

APPENDIX C

Phase I Cultural Resource Assessment

**Phase I Cultural Resource Survey For
The Proposed Construction of Improvements
At The Guntersville Municipal Airport
Marshall County, Alabama**

February 4, 2003

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The Proposed Construction of Improvements
At The Guntersville Municipal Airport
Marshall County, Alabama**

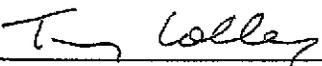
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February 4, 2003



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APPENDIX A

SITE FORMS

Stony smooth land, limestone. This land has many outcrops of limestone. The soil material between the outcrops is sticky and plastic. The soil is suited only to pasture and forest. The surface layer is a reddish-brown to yellowish-brown silty clay. The subsoil is yellowish-brown to red clay. The only occurrence of this soil within the project area was in the southwest portion between the existing runway and Buck Island Road.

Rockland, limestone. This land has many limestone outcrops and boulders making cultivation impractical. The surface layer between outcrops is nearly black. The subsoil is yellowish-brown clay. This soil was only encountered in the southwest portion of the project area between the existing runway and Buck Island Road.

Lindside silt loam, local alluvium phase. The soil consists of moderately well drained to poorly drained soils derived from material washed from higher lying soils of the limestone valleys. These soils occur in depressions and along drainageways. Areas associated with this soil are likely to be ponded or flooded. The soil profile consists of 0-20 centimeters of dark reddish-brown silt loam, overlying a dark brown to gray silty clay loam subsoil. The soil was encountered along the drainages within the project area.

FIELD METHODS

Between January 20, 2003 and January 23, 2003 a four-person archaeological team from PELA conducted a Phase I cultural resource survey of the area of proposed construction of improvements at the Guntersville Municipal Airport. The survey was conducted in accordance with procedural standards set by the Alabama Historical Commission. A pedestrian walkover was performed as the primary method of survey for areas with low site probability as dictated either by previous survey experience in this region, or by the present condition of the land under investigation. These areas include drainages, roadcuts and associated pushpiles, and areas where obvious and extensive erosion has exposed the subsoil. Complete land coverage requirements were achieved by physically walking and visually examining the project area. A standard 30 meter (m) interval transect pattern was employed over landforms otherwise considered to have a higher site probability and did not exhibit subsoil on the ground surface (Figure 1). Eroded areas were traversed at a 90 meter interval to determine the extent of erosion. Shovel tests were excavated at 30 m intervals along transects where subsoil or disturbances did not preclude excavation. The tests consisted of standard 30 centimeter (cm) diameter cylindrical holes excavated to the top of the underlying subsoil. Shovel test soils were passed through a 1/4" wire mesh screen to recover any cultural materials, which may have been present. Shovel test locations labeled as "no test performed" were situated along a transect where ground surface conditions, such as erosion, slope, or ground visibility, precluded the need for shovel testing. Shovel tests were excavated at 10 meter intervals in cardinal directions around positive shovel tests and/or surface finds to determine the vertical and horizontal extent of the sites.

The labeling of shovel test locations consisted of a trinomial representing the area number, transect number, and shovel test number, respectively. Drainages, roads, and other features were used as physical boundaries to facilitate the placement and orientation of transects. The numerous dirt roads throughout the project area were traversed to examine the surface and roadsides for cultural material or features.

SURVEY RESULTS

A total of three sites were recorded during the course of the field investigations. No historic standing structures were present within the project area. A vehicular survey of the portions of Buck Island outside of the project area did not locate any historic standing structures in the vicinity of the project area.

The survey began in the northwest and southeast portions of the project area. Transects were traversed in a north to south direction using dirt roads and a drainage as boundaries. Recent logging had littered the area with debris from felled trees. Shovel tests in this portion of the project area that were labeled as "no test performed" were done so due to disturbances from logging, road construction, and standing water in the case of shovel tests near the lakeshore. A grass field located in the southeast portion of the project area exhibited erosion of the surface layer in some places (Figure 6). A small area along Buck Island Road was not tested due to fenced yards for two residences.

As the shovel testing moved to the west, transects were traversed from Buck Island Road to the lakeshore in a north to south direction. Evidence of logging continued into this portion of the project area. At the end of a logging road, in a wide-open area, a surface scatter of historic material was encountered. This location was recorded as 1MS460.

Site 1MS460. This site (Figures 7 and 8) is comprised of a surface scatter of plain whiteware ceramics (n=6), clear glass (n=7), and one clear glass machine-made bottleneck. In addition to nearby transect shovel tests, eight additional shovel tests were excavated in cardinal directions around the surface finds with no additional cultural material recovered. The general soil profile from delineation shovel tests consisted of 0-14 centimeters of dark brown (7.5YR3/2) silt loam, overlying strong brown (7.5YR5/8) clay subsoil. A structure appears on the Mt. Carmel topographic quadrangle to the south of this site (Figure 1). No evidence of the structure at its' mapped location was observed in the field. It is likely that these artifacts are related to that structure and were deposited here when the structure was removed. This find is not considered significant and no further cultural resource investigations are recommended.

The central portion of the project area to the northwest of the water treatment pond was less disturbed than other areas. Transects were traversed from Buck Island Road north to the lakeshore. A small number of houses were present east of the water treatment pond. As the fieldwork progressed toward the treatment pond, it was evident that the area had been logged and planted in pines. The open fields south and west of the treatment pond were eroded. Transects were traversed across the fields to make sure that any non-disturbed areas were shovel tested. It was realized that at each shovel test location the subsoil was present on the ground surface. The adjacent area southwest and south of the field was forested in planted pines. North of the treatment pond, recent logging had resulted in many felled trees across the landscape.

The area southeast of the field around the treatment pond had been partially logged. Along one of the transects in this area, foundation stones were located near a small drainage. These structural remains were recorded as Site 1MS461.

Site 1MS461. A stone foundation (Figures 9 and 10) was observed between shovel tests 1-60-2 and 1-60-3. The southwest corner of the foundation consisted of four stacked stones approximately 60 centimeters high. The remaining 4 meter by 6 meter foundation consisted of a stack of one or two stones in a rectangular form. Some stones were missing or misplaced along the foundation outline. A total of ten shovel tests were excavated to delineate the site. Two shovel tests were positive and consisted of one piece of plain whiteware, a piece of amethyst glass, and one round nail. Based on the presence of the amethyst glass, a date prior to 1916 is possible for the site.

The general soil profile within the site consisted of 0-12 centimeters of dark brown silty loam (7.5YR3/2) overlying strong brown (7.5YR5/8) and yellow (10YR7/8) sticky clay subsoil. The absence of any other cultural material or further evidence of structural remains indicates that this site is not significant and does not warrant further investigation.

The remainder of the surveyed area consisted of the grass field (Figure 11) adjacent to the existing runway and wooded areas between the runway and a small drainage. Some standing water was present in the grass field. Limestone outcrops were present in the southwest portion of the

project area between Buck Island Road and the runway. Pines dominated the wooded areas in this portion of the project area (Figure 12). Pine planting has taken place in the last 20 years as the current treeline east of the runway (Figure 1) is different from what is shown on the Mt. Carmel topographic map (USGS 1983).

An attempt was made to relocate a structure that was mapped in a clearing on the Mt. Carmel topographic map north of Buck Island Road and west of a small drainage. Although a short road led to the mapped structure location, no evidence of a structure was found. Several large felled trees were lying where the structure was mapped. A thick grass covered the clearing and standing water was encountered in many areas. No cultural material was recovered from ground surface inspections or shovel testing around the mapped structure location.

In the southwest portion of Section 25, another structure was mapped on the Mt. Carmel topographic map, however, standing structural remains were not present. Since historic artifacts were present on the ground surface, this location was recorded as Site 1MS462.

Site 1MS462. The site area (Figures 13 and 14) had been recently logged with many felled trees still on the ground. A small dirt road was present along the southern edge of the site. Ample ground surface visibility allowed a thorough inspection for surface artifacts. In addition to nearby transect shovel tests, eight additional shovel tests were excavated in cardinal directions around the surface finds with no additional cultural material recovered. The general soil profile from delineation shovel tests consisted of 0-21 centimeters of dark brown (7.5YR3/2) silt loam, overlying brownish-yellow (10YR6/8) clay subsoil. Large amounts of limestone were present on the ground surface and in shovel tests.

The material collection from the site consisted of plain whiteware (n=4), amber glass (n=1), clear glass (n=3), a brick fragment (n=1), and stoneware (n=1). The artifacts do not reflect a specific time period, so dating the occupation of the site is difficult. Since the structure did not appear on any maps prior to 1911, it is assumed that the site is more recent. The absence of any further cultural material or evidence of structural remains suggests that this site is not significant and does not warrant further investigation.

SURVEY INTERPRETATION, EVALUATION, AND RECOMMENDATIONS

P.E. LaMoreaux & Associates, Inc. (PELA) conducted this cultural resource for BWSC, Inc. in compliance with Federal and State regulations. During the investigations, three historic sites were recorded. Two of the sites, 1MS460 and 1MS462, consisted of low-density surface scatters of non-diagnostic historic material. Site 1MS461 was comprised of a partial stone foundation and a small amount of historic material.

The overall condition of the project area was disturbed due to extensive logging and the construction of a water treatment pond. The characteristics of the heavy, plastic and sticky clay encountered in the project area has limited historical use to pasture and woodland. The historic maps of the area reviewed for this project indicated limited occupation of the area since at least 1911. The primary location of previously recorded prehistoric sites in the vicinity of the project area were along the original banks of the Tennessee River now inundated by construction and flooding of the Guntersville Reservoir. With the exception of 1MS46 and 1MS47, the prehistoric sites within the vicinity of the project area are now inundated.

The historic sites recorded during the course of the field investigations are not considered significant. It is PELA's opinion that no sites eligible or potentially eligible for the NRHP are located within the project area, therefore, the proposed construction of improvement to the Guntersville Municipal Airport should be cleared from further cultural resource concerns.

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Webb, William S. and Charles G. Wilder
1951 *Archaeological Survey of the Guntersville Basin on the Tennessee River in Northern Alabama.* University of Kentucky Press, Lexington, KY.

FIGURES

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- Figure 13. Plan View of Site 1MS462.
- Figure 14. View of Site 1MS462 Facing North.

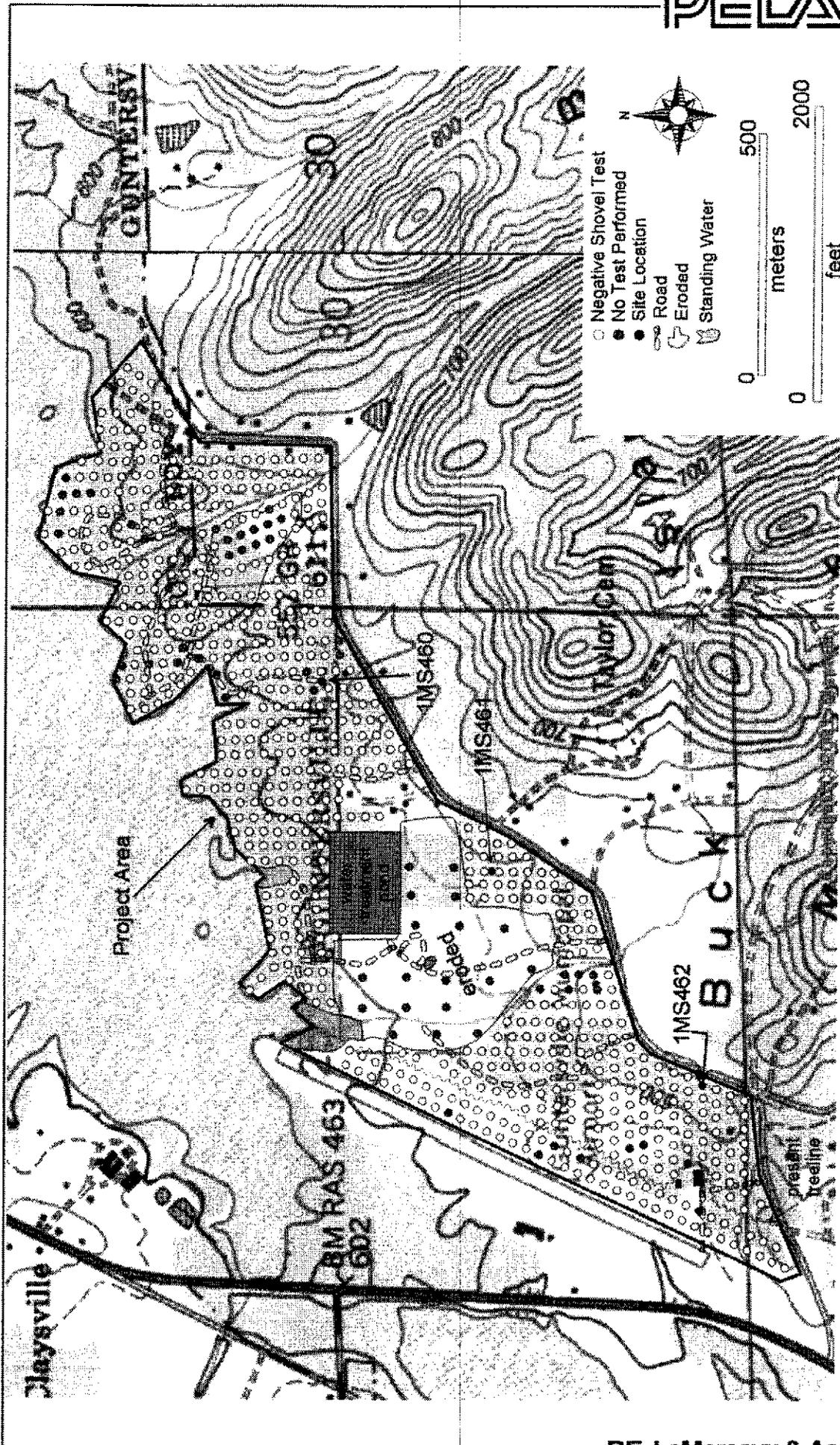


Figure 1. Project Area Showing Survey Coverage and Site Locations (Mt. Carmel 1983 7.5' USGS Quadrangle).



Figure 2. Typical Logged Area Facing Northwest.



Figure 3. View of Logging Disturbance Facing North.



Figure 4. View of the Water Treatment Pond Facing North.



Figure 5. View of the Area Around the Water Treatment Pond Facing West.



Figure 6. Grass Field in the Eastern Portion of the Project Area Facing Northwest.



Figure 7. View of Site 1MS460 Facing North.

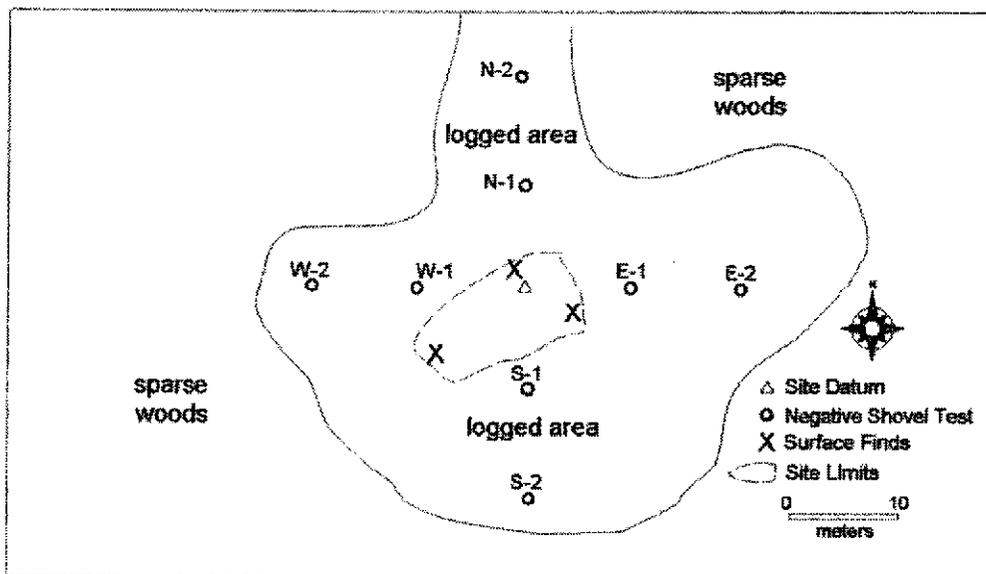


Figure 8. Plan View of Site 1MS460.

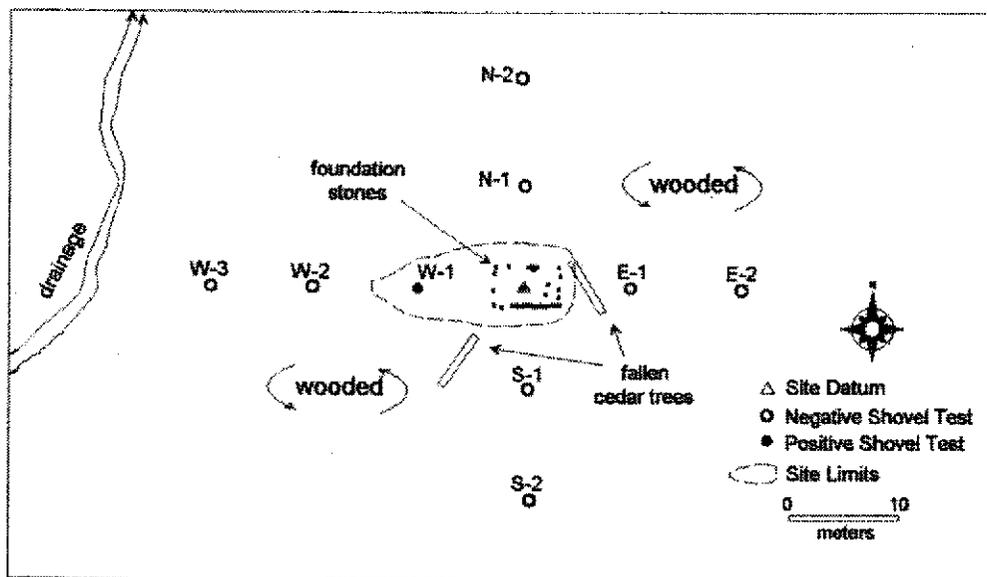


Figure 9. Plan View of Site 1MS461.

