gray Bat *Myotis grisescens*	*E*	Live in caves year-round; Winter hibernation in deep vertical caves, Summer roost in caves along rivers
Plicate rocksnail *Leptoxis plicate*	*E*	Shallow gravel and cobble shoals in the flowing waters of the bottom 1/3 (20 miles) of the Locust Fork of the Black Warrior River in Jefferson County
Cylindrical Lioplax *Lioplax cyclostomaformis*	*E*	Isolated mud deposits found under large rocks in the rapid flowing sections of stream and river shoals
Round rocksnail *Leptoxis ampla*	*T*	Cobble, gravel, or other hard substrates in the strong currents of riffles and shoals of high water quality streams and rivers
Fine-lined pocketbook mussel *Hamiota (=Lampsilis) altilis*	*T*	Large rivers to small creek habitats swift flowing riffles and gravel-cobble substrates
Ovate clubshell mussel *Pleurobema perovatum*	*E*	Sand and gravel bottom free flowing streams and rivers with good water quality and stable stream channels
Orange-nacre mucket mussel *Hamiota (=Lampsilis) perovalis*	*T*	Large rivers to small creek habitats swift flowing riffles and gravel-cobble substrates
Southern clubshell *Pleurobema decisum*	*E*	Sand and gravel bottom free flowing streams and rivers with good water quality and stable stream channels
Alabama moccasinshell *Medionidus acutissimus*	*T*	Small to mid-sized streams with sandy-gravel and gravel substrates with moderate flow
Triangular kidneyshell mussel *Ptychobranchus greenii*	*E*	Sand and gravel bottom free drainage courses and rivers with good water quality and stable stream channels

Southern pigtoe *Pleurobema georgianum*	*E*	Sand and gravel bottom riffles of free flowing streams and rivers with good water quality and stable stream channels
Southern acornshell mussel *Epioblasma othcaloogensis*	*E*	Streams or rivers with fine gravel bottoms with moderate to strong currents and some shallows
Upland combshell mussel *Epioblasma metastriata*	*E*	Stable gravel and sand riffles of high water quality streams
Dark pigtoe mussel *Pluerobema furvum*	*E*	Sand/gravel/cobble shoals and rapids in small rivers and large streams; usually highly oxygenated water with moderate flow
Cahaba shiner *Notropis cahabae*	*E*	Quiet shallow, 1.6 feet or less, shoals below swift riffle areas and downstream of boulders in sandy patches or gravel beds in the main channel of the Cahaba river
Goldline darter *Percina aurolineata*	*T*	Moderate to swift current, and water depths 2 feet or more, with gravel or sand substrates interspersed among cobble and small boulders in big and little Cahaba rivers
Watercress darter *Etheostoma nuchale*	*E*	Slow moving spring fed tributaries to Black Warrior River at mid-depths in dense aquatic vegetation with dense populations of aquatic insect larvae and microcrustaceans. Associated with watercress.
Vermilion darter *Etheostoma chermocki*	*E*	Swift currents in streams of alternating riffles and pools. Riffles with small limestone rubble and shale cobble. Clean bedrock, sometimes with sand, occurs in pools. Associated with water willow in larger riffles and shoals. Near springs, in swift runs and chutes adjacent to watercress and pondweed all in Turkey Creek
Rush darter *Etheostoma phytophilum*	*C*	Lives in the reeds and rushes on the edges of small freshwater streams. It needs clear, cool, unpolluted water to survive.
Flattened musk turtle *Sternotherus depressus*	*T*	Free-flowing creek or small river with pools about 1 m deep or more, with rocks, abundant mollusks, low silt load and deposits, moderate temperature rock-bottomed to sandy substrate
Gentian Pinkroot *Spigelia gentianoides* Var. *alabamensis*	*E*	Glades, open, treeless area surrounded by woodlands, over rock formations of Ketona Dolomite. Solis high in calcium & magnesium and low in phosphorus & potassium and pH ranges from 7.4 to 7.6. Soils will also be rock exposed to very thin and prone to drought.
Georgia Rock-cress *Arabis georgiana*	*C*	Rocky (limestone, shale, granite-gneiss) bluffs and slopes along watercourses; also along sandy, eroding riverbanks
Mohr's Barbara's buttons *Marshallia mohrii*	*T*	Moist sandy clay soils, along shale bed streams, road side right-of-ways, seasonally wet low swales around natural springs and seeps
Georgia Aster *Symphotrichum georgianum*	*C*	Upland prairie grassland communities to thinned oak pine woodlands. Most remaining populations survive adjacent to roads, utility rights of way, and other openings
Tennessee Yellow-eyed Grass *Xyris tennesseensis*	*E*	Gravelly open wet woodlands, with calcareous rock near the surface, seep margins and wet meadows along spring-fed headwater streams

Key to codes on list:

- **E** – Endangered
- **T** - Threatened
- **BGEPA** - Bald & Golden Eagle
- **C** - Candidate Species
- **(P)** - Possible Occurrence

Chapter 3. Methodology

3.1 Methodology

The subject property was surveyed by McGehee Engineering Corp. (MEC) for the occurrence and potential for occurrence for species protected or listed by the U.S. Fish and Wildlife Service (USFWS), based on known habitat preferences and geographical distribution. The principal surveyor for this site was Biologist Wes Lamon of McGehee Engineering Corp.

The study site was surveyed by completely traversing the site in a zigzag pattern at approximately 20 meter intervals. Survey conditions are described in Table 3.1. Prior to performing the field reconnaissance, MEC performed a review of aerial photographs of the project site and a pedestrian survey was conducted by MEC biologist to identify vegetation communities and land uses, perform general habitat assessment for plants and animals; assess the potential for nesting or roosting activity by birds and/or bats within the general study area. Focused surveys for sensitive aquatic species were not performed; however, the potential for habitat for these species was assessed during the survey by visually examining the water and randomly checking substrate throughout stream reaches.

Table 3.1. Survey Conditions

Date: September 11th, 2013

Temperature (°F)	Wind (MPH)	Sky Cover %
80°	1-3	10%

September 13th, 2013

Temperature (°F)	Wind (MPH)	Sky Cover %
75°	1-4	0%

September 18th, 2013

Temperature (°F)	Wind (MPH)	Sky Cover %
82°	2-5	10%

October 2nd, 2013

Temperature (°F)	Wind (MPH)	Sky Cover %
80°	2-7	50%

October 7th, 2013

Temperature (°F)	Wind (MPH)	Sky Cover %
74°	2-8	40%

November 20th, 2013

Temperature (°F)	Wind (MPH)	Sky Cover %
62°	4-10	90%

As part of the field reconnaissance, MEC also conducted a delineation of potentially jurisdictional wetlands and waters of the U.S. as it relates to Section 404 of the Clean Water Act in accordance to the 1987 *"Corps of Engineers Wetlands Delineation Manual":* Wetlands Research Program Technical Report Y-87-1. Additional Data sources other than mentioned within the report include the following:

USGS Quadrangle Map	Warrior, Alabama USGS Quad Revised 1981
National Wetlands Inventory Map	Warrior, Alabama NWI Quad developed 1981
SCS Soil Survey	Jefferson County NRCS Web Survey
Aerial Photos	Google Image Dated: 12-12-2012
Plant Database	United States Department of Agriculture / Natural Resources Conservation Services Web Database
FEMA Flood Map	Federal Emergency Management DFIRM Database FIRMettes 01073C0061G, 01073C0062G, 01073C0063G, 01073C0064G Jefferson County

Chapter 4. Environmental Setting

4.1 General Habitat Description

The proposed Alden Resources, LLC -- Kimberly Mine project area is located in Warrior, Alabama and lies along Pritchett Road via Sardis Road. The area is highly disturbed and portions of the property consist of Pritchett Road, mine/silvaculture roads, maintained fields and former and current residences. These areas are vegetated with pines, young growth hardwoods, native and nonnative invasive herbs, shrubs and vines. The project site of approximately 470 acres mostly consists of the following vegetation species:

Tree Stratum

American Beech *(Fagus grandifolia)*
Black Cherry *(Prunus serotina)*
Black Oak *(Quercus velutina)*
Black Willow *(Salix nigra)*
Chestnut Oak *(Quercus prinus)*
Eastern Red Cedar *(Juniperus virginiana)*
Eastern Redbud *(Cercis canadensis)*
Loblolly Pine *(Pinus taeda)*
Mockernut Hickory *(Carya tomentosa)*
Red Maple *(Acer rubrum)*
Southern Red Oak *(Quercus falcata)*
Sugar Maple *(Acer sacchrum)*
Sweet Gum *(Liquidambar styraciflua)*
Sycamore *(Platanus occidentalis)*
Virginia Pine *(Pinus virginiana)*
Water Oak *(Quercus nigra)*
White Oak *(Quercus alba)*
Yellow Poplar *(Liriodendron tulipifera)*

Sapling Stratum

American Beech *(Fagus grandifolia)*
American Holly *(Ilex opaca)*
American Hornbeam *(Carpinus caroliniana)*
Black Cherry *(Prunus serotina)*
Black Willow *(Salix nigra)*
Chestnut Oak *(Quercus prinus)*
Eastern Red Cedar *(Juniperus virginiana)*
Eastern Redbud *(Cercis canadensis)*
Flowering Dogwood *(Cornus florida)*
Loblolly Pine *(Pinus taeda)*
Mockernut Hickory *(Carya tomentosa)*
Red Maple *(Acer rubrum)*
Sassafras *(Sassafras albidum)*
Sourwood *(Oxydendrum arboreum)*

Southern Red Oak *(Quercus falcata)*
Sugar Maple *(Acer sacchrum)*
Sweet Gum *(Liquidambar styraciflua)*
Sycamore *(Platanus occidentalis)*
Turkey Oak *(Quercus laevis)*
Virginia Pine *(Pinus virginiana)*
Water Oak *(Quercus nigra)*
White Oak *(Quercus alba)*
Yellow Poplar *(Liriodendron tulipifera)*

Shrub Stratum

American Beech *(Fagus grandifolia)*
American Holly *(Ilex opaca)*
American Hornbeam *(Carpinus caroliniana)*
Black Willow *(Salix nigra)*
Chinese Privet *(Ligustrum sinense)*
Eastern Redbud *(Cercis canadensis)*
Flowering Dogwood *(Cornus florida)*
Loblolly Pine *(Pinus taeda)*
Mimosa *(Albizia julibrissin)*
Mockernut Hickory *(Carya tomentosa)*
Oakleaf Hydrangea *(Hydrangea quercifolia)*
Red Maple *(Acer rubrum)*
Smooth Sumac *(Rhus glabra)*
Southern Red Oak *(Quercus falcata)*
Sugar Maple *(Acer sacchrum)*
Sweet Gum *(Liquidambar styraciflua)*
Tree of Heaven *(Ailanthus altissima)*
Virginia Pine *(Pinus virginiana)*
Water Oak *(Quercus nigra)*
White Oak *(Quercus alba)*
Yellow Poplar *(Liriodendron tulipifera)*

Herbaceous Stratum

Annual Ragweed *(Ambrosia artemisiifolia)*
Big Bluestem *(Andropogon gerardii)*
Blackberry *(Rubus betulifolius)*
Bluestem Broom sedge *(Andropogon virginicus)*
Canada Golden Rod *(Solidago altissima)*
Chinese Lespedeza *(Lespedeza cuneata)*
Christmas Fern *(Polystichum acrostichoides)*
Daisy Fleabane *Rigeron philidelphicus)*
Flowering Spurge (*Eurphorbia corallata)*
Foxtail Meadow grass *(Alopecurus pratensis)*
Hawkweed *(Rigia biflora)*
Horseweed *(Conyza canadensis)*
Hyssop-Leaved Boneset (*Eupatorium hyssopifolium)*

Indian grass *(Sorghastrum nutans)*
Meadow Fescue *(Festuca pratensis)*
Muhly Grass *(Muhlenbergia schreberi)*
Nepalese Brown Top *(Microstegium vimineum) (Eulalia viminea)*
Purple Mistflower (*Eupatorium coelestinum)*
Southern Dewberry *(Rubus trivialis)*
Tall Fescue *(Festuca arundinacea)*
Tree of Heaven *(Ailanthus altissima)*
Yankee weed *(Eupatorium compostifolium)*

Woody Vine Stratum

Eastern Poison Ivy *(Toxicodendron radicans)*
Japanese Honeysuckle *(Lonicera japonica)*
Muscadine *(Vitis rotundifolia)*
Roundleaf Green Briar *(Smilax rotundifolia)*
Saw Briar *(Smilax bona-nox)*
Virginia Creeper *(Parthenocissus quinquefolia)*
Yellow Jessamine or Carolina Jasmine *(Gelsemium sempervirens)*

The proposed Alden Resources, LLC -- Kimberly Mine project consists of primarily upland area. The project has some low grade intermittent drains primarily in the limited area that has not been previously mined. There are upland ponds at points S and N, at the base of a highwalls and a small disconnected low grade wetland at point C. The wetland has an inconsistent hydroperiod and contains many facultative plants. There is also a created upland pond at point AA. This pond was poorly built and part of the once dam has collapsed into the streambed below. This pond rarely, if ever, has an outflow. Pritchett Road via Sardis Road runs into the proposed area. Mine and silvaculture roads reach around the upper end of the area along Locust Fork and hunting/silvaculture roads lead into the pockets of the central portion of the project area. The project is easily accessed by these roads. The upland central area, upon which Pritchett road sits, has gently inclined slopes that are vegetated with upland grasses and herbs. The fingers of intermittent streams and upland valleys are vegetated with planted pines, young hardwoods and many nonnative invasive species. The upper end of the project area is significantly disturbed through previous mining. The area is dotted with relic highwalls, of which, some have water that sits at the base of them, at least partially throughout the year. I do not believe that these highwall water catchments ever flow out. This area is semi-maintained through occasional field cuttings. This area has similar vegetation to the central area, but with numerously more nonnative invasive species.

There are several soil groups within the project. The first is Montevallo-Nauvoo association, steep that are well drained. The second is Palmerdale complex, steep which are somewhat excessively drained. The third is Sullivan-State complex, 0 to 2 percent slopes that is well drained. The last is Nauvoo fine sandy loam, 2 to 8 percent slopes that are well drained. All soil types are partially hydric. The soils identified in the field matched the USDA Soil data profile therefore a more detailed description of the soil as well as the soil maps can be found in Appendix C.

