MACON COUNTY
MUNICIPAL SOLID WASTE LANDFILL

ALTERNATIVE SITE ANALYSIS

Prepared For:

Mr. Chris Stahl, Director
Solid Waste Department
Macon County
109 Sierra Drive
Franklin, North Carolina 28734

MARK D. CATHEY, PE

McGILL ASSOCIATES, P.A.
CONSULTING ENGINEERS
55 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
828/252-0575

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Executive Summary

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Executive Summary

Background and Objectives

The existing Phase 2 landfill cell is projected to reach capacity in December 2016. Macon County is considering expanding the landfill by acquiring two adjacent parcels of property. This expansion could potentially provide 43 years of landfill capacity to the County. Prior to proceeding with this proposed expansion, the County must conduct an Alternative Site Analysis in accordance with North Carolina General Statute 153-136(c).

This Alternative Site Analysis was conducted to assist Macon County in selecting a site for developing a new municipal solid waste (MSW) landfill, in accordance with North Carolina General Statute (GS) 153A – 136. This study uses the same general methodology as the included previous 1988 landfill site selection study, however, candidate sites have changed based on changes in land use and new regulations. The objectives of this study are to identify alternative landfill sites; evaluate and compare those sites to the expansion of the existing Macon County Landfill; and recommend a single site with which to move forward in the permitting process.

Identification of Alternative Sites

Prior to the start of the study, Macon County selected five County preferred development criteria, by which McGill Associates, PA, would select and evaluate alternative landfill sites. These five criteria are:

- The site shall be located within two miles of existing water and sewer utilities
- The site shall consist of topography with a mean slope of less than 20%.
- The site shall be at least 100-acres in size, however it may consist of multiple parcels in which the sum of the acreage is 100-acres.
- The site shall be located in close proximity to adequate transportation corridors.
- The site shall be located in an area with electrical service.

The first two criteria were used to identify and select potential sites. The third through fifth criteria are evaluation criteria that were used to further eliminate unsuitable potential landfill sites.

The following regulatory restrictions set forth by the North Carolina Department of Environment and Natural Resources (NCDENR), were also taken into consideration in this report in regards to selecting the landfill site: airport safety, floodplains, wetlands, fault areas, seismic impact zones, unstable areas, cultural resources, state nature and historic preserve, water supply watersheds, and endangered and threatened species. The following General Statute restrictions governing the siting of landfills were also taken into consideration: National Wildlife Refuge, State Game Lands, and State Parks Systems. After identifying candidate sites, the sites were further evaluated based on site-specific criteria such as socioeconomics and demographics.

McGill Associates, PA developed a list of screening criteria used to identify possible landfill sites. This screening criteria was based on the County preferred development criteria and the above-mentioned regulatory landfill siting restrictions. The screening criteria was applied in Geographic Information System (GIS) software in the following order:

1. Identified parcels that were larger than 20 acres.
2. Eliminated all parcels located inside buffers of Game Lands, Airports, and Water Supply Watersheds.
3. Eliminate all parcels less than 100 acres, not sharing a boundary with additional parcels that could combine to be greater than 100 acres.
4. Eliminated all parcels that contained a mean slope of greater than 20 percent.

This GIS search identified several possible parcels that met the initial siting criteria and are included in Figure 2-1. Aforementioned County development criteria and regulatory landfill siting restrictions, that were not used in screening criteria, were used in a desktop evaluation of GIS identified sites. Desktop evaluation of the identified sites resulted in four (4) candidate sites; the existing Macon County landfill expansion site (Site A/16/17), Site B, Site C, and Site 9/10. Figure ES-1 represents the candidate sites.

Evaluation of Candidate Sites

The candidate sites were evaluated based on typical landfill siting criteria. In order to maintain clarity in this effort and to provide a uniform method of reviewing and screening sites, the following four categories of site evaluation criteria were established:

a) Socioeconomic and Demographics
   i) Median Household Income
   ii) Race
   iii) Housing
b) Regulatory
   i) Floodplains
   ii) Wetlands
   iii) Cultural Resources
   iv) Endangered and Threatened Species
c) Engineering
   i) Seismic Fault Lines and Impact Zones
   ii) Soil Conditions
   iii) Potential Landfill Development Area
   iv) Transportation Access
   v) Utilities

vi) Public Water Supply Wells

d) Development Cost

All of the specific evaluation criteria were used to form an overall rating for each site with regard to socioeconomic and demographic, regulatory, engineering, and development cost. These overall ratings are included in Table 3-1.

Table 3-1 Summary of Analysis of Candidate Sites

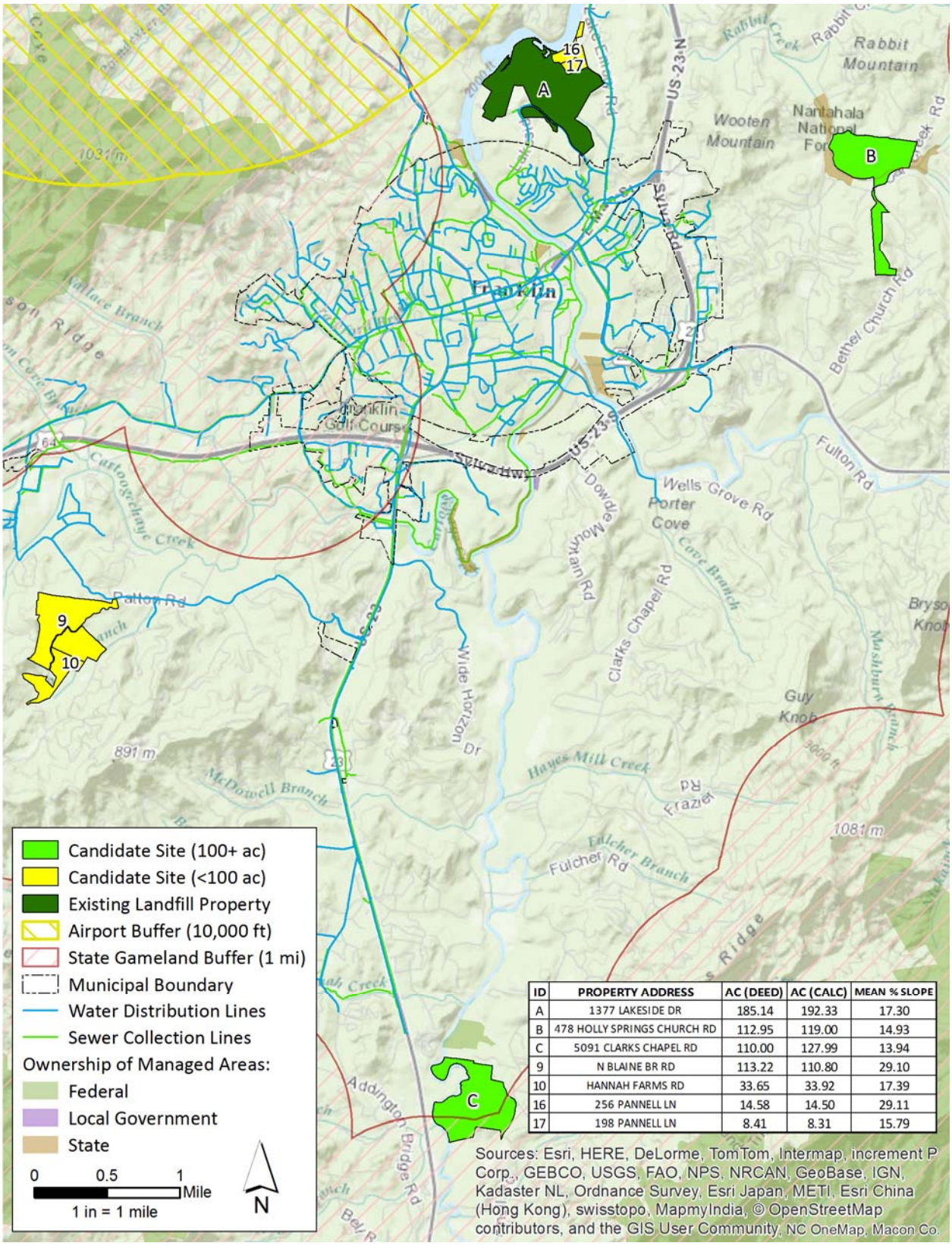
Criteria	Site A/16/17	Site B	Site C	Site 8/9
Socioeconomics and Demographics	neutral	neutral	neutral	neutral
Regulatory	neutral	-	-	neutral
Engineering	+	neutral	-	-
Development Cost	+	-	-	-

Note: A plus sign represents an advantage over the other sites. A negative Sign Represents a disadvantage over the other Sites. A "neutral" represents no relative advantage or disadvantage.

Recommendation

Based on the analysis performed in this study, McGill Associates recommends that Macon County proceed with Site A/16/17, the existing Macon County Landfill Expansion Site, for development of a MSW landfill expansion. As discussed in this section, this site has clear advantages over all the sites with respect to engineering and development cost. Some of the important advantages of this site include the existing water and sewer infrastructure, adequate existing roadways and bridges, the lack of anticipated impact of socioeconomics and demographics, absence of seismic fault lines, lack of hydric soils, and the lowest predicted development cost.

Although McGill Associates has recommended the existing Macon County Landfill Expansion Site, the County must still hold a public hearing and consider input prior to choosing a preferred site. It is also important to emphasize that this evaluation process provides only preliminary results on the technical suitability and apparent feasibility of each candidate site based upon readily available information and visual observations of the site areas from adjacent roadways.



ID	PROPERTY ADDRESS	AC (DEED)	AC (CALC)	MEAN % SLOPE
A	1377 LAKESIDE DR	185.14	192.33	17.30
B	478 HOLLY SPRINGS CHURCH RD	112.95	119.00	14.93
C	5091 CLARKS CHAPEL RD	110.00	127.99	13.94
9	N BLAINE BR RD	113.22	110.80	29.10
10	HANNAH FARMS RD	33.65	33.92	17.39
16	256 PANNELL LN	14.58	14.50	29.11
17	198 PANNELL LN	8.41	8.31	15.79

Figure ES-1

Section 1 – Introduction

a) Previous Study

A previous study was conducted by the Macon County Solid Waste Task Force on September 29, 1988, to evaluate proposed landfill sites. According to North Carolina General Statute 153A-136 <c>, prior to developing a new landfill, the County's Board of Commissioners must first consider alternative sites, consider socioeconomic and demographic data, and hold a public hearing. The goal of this initial study was to identify and select alternative landfill sites, and recommend a single site with which to move forward in the permitting process.

The study evaluated five potential landfill development sites based on the following criteria: usable acres, pollution potential, people who can see, hear or smell the landfill, cost of operation, transportation, cost of preparation, cost per acre, willingness of seller, and adverse consequences of a landfill being sited on each property. The Solid Waste Task Force assigned a point value to each of their selection criteria and used this to determine the best site for the proposed landfill. The Ledford property (existing MSW landfill) scored significantly higher than the others based on the aforementioned criteria. The Task Force decided unanimously to recommend to the Board of Commissioners to take the necessary steps to acquire the Ledford property. In the early 1990's, Macon County began development of the existing landfill by first constructing phase 1, and then constructing phase 2 in 1998.

b) Current Study

The existing Phase 2 landfill cell is projected to reach capacity in December 2016. Macon County is considering expanding the landfill by acquiring two adjacent parcels of property. This expansion could potentially provide 43 years of landfill capacity to the County. Prior to proceeding with this proposed expansion, the County must conduct an Alternative Site Analysis in accordance with North Carolina General Statute 153-136(c).

Macon County selected McGill Associates to update the previous siting study because of newly imposed landfill siting regulations, and changes in land use within the County over the course of 26 years. This study utilizes the same general methodology, screening criteria, and evaluation criteria to recommend a preferred site. However, as discussed in later sections, the candidate sites have changed.

c) Description of Study Area

Macon County is located in the Western portion of North Carolina and is bordered by the following counties: Swain (North Carolina), Jackson (North Carolina), Rabun (Georgia), Clay (North Carolina), Cherokee (North Carolina), and Graham (North Carolina). The County's geographic boundaries encompass 519 square miles and comprise the study area. The County is divided into eleven townships: Burlingtown, Cartoogechaye, Cowee, Ellijay, Flats, Franklin, Highlands, Millshoal, Nantahala, Smithbridge, and Sugarfork. Approximately 33,857 people live in the County according to the 2013 U.S. Census Estimate. U.S. Route 23 runs north-to-south

through the County and U.S. Route 64 runs east-to-west. The Nantahala River flows through the County and is one of the most popular whitewater rafting destinations in the nation. The County's largest natural water supply is the Cullusaja River.