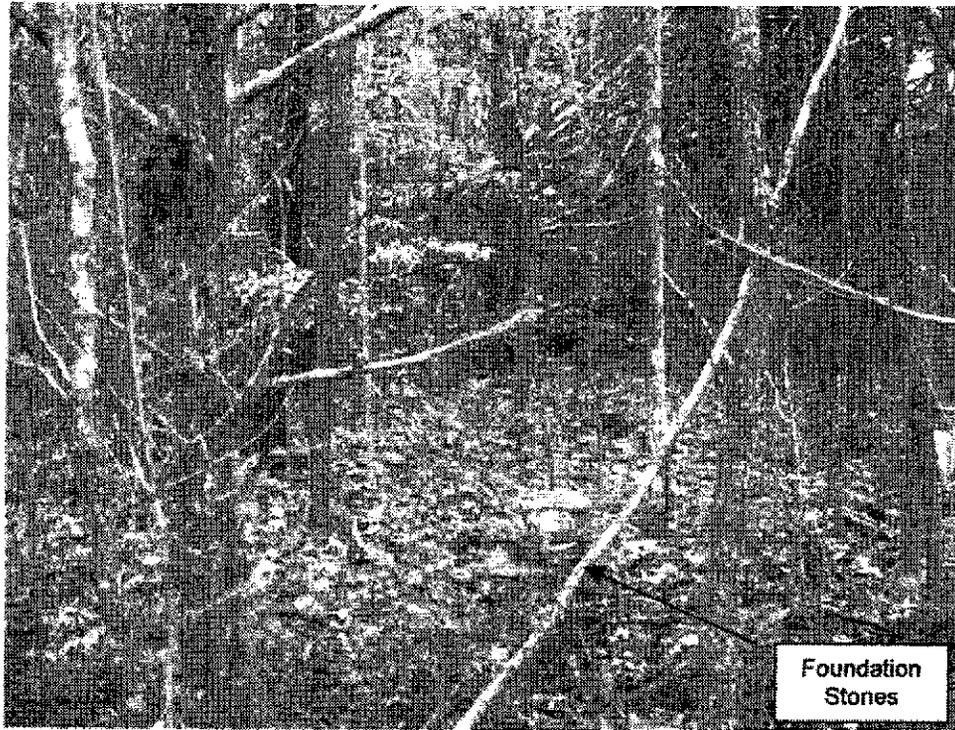


Figure 10. View of Site 1MS461 Facing East.



Figure 11. View of the Field Parallel to the Existing Runway Facing South.



Figure 12. General View of Pine Forest in the Western Portion of the Project Area Facing East.

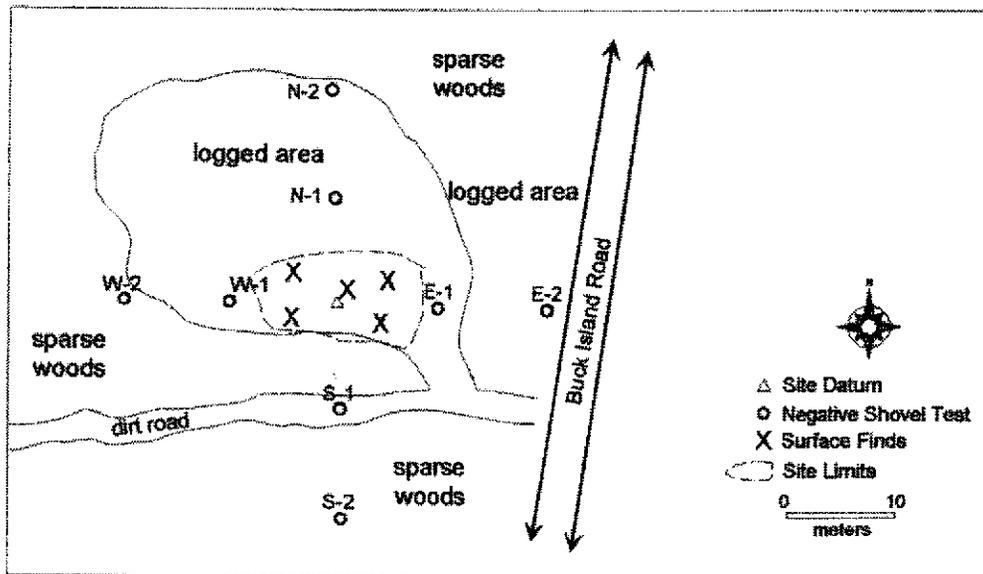


Figure 13. Plan View of Site 1MS462.



Figure 14. View of Site 1MS462 Facing North.

APPENDIX A

SITE FORMS

SITE IDENTIFICATION

TEMPORARY SITE NUMBER: 6542-1

SITE NAME: _____

SITE FLAG: _____ (Office Use Only)

SITE LOCATION AND SIZE

7.5' QUADRANGLE MAP: Mt. CarmelUTM COORDINATES (Center of Site): ZONE: 16 EASTING: 568061 NORTHING: 3806869TOWNSHIP: 7S RANGE: 4E SECTION: 25 NE 1/4 of NE 1/4 of SE 1/4ELEVATION: 635 ft AMSL SITE SIZE: MAJOR AXIS: 5 m MINOR AXIS: 5 mMAXIMUM DEPTH: 0 cm

PRESERVATION INFORMATION

PRESERVATION STATE: 03

01-Unmodified

07-Construction

02-Erosion

08-Logged, Clear Cut

03-Severe Erosion

09-Borrow Pit/Surface Mine

04-Inundated

10-Deposition (buried)

05-Intermittent Flooding

11-Pothunted

06-Cultivation

99-Other (specify) _____

IMMEDIATE DESTRUCTION PENDING (y/n): NLOOTING/VANDALISM (y/n): NPERCENT DESTROYED: 100 %NATIONAL REGISTER STATUS: 05

01-Undetermined

04-Registered

02-Considered Eligible

05-Ineligible

03-Considered Ineligible

DESCRIPTION/COMMENTS/REFERENCES

Site consists of a light scatter of plain white ware, clear glass, & plain ironstone ceramics. No decorated ceramics were found. Scatter is located in an area that has recently been logged, allowing moderate ground visibility. No cultural material was recovered from shovel testing. The artifact scatter is likely associated with a structure shown just south of here on the quad map. No evidence of that structure was present at the mapped location.

ARCHAEOLOGICAL INFORMATION

LEVEL OF INVESTIGATION: 03

01-Volunteered Report

02-Reconnaissance Survey

03-Intensive (100%) Survey

EXCAVATION STATUS: 04

01-No Collection

03-Shovel Tests

05-Limited Testing

07-Excavation

02-Surface Collection

04-Surface Collection & Shovel Tests

06-Extensive Testing

08-Total Excavation

TOPOGRAPHIC ASSOCIATION: 05

01-Upland Crest

03-Upland Base

05-Terrace

07-Tidal Marsh

02-Upland Slope

04-Floodplain

06-Island

PHYSIOGRAPHIC DISTRICT: 16

01-Northern Piedmont Upland

09-Blount Mountain

17-Warrior Basin

25-Eastern Red Hills

02-Southern Piedmont Upland

10-Jackson Co. Mountains

18-Wills Valley

26-Fall Line Hills

03-Big Canoe Valley

11-Little Mountain

19-Tennessee Valley

27-Flatwoods

04-Cahaba Ridges

12-Lookout Mountain

20-Outer Nashville Basin

28-Lime Hills

05-Cahaba Valley

13-Moulton Valley

21-Black Prairie

29-Southern Pine Hills

06-Coosa Ridges

14-Murphree Valley

22-Buhrstone Hills

30-Western Red Hills

07-Coosa Valley

15-Sand Mountain

23-Chunnennuggee Hills

31-Coastal Strip

08-Weisner Ridges

16-Squatichie Valley

24-Dougherty Plain

32-Mobile Delta

NEAREST WATER SOURCE: 05

AT CONFLUENCE (y/n): N

01-Sink

05-Lake

09-Third Order Stream

13-Estuary

02-Well

06-Oxbow Lake

10-Fourth Order Stream

14-Ocean/Bay

03-Spring

07-First Order Stream

11-Major Tributary

04-Swamp

08-Second Order Stream

12-River

DIRECTION TO WATER: N

DISTANCE TO WATER: 170 m

DRAINAGE BASIN: 17

01-Alabama

07-Choctawhatchee

13-Pea

19-Yellow

02-Apalachicola

08-Conecuh

14-Perdido

20-Coastal Estuary/Bay

03-Black Warrior

09-Coosa

15-Sipsey

04-Buttahatchee

10-Escambia

16-Tallahpoosa

05-Cahaba

11-Escatawpa

17-Tennessee

06-Chattahoochee

12-Mobile-Tensaw

18-Tombigbee

GROUND COVER: 10

01-Grassland

04-Unimproved Forest

07-Inundated

09-Roadway

02-Cultivation

05-Improved Forest/Orchard

08-Developed (Urban/
Residential/Industrial)

10-Open and Eroded

03-Secondary Growth

06-Intermittent Flooding

99-Other (specify) _____

SOIL TEXTURE CLASS: 18

01-Coarse Sand

09-Coarse Sandy Loam

17-Clay Loam

02-Sand

10-Sandy Loam

18-Silty Clay Loam

03-Fine Sand

11-Fine Sandy Loam

19-Sandy Clay

04-Very Fine Sand

12-Very Fine Sandy Loam

20-Silty Clay

05-Loamy Coarse Sand

13-Loam

21-Clay

06-Loamy Sand

14-Silt Loam

22-Rockland

07-Loamy Fine Sand

15-Silt

08-Loamy Very Fine Sand

16-Sandy Clay Loam

SOIL TYPE: Colbert

NATURE OF DEPOSIT: 01

01-Entire Site Disturbed

02-Upper Portion Disturbed

03-Deep Disturbance

04-Undisturbed

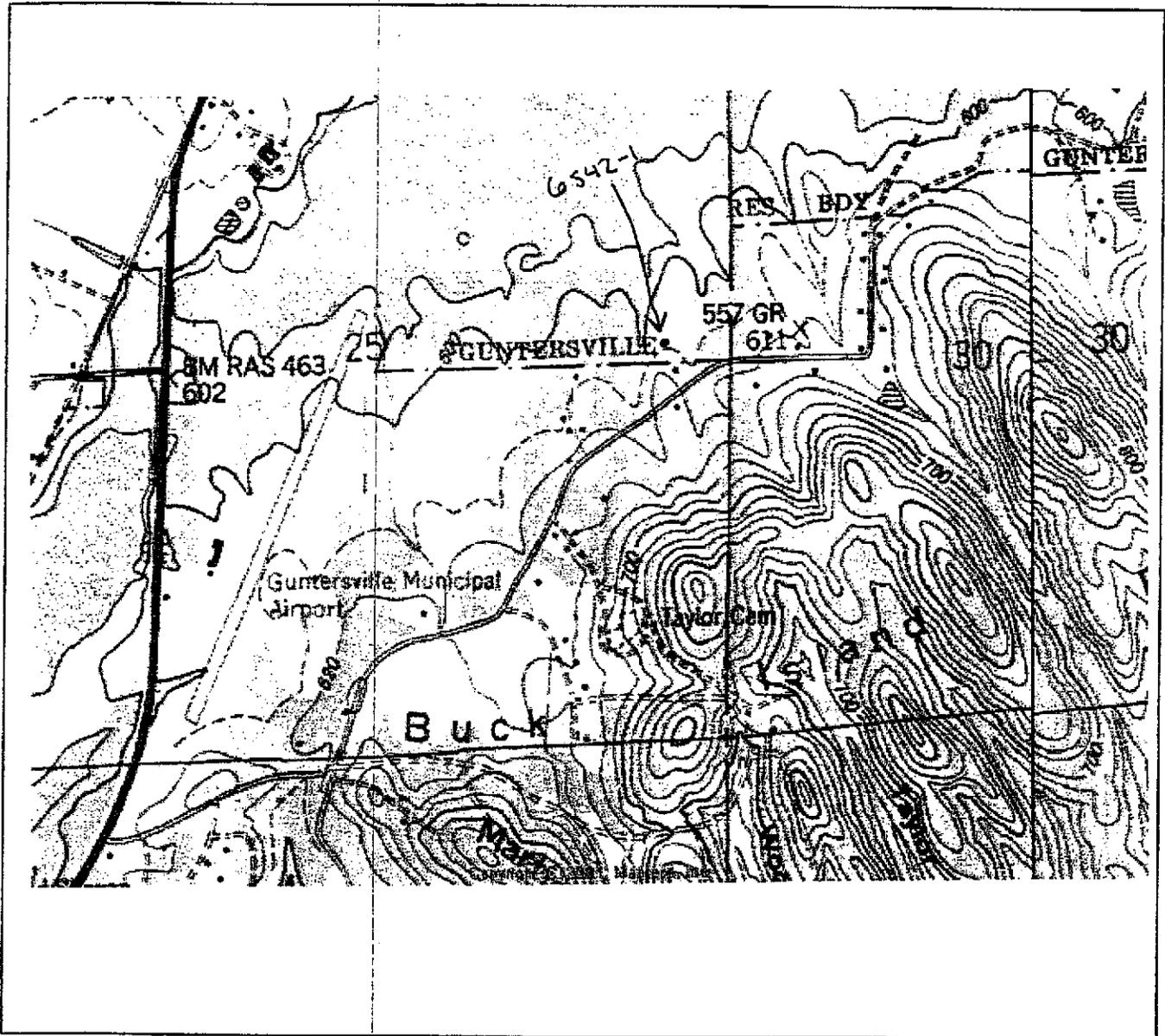
SITE CHARACTERISTICS:

- | | |
|--|---|
| <input type="checkbox"/> HUMAN REMAINS | <input type="checkbox"/> WEIR |
| <input type="checkbox"/> FEATURES | <input type="checkbox"/> HISTORIC STRUCTURE (STANDING) |
| <input type="checkbox"/> ROCKSHELTER | <input type="checkbox"/> HISTORIC STRUCTURE SITE (NOT STANDING) |
| <input type="checkbox"/> CAVE | <input type="checkbox"/> HISTORIC CEMETERY |
| <input checked="" type="checkbox"/> ARTIFACT SCATTER | <input type="checkbox"/> QUARRY |
| <input type="checkbox"/> MIDDEN | <input type="checkbox"/> STILL |
| <input type="checkbox"/> SHELL MIDDEN | <input type="checkbox"/> MILL |
| <input type="checkbox"/> SINGLE EARTHEN MOUND | <input type="checkbox"/> ENGINEERING |
| <input type="checkbox"/> MULTIPLE EARTHEN MOUNDS | (Specify) _____ |
| <input type="checkbox"/> PETROGLYPH/PICTOGRAPH | OTHER (Specify) _____ |
| <input type="checkbox"/> STONE MOUND(S) | |

CULTURAL AFFILIATION(S):

- | | |
|--|---|
| --CULTURE-- | --PHASES, CULTURES, HORIZONS, IF KNOWN-- |
| <input type="checkbox"/> PALEOINDIAN (Unidentified) | _____ |
| <input type="checkbox"/> EARLY | _____ |
| <input type="checkbox"/> MIDDLE | _____ |
| <input type="checkbox"/> LATE | _____ |
| <input type="checkbox"/> ARCHAIC (Unidentified) | _____ |
| <input type="checkbox"/> EARLY | _____ |
| <input type="checkbox"/> MIDDLE | _____ |
| <input type="checkbox"/> LATE | _____ |
| <input type="checkbox"/> GULF FORMATIONAL (Unidentified) | _____ |
| <input type="checkbox"/> MIDDLE | _____ |
| <input type="checkbox"/> LATE | _____ |
| <input type="checkbox"/> WOODLAND (Unidentified) | _____ |
| <input type="checkbox"/> EARLY | _____ |
| <input type="checkbox"/> MIDDLE | _____ |
| <input type="checkbox"/> LATE | _____ |
| <input type="checkbox"/> MISSISSIPPIAN (Unidentified) | _____ |
| <input type="checkbox"/> EARLY | _____ |
| <input type="checkbox"/> MIDDLE | _____ |
| <input type="checkbox"/> LATE | _____ |
| <input type="checkbox"/> PROTOHISTORIC | _____ |
| <input type="checkbox"/> HISTORIC ABORIGINAL | _____ |
| <input type="checkbox"/> UNKNOWN ABORIGINAL | _____ |
| <input type="checkbox"/> NON-ABORIGINAL | _____ |
| <input type="checkbox"/> 16th CENTURY | _____ |
| <input type="checkbox"/> 17th CENTURY | _____ |
| <input type="checkbox"/> 18th CENTURY | _____ |
| <input type="checkbox"/> 19th CENTURY | _____ |
| <input checked="" type="checkbox"/> 20th CENTURY | _____ |
| SPECIFIC DATE RANGE _____ | |

MAP OF SITE



7.5' USGS TOPOGRAPHIC MAP: m+Carmel (1983)

SITE FORM AUTHOR IDENTIFICATION

DATE: 1-23-03

AUTHOR-NAME: Terry Lolley

ADDRESS: PELA
1009A 23rd Ave

CITY: Tuscaloosa

STATE: AL ZIP: 35403

SITE IDENTIFICATION

TEMPORARY SITE NUMBER: 6542-2

SITE NAME: _____

SITE FLAG: _____ (Office Use Only)

SITE LOCATION AND SIZE

7.5' QUADRANGLE MAP: Mt. CarmelUTM COORDINATES (Center of Site): ZONE: 16 EASTING: 567681 NORTHING: 3806493TOWNSHIP: 7S RANGE: 4E SECTION: 25 SE 1/4 of NW 1/4 of SE 1/4ELEVATION: 635 ft AMSL SITE SIZE: MAJOR AXIS: 20 m MINOR AXIS: 20 mMAXIMUM DEPTH: 8 cm

PRESERVATION INFORMATION

PRESERVATION STATE: 01

01-Unmodified	07-Construction
02-Erosion	08-Logged, Clear Cut
03-Severe Erosion	09-Borrow Pit/Surface Mine
04-Inundated	10-Deposition (buried)
05-Intermittent Flooding	11-Potheaded
06-Cultivation	99-Other (specify) _____

IMMEDIATE DESTRUCTION PENDING (y/n): y LOOTING/VANDALISM (y/n): nPERCENT DESTROYED: 90 %NATIONAL REGISTER STATUS: 05

01-Undetermined	04-Registered
02-Considered Eligible	05-Ineligible
03-Considered Ineligible	

DESCRIPTION/COMMENTS/REFERENCES

Site consists of a partial rock foundation measuring approximately 4m x 6m in a rectangular shape. The southwest corner was four stones high (60cm high). Two positive shovel tests recovered single examples of plain whiteware, amethyst glass, and a round nail. No other structural remains were located.