Chapter 5. Habitat Study Results

5.1 Terrestrial and Terrestrial Habitat Species

a. **Bald eagle** (*Haliaeetus leucocephalus)* - There was no potential nesting habitat for the Bald Eagles. There were no large trees to support the nesting habitat of the Bald Eagle. The only area of Large trees were located just outside the project area in sparse places immediately adjacent to Locust Fork were noted, but no nests were discovered.

b. **Red-cockaded woodpecker** (*Picoides borealis)* - There were no isolated mature pines of the age and required size that would harbor the Red-cockaded woodpecker on or adjacent to the project site. Also the mid and understory are very thick.

c. **Wood stork** *(Mycteria americana)* - There was no potential nesting habitat for the Wood stork. There were no large trees in the project boundary that would support nesting. Some large trees outside the project area near open water along the Locust Fork were noted and evaluated, but no nests were discovered.

d. **Indiana Bat** *(Myotis sodalis)* – Hibernation Habitat for this species does not exist within the Project Boundary. Possible Summer roosting habitat for this species does not exist within the project boundary but does exist just outside the project boundary along the Locust Fork. It is recommended that a minimum of 100 foot buffer be left between the project and the Locust Fork to preserve the potential summer roosting habitat.

e. **Gray Bat** *(Myotis grisescens)* – Habitat for this species does not exist. There are no caves located within or adjacent to the proposed project boundary.

f. **Georgia Aster** *(Symphotrichum georgianum)* – Possible habitat for this species does exist in that it is found in dry openings that have often times been disturbed. Likely habitat would be road sides, utility right-of-ways, and openings similar to original prairie communities. It is highly unlikely that the Georgia Aster exists in this area due to the historical presence of hardwood forests and continuous ongoing disturbance. These areas were explored and the aster was not found.

g. **Mohr's Barbara's buttons** *(Marshallia mohrii)* – Habitat for this species does not exist. There are no consistent wetlands suitable within the proposed boundary.

h. **Gentian Pinkroot** *(Spigelia gentianoides* var. *alabamensis)* – Habitat for this species does not exist. There are no glades located within the project boundary.

i. **Georgia Rock-cress** *(Arabis georgiana)* -- Habitat for this species does not exist within the proposed boundary. There are no sandstone outcrops.

j. **Tennessee Yellow-eyed grass** *(Xyris tennesseensis)* – Habitat for this species does not exist. There are no groundwater seeps in the area with calcareous rock or required soils for this species to survive.

5.1.1 Summary

Possible habitat was found for Georgia Aster. The possible habitat was explored and the species was not present. No habitat was found for the remainder of the above listed, threatened and endangered species within the project boundary. No evidence was found or observed for the presence or possible presence of these listed species within or adjacent to the project boundary.

5.2 Aquatic and Aquatic Habitat Species

a. **Flattened musk turtle** *(Sternotherus depressus)* – Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow and is of insufficient depth and incorrect substrate for this species to exist. Habitat exists outside the proposed boundary in Locust Fork.

b. **Fine-lined pocketbook mussel** *(Hamiota (=Lampsilis) altilis)* – Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

c. **Ovate clubshell mussel** *(Pleurobema perovatum)* – Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

d. **Triangular kidneyshell mussel** *(Ptychobranchus greenii)* – Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

e. **Southern clubshell mussel** *(Pleurobema decisum)* – Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

f. **Orange-nacre mucket mussel** *(Hamiota (=Lampsilis) perovalis)* -- Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

g. **Alabama moccasinshell mussel** *(Medionidus acutissimus)* -- Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

h. **Upland combshell mussel** *(Epioblasma metastriata)* - Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

i. **Dark pigtoe mussel** *(Pleurobema perovatum)* -- Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

j. **Southern acornshell Mussel** *(Epioblasma othcaloogensis)* -- Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

k. **Southern pigtoe mussel** *(Pleurobema georgianum)* - Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

l. **Goldline darter** *(Percina aurolineata)* -- Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Also this species is only found in the cobble and small boulder area of the big and little Cahaba River.

m. **Cahaba shiner** *(Notropis cahabae)* -- Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow

for this species to exist. Also this species is only found in the main channel of the Cahaba River.

n. **Watercress darter** *(Etheostoma nuchale)* -- Habitat for this species does not exist. Onsite water has inconsistent flow for this species to exist.

o. **Vermilion darter** *(Etheostoma chermocki)* -- Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. This species is typically associated with springs, specifically in Turkey Creek.

p. **Plicate rocksnail** *(Leptoxis plicate)* - Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

q. **Cylindrical Lioplax** *(*Lioplax cyclostomaformis) – Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

r. **Round Rocksnail (***Leptoxis ampla)* - Habitat for this species does not exist within the project boundary. Onsite water has inconsistent flow for this species to exist. Habitat exists outside the proposed boundary in Locust Fork. No mussels or snails were observed.

5.2.1 Summary

No habitat was found for the above listed, threatened and endangered species within the project boundary. No evidence was found or observed for the presence or possible presence of these listed species within the project boundary. Continuous flowing water does not exist. The nearest potential habitat is the Locust Fork which is separated from the project area with a vegetated buffer of at least 100 feet. Hibernation Habitat for the Indiana bat does not exist within the Project Boundary. Possible Summer roosting habitat for the Indiana Bat does not exist within the project boundary but does possibly exist just outside the project boundary along the Locust Fork. It is recommended that a minimum of 100 foot buffer be left between the project and the Locust Fork to preserve the potential summer roosting habitat.

Additionally there have been at least two other Threatened and Endangered species study for this site and this area. A 2010 Threatened and Endangered species study performed by Dr. Paul Yokley, Jr & Dr. Robert Daly did not identify the presence of any threatened or endangered species within the study.

2014 Indiana Bat Survey performed by Conservation Services of Alabama, LLC. By Tom Counts (CSA), Keith Hudson (formally ADCNR) an Wes Lamon (MEC).

Although, habitat for each of the listed species does not exist within the project boundary, there is potential habitat for some of the aquatic species within the nearest perennial water which is the Locust Fork. However, the 2010 Yokley Survey of the Locust Fork in this area did not identify any listed species.

We highly recommend the minimum vegetated buffer width from the project site to the Locust Fork.

5.3 Wetlands and Streams

5.3.1 Wetlands

The project area was evaluated according to the 1987 *"Corps of Engineers Wetlands Delineation Manual"* and the April 2012 Version 2.0 Eastern Mountain & Piedmont COE Regional Supplement to the COE Wetland Delineation Manual. A small disconnected wetland was discovered at point C. This wetland has an inconsistent hydroperiod.

5.3.2 Streams

The project area was evaluated for jurisdictional waters using the North Carolina Method for determining intermittent and perennial streams. Intermittent streams were located at points A, B, K, L, T, U, V and W. As mentioned previously, all streams originate as seeps within the proposed boundary and travel a short distance with very little flow to Locust Fork outside the boundary. A detailed determination is discussed in the wetland delineation report sent to ACOE.

NOTE: The below photographic log and photographic log point map represents the points within the habitat study area. Any numerical anomalies occur because those points are represented in maps used for other regulatory agencies.

Chapter 6. References

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Chapter 7. Signatures of Preparers