Figure 1-1 presents a map of Macon County with the townships identified.

d) Organization of the Report

This report is divided into seven sections. The objectives of the project and description of the study area are presented in this section. Section 2 describes how candidate sites were selected, including an overview of pertinent regulations and the criteria utilized. At the end of Section 2, four candidate sites were selected for further consideration including the existing Macon County landfill site and adjacent property. Section 3 evaluates these candidate sites on the basis of socioeconomics and demographics, regulatory requirements, engineering, and development cost. Section 4 makes a recommendation of a single site with which to move forward in the permitting process. Section 5 is an appendix including the previous 1988 landfill site study.


N
COWEE
BURNINGTOWN
NANTAHALA
MILLSHOAL
FRANKLIN
MACON
ELLIJAY
FRANKLIN
CARTOOGECHAYE
SUGARFORK
HIGHLANDS
SMITHBRIDGE
FLATS
HIGHLANDS
TOWNSHIP
CITY TOWN
Census Designated Place
0 2 4 6 8 10 Kilometers
0 2 4 6 8 10 Miles

Figure 1-1

Section 2 - Identification of Candidate Sites

a) Methodology

The objective of this section is to identify suitable alternative landfill sites for further consideration, based on site specific criteria applied to all of the parcels within Macon County. The search criteria was developed from regulations governing MSWLF units, along with Macon County's preferred development criteria. Geographic Information System (GIS) software was used to eliminate parcels from the search by applying the search criteria. If any parcel within the site did not meet a specific search criteria, then it was disqualified as a suitable landfill site. Figure 2-1 demonstrates the parcels that were identified by the search criteria. These Identified sites were then evaluated further within this Section and in Section 3.

b) Search Criteria

i) Regulatory Restrictions

The North Carolina Solid Waste Management Rules, 15A NCAC 13B, Section .1622, contain the primary regulations governing the siting of landfills in the State. Many portions of section .1622 have been adopted in part from US Environmental State regulations that restrict the siting and construction of landfills. They are described as follows:

- A new MSWLF unit shall be located no closer than 5,000 feet from any airport runway used only by piston-powered aircraft and no closer than 10,000 feet from any runway used by turbine-powered aircraft.
- A new MSWLF unit, existing MSWLF, and lateral expansions shall not be located in 100-year floodplains unless the owners or operators demonstrate that the unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment.
- New MSWLF units and lateral expansions shall not be located in wetlands, unless the owner or operator can make the following demonstrations to the Division: Where applicable under Section 404 of the Clean Water Act or applicable State wetlands laws, the presumption that a practicable alternative to the proposed landfill facility is available, which does not involve wetlands is clearly rebutted.
- New MSWLF units and lateral expansions shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time, unless the owner or operator demonstrates to the Division that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the MSWLF unit and will be protective of human health and the environment.
- New MSWLF units and lateral expansions shall not be located in seismic impact zones, unless the owner or operator demonstrates to the Division that all containment structures, including liners, leachate collection systems, and surface water control systems, are

designed to resist the maximum horizontal acceleration in lithified earth material for the site.

- Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions located in an unstable area shall demonstrate that engineering measures have been incorporated into the MSWLF unit's design to ensure that the integrity of the structural components of the MSWLF unit will not be disrupted. The owner or operator shall consider the following factors, at minimum, when determining whether an area is unstable:

  (i) On-site or local soil conditions that may result in significant differential settling;

  (ii) On-site or local geologic or geomorphologic features; and

  (iii) On-site or local human-made features or events (both surface and subsurface).

- Cultural Resources: A new MSWLF unit or lateral expansion shall not damage or destroy an archaeological or historical property. The Department of Cultural Resources shall determine archaeological or historical significance. To aid in making a determination as to whether the property is of archaeological or historical significance, the Department of Cultural Resources may request the owner or operator to perform a site-specific survey which shall be included in the Site Study.
- State Nature and Historic Preserve: A new MSWLF unit or lateral expansion shall not have an adverse impact on any lands included in the State Nature and Historic Preserve.
- Water Supply Watersheds:

  (a) A new MSWLF unit or lateral expansion shall not be located in the critical area of a water supply watershed or in the watershed for a stream segment classified as WS-I, in accordance with the rules codified at 15A NCAC 2B .0200 - "Classifications and Water Quality Standards Applicable To Surface Waters Of North Carolina."

  (b) Any new MSWLF unit or lateral expansion, which shall discharge leachate to surface waters at the landfill facility and must obtain a National Pollution Discharge Elimination System (NPDES) Permit from the Division of Environmental Management pursuant to Section 402 of the United States Clean Water Act, shall not be located within watersheds classified as WS-II or WS-III, in accordance with the rules codified at 15A NCAC 2B .0200 - "Classifications and Water Quality Standards Applicable To Surface Waters Of North Carolina."

- Endangered and Threatened Species: A new MSWLF unit or lateral expansion shall not jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Federal Endangered Species Act of 1973.

ii) General Statutes

The North Carolina General Statute (GS) 130A-295.6 includes additional requirements for sanitary landfills. The requirements are as follows:

- A MSWLF unit or lateral expansion shall not be constructed within five miles of the outermost boundary of a National Wildlife Refuge.
- A MSWLF unit or lateral expansion shall not be constructed within one mile of the outermost boundary of a State Gameland owned, leased, or managed by the Wildlife Resources Commission.
- A MSWLF unit or lateral expansion shall not be constructed within two miles of the outermost boundary of a component of the State Parks System.

iii) County Preferred Development Criteria

Prior to the start of the Alternative Site Analysis, Macon County developed five criteria in addition to regulatory requirements, by which McGill Associates, PA would select and evaluate alternative landfill sites. These five criteria are:

- The site shall be located within two miles of existing Water and Sewer Utilities.
- The site shall consist of topography with a mean slope of less than 20%.
- The site shall be at least 100-acres in size, however it may consist of multiple parcels in which the sum of the acreage is 100-acres.
- The site shall be located in close proximity to adequate transportation corridors.
- The site shall be located in an area with electrical service.

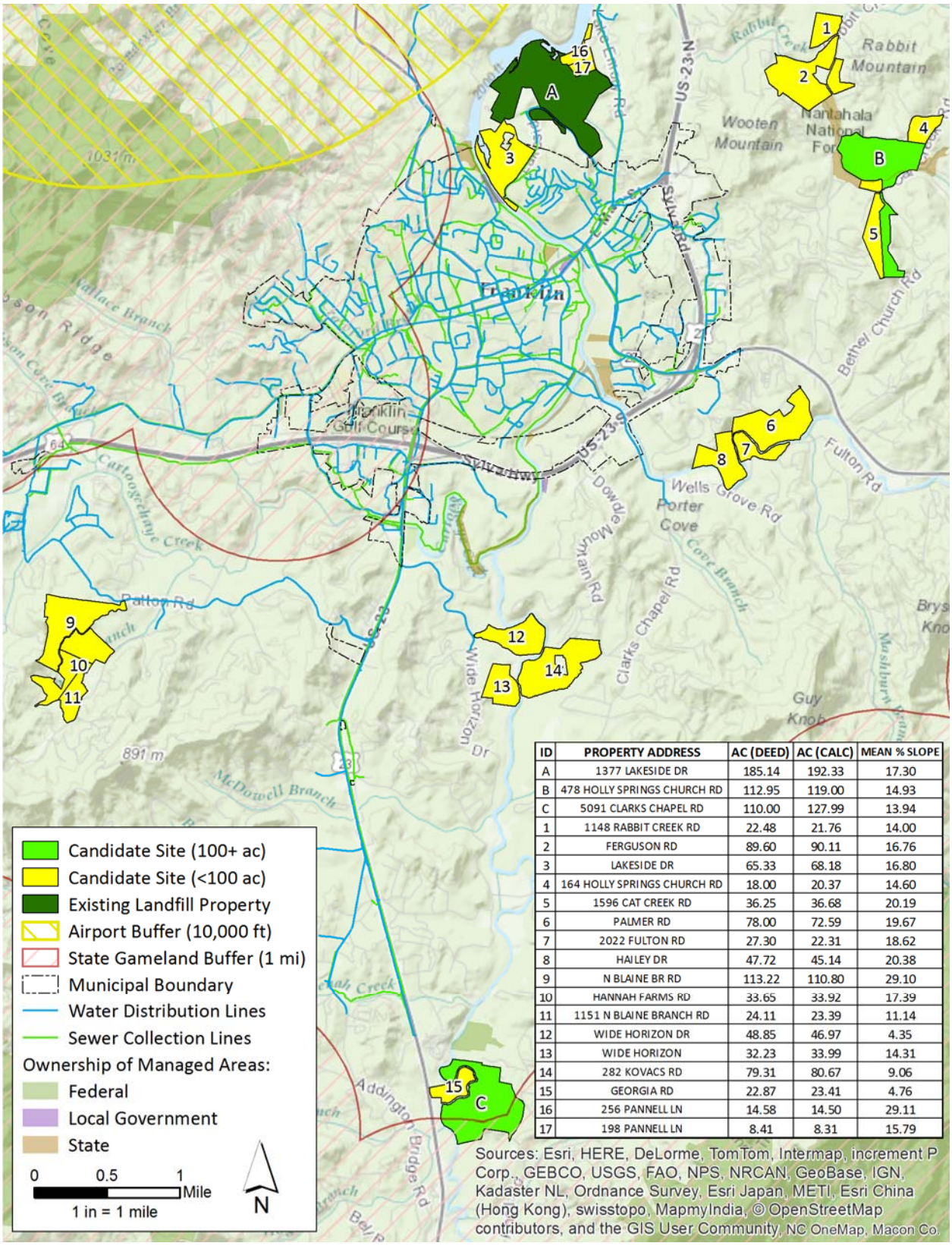
The first two criteria are selection criteria used in this section to identify and select potential sites. The third through fifth criteria are evaluation criteria to be used to further eliminate unsuitable potential landfill sites.

c) Search Results and Candidate Sites

After considering all landfill siting regulations, negative screening criteria was developed. Aforementioned regulations that are not used in screening criteria, will be used on a case by case basin in Section 3 of the report. The negative screening criteria was applied in GIS in the following order:

1. Identified parcels that were larger than 20-acres and could be combined with adjacent parcels to meet the minimum 100-acre criteria.
2. Eliminated all parcels located inside buffers of Game Lands, Airports, and Water Supply Watersheds.
3. Eliminate all parcels less than 100-acres not sharing a boundary with additional parcels that could combine to be greater than 100-acres.
4. Eliminated all parcels that contained a mean slope of greater than 20 percent.

The following parcels were identified by GIS based on the above search criteria, and then analyzed further based on site specific criteria. The last bullet point under each parcel indicates if the parcel was chosen as a candidate site and an explanation for the decision. These parcels can be located on Figure 2-1.



ID	PROPERTY ADDRESS	AC (DEED)	AC (CALC)	MEAN % SLOPE
A	1377 LAKESIDE DR	185.14	192.33	17.30
B	478 HOLLY SPRINGS CHURCH RD	112.95	119.00	14.93
C	5091 CLARKS CHAPEL RD	110.00	127.99	13.94
1	1148 RABBIT CREEK RD	22.48	21.76	14.00
2	FERGUSON RD	89.60	90.11	16.76
3	LAKESIDE DR	65.33	68.18	16.80
4	164 HOLLY SPRINGS CHURCH RD	18.00	20.37	14.60
5	1596 CAT CREEK RD	36.25	36.68	20.19
6	PALMER RD	78.00	72.59	19.67
7	2022 FULTON RD	27.30	22.31	18.62
8	HAILEY DR	47.72	45.14	20.38
9	N BLAINE BR RD	113.22	110.80	29.10
10	HANNAH FARMS RD	33.65	33.92	17.39
11	1151 N BLAINE BRANCH RD	24.11	23.39	11.14
12	WIDE HORIZON DR	48.85	46.97	4.35
13	WIDE HORIZON	32.23	33.99	14.31
14	282 KOVACS RD	79.31	80.67	9.06
15	GEORGIA RD	22.87	23.41	4.76
16	256 PANNELL LN	14.58	14.50	29.11
17	198 PANNELL LN	8.41	8.31	15.79

Figure 2-1

Property A –

- Existing Macon County Landfill
- 1377 Lakeside Drive.
- Operated as landfill since early 1990's.
- +/-185 acres with a mean slope of 17.3% along Little Tennessee River.
- Water and sewer available on site.
- Adjacent to existing Town of Franklin Wastewater Treatment Plant.
- All solid waste infrastructure in place.
- Unitarian Universalist Fellowship Church on the southern boundary.
- Meets all site criteria, **chosen as a candidate site**.