ARCHAEOLOGICAL INFORMATION

LEVEL OF INVESTIGATION: 03

01-Volunteered Report

02-Reconnaissance Survey

03-Intensive (100%) Survey

EXCAVATION STATUS: 04

01-No Collection

03-Shovel Tests

05-Limited Testing

07-Excavation

02-Surface Collection

04-Surface Collection & Shovel Tests

06-Extensive Testing

08-Total Excavation

TOPOGRAPHIC ASSOCIATION: 05

01-Upland Crest

03-Upland Base

05-Terrace

07-Tidal Marsh

02-Upland Slope

04-Floodplain

06-Island

PHYSIOGRAPHIC DISTRICT: 16

01-Northern Piedmont Upland

09-Blount Mountain

17-Warrior Basin

25-Eastern Red Hills

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10-Jackson Co. Mountains

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13-Moulton Valley

21-Black Prairie

29-Southern Pine Hills

06-Coosa Ridges

14-Murphree Valley

22-Buhrstone Hills

30-Western Red Hills

07-Coosa Valley

15-Sand Mountain

23-Chunnennuggee Hills

31-Coastal Strip

08-Weisner Ridges

16-Sequatchie Valley

24-Dougherty Plain

32-Mobile Delta

NEAREST WATER SOURCE: 07

AT CONFLUENCE (y/n): N

01-Sink

05-Lake

09-Third Order Stream

13-Estuary

02-Well

06-Oxbow Lake

10-Fourth Order Stream

14-Ocean/Bay

03-Spring

07-First Order Stream

11-Major Tributary

04-Swamp

08-Second Order Stream

12-River

DIRECTION TO WATER: SW

DISTANCE TO WATER: 240 m

DRAINAGE BASIN: 17

01-Alabama

07-Choctawhatchee

13-Pea

19-Yellow

02-Apalachicola

08-Conecuh

14-Perdido

20-Coastal Estuary/Bay

03-Black Warrior

09-Coosa

15-Sipsey

04-Buttahatchee

10-Escambia

16-Tallahpoosa

05-Cahaba

11-Escatawpa

17-Tennessee

06-Chattoahoochee

12-Mobile-Tensaw

18-Tombigbee

GROUND COVER: 04

01-Grassland

04-Unimproved Forest

07-Inundated

09-Roadway

02-Cultivation

05-Improved Forest/Orchard

08-Developed (Urban/
Residential/Industrial)

10-Open and Eroded

03-Secondary Growth

06-Intermittent Flooding

99-Other (specify) _____

SOIL TEXTURE CLASS: 18

01-Coarse Sand

09-Coarse Sandy Loam

17-Clay Loam

02-Sand

10-Sandy Loam

18-Silty Clay Loam

03-Fine Sand

11-Fine Sandy Loam

19-Sandy Clay

04-Very Fine Sand

12-Very Fine Sandy Loam

20-Silty Clay

05-Loamy Coarse Sand

13-Loam

21-Clay

06-Loamy Sand

14-Silt Loam

22-Rockland

07-Loamy Fine Sand

15-Silt

08-Loamy Very Fine Sand

16-Sandy Clay Loam

SOIL TYPE: Colbert

NATURE OF DEPOSIT: 04

01-Entire Site Disturbed

02-Upper Portion Disturbed

03-Deep Disturbance

04-Undisturbed

SITE CHARACTERISTICS:

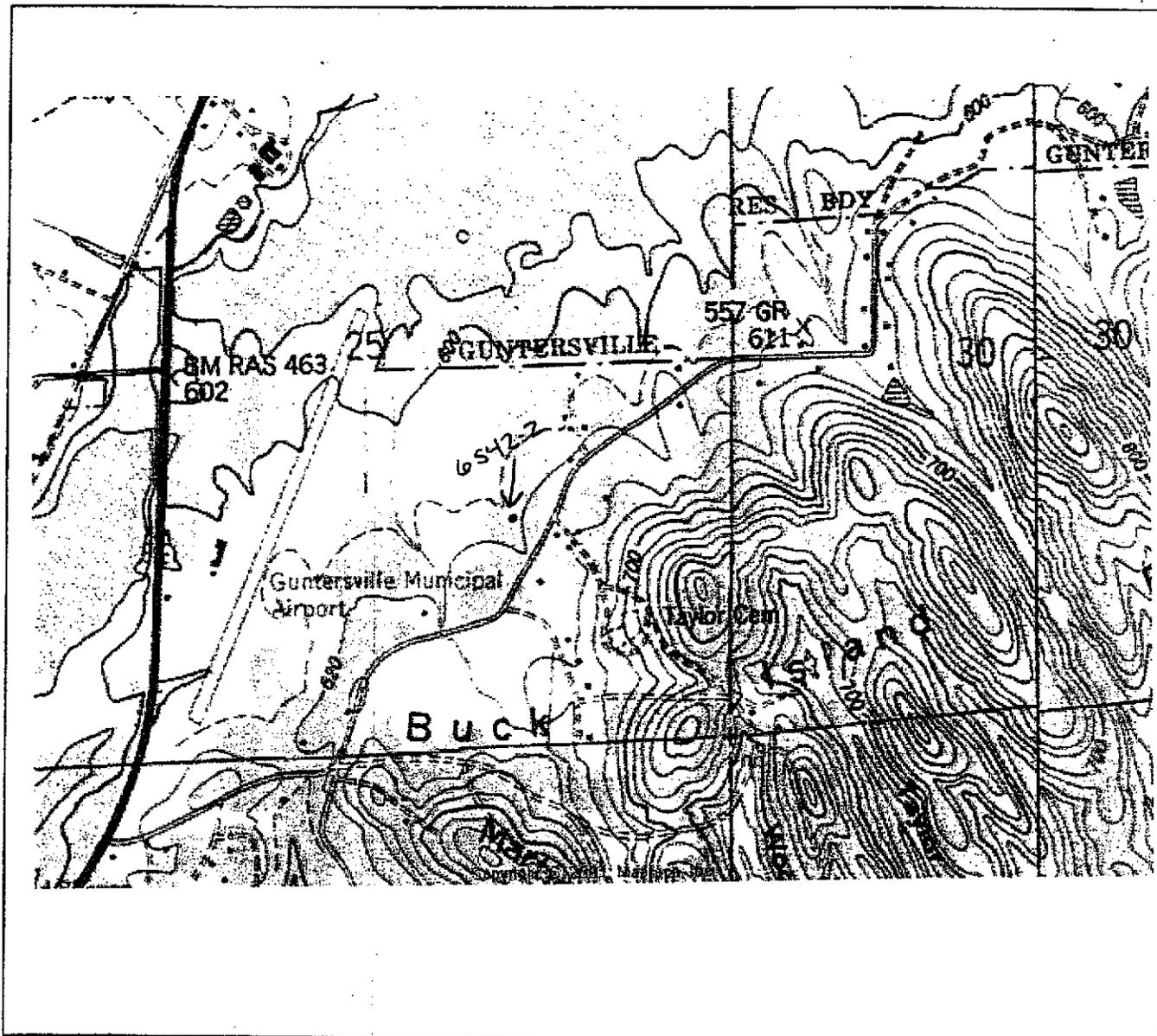
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<input type="checkbox"/> PETROGLYPH/PICTOGRAPH	OTHER (Specify) _____
<input type="checkbox"/> STONE MOUND(S)	

CULTURAL AFFILIATION(S):

--CULTURE--	--PHASES, CULTURES, HORIZONS, IF KNOWN--
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<input type="checkbox"/> LATE	_____
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<input type="checkbox"/> 18th CENTURY	_____
<input checked="" type="checkbox"/> 19th CENTURY	_____
<input checked="" type="checkbox"/> 20th CENTURY	_____

SPECIFIC DATE RANGE _____

MAP OF SITE



7.5' USGS TOPOGRAPHIC MAP: Mt Carmel (1983)

SITE FORM AUTHOR IDENTIFICATION

DATE: 1-23-03

AUTHOR-NAME: Terry Lolley

ADDRESS: PELA
1009A 23rd Ave

CITY: Tuscaloosa

STATE: AL ZIP: 36403

SITE IDENTIFICATION

TEMPORARY SITE NUMBER: 6542-3

SITE NAME: _____

SITE FLAG: _____ (Office Use Only)

SITE LOCATION AND SIZE

7.5' QUADRANGLE MAP: Mt Carmel

UTM COORDINATES (Center of Site): ZONE: 16 EASTING: 547237 NORTHING: 3806057

TOWNSHIP: 7S RANGE: 4E SECTION: 25 SE 1/4 of SE 1/4 of SW 1/4

ELEVATION: 645 ft AMSL SITE SIZE: MAJOR AXIS: 10 m MINOR AXIS: 15 m

MAXIMUM DEPTH: 0 cm

PRESERVATION INFORMATION

PRESERVATION STATE: 08

- | | |
|--------------------------|----------------------------|
| 01-Unmodified | 07-Construction |
| 02-Erosion | 08-Logged, Clear Cut |
| 03-Severe Erosion | 09-Borrow Pit/Surface Mine |
| 04-Inundated | 10-Deposition (buried) |
| 05-Intermittent Flooding | 11-Pothunted |
| 06-Cultivation | 99-Other (specify) _____ |

IMMEDIATE DESTRUCTION PENDING (y/n): N LOOTING/VANDALISM (y/n): N

PERCENT DESTROYED: 100 %

NATIONAL REGISTER STATUS: 05

- | | |
|--------------------------|---------------|
| 01-Undetermined | 04-Registered |
| 02-Considered Eligible | 05-Ineligible |
| 03-Considered Ineligible | |

DESCRIPTION/COMMENTS/REFERENCES

Site is a light surface scatter of historic material. Recovery consists of plain white ware, stoneware, glass, and a brick fragment. Artifacts are related to a historic structure that appears at this location on the Mt Carmel quad map. The structure no longer remains. The area has recently been logged. No cultural material was recovered from shovel testing.

ARCHAEOLOGICAL INFORMATION

LEVEL OF INVESTIGATION: 03

- 01-Volunteered Report 02-Reconnaissance Survey 03-Intensive (100%) Survey

EXCAVATION STATUS: 04

- 01-No Collection 03-Shovel Tests 05-Limited Testing 07-Excavation
- 02-Surface Collection 04-Surface Collection & Shovel Tests 06-Extensive Testing 08-Total Excavation

TOPOGRAPHIC ASSOCIATION: 05

- 01-Upland Crest 03-Upland Base 05-Terrace 07-Tidal Marsh
- 02-Upland Slope 04-Floodplain 06-Island

PHYSIOGRAPHIC DISTRICT: 16

- 01-Northern Piedmont Upland 09-Blount Mountain 17-Warrior Basin 25-Eastern Red Hills
- 02-Southern Piedmont Upland 10-Jackson Co. Mountains 18-Wills Valley 26-Fall Line Hills
- 03-Big Canoe Valley 11-Little Mountain 19-Tennessee Valley 27-Flatwoods
- 04-Cahaba Ridges 12-Lookout Mountain 20-Outer Nashville Basin 28-Lime Hills
- 05-Cahaba Valley 13-Moulton Valley 21-Black Prairie 29-Southern Pine Hills
- 06-Coosa Ridges 14-Murphree Valley 22-Buhrstone Hills 30-Western Red Hills
- 07-Coosa Valley 15-Sand Mountain 23-Chunnennuggee Hills 31-Coastal Strip
- 08-Weisner Ridges 16-Sequatchie Valley 24-Dougherty Plain 32-Mobile Delta

NEAREST WATER SOURCE: 07

AT CONFLUENCE (y/n): N

- 01-Sink 05-Lake 09-Third Order Stream 13-Estuary
- 02-Well 06-Oxbow Lake 10-Fourth Order Stream 14-Ocean/Bay
- 03-Spring 07-First Order Stream 11-Major Tributary
- 04-Swamp 08-Second Order Stream 12-River

DIRECTION TO WATER: NE

DISTANCE TO WATER: 280 m

DRAINAGE BASIN: 17

- 01-Alabama 07-Choctawhatchee 13-Pea 19-Yellow
- 02-Apalachicola 08-Conecuh 14-Perdido 20-Coastal Estuary/Bay
- 03-Black Warrior 09-Coosa 15-Sipsey
- 04-Buttahatchee 10-Escambia 16-Tallahpoosa
- 05-Cahaba 11-Escatawpa 17-Tennessee
- 06-Chattahoochee 12-Mobile-Tensaw 18-Tombigbee

GROUND COVER: 10

- 01-Grassland 04-Unimproved Forest 07-Inundated 09-Roadway
- 02-Cultivation 05-Improved Forest/Orchard 08-Developed (Urban/Residential/Industrial)
- 03-Secondary Growth 06-Intermittent Flooding 10-Open and Eroded
- 99-Other (specify) _____

SOIL TEXTURE CLASS: 22

- 01-Coarse Sand 09-Coarse Sandy Loam 17-Clay Loam
- 02-Sand 10-Sandy Loam 18-Silty Clay Loam
- 03-Fine Sand 11-Fine Sandy Loam 19-Sandy Clay
- 04-Very Fine Sand 12-Very Fine Sandy Loam 20-Silty Clay
- 05-Loamy Coarse Sand 13-Loam 21-Clay
- 06-Loamy Sand 14-Silt Loam 22-Rockland
- 07-Loamy Fine Sand 15-Silt
- 08-Loamy Very Fine Sand 16-Sandy Clay Loam

SOIL TYPE: Allen

NATURE OF DEPOSIT: 01

01-Entire Site Disturbed

02-Upper Portion Disturbed

03-Deep Disturbance

04-Undisturbed

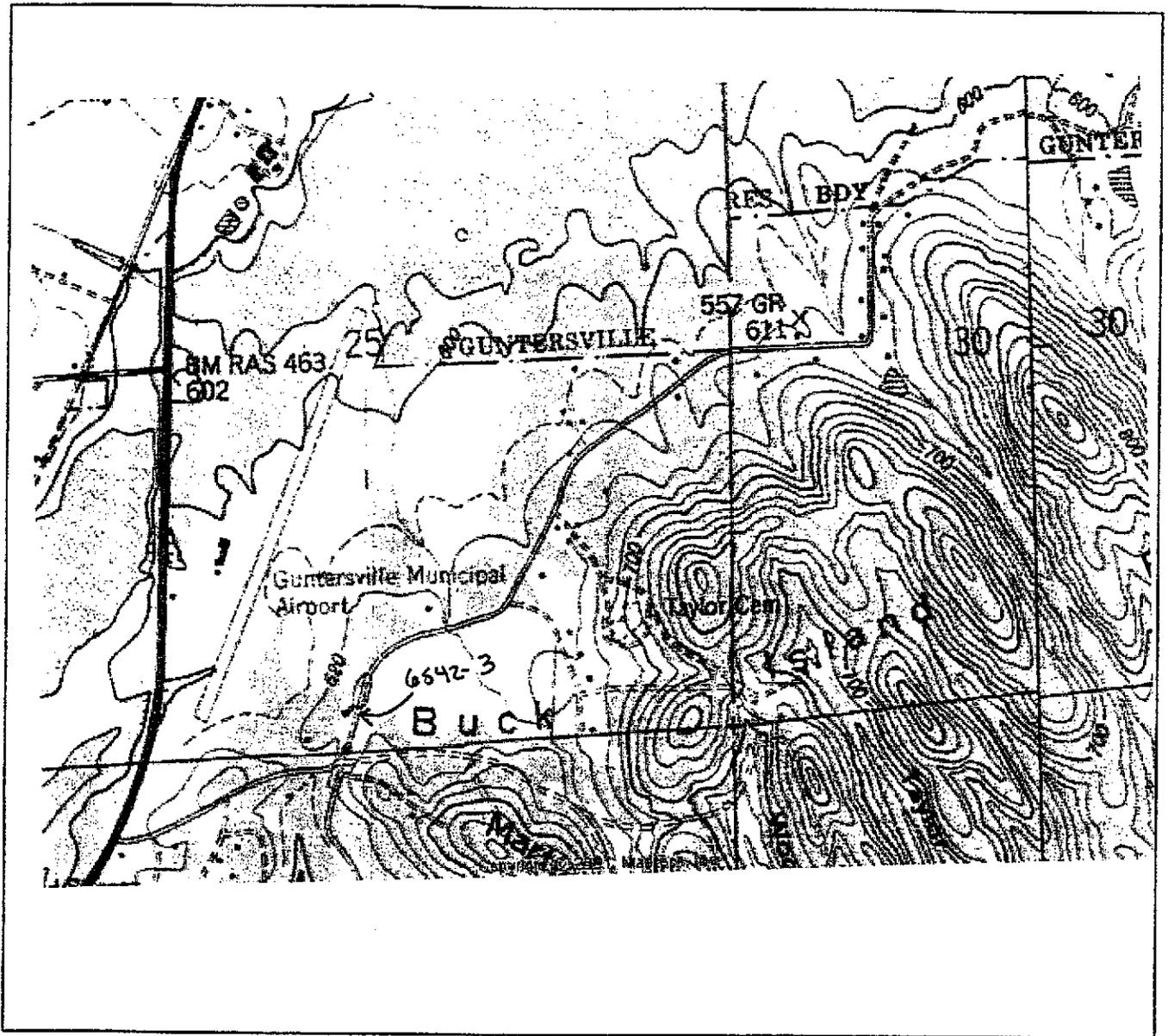
SITE CHARACTERISTICS:

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| <input type="checkbox"/> MULTIPLE EARTHEN MOUNDS | (Specify) _____ |
| <input type="checkbox"/> PETROGLYPH/PICTOGRAPH | OTHER (Specify) _____ |
| <input type="checkbox"/> STONE MOUND(S) | |

CULTURAL AFFILIATION(S):

- | --CULTURE-- | --PHASES, CULTURES, HORIZONS, IF KNOWN-- |
|--|--|
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| <input type="checkbox"/> LATE | _____ |
| <input type="checkbox"/> WOODLAND (Unidentified) | |
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| <input type="checkbox"/> MIDDLE | _____ |
| <input type="checkbox"/> LATE | _____ |
| <input type="checkbox"/> MISSISSIPPIAN (Unidentified) | |
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| <input type="checkbox"/> PROTOHISTORIC | _____ |
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| <input type="checkbox"/> 19th CENTURY | _____ |
| <input checked="" type="checkbox"/> 20th CENTURY | _____ |
| SPECIFIC DATE RANGE _____ | |

MAP OF SITE



7.5' USGS TOPOGRAPHIC MAP: mt Carmel (1983)

SITE FORM AUTHOR IDENTIFICATION

DATE: 1-23-03

AUTHOR-NAME: Terry Lolley

ADDRESS: PELA
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CITY: Tuscaloosa

STATE: AL ZIP: 35403

APPENDIX D

Ecological Assessment

ECOLOGICAL ASSESSMENT
Botanical Review for the presence or absence of Federally Listed Plant
Species

Tennessee Yellow-eyed Grass (*Xyris tennesseensis*)
Green Pitcher Plant (*Sarracenia oreophila*)
Eggert's Sunflower (*Helianthus eggertii*)
Prices Potato-bean (*Apios priceana*)

In association with the proposed Guntersville Airfield Runway Expansion
Marshall County, Alabama



Prepared for:

BWSC
5960 Carmichael Place
Montgomery, Alabama 36117

By:

WETLAND

SCIENCES
INCORPORATED

Report and Associated Field Investigation Completed
By:



5022A West Fairfield Drive, Pensacola, Florida 32506
850-453-4700, www.wetlandsciences.com

Keith D. Johnson
Field Scientist

Craig D. Martin
Senior Biologist

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SUMMARY

The firm Wetland Sciences Inc. (WSI) performed an ecological assessment associated with the proposed Guntersville airport expansion project located within Section 25, Township 7 South, Range 3 East and 4 East, Marshall County Alabama. Prior to the initiation of the ecological assessment, representatives of Barge Waggoner Sumner and Cannon, Inc. (BWSC) received verbal notification from the United States Fish and Wildlife Service (USFWS) representative, Mr. Rob Hurt, stating that the green pitcher plant (*Sarracenia oreophila*), Tennessee yelloweyed grass (*Xyris tennesseensis*), Price's potatoe bean (*Apios priceana*), and eggerts sunflower (*Helianthus eggertii*) may be present within the proposed project vicinity. These species are federally listed as endangered and each maintain habitat preferences that range from bogs, creeks, mesic hardwood, and somewhat altered upland habitats. Wetland Sciences Inc., and Barge Waggoner Sumner & Cannon, Inc. personnel evaluated potential locations from May 31-June 2, 2005, during which time staff environmental scientists and botanists performed pedestrian surveys within and immediately adjacent to the proposed airport expansion project with particular emphasis within habitats described as preferable for each particular species. The botanical survey noted dissimilar habitats existing throughout a majority of the study site. A small area of bog and open treeless area was found which did not support *Sarracenia* or *Helianthus*. Specifically the project site did not maintain, fens, creeks, stream bottoms, sinks, or flatwood habitats, thus greatly reducing the chances of confirming the presence of *Sarracenia oreophila*, *Xyris tennesseensis*, and *Apios priceana*. *H. eggertii* habitat preferences include scrub forest, prairie, and semi open barrens, of which the small area of treeless grassland that was investigated did not maintain *H. eggertii*. In conclusion the project as proposed is not expected to affect any populations of the listed Federally protected species.

INTRODUCTION

Wetland Sciences, Inc. was contracted to examine the habitat and evaluate the potential environmental impacts associated with a proposed airport expansion in the vicinity of Guntersville, Alabama. All aspects of the airfield expansion project were assessed relative to the potential environmental impact to endangered species, and wetlands. Field efforts were undertaken by staff of Wetland Sciences Incorporated (WSI) during March 19 through April 16, 2003 and May 31-June 2, 2005.

In total the proposed project area basically encompasses nearly 172 acres located north of the City of Guntersville which is located within the central portion of Marshall County, Alabama (Appendix A). Eggert's sunflower has only been recorded in Blount County Alabama, and the yellow eyed grass has not been found in Marshall County. Price's potato bean has been historically found in Marshall County and the most recent recorded occurrence was in 1991 on private property. The green pitcher plant is recorded within five Counties in northeastern Alabama, including Marshall County.

ECOLOGICAL CHARACTERIZATION

Five general habitats were encountered within the project vicinity during the investigation:

1. Silvicultural
2. Intermittent Drainageways
3. Impoundment
4. Mature Hardwood
5. Cleared Uplands

Most field identification efforts were focused within the edges of the Lake and within the intact mature hardwood components of the project. A majority of the project site was clear cut within two years and a very aggressive occurrence of dewberry (*Rubus spp.*), privet (*Ligustrum sp.*), greenbriar (*Smilax sp.*) and honeysuckle (*Lonicera spp.*) have become established within the lower clearcut regions of the project. The previous land disturbance coupled with the opportunistic aggressive re-growth is not typically found in association with any of the listed species.

The exception to limited tolerances to land disturbance is the eggerts sunflower, and the green pitcher plant, which prefer periodic fire to maintain a sporadic understory and semi-open canopy to persist and thrive.

ENDANGERED & THREATENED SPECIES REVIEW

This portion of the document details and summarizes the results of a survey that was conducted to determine the status of threatened and endangered flora associated with a proposed airfield expansion. This report also discusses methodologies and findings associated with the survey.

Classification System

This section defines the classification systems, reviews the federal, state, and local regulations established for the protection and preservation of threatened and endangered species, discusses the potential presence of any such species, and finally lists other species encountered during the field surveys.

Certain federal regulatory departments have the authority to protect rare, threatened and endangered flora and fauna that occur in Alabama. The United States Fish and Wildlife Service (USFWS) maintains a list as authorized by the Endangered Species Act of 1973 (16 USC 1531), and which enumerates the endangered and threatened wildlife and plants, 50 CFR 17.11-12 (Appendix B). The current list was provided by the United States Fish and Wildlife Service Threatened and Endangered Species System (TESS) as of March 15, 2001.

Listed species are either classified as endangered (E), threatened (T), of special concern (SSC), or considered (C) for such listing. Endangered species include those threatened with extinction if deleterious factors continue to impact their populations. These include species whose numbers have already declined to a critically low number or whose habitats have been so critically reduced or degraded that some assistance is necessary to ensure their survival.

Threatened species populations, although not as critically stressed as endangered species, are also jeopardized. Species of special concern are those that warrant special attention due to similarity in appearance to other species, commercial exploitation, environmental changes, and/or trends that indicate long-term population declines. Species listed within this category may also have potential impact on endangered or threatened populations of other species.

Methodology

The current study was initiated with reviews of federal and state laws. Results of these reviews were then used to develop a comprehensive list of threatened and endangered species, or species of special concern, that may occur within the project site.

Botanical reviews of the listed species, as well as reviews of the appropriate recovery plans for each species as devised by the United States Fish and Wildlife Service. Through evaluation of the classified land uses and vegetation types, as well as those citing habitat preferences for rare, threatened and species of special concern, specific areas of the project site were identified that could possibly support listed species.

On-site field verification of land use, associated vegetation types and the comprehensive terrestrial and aquatic evaluation was conducted over the period extending from March 19- April 17, 2003 and May 31-June 2 2005. This evaluation focused on habitats that could potentially support the federally listed species. The survey was performed within both wetland and upland habitats in which the proposed project is expected to occur. The survey efforts had the sole aim of determining habitat status and existence. Surveys were based on visual detection methodologies, focusing identification efforts based on knowledge of the particular genera (*Sarracenia*, *Xyris*, *Apios*, and, *Helianthus*) and particular characteristics apt to be visible.

Results

The botanical survey was initiated and completed by botanists and field biologists that maintain a keen familiarity with the *Sarracenia*, *Xyris*, *Apios*, and, *Helianthus* genera.

Prior to the field efforts the appropriate USFWS Recovery Plans were acquired and reviewed. Specific occurrences and habitat preferences including expected plant associations and habits were of particular interest. This information was utilized to formulate the field identification procedure. Habitat preferences for each individual species formed the basis of the study. The entire subject area was surveyed and concentrated field investigations related to the potential occurrence of the listed species was evaluated. The initial site review was focused on evaluating potential supporting habitats.

This effort revealed that a considerable area within (60%) the subject parcel was clearcut in the recent past and maintained a high percentage of opportunistic and exotic vegetation such as *Ligustrum sp.*, *Rubus spp.*, *Lonicera sp.* and *Smilax.sp.* These floristic conditions were not conducive to the occurrence of any of the listed species and botanical review efforts were directed at potentially more favorable habitats within the survey site.

A portion of the Northeast section of the project area maintained a natural intact mesic/bottomland forest, and pedestrian survey transects were established searching for *Apios priceana*, which has been described to occur in such hardwood stands. Generally, it was found that the intact canopy, and high groundwater levels in the intact forested area was not conducive to this species habitat preferences. This species was not observed or expected to occur within the project site.

Considerable effort was undertaken along the shoreline of Lake Gunterville, in association with locating potential habitats that would support the *Xyris tennesseensis*. Transects were established along the shoreline and extending into the intermittent drainage features that enter the Lake. The habitat encountered did not prove to be conducive to the maintenance of the tennessee yellow eyed grass. Specifically, the open (sunny) areas were extensively colonized by wild rice (*Zizania aquatica*) maintaining rich well developed organic solum. Due to these habitat dissimilarities, no *Xyris tennesseensis* was observed or expected to be found within the subject property.

During the site walkover, a small (less than 2 acres) depression bog area was identified that could potentially support the *Sarracenia oreophila* or the *Xyris tennesseensis*. Due to the size of the bog area a complete assessment was undertaken and neither listed species was present. Suitable habitat such as bogs, flatwoods, and sandy strambanks, generally are absent from the subject parcel. The only area considered to potentially support this species was thoroughly examined and no *Sarracenia* were present. Therefore, it is expected that this species would not be present within the subject parcel.

The bog system as described above also maintained an area (3+/-acres) of a fairly open treeless habitat that maintained some grasses that are known to occur with *H. eggertii* such as *Andropogon spp.*, *Schizachyrium scoparium*, and *Panicum virgatum*. The specific review for *H. eggertii* yielded no evidence that this species was present.

In summary, the field investigation yielded very little habitat that was suspected to support any of the four species examined for. The areas that maintained habitat that could support any of the listed species was thoroughly reviewed and no listed species were encountered, or were expected to be found.

Conclusions

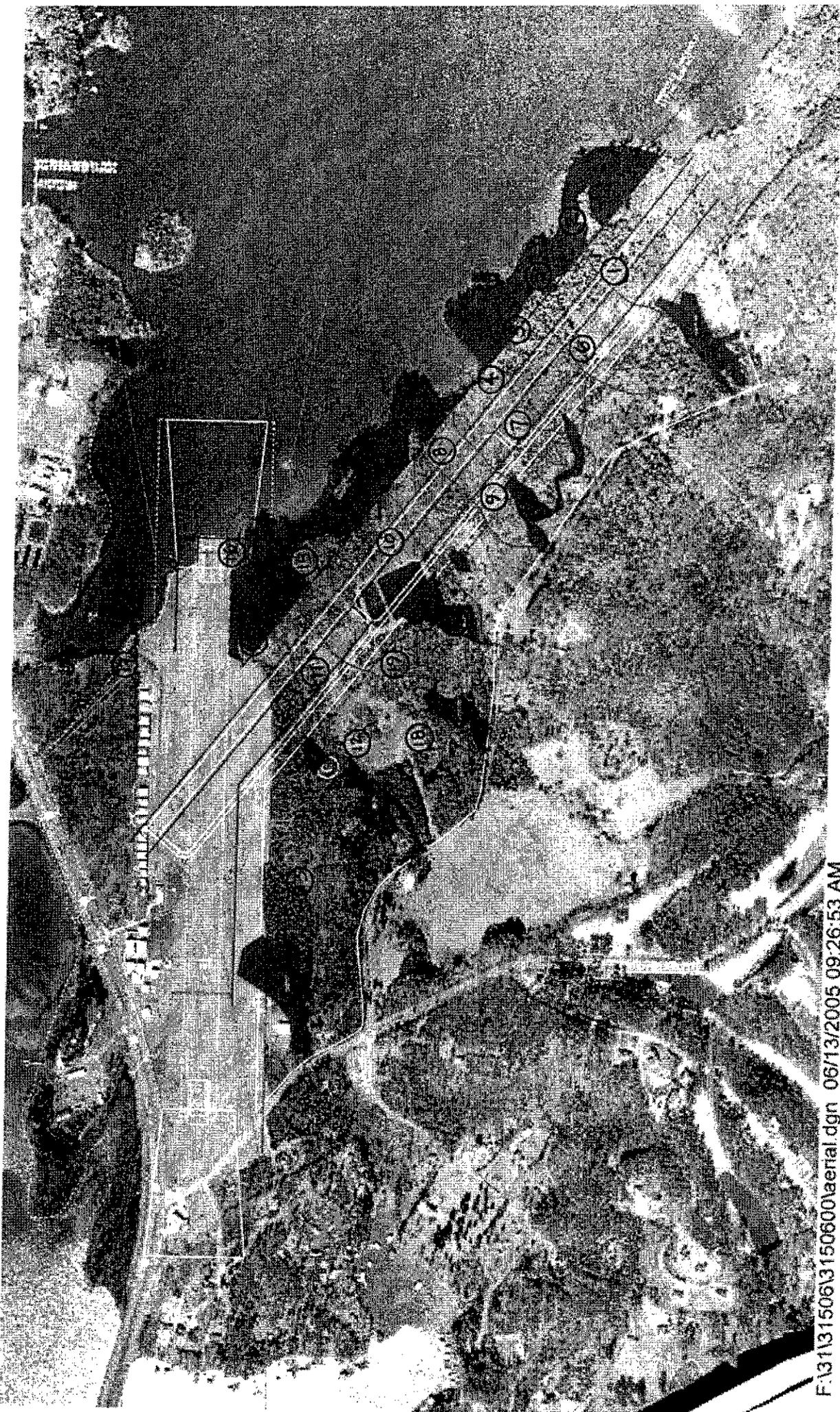
In summary, the botanical evaluation considered the habitat preferences of the four species described. Although, no specific habitat typology described for the four species was noted in previous field investigations, further efforts were concentrated within the lake shore areas, a cleared area supporting bog communities, adjacent cleared grass areas, and the intact mesic bottomland forest along the northeastern side of the proposed airport expansion. None of these areas were found to support the listed species. It is therefore concluded that the Federally listed plants do not reside within the project boundaries and therefore none will be affected as a result of the proposed airport expansion activities.

REFERENCES

- Allen, M. 1988. Wildlife Survey Methodology Guidelines - for Section 18.D of the Application for Development Approval. FG&FWFC, Tallahassee, FL.
- Patrick, T.S., J.R. Allison, and G.A. Krakow. 1995. Protected Plants of Georgia. Georgia Department of Natural Resources pp.207-208.
- US Fish and Wildlife Service. 1994. Green Pitcher Plant Recovery Plan. US Fish and Wildlife Service, Jackson, Mississippi. 23pp.
- US Fish and Wildlife Service. 1999. Recovery Plan for *Helianthus eggertii* Small (Eggert's Sunflower). Atlanta, GA. 40pp.
- US Fish and Wildlife Service. 1994. Recovery Plan for Tennessee yellow-eyed grass (*Xyris tennesseensis* Kral). Jackson, Mississippi. 24pp.
- US Fish and Wildlife Service. 1993. Recovery Plan for *Apios priceana*. Jackson, Mississippi. 43 pp.