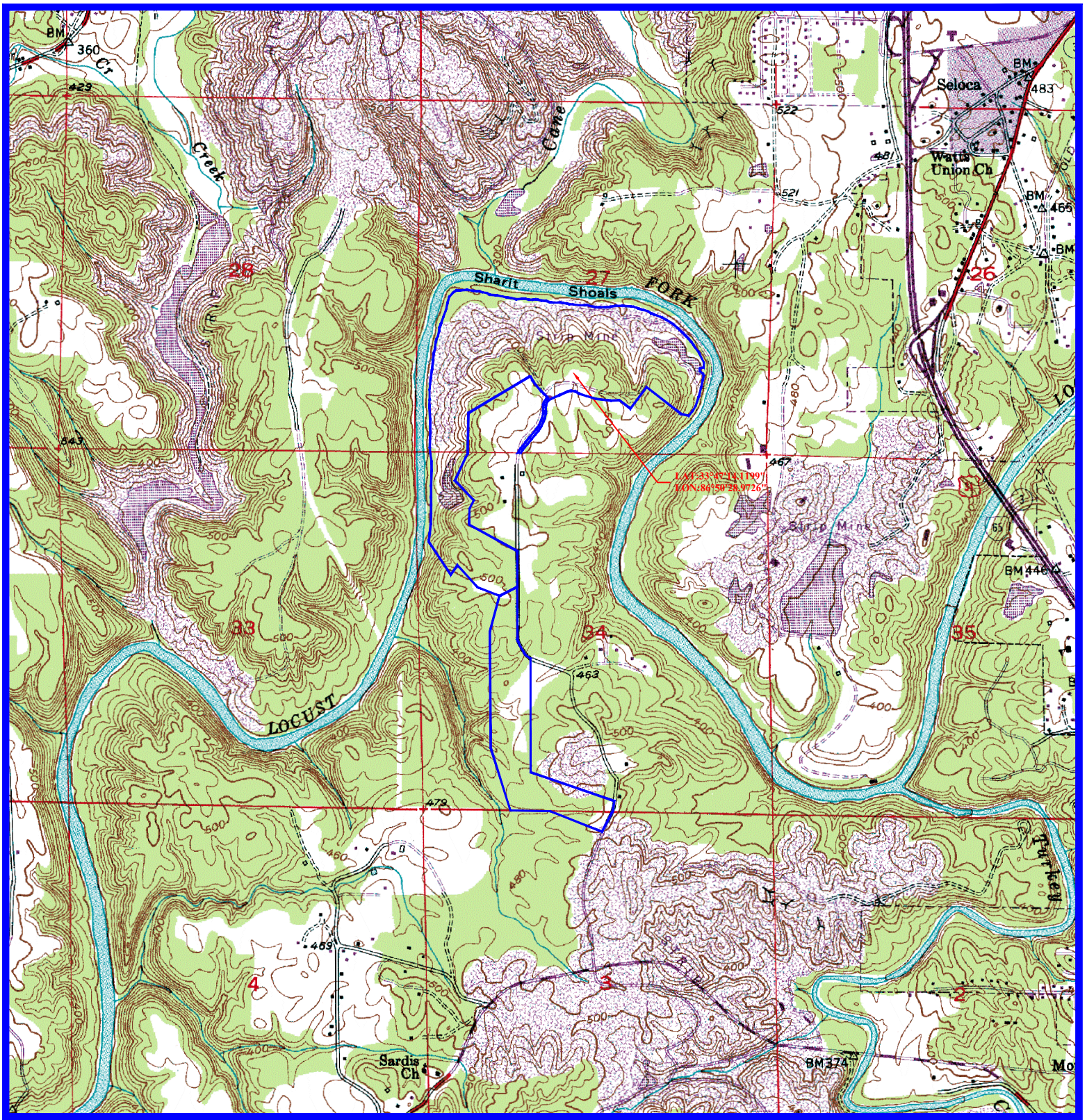
Prepared by:

Wes Lamon
Biologist

Reviewed by:

L. Stephen Blankenship
Environmental Manager / Wetland Specialist

Appendix A — Project Area Map



SCALE: 1" = 2000'
Revised Date: 03-07-2014
Map Size: 8.5" x 11"

ALDEN RESOURCES, LLC
KIMBERLY MINE
(APPROXIMATELY 221 ACRES TOTAL)

PROJECT AREA MAP

SECTION 3, TOWNSHIP 15 SOUTH, RANGE 3 WEST,
SECTIONS 27 & 34, TOWNSHIP 14 SOUTH, RANGE 3 WEST,
ALL IN JEFFERSON COUNTY, ALABAMA
AS FOUND ON THE WARRIOR, ALABAMA USGS QUAD. (1983)

PROJECT BOUNDARY

Latitude: 33°47'14" N
Longitude: 86°50'29" W

mcgehee engineering corp
post office box 3431
jasper, alabama 35502-3431
telephone: (205) 221-0686 fax: 221-7721
email: staff@mcgehee.org

Appendix B — Photographic Log

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-11-13***	
Photo No.	***P9110096***	
Point No.	***A***	

Description:

This is a view of an intermittent drain at point A.

Dominant Vegetation:

- *Ligustrum sinense*
- *Carpinus caroliniana*
- *Acer rubrum*
- *Quercus alba*
- *Liquidambar styraciflua*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-11-13***	
Photo No.	***P9110098***	
Point No.	***A***	

Description:

This a view of the vegetation at point A.

Dominant Vegetation:

Same as above.

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-11-13***	
Photo No.	***P9110099***	
Point No.	***B***	

Description:

This is a view of a pond at point B.

Dominant Vegetation:

- *Acer rubrum*
- *Albizia julibrissin*
- *Ligustrum sinense*
- *Liquidambar styraciflua*
- *Liriodendron tulipifera*
- *Lonicera japonica*
- *Salix nigra*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-11-13***	
Photo No.	***P9110101***	
Point No.	***B***	

Description:

This is a view of the vegetation at point B.

Dominant Vegetation:

Same as above.

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-11-13***	
Photo No.	***P9110087***	
Point No.	***C***	

Description:

This is a view of a wetland area at point C.

Dominant Vegetation:

- *Acer negundo*
- *Pinus taeda*
- *Scirpus cyperinus*
- *Liquidambar styraciflua*
- *Quercus alba*
- *Leersia oryzoides*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-11-13***	
Photo No.	***P9110090***	
Point No.	***C***	

Description:

This is a view of the vegetation at point C.

Dominant Vegetation:

Same as above.

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-11-13***	
Photo No.	***P9110108***	
Point No.	***D***	

Description:

This is a view of the upland terrain at point 004.

Dominant Vegetation:

- *Sorghastrum nutans*
- *Tripsacum dactyloides*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-11-13***	
Photo No.	***P9110112***	
Point No.	***D***	

Description:

This is a view of the vegetation at point 004.

Dominant Vegetation:

Same as above.

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130169***	
Point No.	***E***	

Description:

This is a view of an occupied dwelling at point E.

Dominant Vegetation:

- *Pinus taeda*
- *Sorghastrum nutans*
- *Tripsacum dactyloides*
- *Festuca pratensis*
- *Quercus falcata*
- *Rhus glabra*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130172***	
Point No.	***E***	

Description:

This is a view of the vegetation at point E.

Dominant Vegetation:

Same as above and…

- *Eupatorium compositifolium*
- *Eupatorium capillifolium*
- *Solidago altissima*
- *Ambrosia artemisiifolia*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130150***	
Point No.	***F***	

Description:

This is a view of an existing road at point F.

Dominant Vegetation:

- *Pinus taeda*
- *Sorghastrum nutans*
- *Tripsacum dactyloides*
- *Festuca pratensis*
- *Quercus falcata*
- *Rhus glabra*
- *Conoclinium coelestinum*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130152***	
Point No.	***F***	

Description:

This is a view of the vegetation at point F.

Dominant Vegetation:

Same as above and…

- *Eupatorium compositifolium*
- *Eupatorium capillifolium*
- *Solidago altissima*
- *Ambrosia artemisiifolia*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130127***	
Point No.	***G***	

Description:

This is a view of an abandoned house at point G.

Dominant Vegetation:

- *Acer saccharum*
- *Parthenocissus quinquefolia*
- *Albizia julibrissin*
- *Carya tomentosa*
- *Ligustrum sinense*
- *Quercus alba*
- *Q. falcata*
- *Liquidambar styraciflua*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130129***	
Point No.	***G***	

Description:

This is a view of the vegetation at point G.

Dominant Vegetation:

Same as above.

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130141***	
Point No.	***H***	

Description:

This is a view of the upland terrain at point H.

Dominant Vegetation:

- *Ambrosia artemisiifolia*
- *Festuca pratensis*
- *Solidago altissima*
- *Sorghastrum nutans*
- *Tripsacum dactyloides*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130144***	
Point No.	***H***	

Description:

This is a view of the vegetation at point H.

Dominant Vegetation:

Same as above.

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130131***	
Point No.	***I***	

Description:

This is a view of the intermittent drain at point I.

Dominant Vegetation:

- *Acer negundo*
- *Aesculus parviflora*
- *Vitus rotundifolia*
- *Liquidambar styraciflua*
- *Liriodendron tulipifera*
- *Lonicera japonica*
- *Fagus grandifolia*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-13-13***	
Photo No.	***P9130138***	
Point No.	***I***	

Description:

This is a view of the vegetation at point I.