Property B

- 478 Holly Springs Church Road.
- Existing farm land with residence.
- +/- 112 acres with a mean slope 14.93%.
- Approximately 7,000 feet to public water.
- Approximately 8,000 feet to public sewer.
- Bordered by Cat Creek and floodplain on southwestern boundary.
- NCDOT Conservation easement immediately on southern bank of Cat Creek.
- Property split across Cat Creek Road with approximately 90-acres on north side and 20-acres on south side.
- Holly Springs Baptist Church on Northern boundary.
- Meets all site criteria, **chosen as a candidate site**.

Property C

- 5091 Clarks Chapel Road
- Existing farmland and woodlands
- 110 acres with a mean slope 13.94% along Little Tennessee River
- Approximately 32 acres is within 100-year floodplain
- Approximately 36 acres is within the 1 mile buffer of State Game Land
- Approximately 16,500 feet to public water and sewer on U.S. 441
- Must cross Little Tennessee River to access property from U.S. 441.
- Access on Prentiss Bridge Road has two bridges
- Access from Riverside Road is across a 16-foot wide bridge.
- Small unnamed creek crosses property from Clarks Chapel Road to Little Tennessee River.
- Adjacent property to the west along U.S. 441 is listed as a Pre-Regulatory Landfill (orphaned landfill) ID# NONCD0000411. Property owned by Donald C. Ledford (ID No. 6582916255).
- Meets all site criteria, **chosen as candidate site**.

Property 1

- 1148 Rabbit Creek Road.
- 22.48-acres.

- 14.00% mean slope.
- Must be joined with adjacent property (Property 2) to reach minimum 100-acres criteria.
- Adjoining property split off by Rabbit Creek.
- **Disqualified** due to the requirement of adjoining Property 2 and the floodplain on property 2 results in inadequate developable area.

Property 2

- Ferguson Road.
- 89.6 acres along Cat Creek and Rabbit Creek.
- 16.76% mean slope.
- Property is split up by the floodplains of Cat Creek and Rabbit Creek.
- **Disqualified** due to the property being divided by the two floodplains resulting in inadequate area that could be developed.

Property 3

- Lakeside Drive.
- 65.33-acres along Little Tennessee River.
- Adjacent to current Macon County MSW Landfill.
- 16.8% mean slope.
- Approximately 18 acres located within 100-year floodplain.
- Two out parcels located in the middle of tract (approx 2 acres each).
- Public water and sewer located adjacent to property.
- Must be joined with adjacent property to reach minimum 100-acre criteria.
- Must acquire the adjacent 4-5 parcels to achieve 100-acres.
- **Disqualified** due to a large portion of the property being located in the 100-year floodplain and the difficulty in acquiring the 4 – 5 adjacent properties.

Property 4

- 164 Holly Springs Church Rd.
- 18.0-acres along Cat Creek.
- 14.6% mean slope.
- This property must be used in conjunction with Property B in order to meet the 100-acre requirement.
- **Disqualified** due to insignificant developable area after floodplain and applicable property buffers are taken into consideration.

Property 5

- 1596 Cat Creek Road.
- 36.25-acres.
- 20.19% mean slope.
- Property is narrow, resulting in the 300’ property buffer eliminating most of the area that could be developed.
- This property must be used in conjunction with Property B in order to meet the 100-acre requirement.

- **Disqualified** due to insignificant developable area after applicable property buffers are taken into consideration.

Property 6

- Palmer Road.
- 78.00-acres along Cullasaja River.
- 19.67% mean slope.
- Approximately 5,800 feet along Palmer Road and Highlands Road to public water.
- Approximately 8,400 feet along Palmer Road and Highlands Road to public sewer.
- Must be joined with an adjacent property to reach minimum 100-acres criteria.
- No adjacent property available due to configuration and Cullasaja River.
- Approximately 16-acres in 100-year flood plain.
- **Disqualified** due to inability to join with adjacent property due to the Cullasaja River.

Property 7

- 2022 Fulton Road.
- 27.30-acres along Cullasaja River.
- 18.62% mean slope.
- Approximately 50% in 100-year flood plain.
- Must be joined with an adjacent property to reach minimum 100-acres criteria.
- No adjacent property available due to configuration and Cullasaja River.
- Public water and sewer available on Wells Grove Road approximately 7,600 feet.
- **Disqualified** based on the inability to join to adjacent property due to Cullasaja River, resulting in inadequate developable area.

Property 8

- Haley Drive.
- 47.72-acres along Cullasaja River.
- 20.38% mean slope.
- Must be joined with an adjacent property to reach minimum 100-acres criteria.
- No adjacent property available due to configuration and Cullasaja River.
- Approximately 1,800 feet along Hailey Drive to public water on Belleview Road.
- Approximately 4,800 feet along Hailey Drive to public sewer on Highlands Road.
- Approximately 13.48 acres in 100-year flood plain.
- **Disqualified** based on the inability to join to adjacent property due to Cullasaja River, resulting in inadequate developable area.

Property 9

- North Blaine Branch Road.
- 113.22 acres.
- 13.3% mean slope.
- Unnamed creek flowing west to east splits property.
- Approximately 27.8-acres on north side of creek for development.
- Must be combined with adjacent Property No. 10.

- Approximately 2,800 feet to public water.
- Approximately 13,500 feet to public sewer.
- Small creek running north from North Blaine Road cuts through middle of property to unnamed creek.
- Access to property Access to property along Industrial Park Road or Mashburn White Road.
- Industrial Park Road has a bridge crossing Cartoogechaye Creek with a load limit of 28 tons for semi-trailer.
- Mashburn White has a bridge with a load limit of 34 tons for semi trailer.
- Steep drop-off from North Blaine Road approximately 40 vertical feet to access site.
- Meets all site criteria, **chosen as candidate site** when combined with Property 10.

Property 10

- Hannah Farms Road.
- 33.65-acres.
- 17.39% mean slope.
- Unnamed creek flowing west to east splits property.
- Approximately 16-acres on north side of creek for development.
- Must be combined with adjacent properties (Property Nos. 9 ial development area.
- Approximately 2,800 feet to public water.
- Approximately 13,500 feet to public sewer.
- Access to property Access to property along Industrial Park Road or Mashburn White Road.
- Industrial Park Road has a bridge crossing Cartoogechaye Creek with a load limit of 28 tons for semi-trailer.
- Mashburn White has a bridge with a load limit of 34 tons for semi-trailer.
- Meets all site criteria, **chosen as candidate site** when combined with property 9.

Property 11

- 1151 North Blaine Branch Road.
- 24.11-acres.
- 11.14% mean slope.
- Unnamed creek flowing west to east splits property.
- Approximately 5-acres on north side of creek for development.
- Approximately 2,800 feet to public water.
- Approximately 13,500 feet to public sewer.
- Access to property Access to property along Industrial Park Road or Mashburn White Road.
- Industrial Park Road has a bridge crossing Cartoogechaye Creek with a load limit of 28 tons for semi-trailer.
- Mashburn White has a bridge with a load limit of 34 tons for semi-trailer.
- **Disqualified** due to containing only approximately 5-acres that is suitable for development.

Property 12

- Wide Horizon Drive.
- 48.85-acres along Little Tennessee River.
- 4.35% mean slope.
- 90% of property in 100-year floodplain.
- Public water available at site.
- Approximately 5,700 feet cross-country to public sewer on north side of Catoogechaye Creek.
- Must be joined with adjacent property (Property 14) to reach minimum 100-acres criteria.
- Adjoining property is split by Little Tennessee River.
- **Disqualified** due to 90% of property being located within the 100-year floodplain and the inability to join with adjacent property due to the Little Tennessee River.

Property 13

- Wide Horizon Drive along Little Tennessee River.
- 32.23-acres.
- 14.31% mean slope.
- Approximately 5,000 feet to public water.
- Approximately 11,600 feet cross-country to public sewer on north side of Cartoogechaye Creek.
- Must be joined with adjacent property (Property 14) to reach minimum 100-acres criteria.
- Adjoining property is split by Little Tennessee River.
- More than 50% in 100-year floodplain.
- **Disqualified** based on inability to join property across Little Tennessee River and the majority of the property being located in the 100-year flood plain, resulting in inadequate developable area.

Property 14

- 282 Kovacs Road.
- 79.31-acres.
- 9.06% mean slope.
- Public water and sewer not available without crossing river.
- Approximately 5,000 feet to public water.
- Approximately 11,600 feet cross-country to public sewer on north side of Cartoogechaye Creek.
- Must be joined with adjacent property (Property 15) to reach minimum 100-acres criteria.
- Adjoining property is split by Little Tennessee River.
- Approximately 50% in 100-year floodplain.
- **Disqualified** due to 50% of property being located within the 100-year floodplain and the inability to join with adjacent property due to the Little Tennessee River.

Property 15

- Georgia Road (U.S. 441).
- 22.87-acres along Little Tennessee River.

- 13.94% mean slope.
- Must be joined with adjacent property (Property C) to reach minimum 100-acres criteria.
- Adjoining property is across Little Tennessee River.
- Requires bridge to access adjoining property.
- More than 50% in 100-year floodplain.
- Approximately 1,500 feet to public water and 2,000 feet to public sewer.
- Property is listed as a Pre-Regulatory Landfill (orphaned landfill) ID# NONCD0000411.
- **Disqualified** based on inability to join property across Little Tennessee River and the majority of the property being located in the 100-year floodplain.

Property 16

- 256 Pannell Lane.
- 14.50 acres along the Little Tennessee River.
- Adjacent to the existing Macon County Landfill.
- Adjacent to the existing Town of Franklin Wastewater Treatment Plant.
- Owner is willing to sell the property.
- 0 acres in the floodplain.
- Public water and sewer available from the existing Macon County Landfill.
- **Chosen as candidate site** when combined with Site A and Property 17.

Property 17

- 198 Pannell Lane.
- 8.31 acres along the Little Tennessee River.
- Adjacent to the existing Macon County Landfill.
- Adjacent to the existing Town of Franklin Wastewater Treatment Plant.
- Owner is willing to sell the property.
- 0 acres in the floodplain.
- Public water and sewer available from the existing Macon County Landfill.
- **Chosen as candidate site** when combined with Site A and Property 16.

The remaining candidate sites after the GIS selection and desktop evaluation include A,B,C, and parcels 9 and 10 combined. Parcel A is the existing Macon County Landfill and adjacent property available for expansion. These parcels will be further evaluated in Section 3.

Section 3 – Evaluation of Candidate Sites

a) Overview

While Section 2 described the process for selecting three sites to consider as alternatives to the expansion of the existing Macon County Landfill, Section 3 will focus on the evaluation of each site. Figure 3-1 presents a map of sites B, C, and 9/10 combined and Site A/16/17 combined, hereafter called the candidate sites. The next step was to evaluate the candidate sites based on socioeconomics and demographics, regulatory requirements, engineering, and development cost. To do this, a set of detailed, site-specific, evaluation criteria was developed based upon the issues typically considered in landfill siting studies.

It is important to emphasize that this evaluation process provides only preliminary results on the technical suitability and apparent feasibility of each candidate site, based upon readily available information and visual observations of the site areas from adjacent roadways. The evaluation is suitable for recommending a single site with which to move forward in the permitting process; however, more detailed, on-site field investigations including comprehensive surface and subsurface site investigations, along with a detailed evaluation of the area surrounding the site, will be required to determine if a permit will be issued.