Appendix A

SITE VICINITY MAP



F:\31131506\3150600\laerial.dgn 06/13/2005 09:26:53 AM

Appendix B

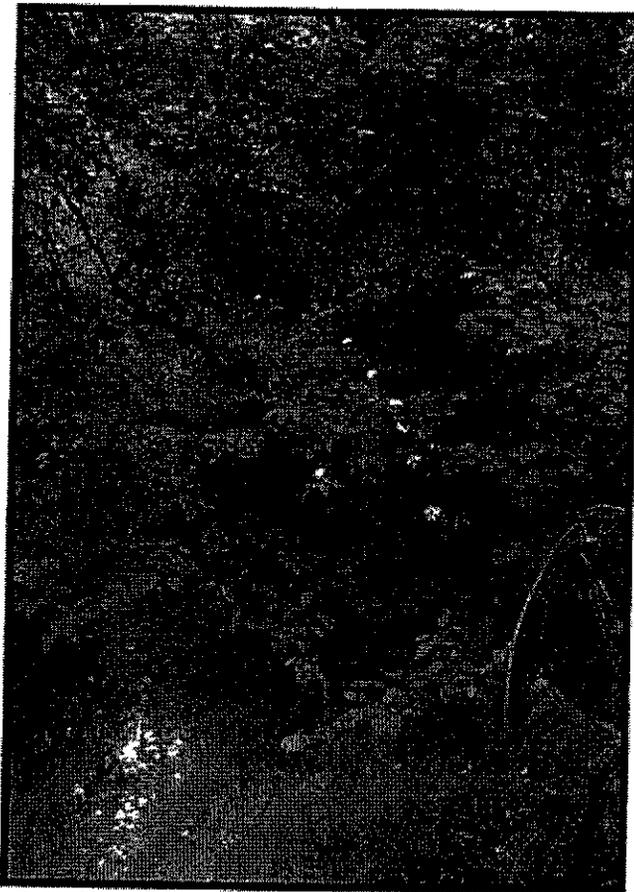
USFWS MARSHALL COUNTY LISTING

Table 1. Species and critical habitat evaluated for effects and those where "not likely to be adversely affected" determinations were made.

SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	EVALUATED FOR DIRECT, INDIRECT, AND/OR CUMULATIVE EFFECTS	LIKELY TO ADVERSELY AFFECT	CRITICAL HABITAT DESIGNATED/ AFFECTED
Gary bat	<i>Myotis grisescens</i>	YES	NO	NO
Indiana bat	<i>Myotis sodalis</i>	YES	NO	NO
Red-cockaded woodpecker	<i>Picoides borealis</i>	YES	NO	NO
Bald eagle	<i>Haliaeetus leucocephalus</i>	YES	NO	NO
Flattened musk turtle	<i>Sternotherus depressus</i>	YES	NO	NO
Snail darter	<i>Percina tanasi</i>	YES	NO	NO
Pink mucket pearly mussel	<i>Lampsilis abrupta</i>	YES	NO	NO
Shiny pigtoe pearly mussel	<i>Fusconaia cor (edgariana)</i>	YES	NO	NO
Fine-rayed pigtoe mussel	<i>Fusconaia cuneolus</i>	YES	NO	NO
Orange-footed pimpleback mussel	<i>Plethobasus cooperianus</i>	YES	NO	NO
Rough pigtoe mussel	<i>Pleurobema plenum</i>	YES	NO	NO
Price's potato bean	<i>Apios priceana</i>	YES	NO	NO
Green pitcher plant	<i>Sarracenia oreophila</i>	YES	NO	NO
Eggert's sunflower	<i>Helianthus eggertii</i>	YES	NO	NO
Slabside pearly mussel	<i>Lexingtonia dolabelloides</i>	YES	NO	NO
Tennessee Yellow-Eyed Grass	<i>Xyris tennesseensis</i>	YES	NO	NO

Appendix C

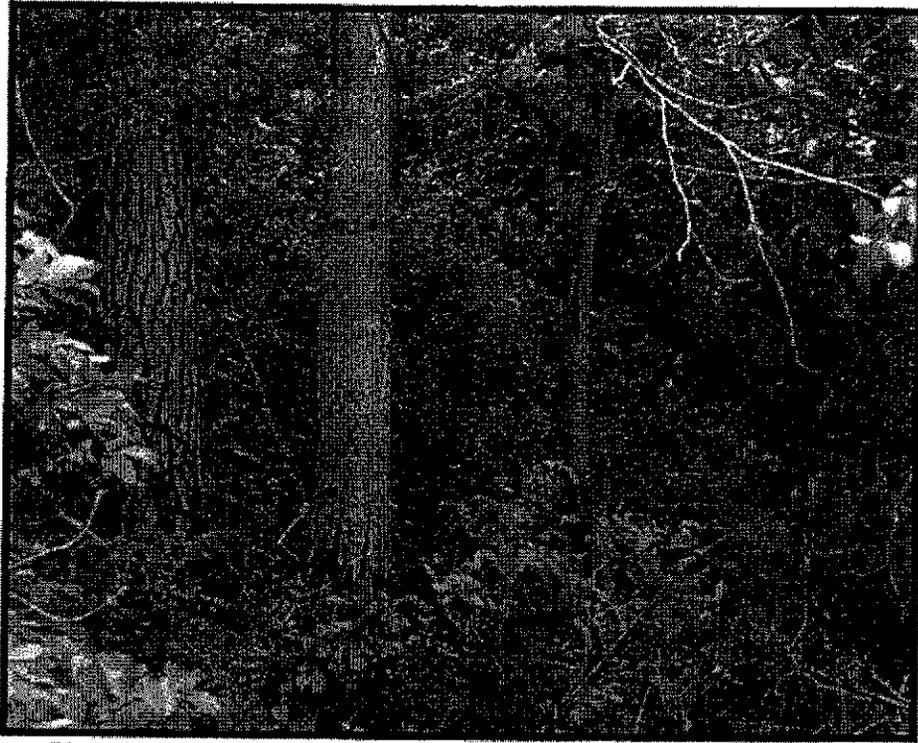
SITE PHOTOGRAPHIC ESSAY



Photograph 1. Photo of tributary located at northeast corner of property.



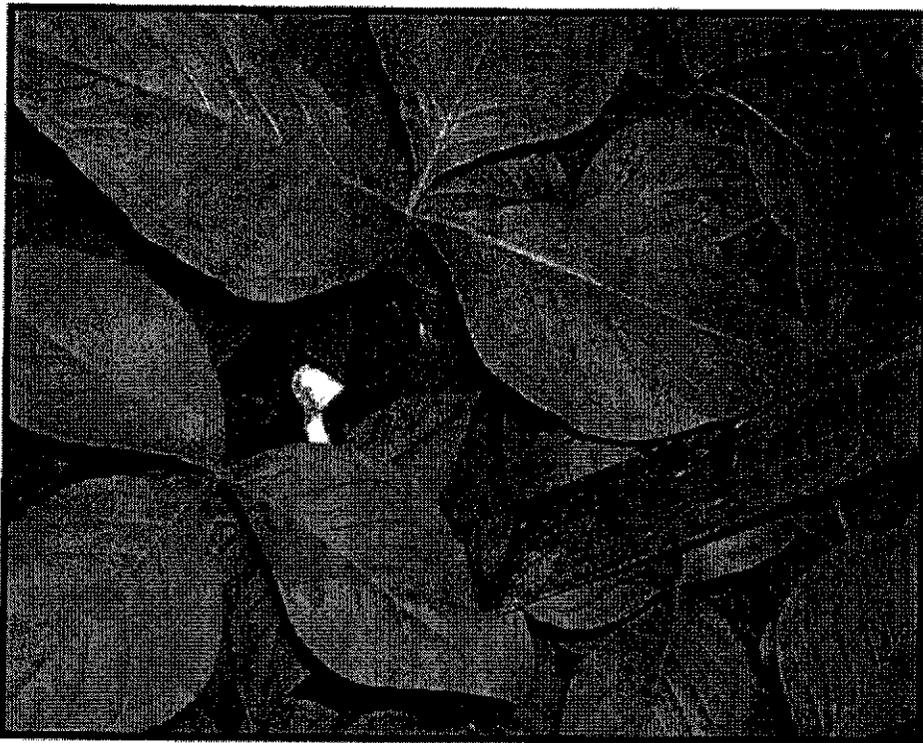
Photograph 2. Photo of lake's edge looking north.



Photograph 3. Photo of vegetation located on the interior of the property.



Photograph 4. Photo of *Zizania* marsh located on property.



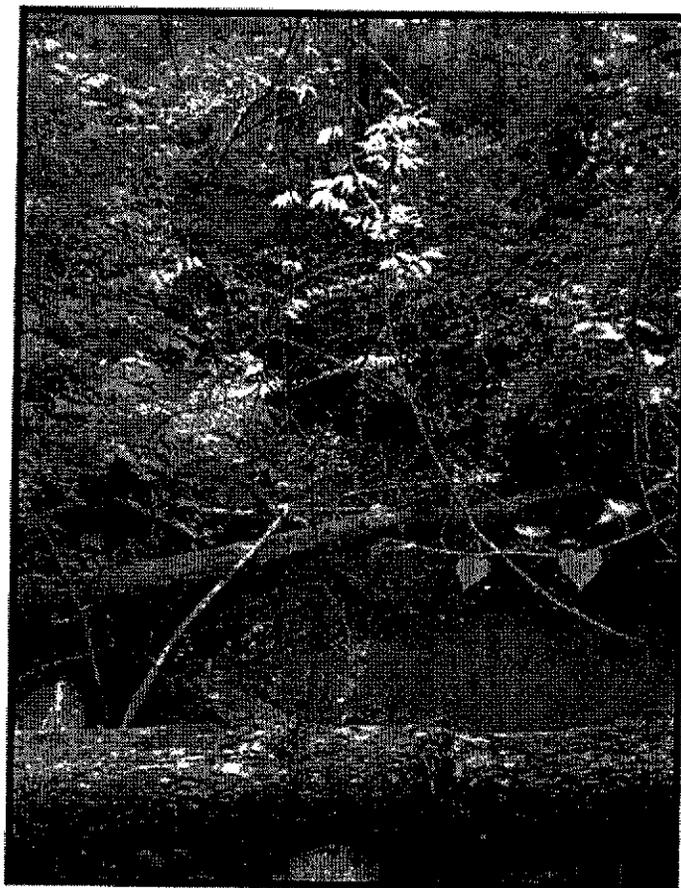
Photograph 5. Photo of *Arisaema sp.* Located within the intact hardwood portions of the site



Photograph 6. Typical photo of intermittent drainage system



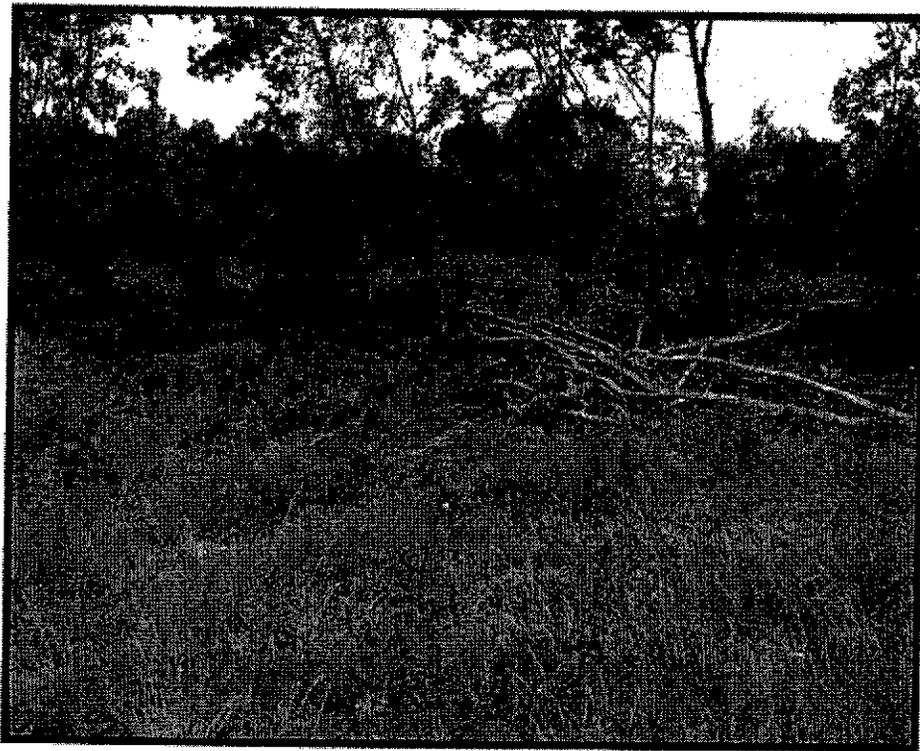
Photograph 7. Reference Point 7 on Aerial Photo



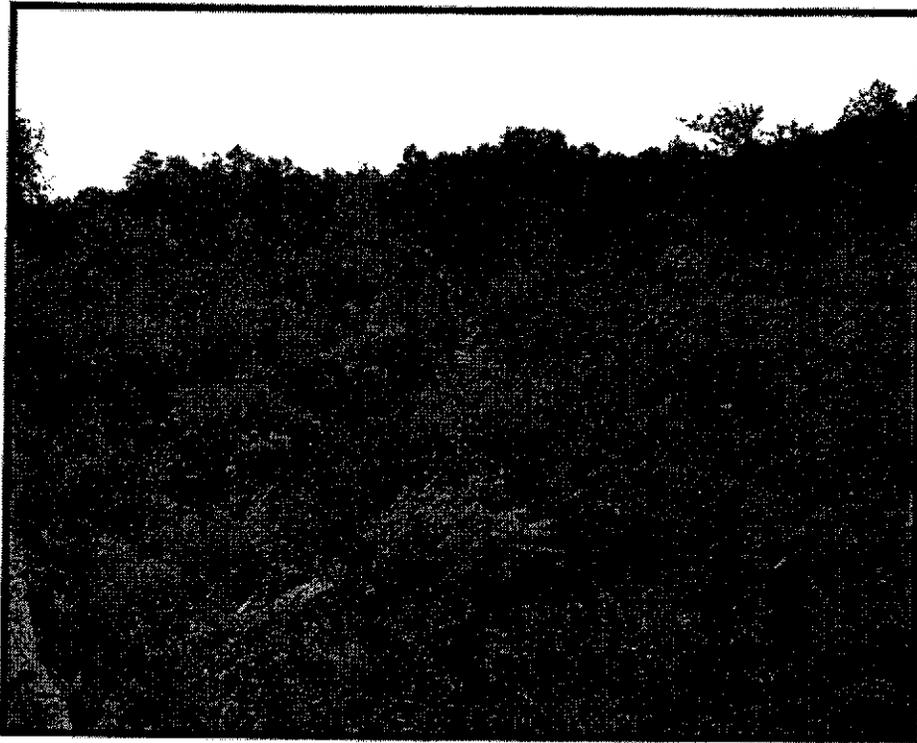
Photograph 8. Reference Point 8 on Aerial Photo



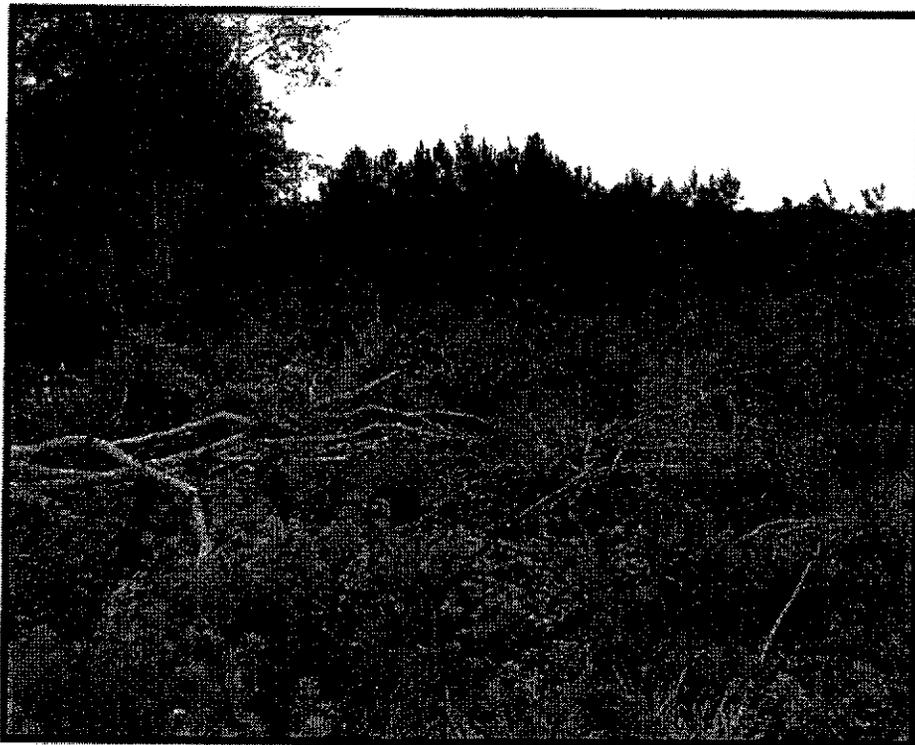
Photograph 9. Reference Point 9 on Aerial Photo



Photograph 10. Reference Point 10 on Aerial Photo



Photograph 11. Reference Point 11 on Aerial Photo



Photograph 12. Reference Point 12 on Aerial Photo



Photograph 13. Bog area located within the central portion of the project area.