Dominant Vegetation:

Same as above.

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-18-13***	
Photo No.	***P9130119***	
Point No.	***J***	

Description:

This is a view of the upland terrain at point J.

Dominant Vegetation:

- *Ligustrum sinense*
- *Polystichum acrostichoides*
- *Vitus rotundifolia*
- *Salix nigra*
- *Phytolacca americanum*
- *Sambucus nigra*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-18-13***	
Photo No.	***P9130123***	
Point No.	***J***	

Description:

This is a view of the vegetation at point J.

Dominant Vegetation:

Same as above

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-18-13***	
Photo No.	***P9180017***	
Point No.	***K***	

Description:

This is a view of the intermittent drain at point K.

Dominant Vegetation:

- *Ligustrum sinense*
- *Carpinus caroliniana*
- *Acer rubrum*
- *Polystichum acrostichoides*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-18-13***	
Photo No.	***P9180019***	
Point No.	***K***	

Description:

This is another view of the intermittent drain at point K.

Dominant Vegetation:

Same as above along with:

- *Berchemia scandens*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-18-13***	
Photo No.	***P9180025***	
Point No.	***L***	

Description:

This is a view of the intermittent drain at point L.

Dominant Vegetation:

- *Pinus taeda*
- *P. virginiana*
- *Acer rubrum*
- *Fagus grandifolia*
- *Polystichum acrostichoides*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-18-13***	
Photo No.	***P9180030***	
Point No.	***L***	

Description:

This is a view of the vegetation at point L.

Dominant Vegetation:

Same as above along with:

- *Liriodendron tulipifera*
- *Vitis rotundifolia*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-18-13***	
Photo No.	***P9180032***	
Point No.	***M***	

Description:

This is a view of the intermittent drain at point M.

Dominant Vegetation:

- *Acer rubrum*
- *Liquidambar styraciflua*
- *Lonicera japonica*
- *Fagus grandifolia*
- *Pinus taeda*
- *Polystichum acrostichoides*
- *Quercus alba*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***09-18-13***	
Photo No.	***P9180037***	
Point No.	***M***	

Description:

This is a view of the vegetation at point M.

Dominant Vegetation:

Same as above along with:

- *Ligustrum sinense*
- *Liriodendron tulipifera*
- *Smilax rotundifolia*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020065***	
Point No.	***N***	

Description:

This is a view of the open water impoundment at point N.

Dominant Vegetation:

- *Pinus taeda*
- *P. virginiana*
- *Liquidambar styraciflua*
- *Ligustrum sinense*
- *Albizia julibrissin*
- *Lonicera japonica*
- *Quercus alba*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020069***	
Point No.	***N***	

Description:

This is a view of the vegetation at point N.

Dominant Vegetation:

Same as above….

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020071***	
Point No.	***O***	

Description:

This is a view of upland terrain at point O.

Dominant Vegetation:

- *Pinus taeda*
- *P. virginiana*
- *Ligustrum sinense*
- *Ambrosia artemisiifolia*
- *Solidago altissima*
- *Acer negundo*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020075***	
Point No.	***O***	

Description:

This is a view of the vegetation at point O.

Dominant Vegetation:

Same as above along with:

- *Conyza canadensis*
- *Eupatorium compostifolium*
- *Tripsacum dactyloides*
- *Festuca pratensis*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020076***	
Point No.	***P***	

Description:

This is a view of an old highwall at point P.

Dominant Vegetation:

- *Pinus taeda*
- *Pinus virginiana*
- *Salix nigra*
- *Liquidambar styraciflua*
- *Ligustrum sinense*
- *Myrica cerifera*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020079***	
Point No.	***P***	

Description:

This is a view of the vegetation at point P.

Dominant Vegetation:

Same as above along with:

- *Phytolacca americanum*
- *Acer rubrum*
- *Acer negundo*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020084***	
Point No.	***Q***	

Description:

This is a view of the upland terrain at point Q.

Dominant Vegetation:

- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus flagellaris*
- *Ligustrum sinense*
- *Lespedeza cuneata*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020086***	
Point No.	***Q***	

Description:

This is a view of the vegetation at point Q.

Dominant Vegetation:

Same as above along with:

- *Conyza canadensis*
- *Eupatorium compostifolium*
- *Eupatorium capillifolium*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020101***	
Point No.	***R***	

Description:

This is a view of an existing road at point R.

Dominant Vegetation:

- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus flagellaris*
- *Ligustrum sinense*
- *Lespedeza cuneata*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020097***	
Point No.	***R***	

Description:

This is a view of the vegetation and an old highwall at point R.

Dominant Vegetation:

Same as above along with:

- *Conyza canadensis*
- *Eupatorium compostifolium*
- *Eupatorium capillifolium*
- *Acer negundo*
- *Pinus virginiana*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020087***	
Point No.	***S***	

Description:

This is a view of an open water at point K.

Dominant Vegetation:

- *Pinus taeda*
- *Salix nigra*
- *Acer negundo*
- *Liquidambar styraciflua*
- *Rubus flagellaris*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020090***	
Point No.	***S***	

Description:

This is a view of the vegetation at point S.

Dominant Vegetation:

Same as above along with:

- *Ligustrum sinense*
- *Acer rubrum*
- *Festuca pratensis*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020123***	
Point No.	***T***	

Description:

This is a view of the intermittent drain at point T.

Dominant Vegetation:

- *Pinus taeda*
- *Pinus virginiana*
- *Quercus nigra*
- *Acer rubrum*
- *Carpinus caroliniana*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020125***	
Point No.	***T***	

Description:

This is a view of the vegetation at point T.

Dominant Vegetation:

Same as above.

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020115***	
Point No.	***U***	

Description:

This is a view of the intermittent drain at point U.

Dominant Vegetation:

- *Pinus taeda*
- *Carpinus caroliniana*
- *Ligustrum sinense*
- *Liquidambar styraciflua*
- *Salix nigra*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-02-13***	
Photo No.	***PA020109***	
Point No.	***U***	

Description:

This is a view of the headcut and vegetation at point U.

Dominant Vegetation:

Same as above along with:

- *Liriodendron tulipifera*
- *Fagus grandifolia*
- *Acer rubrum*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-07-13***	
Photo No.	***PA070092***	
Point No.	***V***	

Description:

This is a view of the intermittent drain at point V.

Dominant Vegetation:

- *Fagus grandifolia*
- *Ligustrum sinense*
- *Liquidambar styraciflua*
- *Hydrangea quercifolia*
- *Polystichum acrostichoides*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-07-13***	
Photo No.	***PA070085***	
Point No.	***V***	

Description:

Same as above…

Dominant Vegetation:

Same as above along with:

- *Acer rubrum*
- *Smilax tamnoides*
- *Smilax rotundifolia*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-07-13***	
Photo No.	***PA070081***	
Point No.	***W***	

Description:

This is a view of the intermittent drain at point W.

Dominant Vegetation:

- *Fagus grandifolia*
- *Ligustrum sinense*
- *Liquidambar styraciflua*
- *Hydrangea quercifolia*
- *Polystichum acrostichoides*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***10-07-13***	
Photo No.	***PA070079***	
Point No.	***W***	

Description:

This is a view of the vegetation at point W.

Dominant Vegetation:

Same as above along with:

- *Acer rubrum*
- *Smilax tamnoides*
- *Smilax rotundifolia*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200248***	
Point No.	***X***	

Description:

This is a view of the open field at point X.

Dominant Vegetation:

- *Andropogon virginicus*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus betulifolius*
- *Festuca pratensis*
- *Acer rubrum*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200253***	
Point No.	***X***	

Description:

This is a view of the road and residence at point X.