Figures 3-2 through 3-5 display the parcel boundaries on an aerial photograph. When relevant to the site, each figure contains 20 foot contours, roads, streams, stream buffers, floodways, critical areas of water supply watersheds, lakes, gameland and national forest buffers, airport buffers, conservation easements, water distribution lines, sewer collection lines, and municipal boundaries.

b) Site Evaluation Criteria and Methodology

The candidate sites were evaluated based on typical landfill siting criteria. In order to maintain clarity in this effort and to provide a uniform method of reviewing and screening sites, the following four categories of site evaluation criteria were established. Within each of these four broad categories are specific site evaluation criteria, which focus on those local issues of concern. The specific evaluation criteria used in this study are:

- Socioeconomic and Demographic
    - Median household income
    - Race
    - Housing
- Regulatory
    - Floodplains
    - Wetlands
    - Cultural Resources
    - Endangered and Threatened Species

- Engineering
    - Seismic Fault Lines and Impact Zones
    - Soil Conditions
    - Potential Landfill Development Area
    - Transportation access
    - Utilities
    - Public Supply Water Wells
- Development Cost

By applying these criteria to each site, the candidate sites were further evaluated. The specific features of each evaluation criterion are described herein.

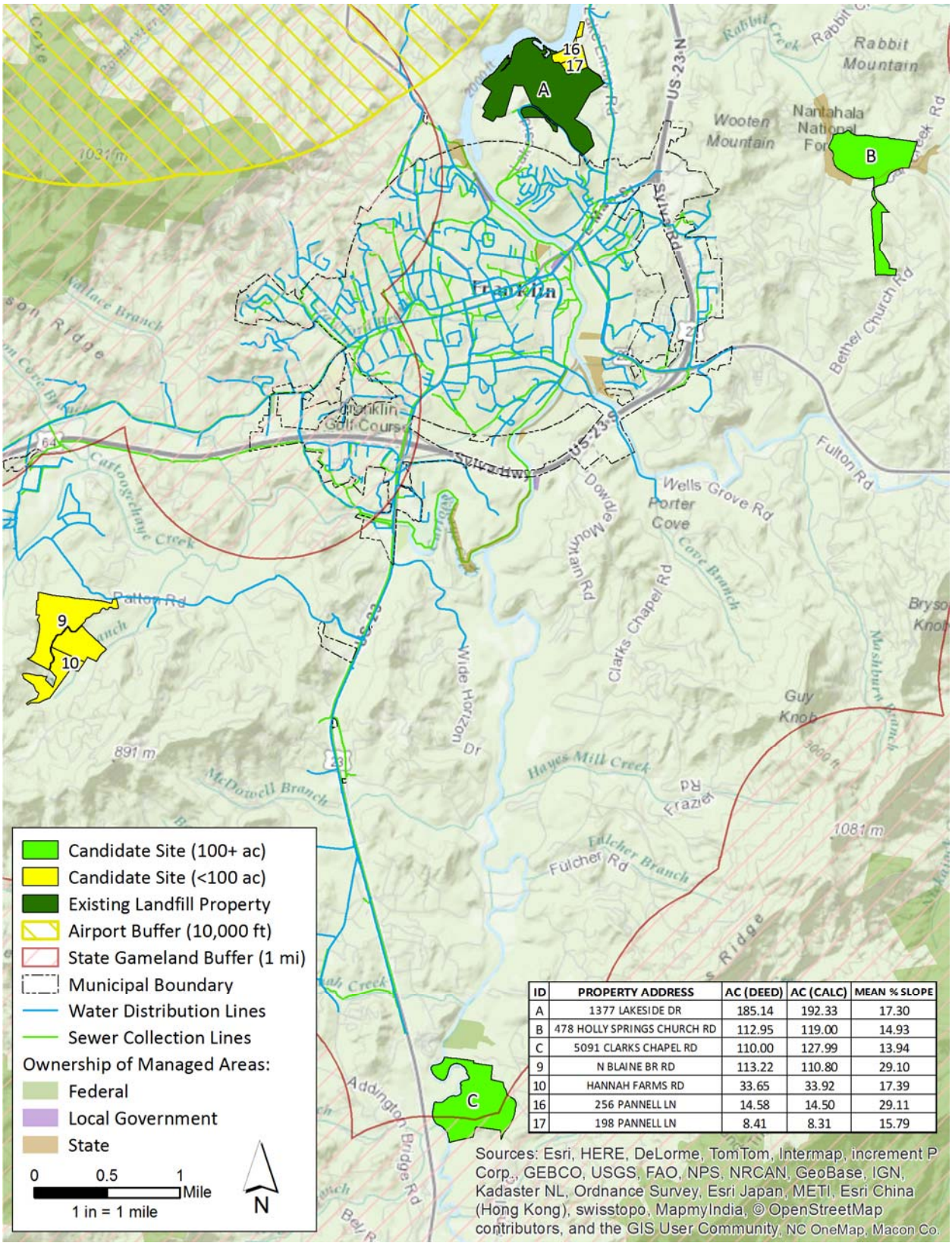
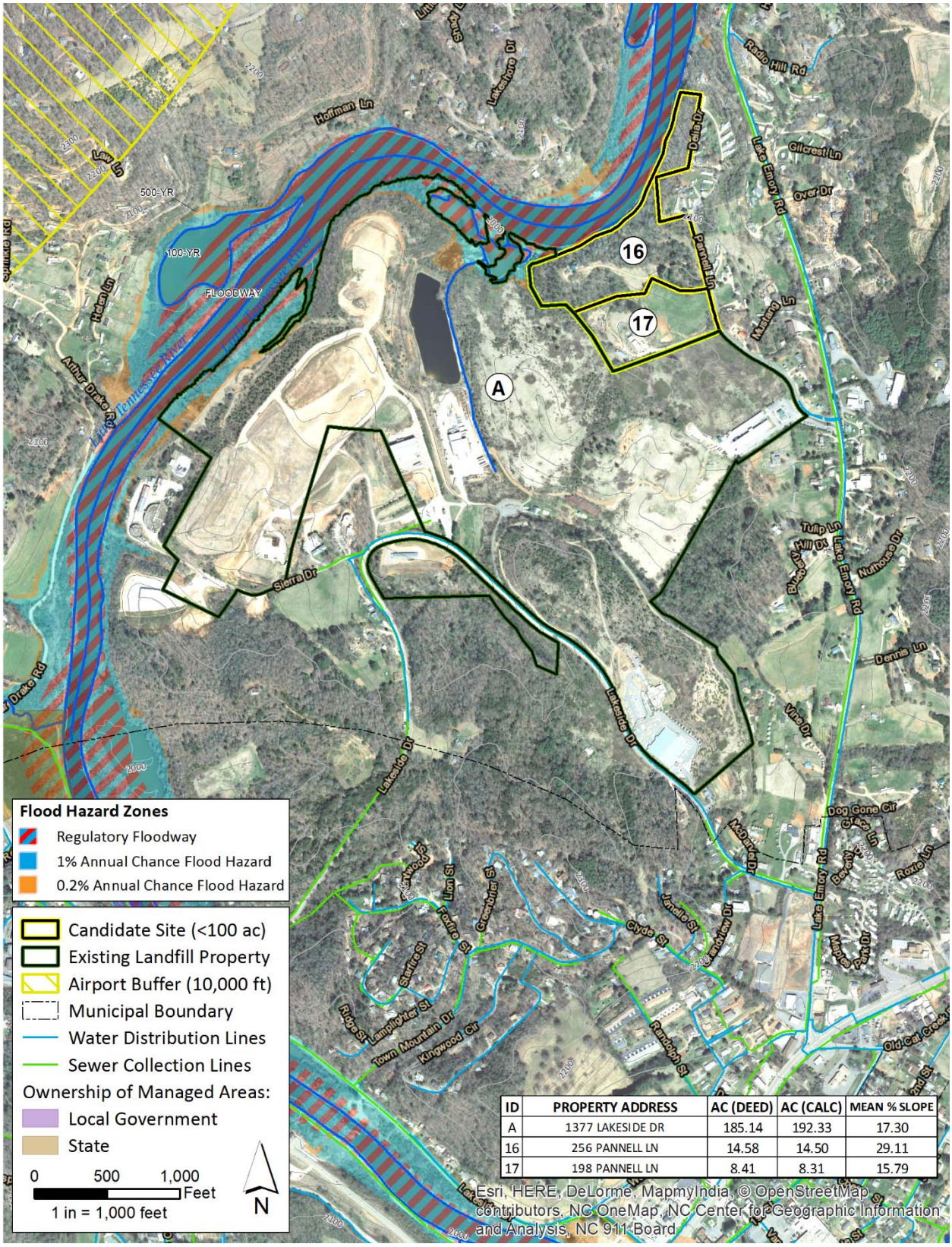

Candidate Site (100+ ac)
Candidate Site (<100 ac)
Existing Landfill Property
Airport Buffer (10,000 ft)
State Gameland Buffer (1 mi)
Municipal Boundary
Water Distribution Lines
Sewer Collection Lines
Ownership of Managed Areas:
Federal
Local Government
State
0 0.5 1 Mile
1 in = 1 mile
N
A
B
C
9
10
16
17
Franklin
Rabbit Mountain
Wooten Mountain
Nantahala National Forest
US-23-N
Bethel Church Rd
Fulton Rd
Wells Grove Rd
Porter Cove
Cove Branch
Clarks Chapel Rd
Dowdle Mountain Rd
Wide Horizon Dr
Hayes Mill Creek
Fulcher Branch
Addington Bridge Rd
Guy Knob
Cartoogechaye Creek
Patton Rd
McDowell Branch
Wallace Branch
Franklin Golf Course
891 m
1081 m
ID | PROPERTY ADDRESS | AC (DEED) | AC (CALC) | MEAN % SLOPE
A | 1377 LAKESIDE DR | 185.14 | 192.33 | 17.30
B | 478 HOLLY SPRINGS CHURCH RD | 112.95 | 119.00 | 14.93
C | 5091 CLARKS CHAPEL RD | 110.00 | 127.99 | 13.94
9 | N BLAINE BR RD | 113.22 | 110.80 | 29.10
10 | HANNAH FARMS RD | 33.65 | 33.92 | 17.39
16 | 256 PANNELL LN | 14.58 | 14.50 | 29.11
17 | 198 PANNELL LN | 8.41 | 8.31 | 15.79
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community, NC OneMap, Macon Co.

Figure 3-1



ID	PROPERTY ADDRESS	AC (DEED)	AC (CALC)	MEAN % SLOPE
A	1377 LAKESIDE DR	185.14	192.33	17.30
16	256 PANNELL LN	14.58	14.50	29.11
17	198 PANNELL LN	8.41	8.31	15.79