Photograph 14. Remaining young pine plantation



Photograph 15. Edge between clearcut area and previously depicted pine plantation



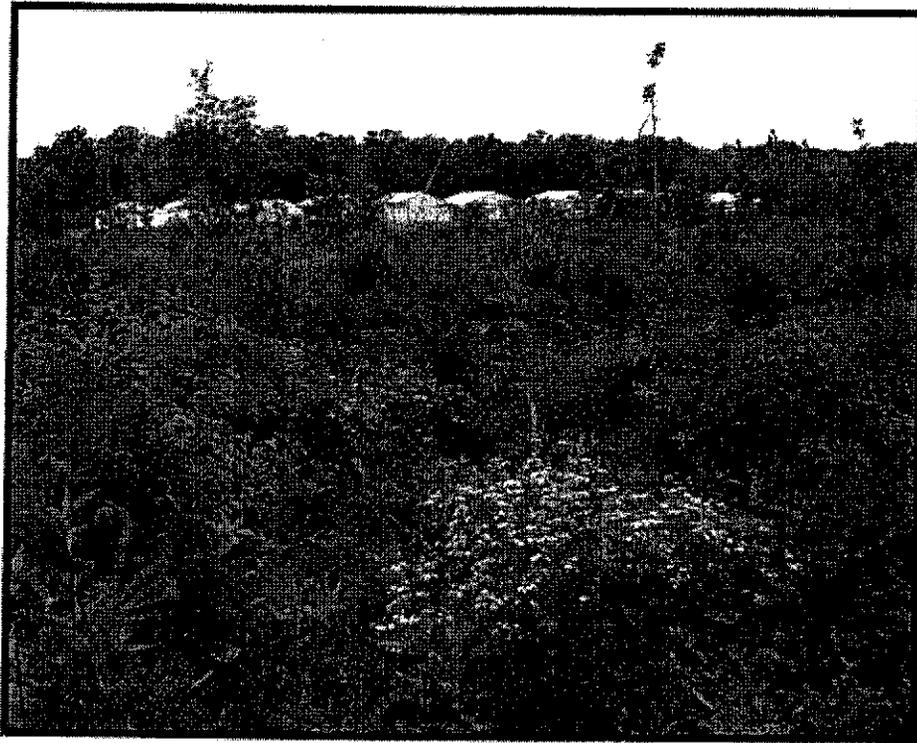
Photograph 16. Shoreline transition exhibiting *Zizania* population.



Photograph 17. Within the shallow zones adjacent to the emergent marsh, *Alternanthera* sp. dominated the shallow zones



Photograph 18. Typical re-growth condition of much of the clear-cut areas.



Photograph 19. View westward through clear cut area.



Photograph 20. Typical condition of intermittent drainageway located within cleared section of the parcel.

APPENDIX E

**Wetland Delineation Report
and Preliminary Mitigation Plan**

WETLAND
SCIENCES
INCORPORATED

February 26, 2003

Mr. Frank Mills
Barge, Waggoner, Sumner & Cannon Inc.
5960 Carmichael Place
Montgomery, Alabama 36117

Re: Non-binding wetland jurisdictional determination associated with the Guntersville Airport.

Dear Frank,

Wetland Sciences Incorporated (WSI) has completed the field assessment of properties associated with the proposed Guntersville Municipal Airport expansion within Section 25, Township 7S, Range 3E Marshall County, Alabama. The area investigated consists of a series of upland ridges separated by seepage slope forested wetlands associated with intermittent drainage features.

Field jurisdictional efforts were concentrated on areas as outlined within project documents provided. Following is a report detailing the non-binding wetland jurisdictional determination on the above-cited project.

Wetlands were identified according to methods outlined in the US Army Corps of Engineer's 1987 "*Corps of Engineers Wetland Delineation Manual*" (Waterways Experiment Station Technical Report Y-87-1, January, 1987). This method of wetland identification is the method most commonly used by wetland regulatory officials. This assessment included an analysis of plant communities, soils, and indirect hydrologic indicators. During this determination, Wetland Sciences, Inc. identified a wetland complex within the subject parcel. The upland/wetland boundary was flagged with pink surveyors tape and labeled alphanumerically to aide regulatory review during subsequent field efforts.

The two wetland systems located on the southeastern side of the site exist in association with intermittent drainage features that apparently enter into Guntersville Lake during periods of heavy or prolonged precipitation. These wetlands exist in a somewhat disturbed state having been clear-cut and colonized by Privet (*Ligustrum* sp.). Vegetation within the wetland areas consist of loblolly (*Pinus taeda*), shortleaved (*Pinus echinata*), water oak (*Quercus nigra*) hickory (*Carya ovata*) and sweet gum (*Liquidambar styraciflua*) are found throughout the wetland. The groundcover existing within these open portions of the wetland was largely dominated by various species of broomsedge (*Andropogon* spp.).

Soils within the wetlands are classified as Robertsville silty loam. High water table and poor permeability characterize this soil type. These soils as examined with this specific wetland typology displayed many of the hydric soil characteristics including, mottling, redoximorphic features, and saturation criterion. This soil typology is listed within the National Hydric soil list

I have submitted the required information for a site review to the Nashville USACOE District. This formal determination will finalize the regulatory jurisdiction, associated with the above described wetlands.

If any questions arise, please feel free to contact me at either the below-listed letterhead address or by telephone at (850) 433-1499.

Sincerely,

WETLAND SCIENCES, INC.



Craig D. Martin
Sr. Scientist

Cc: Forrest McDaniel, USACOE

WETLAND
SCIENCES
INCORPORATED

February 26, 2003

Mr. Forrest McDaniel
United States Army Corps of Engineers
Nashville District Regulatory Branch
2042 Beltline Rd. SW.
Building C, Suite 415
Decatur, Alabama 35601

Re: Guntersville Airport binding jurisdictional request.

Dear Mr. McDaniel,

During January 2003, Wetland Sciences conducted non-binding jurisdictional determinations on the parcel of land located in association with the Guntersville Municipal Airport located in Marshall County, Al.

This effort was accomplished by the staff of WSI on January 10, 2003 and did reveal the presence of wetlands within the subject area. The findings of the jurisdictional examination are detailed within the enclosed report.

Please review the associated report, data sheets, and associated topo quad and schedule the review at your earliest convenience.

Representatives of WSI, would like to accompany you during the investigation, so please call in advance to schedule a time and date.

If any questions arise, please feel free to contact either Keith Johnson at (850) 433-1499.

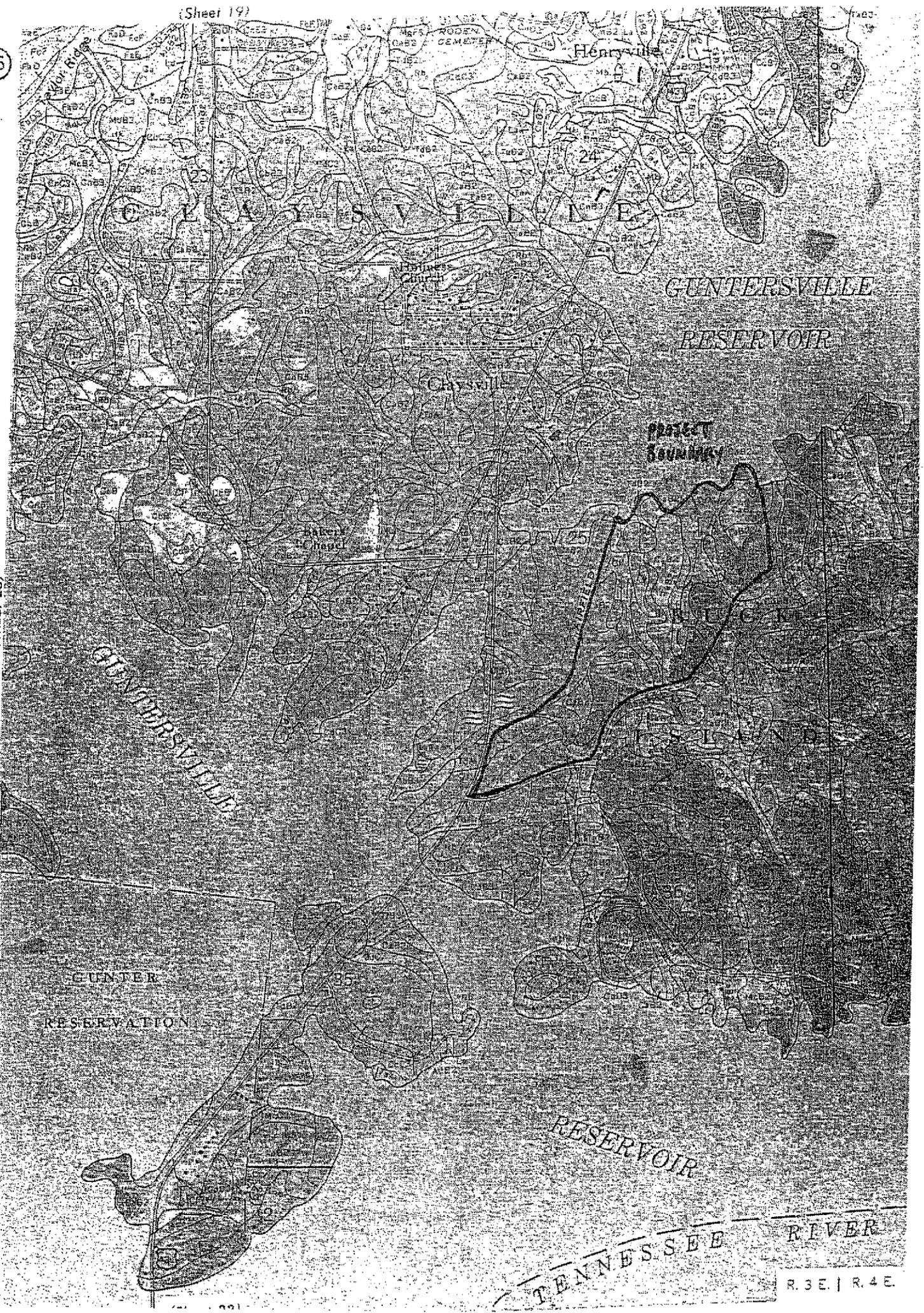
Thank you for your consideration

Sincerely,



Craig D. Martin
Sr. Scientist
Wetland Sciences, Inc.

Cc: Mr. Frank Mills, BWSC



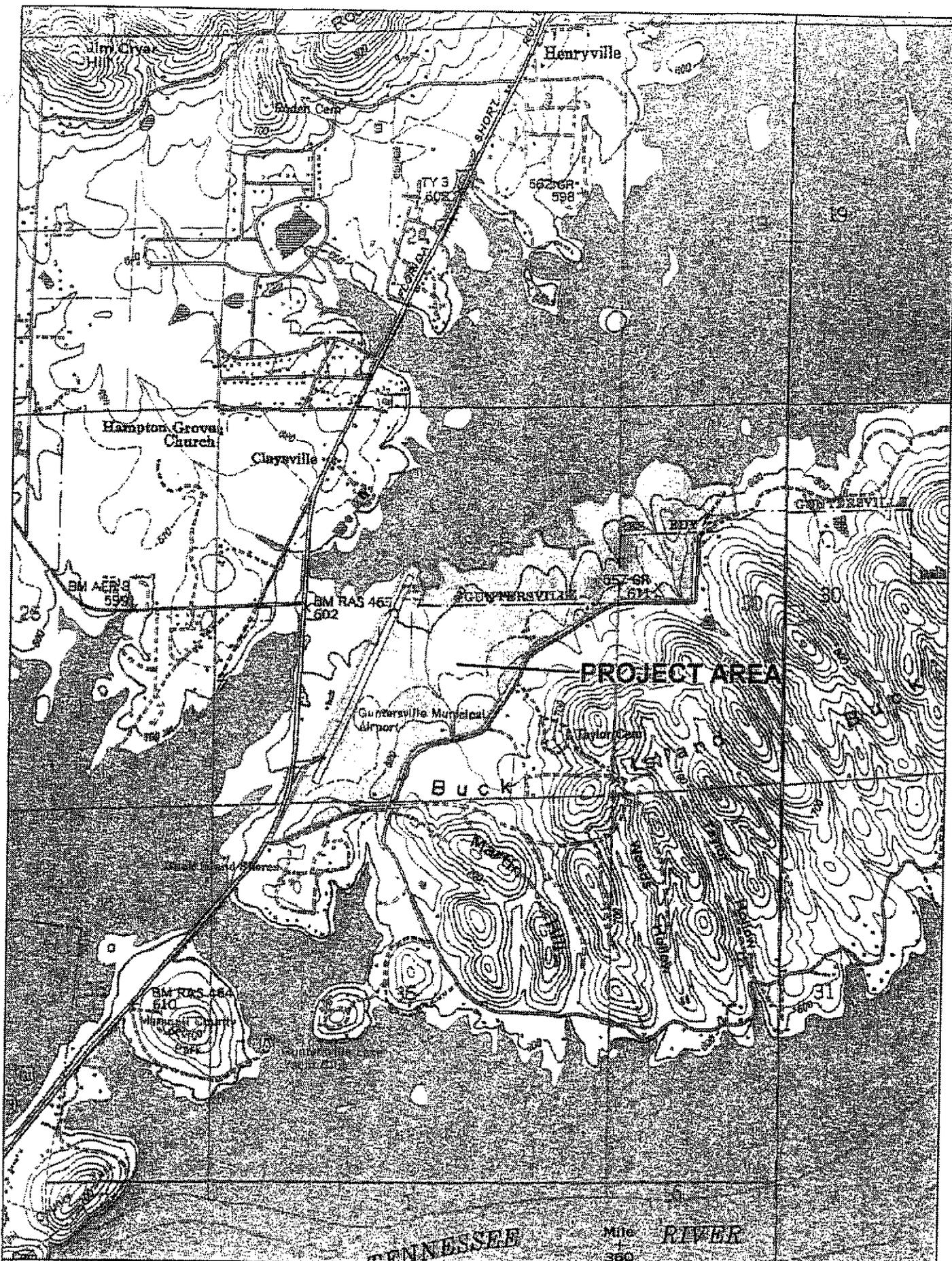
Sheet 25

GUNTER
RESERVATION

RESERVOIR

TENNESSEE RIVER

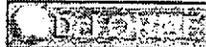
R. 3 E. | R. 4 E.



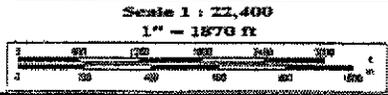
PROJECT AREA

Buckhorn

TENNESSEE RIVER
Mile 360



© 2002 DeLorme, XMMap® 3.5. Data copyright of content owner.
Zoom Level: 13-2 Datum: NAD27



DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Guntersville Airfield</u> Applicant/Owner: <u>Wetland Sciences, Inc.</u> Investigator: <u>CDM/KDJ</u>	Date: <u>2/25/2003</u> County: <u>Marshall</u> State: <u>Alabama</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: <u>FwSwamp</u> Transect ID: <u>X</u> Plot ID: <u>1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u><i>Pinus echinata</i></u>	<u>Canopy</u>	<u>FACW</u>	9. <u><i>Liriodendron tulipifera</i></u>	<u>Canopy</u>	<u>FAC</u>
2. <u><i>Acer rubrum</i></u>	<u>Canopy</u>	<u>FACW</u>	10. _____	_____	_____
3. <u><i>Quercus bicolor</i></u>	<u>Canopy</u>	<u>FACW</u>	11. _____	_____	_____
4. <u><i>Quercus stellata</i></u>	<u>Canopy</u>	<u>FACW</u>	12. _____	_____	_____
5. <u><i>Salix nigra</i></u>	<u>Canopy</u>	<u>FACW</u>	13. _____	_____	_____
6. <u><i>Ligustrum sp.</i></u>	<u>Sub canopy</u>	<u>FAC</u>	14. _____	_____	_____
7. <u><i>Sagittum spp.</i></u>	<u>Herb</u>	<u>OBL</u>	15. _____	_____	_____
8. <u><i>Zizania aquatica</i></u>	<u>Herb</u>	<u>OBL</u>	16. _____	_____	_____
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-)			<u>100%</u>		
Remarks: Hardwood swamp cut in recent past. Opportunistic species such as <i>Ligustrum</i> becoming dominant sub canopy vegetation.					

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more requires) <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input checked="" type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: na (in.) Depth to Free Water in Pit: 6 (in.) Depth to Saturated Soil: 2 (in.)	
Remarks: Clearcut forest few herbs present during time of investigation- hydrology dictated to the sites proximity to drainage ways originating from Buck Mountain	

SOILS

Map Unit Name
 (Series and Phase): Robertsville Sity Caly Loam Drainage Class: PD
 Taxonomy (Subgroup): Typic Fragiaqualf Field Observations
 Confirm Map Type Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	O2	10YR 4/2			clay loam
4-12	A1	10YR 5/3			mottles/conc.
12+	A2	10YR 6/1			Clayey plastic

Hydric Soil Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Histosol | <input checked="" type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> High Org Content in Surface Layer in Sandy Soils |
| <input checked="" type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input checked="" type="checkbox"/> Aquic Moisture Regime | <input type="checkbox"/> Listed on Local Hydric Soil List |
| <input type="checkbox"/> Reducing Conditions | <input checked="" type="checkbox"/> Listed on National Hydric List |
| <input checked="" type="checkbox"/> Gleyed or Low-Chromo Colors | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks: saturated

WETLAND VEGETATION

Hydrophytic Vegetation Present?	Yes	No (Circle)	Is this sampling point within a wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	
Remarks: Typical swamp forest floodplain habitat associated with a major riverine system.			