Dominant Vegetation:

Same as above:

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200261***	
Point No.	***Y***	

Description:

This is a view of the open field and access road at point Y.

Dominant Vegetation:

- *Andropogon virginicus*
- *Solidago altissima*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus betulifolius*
- *Festuca pratensis*
- *Acer rubrum*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200259***	
Point No.	***Y***	

Description:

This is a view of the vegetation at point Y.

Dominant Vegetation:

Same as above:

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200267***	
Point No.	***Z***	

Description:

This is a view of the open field and access road at point Z.

Dominant Vegetation:

- *Andropogon virginicus*
- *Solidago altissima*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus betulifolius*
- *Festuca pratensis*
- *Acer rubrum*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200270***	
Point No.	***Z***	

Description:

This is a view of the vegetation at point Z.

Dominant Vegetation:

Same as above:

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200271***	
Point No.	***AA***	

Description:

This is a view of the upland pond at point AA.

Dominant Vegetation:

- *Pinus taeda*
- *Pinus virginiana*
- *Liquidambar styraciflua*
- *Hydrangea quercifolia*
- *Polystichum acrostichoides*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PA070079***	
Point No.	***AA***	

Description:

This is a view of the drainage path at point AA.

Dominant Vegetation:

Same as above:

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200305***	
Point No.	***BB***	

Description:

This is a view of a planted pine thicket at point BB.

Dominant Vegetation:

- *Pinus taeda*
- *Pinus virginiana*
- *Ligustrum sinense*
- *Liquidambar styraciflua*
- *Acer rubrum*
- *Fagus grandifolia*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200303***	
Point No.	***BB***	

Description:

This is another view of a planted pine thicket at point BB.

Dominant Vegetation:

Same as above:

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200291***	
Point No.	***CC***	

Description:

This is a view of the open field and access road at point CC.

Dominant Vegetation:

- *Andropogon virginicus*
- *Solidago altissima*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus betulifolius*
- *Festuca pratensis*
- *Acer rubrum*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200288***	
Point No.	***CC***	

Description:

This is a view of the open field and access road at point CC.

Dominant Vegetation:

Same as above:

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200292***	
Point No.	***DD***	

Description:

This is a view of the clear cut area at point DD.

Dominant Vegetation:

- *Andropogon virginicus*
- *Solidago altissima*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus betulifolius*
- *Festuca pratensis*
- *Acer rubrum*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200295***	
Point No.	***DD***	

Description:

This is another view of the clear cut area at point DD.

Dominant Vegetation:

Same as above:

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200299***	
Point No.	***EE***	

Description:

This is a photo of a maintained field at point EE.

Dominant Vegetation:

- *Andropogon virginicus*
- *Solidago altissima*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus betulifolius*
- *Festuca pratensis*
- *Acer rubrum*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200301***	
Point No.	***EE***	

Description:

This is another photo of a maintained field at point EE.

Dominant Vegetation:

Same as above:

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200316***	
Point No.	***FF***	

Description:

This is a view of a gate off of Pritchett Road at point FF.

Dominant Vegetation:

- *Pinus taeda*
- *Ligustrum sinense*
- *Liquidambar styraciflua*
- *Quercus alba*
- *Quercus falcata*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200323***	
Point No.	***FF***	

Description:

This is a view of Pritchett Road at point FF.

Dominant Vegetation:

Same as above:

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200310***	
Point No.	***GG***	

Description:

This is a view of a gate at point GG.

Dominant Vegetation:

- *Pinus taeda*
- *Ligustrum sinense*
- *Liquidambar styraciflua*
- *Acer rubrum*
- *Quercus falcata*
- *Lonicera japonica*

McGehee Engineering

Photographic Log

Client Name:	**Site Location:**	***Kimberly Mine Initial Project***
Alden Resources, LLC		
Date:	***11-20-13***	
Photo No.	***PB200315***	
Point No.	***GG***	

Description:

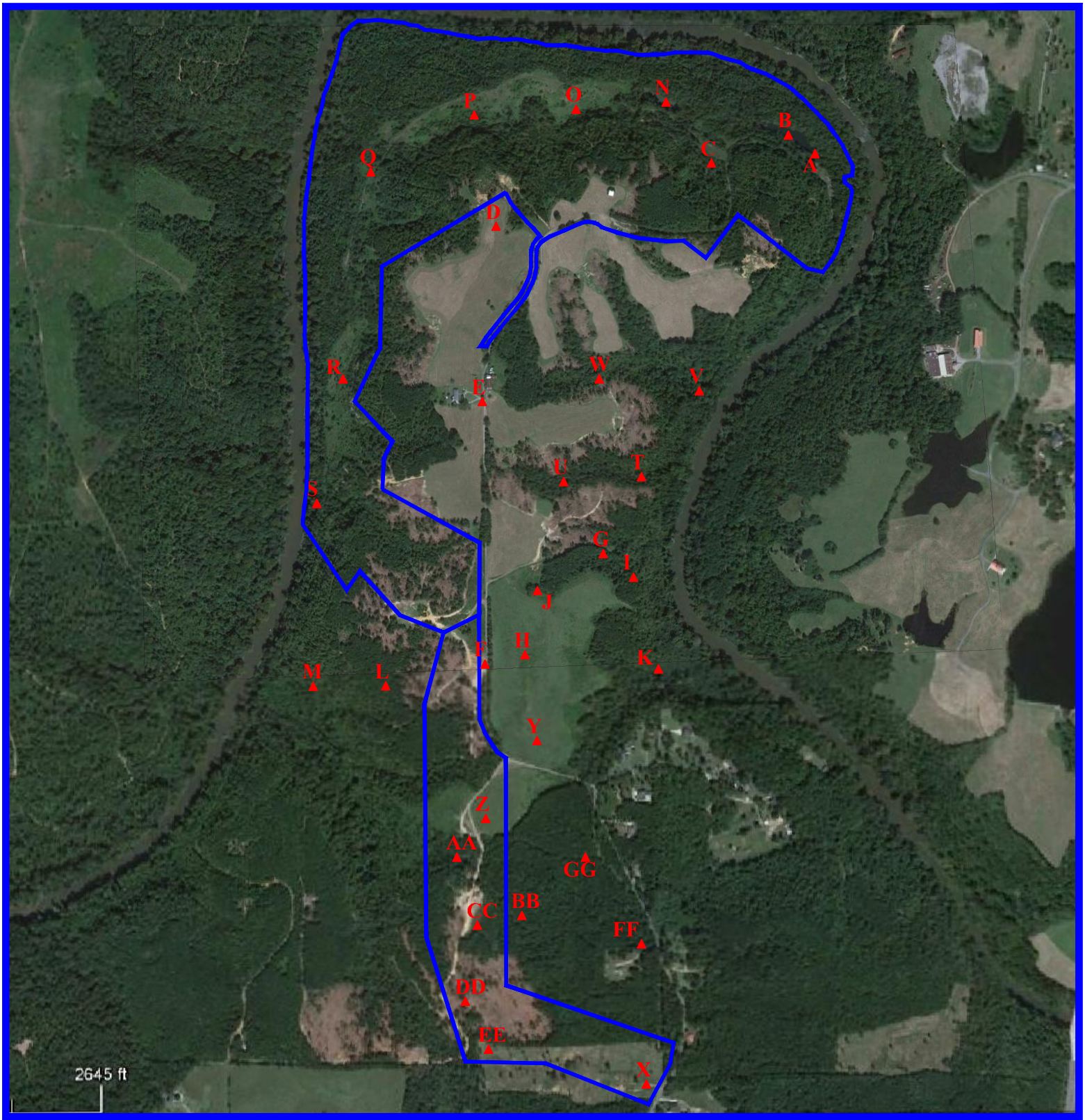
This is a view of Pritchett Road at point GG.