Figure 3-2

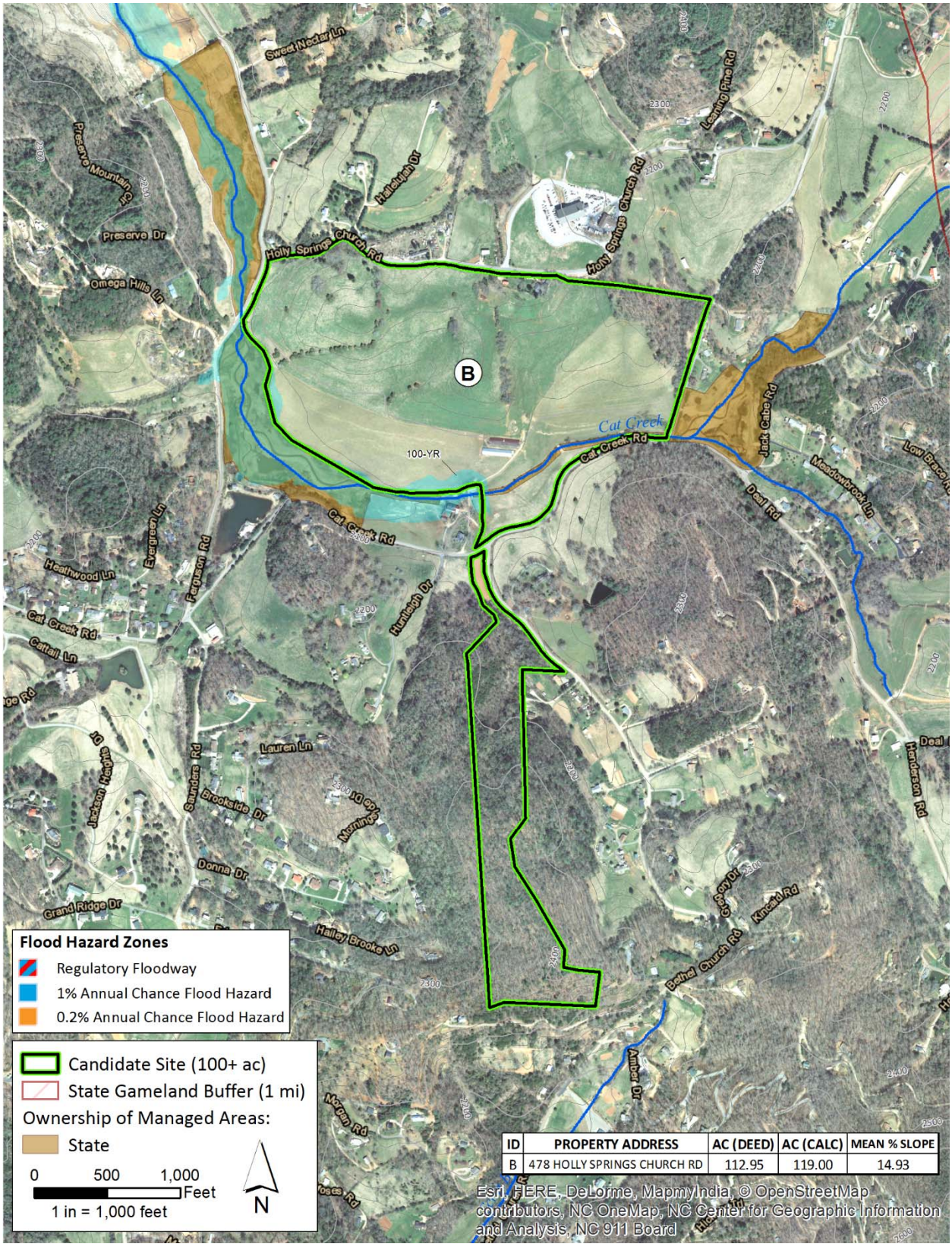

Flood Hazard Zones
Regulatory Floodway
1% Annual Chance Flood Hazard
0.2% Annual Chance Flood Hazard
Candidate Site (100+ ac)
State Gameland Buffer (1 mi)
Ownership of Managed Areas:
State
0 500 1,000 Feet
1 in = 1,000 feet
N
B
100-YR
Cat Creek
Holly Springs Church Rd
Cat Creek Rd
Preserve Mountain Cir
Preserve Dr
Omega Hills Ln
Sweet Nectar Ln
Hallelujah Dr
Leading Pine Rd
Jack Cabe Rd
Meadowbrook Ln
Deal Rd
Evergreen Ln
Ferguson Rd
Heathwood Ln
Huntleigh Dr
Cattail Ln
Lauren Ln
Saunders Rd
Brookside Dr
Donna Dr
Grand Ridge Dr
Hailey Brooke Ln
Henderson Rd
Kincaid Rd
Bethel Church Rd
Amber Dr
ID | PROPERTY ADDRESS | AC (DEED) | AC (CALC) | MEAN % SLOPE
B | 478 HOLLY SPRINGS CHURCH RD | 112.95 | 119.00 | 14.93
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board

Figure 3-3

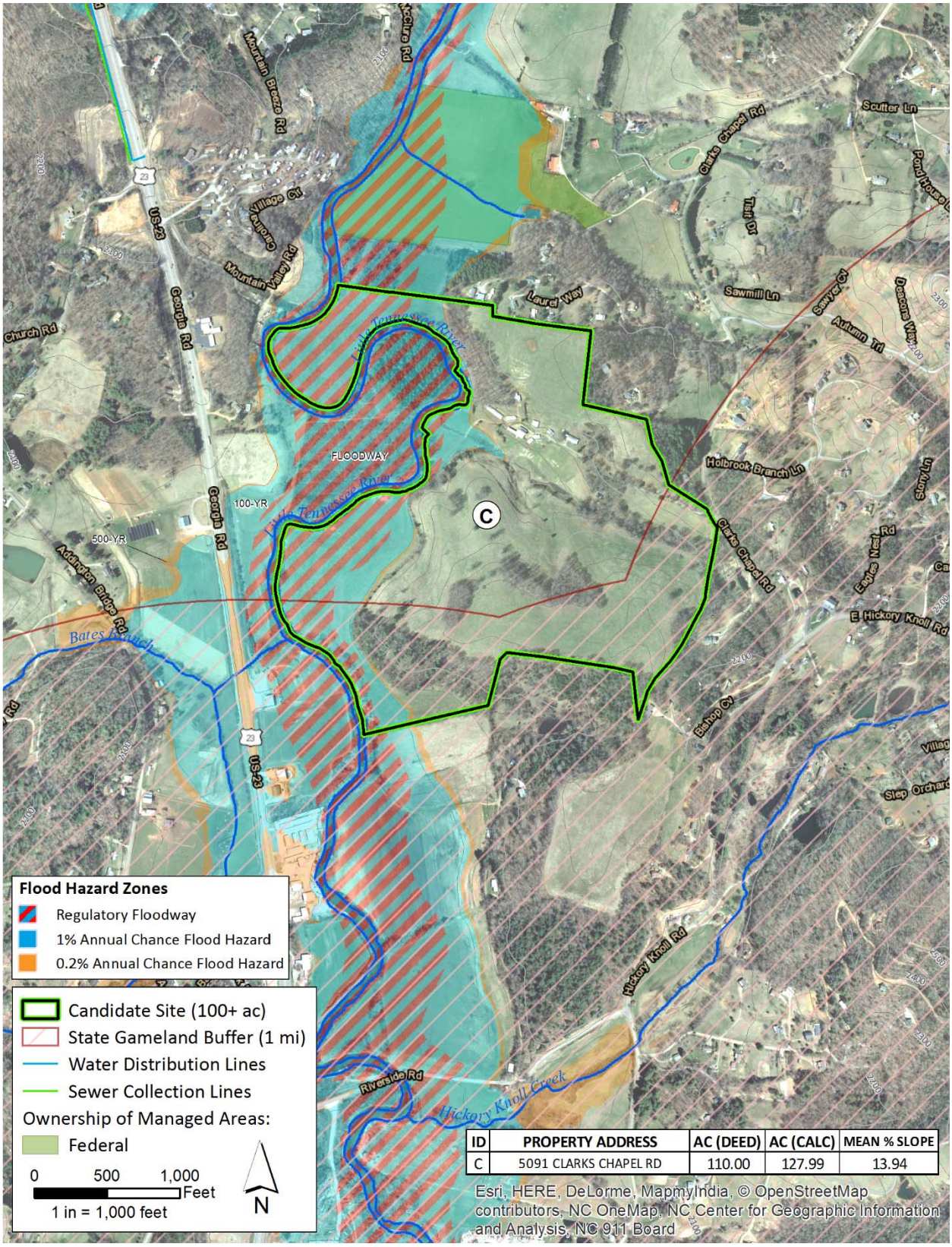

Flood Hazard Zones
Regulatory Floodway
1% Annual Chance Flood Hazard
0.2% Annual Chance Flood Hazard
Candidate Site (100+ ac)
State Gameland Buffer (1 mi)
Water Distribution Lines
Sewer Collection Lines
Ownership of Managed Areas:
Federal
0 500 1,000 Feet
1 in = 1,000 feet
N
FLOODWAY
100-YR
500-YR
C
Little Tennessee River
Bates Branch
Hickory Knoll Creek
US-23
Georgia Rd
Church Rd
Mountain Breeze Rd
Mountain Valley Rd
Village Cir
McClure Rd
Clarks Chapel Rd
Scutter Ln
Pond House Ct
Tari Dr
Laurel Way
Sawmill Ln
Sawyer Ct
Deacons Way
Autumn Trl
Holbrook Branch Ln
Sunny Ln
Eagles Nest Rd
E Hickory Knoll Rd
Bishop Cv
Slep Orchard
Addington Bridge Rd
Riverside Rd
Hickory Knoll Rd
ID | PROPERTY ADDRESS | AC (DEED) | AC (CALC) | MEAN % SLOPE
C | 5091 CLARKS CHAPEL RD | 110.00 | 127.99 | 13.94
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board

Figure 3-4

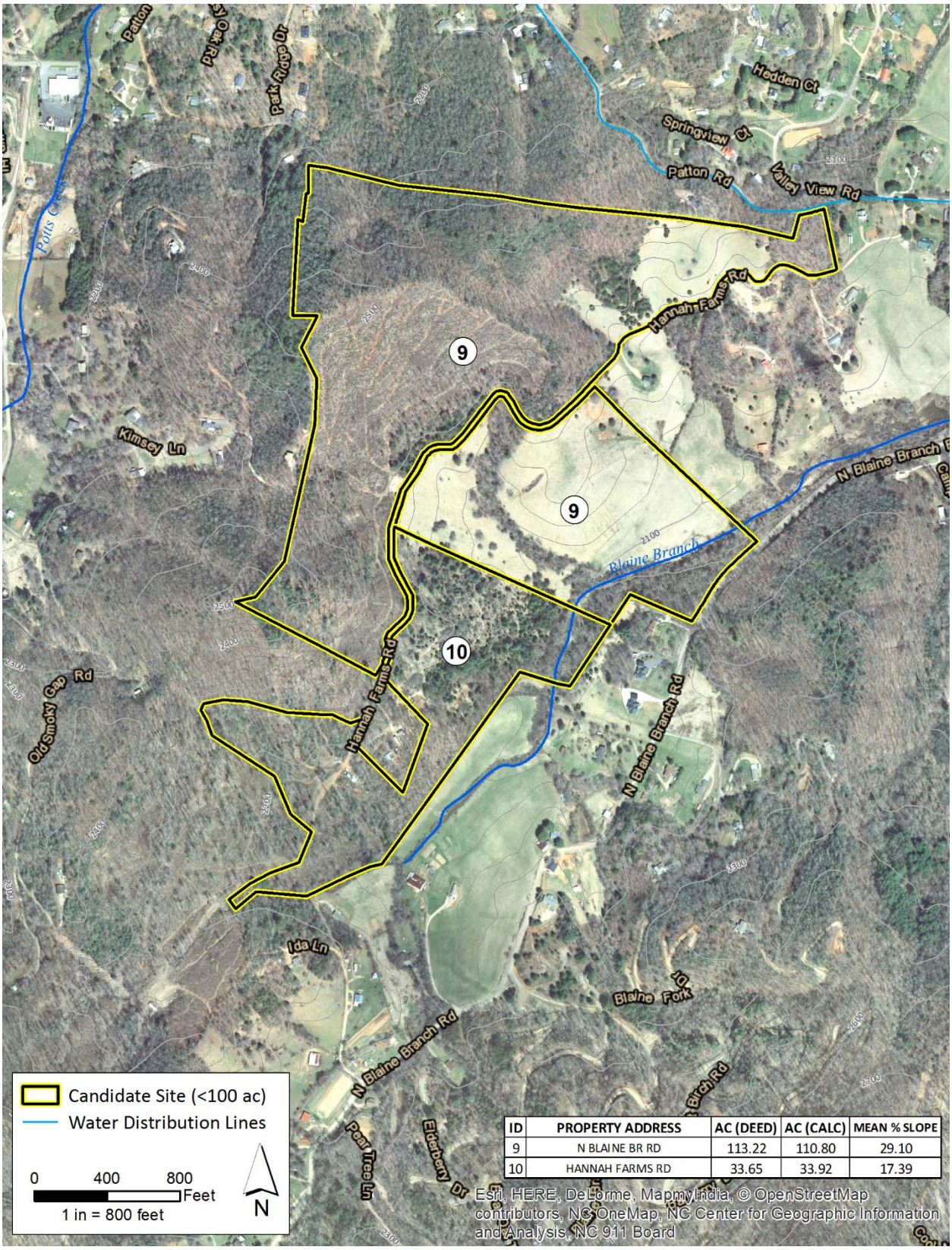

Patton
Park Ridge Dr
Hedden Ct
Springview Ct
Patton Rd
Valley View Rd
Potts Creek
Hannah Farms Rd
9
Kimsey Ln
N Blaine Branch
9
Blaine Branch
10
Old Smoky Gap Rd
Hannah Farms Rd
N Blaine Branch Rd
Ida Ln
Blaine Fork Dr
N Blaine Branch Rd
Birch Rd
Pearl Tree Ln
Elderberry Dr
Candidate Site (<100 ac)
Water Distribution Lines
0 400 800
Feet
1 in = 800 feet
N
ID | PROPERTY ADDRESS | AC (DEED) | AC (CALC) | MEAN % SLOPE
9 | N BLAINE BR RD | 113.22 | 110.80 | 29.10
10 | HANNAH FARMS RD | 33.65 | 33.92 | 17.39
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board

Figure 3-5

c) Socioeconomics and Demographics

Socioeconomic and Demographic data was taken from the U.S. Census Bureau. The sites were distinguished by their township within Macon County, N.C. Site A/16/17 and 9/10 are both located in the Franklin Township, Site B is located in the Millshoal Township, and Site C is located in the Smithbridge Township. Census data regarding the median household income were taken from the U.S. Census Bureau table S1901. Census data regarding race was taken from U.S. Census data table DP05. Census data regarding the median home value was taken from U.S. Census Bureau table DP04. The following table is a condensed list of census data relevant to this evaluation.