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Guntersville Airfield</u> Applicant/Owner: <u>Wetland Sciences, Inc.</u> Investigator: <u>KDJ/CDM</u>	Date: <u>2/25/2003</u> County: <u>Marshall</u> State: <u>Alabama</u>		
Do Normal Circumstances exist on the site? the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area?	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; width: 50%;"> <input checked="" type="radio"/> Yes <input type="radio"/> No </td> <td style="text-align: center; width: 50%;"> <input type="radio"/> Yes <input checked="" type="radio"/> No </td> </tr> </table>	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Community ID: _____ Transect ID: <u>U</u> Plot ID: <u>1</u>			

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u><i>Pinus taeda</i></u>	<u>Canopy</u>	<u>FACU</u>	7. _____	_____	_____
2. <u><i>Quercus stellata</i></u>	<u>Canopy</u>	<u>FAC</u>	8. _____	_____	_____
3. <u><i>Quercus alba</i></u>	<u>Canopy</u>	<u>FACU</u>	9. _____	_____	_____
4. <u><i>Fagus grandifolia</i></u>	<u>Canopy</u>	<u>FACU</u>	10. _____	_____	_____
5. <u><i>Carya ovata</i></u>	<u>Canopy</u>	<u>FACU</u>	11. _____	_____	_____
6. <u><i>Polypodium polypoides</i></u>	<u>Herb</u>	<u>FACU</u>			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 16%

Remarks: _____

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more requires) <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>>18" (in.)</u> Depth to Free Water in Pit: <u>N/A (in.)</u> Depth to Saturated Soil: <u>>18" (in.)</u>	
Remarks: _____	

SOILS

Map Unit Name
 (Series and Phase: Captina silty loam)

Drainage Class: MWD
 Field Observations :
 Confirm Map Type Yes No

Taxonomy (Subgroup):

Profile Description:

Depth	Matrix Color	Mottle Colors	Mottle	Texture, Concretions, Structure, etc.
(Inches)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast
0- 4.	A1	10YR 4/2		silty loam/ Weak crumbly
4.5- 16	A2	10YR 7/5		Silty clay /Mottles

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol | <input type="checkbox"/> Concretions |
| <input type="checkbox"/> Histic Epipedon | <input type="checkbox"/> High Org Content in Surface Layer in Sandy Soils |
| <input type="checkbox"/> Sulfidic Odor | <input type="checkbox"/> Organic Streaking in Sandy Soils |
| <input type="checkbox"/> Aquic Moisture Regime | <input type="checkbox"/> Listed on Local Hydric Soil List |
| <input type="checkbox"/> Reducing Conditions | <input type="checkbox"/> Listed on National Hydric List |
| <input type="checkbox"/> Gleyed or Low-Chromo Colors | <input type="checkbox"/> Other (Explain in Remarks) |

Remarks: No hydric soil indicators present within the areas distinguished as uplands

WETLAND VEGETATION

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No (Circle)	Is this sampling point within a wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Hydric Soils Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks:	

**PRELIMINARY WETLAND MITIGATION PLAN
FOR
GUNTERSVILLE MUNICIPAL – JOE STARNES FIELD
GUNTERSVILLE, ALABAMA**

Prepared By

Barge Waggoner Sumner & Cannon, Inc.
5960 Carmichael Place
Montgomery, Alabama 36117

April 2005

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Appendix B	Wetland Sciences, Inc., Wetland Delineation Report
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Introduction

A joint U.S. Army Corps of Engineers (USACE) Section 404 permit and Tennessee Valley Authority (TVA) 26(a) permit will be sought to allow for the relocation of the existing runway and the construction of a parallel taxiway in association with the existing Guntersville Municipal – Joe Starnes Field facility to comply with Federal Aviation Administration (FAA) design standards. The preliminary mitigation plan narrative is being provided here to discuss details associated with the proposed compensatory mitigation and to provide project justification.

In an attempt to provide a comprehensive wetland impact analysis, Barge Waggoner Sumner & Cannon, Inc. (BWSC) evaluated the long-term (10yrs) projected design requirements of the project in relation to consistency with FAA airport design guidelines. The need for the relocation of the existing runway was documented in a Runway Justification Study approved by the FAA on May 30, 2002. The Runway Justification Study demonstrated an existing and additional aviation demand that exceeds the FAA criteria for relocating a runway at the airport from its existing location, to a new runway orientation and ultimate length of 5,500 feet. The performance characteristics of the turbojet aircraft expected to utilize the airport necessitates the construction of a new runway for enhanced operational safety.

Based on these design projections, the Guntersville Municipal – Joe Starnes Field expansion project will require 40.28 acres of long-term permanent impacts to wetlands. The following Preliminary Mitigation Plan and its attachments have been prepared utilizing the *“Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals”*, March 1994 and the *“Model Compensatory Mitigation Plan Checklist for Aquatic Resource Impacts under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.”*

Section 1: Executive Summary and Mitigation Plan Checklist

A total of 82.54 acres of Jurisdictional Wetlands have been identified at the location of the proposed airport improvements. The 82.54 acres of wetlands were identified during the wetland delineation conducted in February 2003 by Wetland Sciences, Inc. and Barge Waggoner Sumner and Cannon, Inc. There are 40.28 acres of directly impacted wetlands associated with the proposed airport improvements. The 40.28 acres of directly impacted wetlands are located adjacent to and east of the existing Guntersville Municipal – Joe Starnes Field, Guntersville, Marshall County, Alabama.

The proposed airport improvements include the initial construction of a 5,000 foot long runway with a parallel taxiway. In addition, aircraft hangars, a terminal building and support facilities will be located in the area immediately south of the proposed runway and taxiway. The 40.28 acres of identified wetlands are proposed to be filled to facilitate the construction of the 5,000 foot long runway, the parallel taxiway, aircraft parking apron, and associated connectors between the runway and the taxiway.

The 40.28 acres of impacted Jurisdictional Wetlands consist of approximately 22.40 acres of forested wetlands and approximately 17.88 acres of scrub shrub wetlands, based on the Cowardin classification. In addition to the identified wetlands, there were a total of seven (7) drainage ways (one perennial stream, one intermittent stream and five ephemeral streams) identified within the airport area.

A Mitigation Plan Checklist is included as Table 1 of the Executive Summary indicating the areas addressed and included within the Preliminary Mitigation Plan.

Table 1

MITIGATION PLAN CHECKLIST

Included	Omitted	
<input checked="" type="checkbox"/>		Executive summary *
Project description		
<input checked="" type="checkbox"/>		Project location, maps *
<input checked="" type="checkbox"/>		Responsible parties *
<input checked="" type="checkbox"/>		Description of Project *
<input checked="" type="checkbox"/>		Impacts and extent of disturbance to wetlands *
<input checked="" type="checkbox"/>		Existing and proposed land uses *
<input checked="" type="checkbox"/>		Wetland delineation *
Ecological assessment of impact site		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing vegetation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing water regime
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing soils
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Existing fauna
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Functions and values
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water quality
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Buffers
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Wetland rating
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Position of wetland in landscape
Mitigation goals, objectives & performance standards		
<input checked="" type="checkbox"/>		Mitigation sequencing followed *
<input checked="" type="checkbox"/>		Goals (wetlands functions to be restored, created, enhanced) *
		Objectives
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water regime to be restored
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation structure to be restored, created, enhanced
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Habitat attributes to be restored, created, enhanced
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Performance standards to assess each objective
Proposed mitigation site		
<input checked="" type="checkbox"/>		Site description (location, size, maps) *
<input checked="" type="checkbox"/>		Ownership *
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Rational for choice
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ecological assessment of mitigation site
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Site constraints
Preliminary site plan		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Changes in topography
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hydrologic structures
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soils
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation distributions
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Habitat attributes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Buffers

Included	Omitted	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section drawings showing relationship of topography to vegetation
Monitoring Plan		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vegetation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water regime
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Soils
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fauna
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Functions and values
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Development of habitat structure
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water quality
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Buffers
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Site protection *

Section 2: Project Description

2.1 Project Location

The Guntersville Municipal – Joe Starnes Field site is located on 7.5 minute USGS topographic quadrangle, Mt. Carmel, Alabama, in Sections 25 and 30, Township 7 South and Ranges 3 East and 4 East and is illustrated on Figure 1, Area Vicinity Map.

2.2 Responsible Parties

The City of Guntersville maintains the ultimate responsibility for the development and coordination of the airport improvement program at the Guntersville Municipal – Joe Starnes Field. The City of Guntersville has selected Barge Waggoner Sumner & Cannon, Inc. as their airport consultant to assist with the overall airport planning, design, and construction of the proposed airport improvements.

City of Guntersville
341 Gunter Avenue
Guntersville, AL 35976
(256) 571-7565
James D. Townson, Mayor

City of Guntersville
Department of Economic Development
341 Gunter Avenue
Guntersville, AL 35976
(256) 571-7560
Luanne Hayes, Director

Barge Waggoner Sumner & Cannon, Inc.
5960 Carmichael Place
Montgomery, AL 36117
(334) 409-2972
Gary K. Behrens, Manager, Environmental Planning
(Preliminary Mitigation Plan Development)
Jason Hare, Aviation Planner
(Airport Layout Plan)

Barge Waggoner Sumner & Cannon, Inc.

200 Clinton Avenue, Suite 800

Huntsville, AL 35801

(256) 533-1561

Harry M. Wilson, P.E. & Jeff Redmill, P.E.

(Hydrologic Study & Conceptual Drainage Design)

Wetland Sciences, Inc.

5022 West Fairfield Drive, Suite A

Pensacola, FL 32505

(850) 433-1499

Craig D. Martin, M.S.

(Wetland Delineation & Ecological / Functional Assessment)

2.3 Description of Overall Project

The proposed airport expansion program at the Guntersville Municipal – Joe Starnes Field will consist of the following airport improvements:

- Acquire approximately 172 acres of land
- Construct a new 5,000 foot by 100 foot runway and install runway lights
- Improve the Runway Safety Area (RSA) for the proposed runway. The RSA is a graded, grassed overrun that will be 150 feet wide and extend 300 feet beyond each runway end
- Construct a full-length parallel taxiway to serve the proposed runway and install lighting
- Construct a new terminal building
- Construct a new access road and automobile parking area
- Construct T-hangars and corporate or private hangars
- Relocate the fuel farm
- Install Automated Weather Observing System (AWOS)
- Install perimeter fencing

BWSC anticipates that the proposed airport improvements at Guntersville Municipal – Joe Starnes Field will be implemented over a three to five year period beginning in 2005. The timing and phasing of the proposed airport improvements will be contingent upon the availability of funding assistance from the Federal Aviation Administration (FAA) and the Alabama Department of Transportation (ALDOT), Bureau of Aeronautics.

Based on the proposed 40.28 acres of direct wetland impact and a mitigation ratio of 2:1 for off-site compensatory mitigation, BWSC is proposing to mitigate the impacts with a total of 80.56 credits. BWSC proposes to mitigate the wetland impacts off-site through the use of USACE

approved wetland mitigation banks or compensatory mitigation sites. BWSC has identified the Flint Creek Wetland Mitigation Bank and the Hembree Compensatory Mitigation Site as potential for compensatory mitigation options for the proposed impacts at the Guntersville Municipal Airport – Joe Starnes Field

2.4 Wetland Delineation of Impact Area

The wetland delineation of the proposed impact area was conducted in February 2003 by BWSC and Wetland Sciences, Inc. personnel. The wetland delineation initially identified a total of approximately 83.54 acres of wetlands on the proposed airport improvement site. Of the 83.54 acres of total wetlands, BWSC projects a direct impact to 40.28 acres of wetlands and a temporary impact to 3.17 acres of wetlands.

The identified wetlands consisted of forested bottomland and scrub shrub wetlands. In addition, there were seven (7) drainage ways identified in the area of proposed impact. In March 2003, a U.S. Army Corps of Engineers representative from the Decatur, Alabama Field Office conducted a Jurisdictional Determination of the proposed impact site. Based on correspondence received from the USACE, they are in concurrence with the total wetland acreage identified and delineated by the BWSC and WSI team. The USACE has determined that the wetlands identified on the proposed site are considered Jurisdictional Wetlands and are therefore “waters of the United States,” requiring a Joint USACE / TVA Section 404 and 26 (a) permits.

2.5 Analysis of Culverts and Detention Pond Design

BWSC transportation engineers performed a detailed hydraulic analysis of the watersheds which comprise the hydrologic regime of the wetlands identified on the proposed project site. The information obtained from the hydraulic modeling study was utilized to determine the most cost efficient means of directing the drainage from each of the existing streams beneath the proposed runway and insure that the necessary hydrologic conditions are maintained to support the existing wetlands located on the north side of the proposed project site.

The “rational method” was determined to be the method of choice for the estimation of flows to be used in the design of the drainage structures to be located beneath the proposed runway. The

rational method is the preferred method of runoff calculation used by the Alabama Department of Transportation (ALDOT) for small watersheds less than 200 acres.

The detailed study is included in Appendix C, Hydraulic Analysis and Conceptual Design of Drainage Structures for Runway 6/24.

Section 3: Ecological Assessment of Impact Site

3.1 Existing Vegetation

During the Wetland Delineation of the proposed project site in February 2003, representatives from BWSC and Wetland Sciences, Inc. identified a palustrine forested, wetland represented by poplar, maple, hickory, sweet gum, willow, and black gum, with a dense coverage of Japanese privet (*Ligustrum sp.*). Few herbaceous plants were noted within the groundcover, likely resulting from the opportunistic privet. Dominant species within the uplands section of the subject parcel included loblolly pine (*Pinus taeda*), southern red cedar (*Juniperus virginiana*), oaks (*Quercus spp.*), and American beech (*Fagus grandifolia*).

3.2 Existing Water Regime

The watersheds for the area of the proposed airport improvements were identified using the USGS topographic quadrangle, Mount Carmel, Alabama (1948, photo revised 1983). There were seven (7) drainage basins identified in the project area, two of which are blue line streams as identified on the USGS quadrangle. Each of the basins drains from the southeast to the northwest from higher elevation of Buck Island to the relatively flat areas along the shoreline of Lake Guntersville. The delineated watersheds are noted on Figure 6 (I assume we have referenced Figures 1 – 5 earlier in the text) Watershed Map.

3.3 Existing Soils

The soil types identified in the area of the proposed airport improvements were evaluated utilizing the Soil Survey of Marshall County, Alabama, June 1959 by the United States Department of Agriculture, Soil Conservation Service. There were several different soil types identified within the project area. The primary soil types identified on the project site are summarized, as follows:

Lowlands:

CaB2 Captina Silt Loam: composed primarily of clay and silt loam,
moderately well drained, surface runoff is medium to moderately
rapid.

- TaB2 Taft Silt Loam: clay and silt loam, somewhat poorly drained, runoff is slow to moderately rapid.
- TdB2 Tellico and Upshur Soils: clay and silt loam, generally well drained, runoff is rapid.
- CcB Captina-Colbert Soils: clay and silt loam, moderately well drained, runoff is rapid.
- CeB2 Colbert Silty Clay Loam: clay and silt loam, moderately well drained, runoff is rapid.

Uplands:

- TbD2 Tellico and Upshur Soils: clay and silt loam, well drained, runoff is rapid.
- CbB3 Captina Silty Clay Loam: clay and silt loam, moderately well drained, runoff is rapid.

The information contained in the soil survey was used to determine the primary soil group classification. The soil types have been divided into four groups based on their minimum infiltration rates. The following is a listing of the soil groups and their definitions:

- Group A Soils having a high infiltration rate. They are chiefly deep, well drained sands or gravels, deep loess, or aggregated silts. They have a low runoff potential.
- Group B Soils having a moderate infiltration rate when thoroughly wet. They are chiefly moderately deep, well drained soils of moderately fine to moderately coarse texture, such as loess and sandy loam.
- Group C Soils having a slow infiltration rate when wet. They are soils with a layer that impedes downward movement of water and soils of moderately fine to fine texture, such as, clay loams, shallow sandy loam, soils low in organic content, and soils high in clay content.

Group D Soils having a very slow infiltration rate. They are chiefly clay soil with a high swelling potential, soils with a permanent high water table, soils with a claypan at or near the surface, shallow soils over nearly impervious material, heavy plastic clays, and certain saline soils. They have a high runoff potential.

The soils within the project area are identified within Group C due to their high clay content and rapid runoff potential.

3.4 Existing Fauna

Utilization of the subject wetlands by wildlife was the first variable assessed as part of the ecological / functional assessment. While there were no direct wildlife observations made during the December 2002, March 2003, and June 2004 site visits, signs of wildlife presence (including scat, tracks, rubs, and other indirect evidence) were evaluated. The presence of adjacent food sources, suitable habitat, foraging ranges, nesting and roosting sites, and protective cover was evaluated for potential wildlife utilization. From the indirect evidence, common mammals such as whitetail deer (*Odocoileus virginianus*), raccoon (*Procyon luter*), and opossum (*Didelphus virginiana*) certainly utilize the site. Diving, dabbling ducks, and wading birds utilize the open water and marsh fringe in the project vicinity. Various reptiles and amphibians such as the eastern box turtle (*Terrapene Carolina triunguis*), leopard frog (*Rana pipiens*), and green tree frog (*Hyla sp.*) which are cosmopolitan and adapted to the region are also expected to occur within the project limits. Notably, there was no evidence of beaver use identified within any of the noted stream channels. Aquatic species identified as the mosquito fish (*Gambusia affinis*) and sunfish (*Lepomis sp.*) were noted along the shoreline of Guntersville Lake near the existing approach end of RW 21.

3.5 Functions and Values

The wetlands within the parcel have generally been impacted by anthropomorphic actions such as ditching and timbering activities over time. Most of the natural drainage courses have been excavated and straightened, thus altering the hydrologic regimen favoring less water dependant species. This is noted by the invasive privet, which has become a dominant component of the

sub-canopy. The clearcut logging of portions of the site has also made conditions more favorable for opportunistic species such as the privet to become established.

3.6 Water Quality

Water quality associated with the wetlands on-site is affected by a number of variables that detract from the prescribed benefits associated with wetlands and water quality improvement. Water quality associated with the drainageways is negatively impacted physically by the ditching activities. The typical positive attributes which wetland areas provide in relation to water quality include the storage of storm and flood waters with resultant moderation of flow extremes to receiving waterways.