Dominant Vegetation:

Same as above along with:

- *Smilax tamnoides*
- *Smilax rotundifolia*

Appendix C — Photo Log Point Location Map



SCALE: 1" = 1000'
Revised Date: 03-07-2014
Map Size: 8.5" x 11"

ALDEN RESOURCES, LLC
KIMBERLY MINE
(APPROXIMATELY 221 ACRES TOTAL)

PHOTOGRAPHIC LOG POINT MAP
(Photo Date: 09-22-2012)

SECTION 3, TOWNSHIP 15 SOUTH, RANGE 3 WEST,
SECTIONS 27 & 34, TOWNSHIP 14 SOUTH, RANGE 3 WEST,
ALL IN JEFFERSON COUNTY, ALABAMA
AS FOUND ON THE WARRIOR, ALABAMA USGS QUAD.

N
W E
S

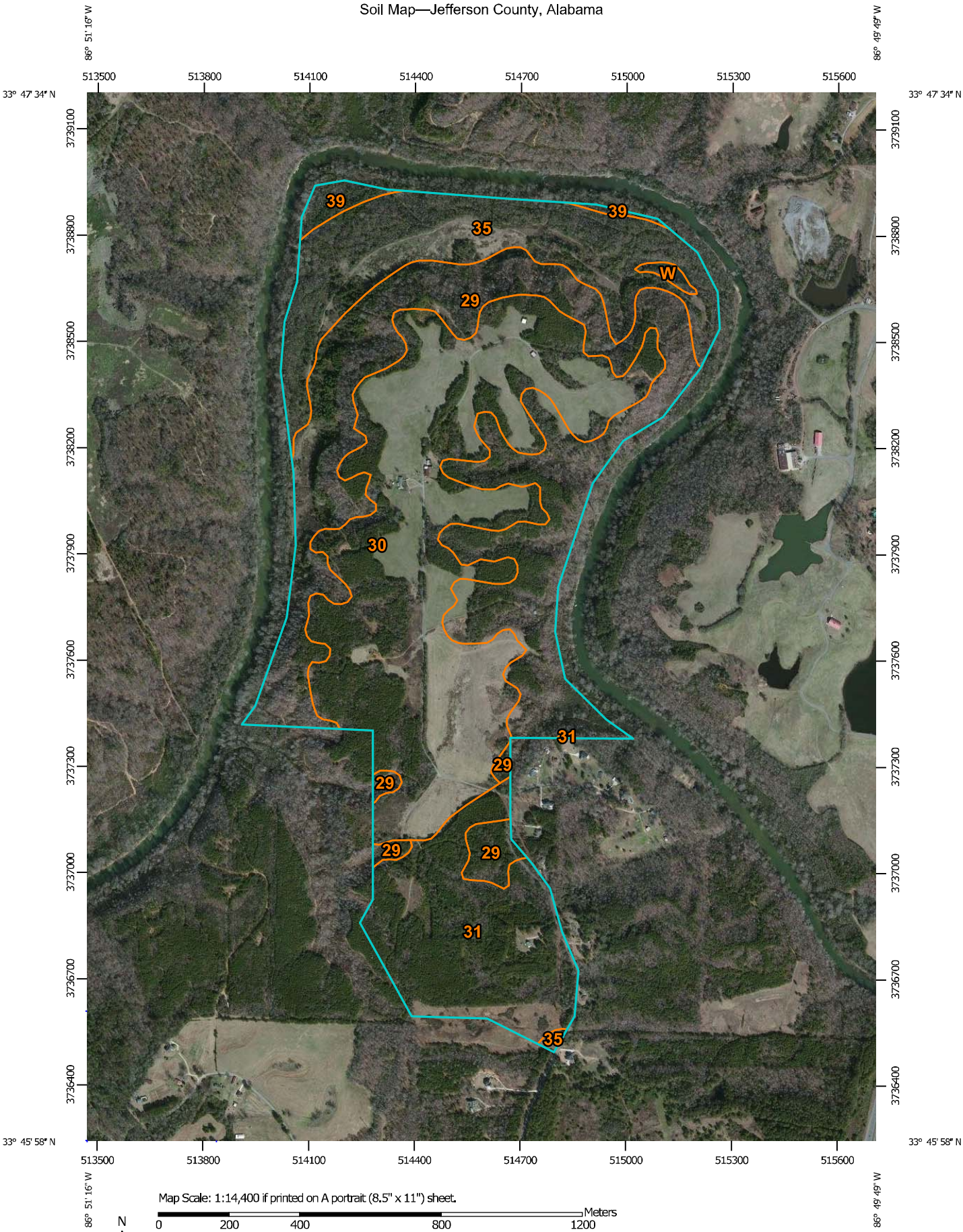
PROJECT BOUNDARY

A PHOTOGRAPHIC LOG POINTS

mcgehee engineering corp
post office box 3431
jasper, alabama 35502-3431
telephone: (205) 221-0686 fax: 221-7721
email: staff@mcgehee.org

Latitude: 33°47'14" N
Longitude: 86°50'29" W

Appendix D — Soil Map



Map Scale: 1:14,400 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 200 400 800 1200

Feet
0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jefferson County, Alabama
Survey Area Data: Version 5, Mar 11, 2008

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 13, 2011—Mar 17, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