Socioeconomics and Demographics					
	Site A/16/17	Site B	Site C	Site 9/10	Macon Co.
Median Household Income	$33,604	$43,391	$42,994	$33,604	$38,134
Race					
White	88.3%	97.4%	99.6%	88.3%	93.7%
Black	2.3%	0.0%	0.0%	2.3%	1.2%
Asian	6.0%	1.1%	0.0%	6.0%	0.7%
Hispanic	11.4%	0.3%	0.0%	11.4%	6.5%
Native American	0.2%	0.0%	0.4%	0.2%	0.3%
Median Home Value	$135,300	$168,600	$171,900	$135,300	$165,400

Summary

The data presented suggests that no socioeconomic or demographic issues should arise regarding any of the sites, based on the characteristics of Macon County as a whole. Expanding the existing landfill at Site A/16/17 would create less socioeconomic and demographic issues than any of the other candidate sites because there is landfill infrastructure and operations already in place.

d) Regulatory

i) Floodplains

According to the North Carolina Solid Waste Management Rules, 15A NCAC 13B, Section .1622 a municipal solid waste facility shall not be located within the 100 year

floodplain. Floodplain information was taken from the Flood Risk Information System website. The candidate sites were compared based on the amount of land that was considered unsuitable for development due to being located in the 100 year floodplain.

1) **Site A/16/17**
   - Contains approximately 5 acres that are within the 100 year storm event floodplain.
2) **Site B**
   - Contains approximately 4 acres that are in the 100 year storm event floodplain.
3) **Site C**
   - Contains approximately 32 acres that are in the 100 year storm event floodplain, reducing the developable area to approximately 78 acres.
4) **Site 9/10**
   - Contains 0 acres that are in the floodplain.

Summary

Sites A, B, and 9/10 will be minimally affected by the floodplain due to the majority of the floodplain being located within the 300' property buffer. Approximately 30% of Site C is located within the floodplain resulting in a large portion of the property that cannot be developed.

ii) Wetlands

Construction activities in wetlands are regulated at the federal level under Section 404 of the Clean Water Act. New landfill disposal units cannot typically be placed in wetland areas unless stringent requirements, such as mitigation, are met. One of these requirements is that the project be for the public and that there be no other practical alternatives to the site. Therefore, wetlands will have to be avoided and buffered against active disposal areas.

The presence of wetlands on each site was evaluated using USGS topographic quadrangles, aerial imagery, interpolation, and limited field reconnaissance. It should be noted that the GIS information provides the general locations of wetlands; however, a formal wetland delineation and survey of the final site will be required as part of the permitting process. Sites are described as follows:

1) **Site A/16/17**
   - National Wetlands Inventory (NWI) identifies a freshwater pond on 'Site A/16/17'; an old agricultural pond that is transitioning into a wetland. North Carolina regulations do not permit filling of wetlands for the development of landfills, unless otherwise deemed necessary. Clean Water Act 404/401 permits and possibly mitigation will be required if future development of Site results in impacts to this jurisdictional water of the United States.

- A narrow wetland seep along the northern edge of 'Site A/16/17' drains into Lake Emory (Little Tennessee River). This wetland seep is located in the riparian buffer and is not expected to restrict the use of 'Site A/16/17'.
- A large area of high quality wetlands occurs adjacent to the NW corner of Site A, this area is within the floodplain of the Little Tennessee River and is not expected to restrict the use of 'Site A/16/17'.

2) Site B

- Identified wetlands are limited to areas of mapped hydric soils and floodplain zones.
- Identified wetlands are located along the southern property boundary and are included in the 300' property buffer.
- Presence of wetlands on 'Site B' is not likely to affect development.

3) Site C

- Wetlands appear to be limited to mapped floodplain zone and hydric soil areas.
- Identified wetlands are located along the western property boundary and are included in the 300' property buffer.
- Presence of wetlands on 'Site C' is not likely to affect development.

4) Site 9/10

- Presence of wetlands in mapped hydric soil areas limited to eastern boundary, and is within 300' property buffer
- Presence of wetlands is not likely to affect development on 'Site 9/10"

Summary

There is no distinct advantage between the candidate sites in respect to the presence of wetlands. The distribution of wetlands between the candidate sites is relatively equal and would have similar permitting requirements. The majority of the wetlands on all of the candidate sites are located within the 300' property buffer, therefore they would not be impacted by developing the parcel.

iii) Cultural Resources

The North Carolina Solid Waste Management Rules state that a site "Shall not damage or destroy an archaeological or historical site". Significant historical sites represent an important cultural element and are protected under the National Historic Act of 1966".

Information regarding the locations of historical sites was obtained from the North Carolina State Historic Preservation Office. Information regarding cultural resources was

obtained from the North Carolina Department of Cultural Resources. Archaeological sites were not addressed in this study because the information is not available in GIS format. To obtain this information, a written request to the NC Department of Cultural Resources will be required once a site is selected. The location of identified historical sites relative to the candidate sites are described as follows:

1) **Site A/16/17**
   - There are no mapped historic structures, buildings, or sites on 'Site A/16/17'.
   - The nearest mapped historic site is the Franklin Power Company Hydroelectric Power Plant located approximately 3,200 feet to the north; Franklin Power Company Hydroelectric Power Plant is on the Study List for Register of Historic Places- HPO Site ID MA0095.
   - A residence and a storage structure located on Site A/16/17 do not qualify as candidate sites for historic recognition.
   - A Phase I Archaeological Study will need to be completed on 'Site A/16/17' to determine the presence of any qualifying archaeological sites.

2) **Site B**
   - Listed as a Determination of Eligibility site (non-archaeological) by the North Carolina State Historic Preservation Office (HPO Site ID MA0561).
   - Determination of Eligibility classification means the property is in the process of being listed as a Study Site, and is one step away from being listed on the National Register of Historic Places.
   - Proposed development of 'Site B' will likely require a review by the NC State Historic Preservation Office.
   - Nearest historic site is the Holly Springs School, approximately 3,100 feet to the north of 'Site B', on the Study List- HPO Site ID MA0101. Due to the distance of Holly Springs School from 'Site B', the HPO site would not likely limit development.

3) **Site C**
   - There are no mapped historical structures, sites, or buildings on 'Site C'.
   - The nearest historical site is located 3,200 feet to the west, the Morris Industrial School, MA0275, listed on the Study List by the NC State Historic Preservation Office.
   - There are no historic structures on 'Site C' or within the surrounding area that will likely affect development.

4) **Site 9/10**
   - There are no mapped historical structures, sites, or buildings on 'Site 9/10'.
   - The nearest historical site is located 2,500 feet to the northeast, Erwin Patton House, MA0207 a site on the Determination of Eligibility

- Due to the distance of the Erwin Patton House from 'Site 9/10', the HPO site would not likely limit development.

Summary

Sites A, C, and 9/10 will not "damage or destroy" any historical sites. Further investigation would be required to determine if archaeology would prevent development of the sites. Site B most likely could not be permitted due to the fact that it is listed as a Determination of Eligibility Site. If the site was to be permitted it would be after review by the National Register of Historic Places, which would significantly delay the development process.

iv) Endangered and Threatened Species

The North Carolina Solid Waste Management Rules state that a site "shall not cause or contribute to the taking of any endangered or threatened species of plants, wildlife, or fish, or result in the destruction or modification of their critical habitat".

Information regarding the recorded presence of endangered or threatened species and habitats on candidate sites was obtained from the U.S. Fish & Wildlife Service. The potential impacts to endangered or threatened species for each site are discussed below.

1) Site A/16/17

- Erimonax monachus (Spotfin Chub - fish):
  - Federally listed as Threatened.
  - Mapped critical habitat adjacent to the site in Little Tennessee River.
  - Site development will not directly impact species or habitat.
  - Indirect impacts could occur from stormwater runoff or other non-point source pollution. However, planned measures are expected to provide sufficient protection from impacts.
- Clinostomus sp. (Smoky Dace – fish):
  - North Carolina species of Special Concern.
  - Potential occurrence in Little Tennessee River.
  - Site development will not directly impact species or habitat.
  - Indirect impacts could occur from stormwater runoff or other non-point source pollution. However, planned measures are expected to provide sufficient protection from impacts.
- Pegias fabula, (Little-wing pearlymussel - mussel):
  - Federally listed as Endangered.
  - Potential occurrence in Little Tennessee River.
  - Site development will not directly impact species or habitat.

- Indirect impacts could occur from stormwater runoff or other non-point source pollution. However, planned measures are expected to provide sufficient protection from impacts.

- Spiraea virginiana, (Virginia Spiraea - plant):
  - Federally listed as Threatened.
  - Suitable habitat identified in broad floodplain area adjacent to NW corner of Site.
  - No direct impact to species (if present) is anticipated.

2) Site B

- Clinostomus sp., Smoky Dace (fish)
  - Listed as a North Carolina species of Special Concern.
  - Likely occurrence of Smoky Dace limited to Cat Creek.
  - Cat Creek follows the southern property boundary of 'Site B'.
  - The 300' property buffer protects listed species on 'Site B'.

3) Site C

- Erimonax monachus (Spotfin Chub - fish)
  - Federally listed as Threatened.
  - Mapped critical habitat adjacent to site in Little Tennessee River.
  - Site development will not likely directly impact species or habitat.
  - Indirect impacts could occur from stormwater runoff or other non-point pollution sources. However, planned measures are expected to provide sufficient protection from impacts.
- Cambarus georgiae (Little Tennessee River Crayfish)
  - North Carolina species of Special Concern.
  - Potential occurrence in section of Little Tennessee River adjacent to site.
  - Site development will not likely directly impact species or habitat.
  - Indirect impacts could occur from stormwater runoff or other non-point pollution sources. However, planned measures are expected to provide sufficient protection from impacts.
- Clinostomus sp. (Smoky Dace – fish)
  - North Carolina species of Special Concern.
  - Potential occurrence in section of Little Tennessee River adjacent to site.
  - Site development will not likely directly impact species or habitat.
  - Indirect impacts could occur from stormwater runoff or other non-point pollution sources. However, planned measures are expected to provide sufficient protection from impacts.
- Pegias fibula (Little-wing pearlymussel – mussel)
  - Federally listed as Endangered.
  - Potential occurrence in section of Little Tennessee River adjacent to site.
  - Site development will not likely directly impact species or habitat.

- Indirect impacts could occur from stormwater runoff or other non-point pollution sources. However, planned measures are expected to provide sufficient protection from impacts.

4) Site 9/10

- No likely presence of listed species or suitable habitat.

Summary

Site 9/10 does not have endangered or threatened species on the property. Site B contains a North Carolina Species of Concern. Sites A and C contain approximately an equal amount of endangered or threatened species. All of these endangered or threatened species can be sufficiently protected through planned measures, therefore none of the sites were eliminated based on the concern of endangered or threatened species.

e) Engineering

i) Seismic Fault Lines and Impact Zones

As stated in NCDENR (Rule 15A NCAC 13B .1622 (5)), new municipal solid waste (MSW) landfill units and lateral expansions shall not be located in seismic impact zones, unless the owner or operator demonstrates that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. "Seismic impact zone" is defined as an area with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 250 years. "Maximum horizontal acceleration in lithified earth material" is defined as the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

Candidate sites were compared based on the Western North Carolina Vitality Index GIS Viewer to determine if the candidate sites were located within a seismic impact zone. The Macon County Landslide Map Viewer was also used to locate landslides on the candidate sites. Sites are described as follows.