3.7 Buffers

Natural undeveloped buffers associated with the parcel are marginal except for the areas immediately adjacent to Guntersville Lake. In general the site is bordered by low density residential, scattered livestock grazing and the general aviation airport. The site maintains a 4-acre facultative wastewater treatment lagoon in its central portion. The existing wastewater treatment lagoon will be closed following the land acquisition process and the connection of current customers of the treatment lagoon to an alternative treatment facility.

3.8 Wetland Rating

The wetland areas were evaluated utilizing the Wetland Rapid Assessment Protocol (WRAP) a widely accepted quantitative tool to assess the functionality of the natural wetlands and mitigation activities (Miller and Gunsalus, 1997). The WRAP evaluates the basic wetland health variables, including wildlife utilization, vegetative cover (overstory, shrub, and ground cover), wetland hydrologic indicators, and basic water quality characteristics. A score is calculated based on findings of the WRAP evaluation. A total WRAP score of 1.0 represents a wetland system functioning at the highest possible level and a score of zero represents a system that is severely impacted and exhibits only negligible attributes of a functioning wetland.

The WRAP was completed for the various components of the project and the results generally indicated that many of the existing wetlands were functioning at between 35-50 percent of their

functional capacity generally due to the continued alterations to a majority of the hydrologic and floristic components of the systems. The wetlands associated with the northeast section of the project scored in the 80 percent functional capacity due to the mature canopy and limited or absent invasive species. Whereas the remainder of the wetlands scored generally low due to historical and recent hydrologic alterations in the form of ditching, water quality degradation from upgradient agricultural and municipal sources, clear-cut timber operations, and the establishment of invasive and exotic species.

3.9 Position and Function of Wetland in the Landscape

The value and functions provided by an assessment area to fish and wildlife are influenced by the landscape position of the assessment area and its relationship with surrounding areas. While the geographic location of the assessment area does not change, the ecological relationship between the assessment areas and surrounding landscape may vary from the current condition to the "with impact" and "with mitigation" conditions. Many species that nest, feed, or find cover in a specific habitat or habitat type are also dependant, to varying degrees upon other habitats, including upland, wetland, and other surface waters that are present within the regional landscape.

In this case, the position of the wetlands in the landscape is sub-optimal due to the plant composition consisting of invasive species, wildlife access is limited by surrounding development, and the opportunity for the area to provide benefits to downstream areas is limited by hydrologic alterations. In this case the drainage features have been straightened, and a large facultative lagoon was sited within the central portion of the wetland.

Section 4: Mitigation Approach

4.1 Mitigation Sequencing

Both a Federal permit issued by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act and a TVA 26a permit will be required for any dredge-and-fill activity. These separate permitting processes will require that the applicant address the following issues during the regulatory review to receive favorable review of the dredge-and-fill application.

4.1.1 Avoidance/Minimization: This section is to satisfy the presumption that an alternative exists that meets the aforementioned weighting criterion and which will have less environmental impact to a special aquatic site. The applicant undertook an evaluation examining the availability of parcels with the zoning that would allow for development of the proposed facility. The applicant must successfully demonstrate to the satisfaction of the regulatory entities that sufficient avoidance and minimization to wetland impacts have been undertaken prior to consideration of any mitigation to offset wetland impacts. This makes it difficult to justify the elimination of all of the wetlands through dredge-and-fill activities located within any particular parcel. Since there are no alternative sites that would satisfy the project's purpose and would result in less impact to special aquatic sites, the only criteria to satisfy prior to initiating mitigation are the strategies of avoidance and minimization within the parcel proposed for development. Based upon the size and irregular shape of the total parcels, the avoidance and minimization of wetland impacts was significantly limited. The avoidance and minimization of the impacted wetlands would have severely restricted the overall scope of aviation related development at this location.

4.1.2 Alternative Analysis: The USACE requires that a practicable alternative analysis be accomplished in which the applicant must demonstrate that there does not exist alternative sites that could meet the stated project purpose and that would result in less impacts to aquatic resources such as wetlands. Certainly, the projects purpose will dictate certain weighting criteria (i.e. geographical market area, impact to aquatic resources, and economic factors). Therefore, a project purpose could be construed in a manner which only permits the use of the subject parcel and eliminates the possibility of alternative sites. Alternative sites were evaluated as part of the

Environmental Assessment process and it has been determined that the current proposed location offers the least amount of impact with respect to environmental, financial, cultural, social and historical issues. The Environmental Assessment for this proposed action was conducted and completed in accordance with the National Environmental Policy Act of 1969 (NEPA) and FAA 5050.4A.

4.1.3 Compensatory Mitigation: Following the avoidance/minimization and alternative analysis portions of the agency review have been satisfied, the applicant must provide some form of compensatory mitigation to offset wetland losses associated with the proposed dredge-and-fill activity. The mitigation efforts are proposed to be compensated via the purchase of an appropriate amount of credits from the Flint Creek Wetland Mitigation Bank located within the service area, the Hembree Compensatory Mitigation Site located within the same watershed as the site or an alternate USACE approved mitigation bank, at a ratio of 2:1.

The FAA guidelines require that the land identified for the proposed project be purchased prior to the execution of any contractual instrument for the purchase of offsite compensatory mitigation credits. In the event that mitigation credits are not available at the Flint Creek Wetland Mitigation Bank or the Hembree Compensatory Mitigation Site an alternative offsite mitigation site will be identified. BWSC anticipates that the purchase of the mitigation credits will occur in 2007 following the Land Acquisition phase of the proposed project, scheduled for 2005-2006.

4.2 Goals and Objectives

The goals and objectives of the off-site mitigation effort are to provide a net gain in overall wetland function and area by the proper planning, implementation, and monitoring by the owners of the mitigation banks.

Section 5: Proposed Mitigation Site(s)

5.1 Site Description

BWSC is proposing to utilize the Flint Creek Wetlands Mitigation Bank (FCWMB) and the Hembree Compensatory Mitigation Site. The FCWMB is located within the Wheeler watershed near Hartselle, Alabama and it consists of approximately 653 acres. The FCWMB consists of farm/pasture land that has been converted back into a bottomland forest wetland habitat. The Hembree Compensatory Mitigation Site is located within the Guntersville watershed, near Scottsboro, Alabama. The Hembree Compensatory Mitigation Site consists of old catfish ponds that have been drained and are being reforested with bottomland hardwood species.

5.2 Ownership

The FCWMB is owned and managed by Robinsong Ecological Resources, Inc., with Ms. Cynthia Robinson as CEO of the corporation. The Hembree Compensatory Mitigation Site is owned and managed by Mr. Ed Hembree.

5.3 Rationale for Choice

The offsite mitigation option was selected for the Guntersville project site due to the high 3:1 mitigation ratio that was imposed on this site by the USACE for onsite creation and enhancement of the proposed impacts. At a mitigation ratio of 3:1, the onsite mitigation option was eliminated due to high construction cost and constraints to future airport improvements.

5.4 Ecological Assessment of Mitigation Site

Since the offsite mitigation option has been selected for the proposed impacts at the Guntersville Municipal Airport an ecological assessment of the mitigation site is outside the scope of the development of this Preliminary Mitigation Plan.

5.5 Constraints

Since the offsite mitigation option has been selected for the proposed impacts at the Guntersville Municipal Airport an assessment of the constraints to performing onsite mitigation site is outside the scope of the development of this Preliminary Mitigation Plan.

Section 6: Preliminary Site Plan

6.1 Conceptual Design of Airport Drainage

The detailed conceptual design of the drainage patterns at the proposed runway and taxiway are included in Appendix C, BWSC Hydrological Study and Drainage Design Report. The following subsections highlight the overall design of the runway, taxiway, detention ponds as well as the culverts.

6.1.1 Runway Typical Section

In order to develop an overall conceptual design of the drainage structures, it was necessary to prepare a grading plan for the proposed runway and taxiway. As noted on the Airport Layout Plan (ALP), the proposed runway will maintain a consistent elevation of 605.00 feet above sea level. The runway will be designed with a crown in the center and a cross slope of 1.0 percent. In order to limit the overall impact to existing topography, the proposed taxiway will be situated 3 feet higher than the runway at a constant elevation of 608.00 feet above sea level and will be crowned with a 1.0 percent cross slope. Cross section details are included on Figure 3, *Runway 6/24 and Parallel Taxiway Typical Section*, of Appendix C, Hydraulic Analysis and Conceptual Design of Drainage Structures for Runway 6/24.

6.1.2 Detention Ponds

The use of detention ponds on the southwest side of Runway 6/24 was determined to be the most effective means of reducing the volume of water which must be transmitted under the runway. The use of detention basins allowed the use of culverts smaller than what would otherwise be required. Additionally, there were height concerns with the areas beneath the proposed runway and the existing drainage features. These height limitations restricted the size of the drainage structures to 24 inches or less. In the event that detention basins had not been specified in the design, multiple arch pipe structures would be required at each stream crossing. The use of detention basins also allows for enhanced benefit to the wetlands by slowing the flow of water and allowing an increased resonance time. This will allow the wetlands to have a somewhat metered flow during storm events which will serve to enhance the overall hydraulic regime.

The location of the detention basins was determined both by topography and by future plans for development as indicated on the ALP. It should be noted that stormwater detention was not feasible at all locations due to constraints imposed by topography and future aviation development. Detention pond details are included on Table 5, *Detention Ponds*, of Appendix C, Hydraulic Analysis and Conceptual Design of Drainage Structures for Runway 6/24.

6.1.3 Culvert Design

Two culverts were designed at each stream crossing, one under the taxiway (Structure A) and one under the runway (Structure B). Structures 1A, 4A, 5A, and 6A were designed using HydroFlow Hydrographs detention pond modeling, while Culverts 2A and 3A were designed using Haestad Method's Culvertmaster. The design assumed a maximum headwater elevation of 607.00 feet in order to prevent overtopping the proposed parallel taxiway.

In order to design the B structures, additional calculations were required to compensate for the additional run-off collected between the centerline of the taxiway and the centerline of the runway. This additional run-off was added to that from the A Structures in order to properly size the B Structures. The additional flows are identified in Table 6, *Runoff from Centerline of Runway to Centerline of Taxiway*, of Appendix C, BWSC Hydrological Study and Drainage Design Report. Additionally, the B structures were designed using Haestad Method's Culvertmaster. The design assumed a maximum headwater elevation of 604.00 feet in order to prevent overtopping the proposed runway.

The detailed profile drawings of each culvert crossing (Basins 1-6) are included in Appendix C, Hydraulic Analysis and Conceptual Design of Drainage Structures for Runway 6/24. In addition, Appendix C also includes a plan view showing the proposed contours for Runway 6/24 and the parallel taxiway as well as the proposed drainage structures and detention pond locations.

Section 7: Mitigation Monitoring Plan

Since the offsite mitigation option has been selected for the proposed impacts at the Guntersville Municipal Airport a Mitigation Monitoring Plan of the mitigation site is outside the scope of the development of this Preliminary Mitigation Plan.

Section 8: Site Protection

Since the offsite mitigation option has been selected for the proposed impacts at the Guntersville Municipal Airport the site protection of the mitigation site is outside the scope of the development of this Preliminary Mitigation Plan.

IS IMPACTED BY
/ FILL (32.34 ACRES)

**WETLAND AREAS IMPACTED BY
CONSTRUCTION/ FILL (40.28 ACRES)**

- | | |
|---|--|
| <p>SCRUB / SHRUB
(17.88 ACRES)</p> <ul style="list-style-type: none"> (A) 2.93 ACRES (B) 3.07 ACRES (C) 0.61 ACRES (D) 4.64 ACRES (E) 2.17 ACRES (F) 1.47 ACRES (G) 0.99 ACRES | <p>FORESTED
(22.40 ACRES)</p> <ul style="list-style-type: none"> (H) 2.07 ACRES (I) 4.83 ACRES (J) 1.14 ACRES (K) 4.68 ACRES (L) 0.27 ACRES (M) 1.44 ACRES (N) 1.52 ACRES (O) 6.35 ACRES |
|---|--|

**WETLAND AREAS IDENTIFIED BUT NOT
IMPACTED BY CONSTRUCTION (40.09 ACRES)**

- (P) 1.87 ACRES
- (Q) 1.68 ACRES
- (R) 0.36 ACRES
- (S) 2.10 ACRES
- (T) 0.83 ACRES
- (U) 0.82 ACRES
- (V) 0.04 ACRES
- (W) 2.53 ACRES
- (X) 17.96 ACRES
- (Y) 13.50 ACRES

**WETLANDS TEMPORARILY IMPACTED BY MANUAL
CLEARING FOR PROPOSED AVDS (3.17 ACRES)**

- (1) 0.69 ACRES
- (2) 2.32 ACRES
- (3) 0.16 ACRES

- WETLANDS CREATION AREA (27.42 ACRES)
- WETLANDS ENHANCEMENT AREA (8.34 ACRES)
- WETLANDS ENHANCEMENT AREA/ DETENTION BASIN (2.72 ACRES)

NOTE:
STREAM LOCATIONS IDENTIFIED ARE BASED ON VISUAL FIELD OBSERVATIONS
& USGS TOPOGRAPHIC REVIEWS. STREAMS WERE NOT SURVEYED BY A PLS
OR LOCATED UTILIZING GPS TECHNOLOGY.

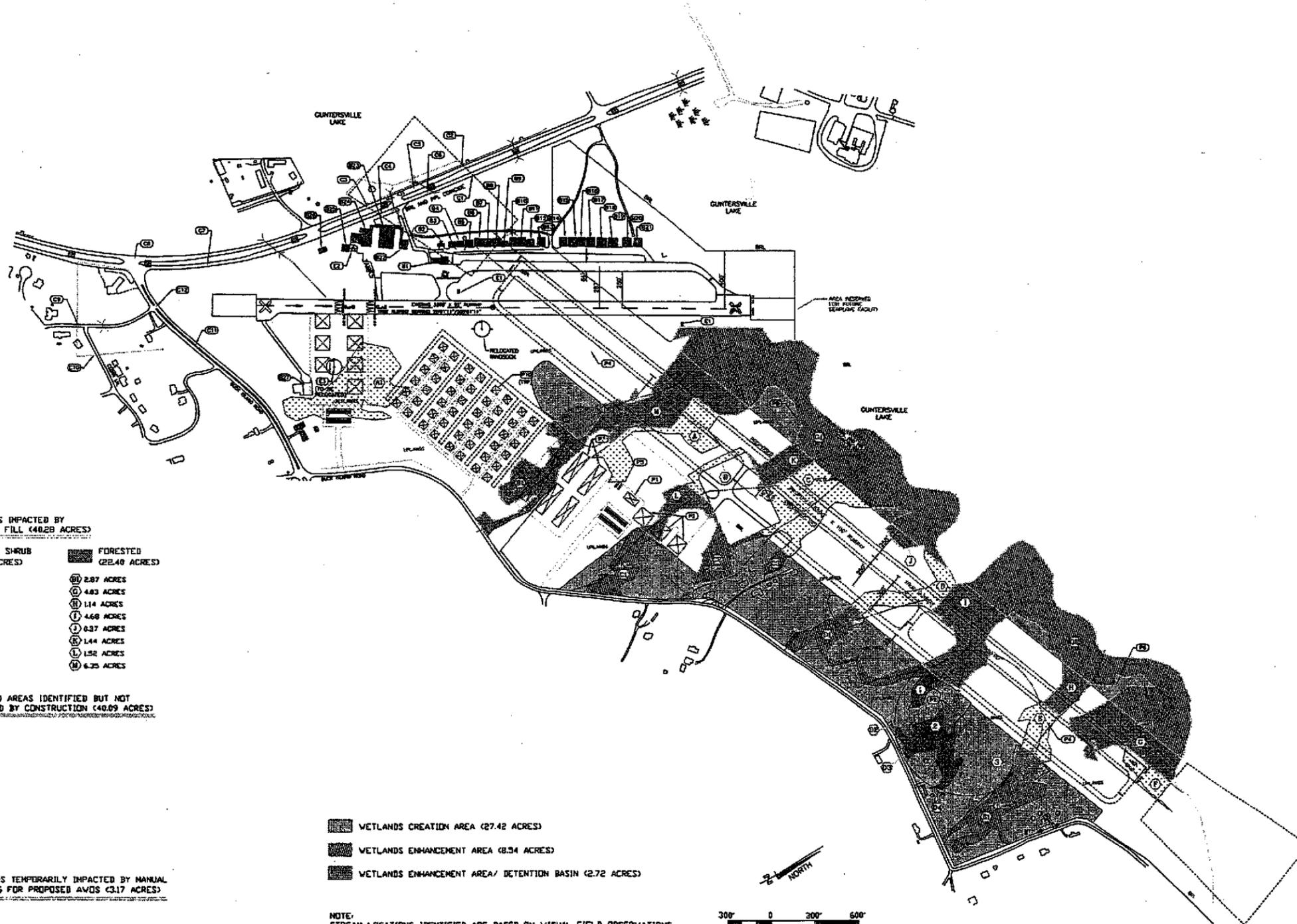


FIGURE
2

SITE MAP ~ WITH WETLAND DELINEATION & WETLAND IMPACT

GUNTERVILLE MUNICIPAL - JOE STARNES FIELD
GUNTERVILLE, ALABAMA

BWSC
Bioscience & Wetland Services, Inc.

DR.	CHK.	DATE	DESCRIPTION
GS	WTH	8-28-03	ON ORIGINAL ISSUE
TAM	DWS	01-12-05	REVISED

1 OF 1
FILE NO. 31506-00

TOTAL WETLANDS IDENTIFIED (80.90 ACRES)