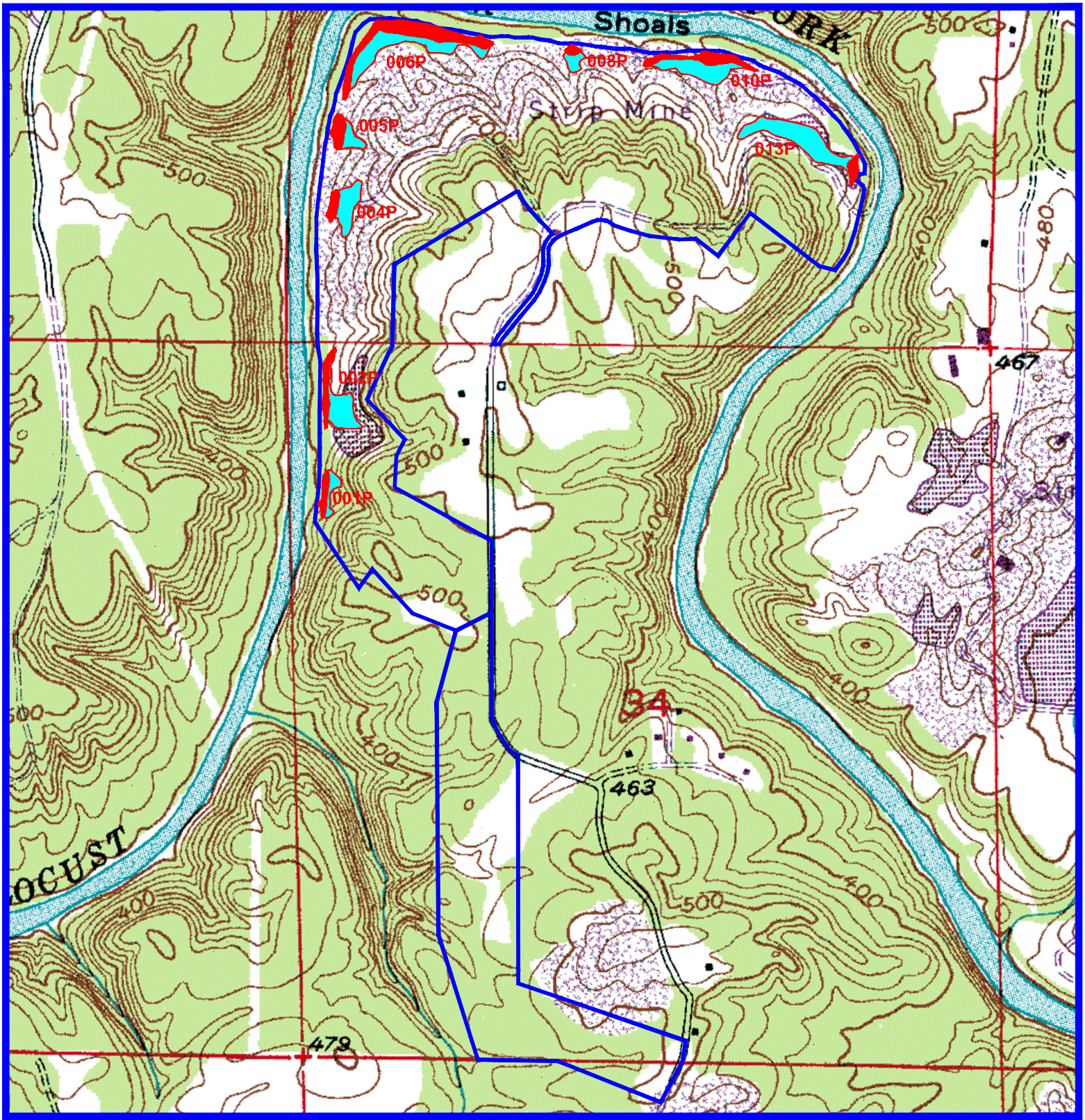
Map Unit Legend

Jefferson County, Alabama (AL073)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
29	Montevallo-Nauvoo association, steep	146.4	31.8%
30	Nauvoo fine sandy loam, 2 to 8 percent slopes	171.7	37.3%
31	Nauvoo fine sandy loam, 8 to 15 percent slopes	64.2	13.9%
35	Palmerdale complex, steep	71.2	15.5%
39	Sullivan-State complex, 0 to 2 percent slopes	5.3	1.2%
W	Water	1.5	0.3%
Totals for Area of Interest		**460.2**	**100.0%**

Attachment “D”

Basin Location Map

Post Office Box 3431 • 450 19th Street • Jasper, Alabama 35502-3431 • 205-221-0686 • Fax 205-221-7721 • stephenb@mcgehee.org



SCALE: 1" = 1000'
Revised Date: 03-07-2014
Map Size: 8.5" x 11"

ALDEN RESOURCES, LLC
KIMBERLY MINE
(APPROXIMATELY 221 ACRES TOTAL)

BASIN LOCATION MAP

SECTION 3, TOWNSHIP 15 SOUTH, RANGE 3 WEST,
SECTIONS 27 & 34, TOWNSHIP 14 SOUTH, RANGE 3 WEST,
ALL IN JEFFERSON COUNTY, ALABAMA
AS FOUND ON THE WARRIOR, ALABAMA USGS QUAD. (1983)

N
W E
S

PROJECT BOUNDARY

BASIN LOCATION

Latitude: 33°47'14" N
Longitude: 86°50'29" W

mcgehee engineering corp
post office box 3431
jasper, alabama 35502-3431
telephone: (205) 221-0686 fax: 221-7721
email: staff@mcgehee.org

Attachment “E”

Typical Cross Section

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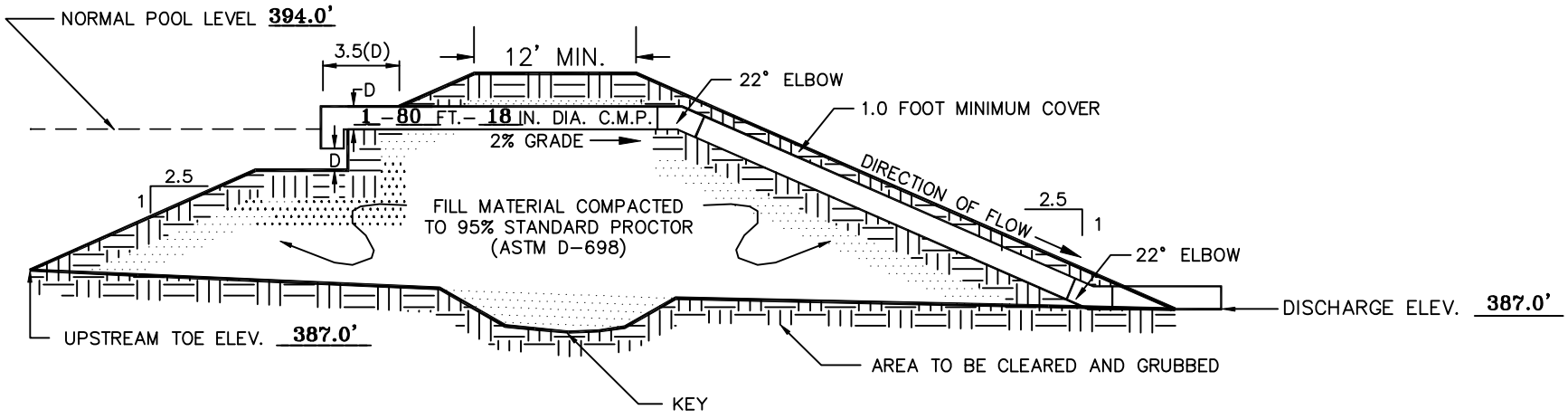
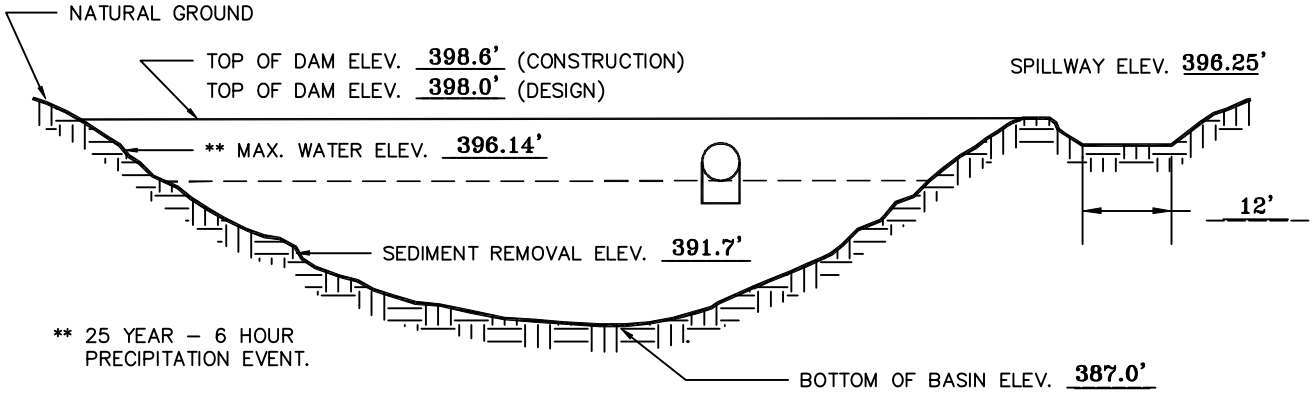
TYPICAL EMBANKMENT CROSS-SECTION



TYPICAL IMPOUNDMENT PROFILE



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jasper, alabama 35502-3431
telephone: (205) 221-0686 fax: 221-7721
email: cw@mcgehee.org

Attachment “F”

Typical Plan View

Post Office Box 3431 • 450 19th Street • Jasper, Alabama 35502-3431 • 205-221-0686 • Fax 205-221-7721 • stephenb@mcgehee.org

mcgehee engineering corp
post office box 3431
jasper, alabama 35502-3431
telephone: (205) 221-0686 fax: 221-7721
email: cw@mcgehee.org

PLAN VIEW OF EMBANKMENT POND
TYPICAL DRAWING