1) Site A/16/17

- No mapped faults beneath the site according to the United States Geologic Survey (USGS).
- There are no mapped landslide areas on 'Site A/16/17', according to the North Carolina Geological Survey, Division of Land Resources (DENR).

2) Site B

- No mapped faults beneath the site according to the United States Geologic Survey (USGS).
- There are no mapped landslide areas on 'Site B', according to the North Carolina Geological Survey, Division of Land Resources (DENR).

3) Site C

- According to USGS fault zone map, a fault is shown passing directly beneath 'Site C'.
- There are no mapped landslide areas on 'Site C', according to the North Carolina Geological Survey, Division of Land Resources (DENR).
- It is likely the presence of a fault beneath 'Site C' will affect development.

4) Site 9/10

- No mapped faults beneath the site according to the USGS.
- There are no mapped landslide areas on 'Site 9/10', according to the North Carolina Geological Survey, Division of Land Resources (DENR).

Summary

Sites A/16/17, B, and 9/10 do not have any mapped fault lines beneath the site according to the United States Geological Survey. Site C contains a fault line that passes directly beneath the site, which would likely prevent the site from being permitted. If the site was selected for development, all of the landfill infrastructure would be designed and constructed in order to withstand the maximum horizontal acceleration in lithified earth material for the site. This would result in a large increase in development cost for Site C.

ii) Soil Conditions

Soil characteristics are a major consideration in the siting of municipal solid waste (MSW) landfill facilities. Large quantities of soil are required for developing landfills in order to obtain desired basegrades, to construct liners, provide drainage material and protective cover, and to build perimeter berms and access roads. Large quantities of soil are also used during landfill operations for cover material. It is usually beneficial to have deep soils and a deep water table at a site in order to maximize cell excavation and operation without having to import soil from offsite. Importing soil significantly increases the cost of landfill construction and operation, as well as increases the amount of truck traffic on local roads.

In general, sandy soils are more desirable for earthwork operations than silty and clayey soils since they are less sensitive to moisture. Silty and clayey soils can become difficult to work once they are exposed to excessive moisture from rainfall. Sandy soils are more permeable than silty and clayey soils and therefore are more suited for use in the drainage

layer that is placed above the synthetic liner in MSW landfills. Clayey soils, however, because of their lower permeability, are more suited for construction of soil liners. The presence of wet, poorly drained soils on-site is indicative of a shallow water table and could indicate the presence of wetlands and floodplains that could limit landfill development.

The National Soil Information System database was reviewed to evaluate reported soil conditions at the candidate sites. A site-specific soils investigation will be required for the recommended site to further and necessarily evaluate soil conditions. Sites are described as follows:

1) **Site A/16/17**
   - No mapped hydric soils were identified.

2) **Site B**
   - Two mapped hydric soil types along southern property boundary surrounding Cat Creek.
   - It is likely wetlands are present in areas of mapped hydric soils, as well as a high water table.
   - Mapped hydric soils areas are not likely to affect development of 'Site B' since they are located within the 300' property buffer on 'Site B', including associated wetlands and high water table.

3) **Site C**
   - Three mapped hydric soil types found along the western property boundary and the Little Tennessee River.
   - It is likely wetlands are present in areas of mapped hydric soils, as well as a high water table.
   - Presence of mapped hydric soils, including associated wetlands and high water table, are located within the 300' property buffer.
   - Mapped hydric soil areas are not likely to affect development of 'Site C'.

4) **Site 9/10**
   - Two types of hydric soils are present along site's eastern boundary on Blaine Branch.
   - Wetlands are likely present in areas of mapped hydric soils, as well as a high water table.
   - Presence of mapped hydric soils, including associated wetlands and high water table, are located within the 300' property buffer.
   - Mapped hydric soil areas are not likely to affect development of 'Site 9/10'.

Summary

Site A/16/17 has an advantage because there are no hydric soils identified on the parcel, however, the development of remaining parcels B, C, and 9/10 will most likely not be affected by their hydric soils due to their location within the 300' property buffer.

iii) Potential Landfill Development Area

The potential landfill development area determines the capacity of the landfill. The landfill capacity should be as large as possible in order to maximize the lifespan of the landfill and reduce the development cost per cubic yard. The landfill development area is reduced by things such as property buffers, roads, streams, water/well buffers, Game Land buffers, airport buffers, wetlands, parcel geometry, and floodplain buffers. Sites are described as follows:

1) Site A/16/17

- Contains approximately 5 acres that are within the 100-year storm event floodplain.
- Is not affected by airport or Game Land buffers.
- Potential development area is approximately 38 acres.

2) Site B

- North Carolina Department of Transportation conservation easement on southern portion of property.
- Property split across Cat Creek Road with approximately 90-acres on the north side and 20 acres on the south side that is approximately 500' wide and 3,000' long.
- Contains approximately 4 acres that are in the 100-year storm event floodplain.
- Potential development area is approximately 41 acres.

3) Site C

- Contains approximately 32 acres that are in the 100-year storm event floodplain.
- Contains approximately 36 acres within the 1 mile buffer of State gameland.
- Potential development area is approximately 40 acres.

4) Site 9/10

- Property is split by Hannah Farms Road.
- Potential development area is approximately 16 acres.

Summary

Although Site A/16/17 and B contain small portions of land within the floodplain, this will not affect the development area because the floodplain lies within the 300' property

buffer. The landfill development area is reduced for Site B by dividing the parcel with Cat Creek Road and also by the appropriate buffers around the conservation easement. The lower portion of Site B was considered unusable because the geometry of the parcel results in 0 developable acres after the 300' property buffer is applied. The floodplain and gameland drastically reduce the development area of Site C from 110 acres to less than 40 acres. Site 9/10 is split in half by Hannah Farms Road. The northern portion of Property 9 is undevelopable because it contains a mean slope of greater than 20%. The unique shape of parcel 10 only contains .6 acres of potential landfill development area once the 300' property buffer was applied.

iv) Transportation Access

The existence of major roadways and bridges designed to carry heavy loads is an important consideration in siting a MSW landfill facility. Transport of solid waste to a facility would require roadways and bridges to provide direct access to the site and are capable of handling large volumes of heavy truck traffic.

The roadways and bridges relevant to each candidate site were evaluated in the field by McGill Associates. Based on a conversation with a Division 14, North Carolina Department of Transportation Engineer, bridges that do not have posted ratings were determined to be "legal load" bridges. Legal load bridges are rated to carry a single vehicle weight of 40 Tons and a Semi Trailer weight of 45 Tons. Road conditions are also subject to further investigation for the recommended site to determine if upgrades will be necessary. Sites are described as follows:

1) Site A/16/17

- Existing Landfill site will require no roadway/bridge improvements.

2) Site B

- No bridges required for access.

3) Site C

- 16' wide single lane bridge located on Riverside Rd, approximately 800' east of the intersection of Georgia Rd and Riverside Rd, "legal load" 45 Tons for Semi Trailer.
- Bridge located on Prentiss Bridge Rd, approximately 80' west of the intersection of Clarks Chapel Rd and Prentiss Bridge Rd, "legal load" 45 Tons for Semi-Trailer.
- Bridge located on Prentiss Bridge Rd, approximately 1400' west of the intersection of Clarks Chapel Rd and Prentiss Bridge Rd, "legal load" 45 Tons.

4) Site 9/10

- Industrial Park Road has a bridge crossing Cartoogechaye Creek with a load limit of 28 tons for semi-trailer.
- Mashburn White has a bridge with a load limit of 34 tons for semi-trailer
- Steep drop-off from North Blaine Road approximately 40 vertical feet to access site.

Summary

Site A/16/17 has an advantage because there will be no roadway or bridge improvements required with infrastructure already in place to handle solid waste transfer trucks. Site B will not require any bridge improvements; however, it is unknown if the roadways will require improvement. Site C and Site 9/10 both will require significant improvement to bridges and also possible roadway improvements. Both of the bridges relevant to Site 9/10 will require replacement with a higher rated bridge in order to carry a 40 ton solid waste transfer truck. The 16' wide bridge relevant to Site C will most likely require replacement because of the danger the single lane bridge poses when large volumes of solid waste transfer trucks are present. The two remaining bridges relevant to site C were deemed adequate for the 40 ton solid waste load. Replacing bridges and improving roadways significantly increases the development cost.

v) **<u>Utilities</u>**

The proximity of public water and sewer in the area of a proposed landfill site is an important consideration, as is the location of any utility with respect to the proposed landfill footprint. Public water in the area of the site provides an alternative water supply source for landfill operations, as well as to the public should there be a release from the facility. Access to a public sewer system is also a benefit because it provides an additional and perhaps lower cost option for the treatment and disposal of leachate. In addition, power line locations were noted if they crossed the site. Power lines, especially transmission lines, are especially difficult and costly to relocate if required for development of the landfill. Therefore having power lines cross a potential site would put that site at a disadvantage.

Geographic information system (GIS) maps provided by the County were used to determine the proximity of public water and sanitary sewer. Power lines in GIS are not available due to security issues, so power line locations were noted during "windshield surveys" by McGill Associates. Sites are described as follows:

1) Site A/16/17

- Water and sewer available on-site.
- Adjacent to Town of Franklin Wastewater Treatment Plant.
- Power available on-site.

2) Site B

- Approximately 7,000 feet from public water.
- Approximately 8,000 feet from public water.
- Power available on-site.

3) Site C

- Approximately 16,500 feet to public water.
- Approximately 16,500 feet to public sewer.
- Power available on-site.
- Power line on western portion of the site that runs along the Little Tennessee River.

4) Site 9/10

- Approximately 2,800 feet to public water.
- Approximately 13,500 feet to public sewer.
- Power available on-site.

Summary

Site A/16/17 has an advantage because it would not require an extension of public utilities to serve the site and it is in close proximity to the Town of Franklin Wastewater Treatment Plant. Site B and Site 9/10 would both require approximately the same extension of water and sewer utilities. Site C would require approximately 3 miles of utility extension, which would add significant cost to the landfill development. The power line on site C is located within the 300' property buffer and would not affect development.

vi) Public Water Supply Wells

A Site Study must be completed on whichever site is selected in accordance with Solid Waste Management Rules, 15A NCAC 13B, Section .1618. One requirement is to identify all public water supply wells and surface intakes within 2 miles of proposed landfill site. A preliminary search of North Carolina Department of Environmental and Natural Resources (NCDENR) Public Water Supply section databases was performed for each candidate site. This preliminary data is listed in Appendix b.

A review of this data does not indicate any public water supply wells within the 500-foot buffer of waste limits. The Town of Frankin's raw water intake for the water treatment plant is located approximately 6,000 feet to the northwest of Site 9/10, but is hydraulically downstream of intake and will not ever be within the critical area of the watershed.

f) Development Cost

When comparing the development cost of the candidate sites, general landfill items such as earthwork, 24" compacted clay liner, 60 mil. textured HDPE liner, 16-oz fabric cushion, 24-inch protective cover material (stone), crushed stone/paved perimeter roadway, final closure system, and gas collection system are assumed to be approximately equal, therefore they are excluded from the cost analysis. These items will be required at all sites and quantities are unknown without a preliminary design for each site, however, it should be noted that these costs may be site specific and would vary based on site conditions such as soil types. The criteria used to compare the development cost for the sites were items that were specific to each site.

The transportation line item within the cost estimate includes asphalt paved entrance roads and bridge replacement. For the alternative sites, the concrete paved entrance road was assumed to begin at the nearest State/County maintained highway and continue to the proposed landfill perimeter. For Site A/16/17, this cost assumes that the County will continue to use the existing entrance road. The quantities of asphalt entrance roads were calculated assuming the entire length of road maintained as a 24-foot width.

Miscellaneous work line items include the cost of constructing facilities at each alternative site necessary to maintain the County's solid waste disposal needs, including a maintenance building, scale house with one in-bound scale, one out-bound scale, recycling facility, white goods pad, convenience center and administrative building. These facilities have already been constructed at the existing Macon County Landfill site and are not included within the cost estimate for Site A/16/17.

Land Acquisition cost was obtained by the County Tax Assessors data provided by the County GIS Department. In reality, market value can often be much higher than the accessed tax value. Since neither the market value nor a potential final negotiated price is known for the candidate sites, assessed tax value has been used for comparison.

The following tables show itemized costs for each candidate site.

1) Site A/16/17

Development Cost for Site A/16/17					
Item No.	Description	Quantity	Unit	Unit Price	Total Cost
Transportation					
1	Bridge Replacement	0	SF	$250.00	$0.00
2	Furnish and Install Asphalt Paved Entrance Roadway	0	SY	$35.00	$0.00
Utilities					
3	Furnish and Install 8" Water Line	0	LF	$60.00	$0.00
4	Furnish and Install 8" Sewer Line	0	LF	$75.00	$0.00
Miscellaneous Work					
5	Maintenance Building	0	LS	$420,000.00	$0.00
6	Scale House	0	LS	$60,000.00	$0.00
7	Furnish and Install Scales and Appurtenances	0	LS	$120,000.00	$0.00
8	White Goods Pad	0	LS	$35,000.00	$0.00
9	Convenience Center	0	LS	$300,000.00	$0.00
10	Administrative Building	0	LS	$300,000.00	$0.00
11	Land Acquisition	1	LS	$876,820.00	$876,820.00
12	Recycling Facility (100'x100')	0	LS	$750,000.00	$0.00

Note: Does not include landfill construction cost.

TOTAL	$876,820.00

2) Site B

Development Cost for Site B					
Item No.	Description	Quantity	Unit	Unit Price	Total Cost
Transportation					
1	Bridge Replacement	0	SF	$250.00	$0.00
2	Furnish and Install Asphalt Paved Entrance Roadway	1066	SY	$35.00	$37,310.00
Utilities					
3	Furnish and Install 8" Water Line	7000	LF	$60.00	$420,000.00
4	Furnish and Install 8" Sewer Line	8000	LF	$75.00	$600,000.00
Miscellaneous Work					
5	Maintenance Building	1	LS	$420,000.00	$420,000.00
6	Scale House	1	LS	$60,000.00	$60,000.00
7	Furnish and Install Scales and Appurtenances	2	LS	$120,000.00	$240,000.00
8	White Goods Pad	1	LS	$35,000.00	$35,000.00
9	Convenience Center	1	LS	$300,000.00	$300,000.00
10	Administrative Building	1	LS	$300,000.00	$300,000.00
11	Land Acquisition	1	LS	$582,750.00	$582,750.00
12	Recycling Facility (100'x100')	1	LS	$750,000.00	$750,000.00

Note: Does not include landfill construction cost.

TOTAL	$3,745,060.00

3) Site C

Development Cost for Site C					
Item No.	Description	Quantity	Unit	Unit Price	Total Cost
Transportation					
1	Bridge Replacement	1920	SF	$250.00	$480,000.00
2	Furnish and Install Asphalt Paved Entrance Roadway	800	SY	$35.00	$28,000.00
Utilities					
3	Furnish and Install 8" Water Line	16500	LF	$60.00	$990,000.00
4	Furnish and Install 8" Sewer Line	16500	LF	$75.00	$1,237,500.00
Miscellaneous Work					
5	Maintenance Building	1	LS	$420,000.00	$420,000.00
6	Scale House	1	LS	$60,000.00	$60,000.00
7	Furnish and Install Scales and Appurtenances	2	LS	$120,000.00	$240,000.00
8	White Goods Pad	1	LS	$35,000.00	$35,000.00
9	Convenience Center	1	LS	$300,000.00	$300,000.00
10	Administrative Building	1	LS	$300,000.00	$300,000.00
11	Land Acquisition	1	LS	$1,829,780.00	$1,829,780.00
12	Recycling Facility (100'x100')	1	LS	$750,000.00	$750,000.00

Note: Does not include landfill construction cost.

TOTAL	$6,670,280.00

4) Site 9/10

Development Cost for Site 9/10					
Item No.	Description	Quantity	Unit	Unit Price	Total Cost
Transportation					
1	Bridge Replacement	9408	SF	$250.00	$2,352,000.00
2	Furnish and Install Asphalt Paved Entrance Roadway	800	SY	$35.00	$28,000.00
Utilities					
3	Furnish and Install 8" Water Line	2800	LF	$60.00	$168,000.00
4	Furnish and Install 8" Sewer Line	13500	LF	$75.00	$1,012,500.00
Miscellaneous Work					
5	Maintenance Building	1	LS	$420,000.00	$420,000.00
6	Scale House	1	LS	$60,000.00	$60,000.00
7	Furnish and Install Scales and Appurtenances	2	LS	$120,000.00	$240,000.00
8	White Goods Pad	1	LS	$35,000.00	$35,000.00
9	Convenience Center	1	LS	$300,000.00	$300,000.00
10	Administrative Building	1	LS	$300,000.00	$300,000.00
11	Land Acquisition	1	LS	$2,023,150.00	$2,023,150.00
12	Recycling Facility (100'x100')	1	LS	$750,000.00	$750,000.00

Note: Does not include landfill construction cost.

TOTAL	$7,688,650.00

g) Summary of Evaluations

All of the specific evaluation criteria described above were used to form an overall rating for each site with regard to socioeconomics and demographics, regulatory, engineering, and development cost. These overall ratings are shown in Table 3-1.

Table 3-1 Summary of Analysis of Candidate Sites

Criteria	Site A/16/17	Site B	Site C	Site 8/9
Socioeconomics and Demographics	neutral	neutral	neutral	neutral
Regulatory	neutral	-	-	neutral
Engineering	+	neutral	-	-
Development Cost	+	-	-	-

Note: A plus sign represents an advantage over the other sites. A negative Sign Represents a disadvantage over the other Sites. A "neutral" represents no relative advantage or disadvantage.

Section 4 – Recommendation

Based on the analysis performed in this study, McGill Associates recommends that Macon County proceed with Site A/16/17, the existing Macon County Landfill site, for development of a MSW landfill expansion. As discussed in this section, Site A/16/17 has clear advantages over all the sites with respect to engineering and development cost. Some of the important advantages of this site include the existing water and sewer infrastructure, adequate existing roadways and bridges, the lack of anticipated impact of socioeconomics and demographics, absence of seismic fault lines, lack of hydric soils, and the lowest estimated development cost.

The existing Macon County Landfill site consists of the parcels presented in Table 3-2. It is recommended that the County proceed with further investigation and more detailed preliminary design efforts for these parcels.

Parcel PIN	Owner	Area
6595371587	Macon County	185.14 Acres
6595482707	Donald Burling	14.58 Acres
6595483221	Charles T & Wendy L Dalton	8.41 Acres

Although McGill Associates has recommended the existing Macon County Landfill Site, the County must still hold a public hearing and consider input prior to choosing a preferred site. It is also important to emphasize that this evaluation process provides only preliminary results on the technical suitability and apparent feasibility of each candidate site based upon readily available information and visual observations of the site areas from adjacent roadways.

Section 5 – Appendix A

Previous Site Evaluation Study

M A C O N C O U N T Y
INTEROFFICE MEMORANDUM
8809-108

TO: MACON COUNTY BOARD OF COMMISSIONERS

FROM: SOLID WASTE TASK FORCE

SUBJECT: LANDFILL SITE SELECTION

DATE: September 29, 1988

The Solid Waste Task Force met on Tuesday, September 27, 1988 to evaluate five proposed landfill sites. The five sites that were evaluated were as follows: (1) Shope property in Coweeta, (2) Hannah property in Patton Valley, (3) Bradley property in Oak Grove, (4) Ledford property in Franklin, (5) Deal property in Corbin Knob.

The five properties were evaluated against each other as to how well they met the criteria previously established by the Task Force and approved by this Board. Each criteria had been weighted by the Task Force as to what we felt was their relative importance. Each site was then given a weighted value on each criteria as to how it met that particular criteria and how it compared to the other sites.

A narrative on this evaluation follows:

I. USEABLE ACRES - Value = 8

The Task Force had established that 100 useable acres was desired but not mandatory.

A. Hannah Property - 80 total points

The Hannah property contains 245 acres that is useable for either trenches or fill material and rated highest for this criteria.

Score = 10

B. Ledford Property - 72 total points

The Ledford property contains 125 acres that is useable for trenches or fill. Areas of useable land is continuous and most could be used for trenches.

Score = 9

C. Shope Property - 48 total points

The Shope property contains 100 acres that is useable for trenches or fill. Areas of useable land is segmented which would lessen the amount that could be used for trenches.

Score = 6

D. Bradley Property - 32 total points

The Bradley property contains 90 useable acres that is useable for trenches or fill.

Score = 4

E. Deal Property = 24 total points

The Deal property also contained 90 useable acres. Useable land is segmented.

Score = 3

II. POLLUTION POTENTIAL -Value = 8

The Task Force is concerned for the potential for pollution, especially surface or ground water.

A. Ledford Property - 80 total points
The Ledford property contains only one stream which runs into Lake Emory. There is also city water available to residences in the area which would minimize any problems shoud groundwater become polluted. The soil contained on the property would also make the potential for pollution very low.

Score = 10

B. Hannah Property - 24 total points
The Hannah Propety has Blaine Branch running through the property along with several spring heads. Although only 10 residences are down stream from the property and the soil has a low potentional for pollution, the Task Force felt that any pollution could be a problem.

Score = 3

C. Bradley Property - 24 total points
The Bradley property has Caler Creek running through the property with 44 residences down stream. Although the soil has a low probability of pollution, the Task Force felt the impact would be equal to that of the Hannah tract.

Score = 3

D. Deal Property - 16 total points
The Deal property has Cat Creek running through the property with 20 residences down stream. The soil contained on the property would indicate a high potential for pollution.

Score = 2

E. Shope Property - 8 total points
The Shope property has the North Fork of Coweeta Creek running through the property with 200 residences down stream. The soil also indicates a high potential for pollution.

Score = 1

III. PEOPLE WHO CAN SEE, HEAR OR SMELL THE LANDFILL - Value = 7

A. Shope Property - 70 total points

The Shope property has 12 residences within a one-half mile radius. The property could be effectively screened from sight.

Score = 10

B. Hannah Property - 42 total points

The Hannah Property has 98 residences within a one-half mile radius. The property could be effectively screened from sight.

Score = 6

C. Ledford Property - 35 total points

The Ledford property has 400 residences within a one-half mile radius. However, only 15 residences are in sight of the property and could be effectively screened from sight.

Score = 5

D. Deal Property - 21 total points

The Deal property has 69 residences within a one-half mile radius. The property could not be effectively screened from sight.

Score = 3

E. Bradley Property - 14 total points

The Bradley property has 58 residences within a one-half mile radius. The property could not be effectively screened from sight.

IV. COST OF OPERATION/TRANSPORTATION - Value = 6

Operation cost would be consistent from site to site. Differences would be transportation cost. Mileages are based on distance from Macon County Courthouse.

A. Ledford Property - 60 total points

The Ledford property is 2.0 miles from the courthouse. Easy access.

Score = 10

B. Hannah Property - 54 total points

The Hannah property is 4.2 miles from the courthouse. Easy access.

Score = 9

C. Deal Property - 48 total points

The Deal property is 4.0 miles from the Courthouse. Access not as good as Hannah property.

Score = 8

D. Bradley Property - 24 total points

The Bradley property is 10.1 miles from the courthouse.

Score = 4

E. Shope Property - 24 total points

The Shope property is 10.2 miles from the courthouse.

Score = 4

V. COST OF PREPARATION - Value = 5

Preparation cost includes several factors including: Percentage of land to be cleared, roads into property to be upgraded, bridges and continuity of useable land.

A. Ledford Property - 50 total points

The Ledford property has less than 10% of the land that is not cleared. There is a two land paved road to the property along with roads through the property. The property is already fenced, which is a requirement of the state, representing a large savings for the county. The useable land is continuous, also representing a savings.

Score = 10

B. Bradley Property - 40 total points

The Bradley property has approximately 10% in timber. It is accessed by a two lane paved road. Useable area is continuous.

Score = 8

C. Hannah Property - 30 total points

The Hannah property has approximately 50% in timber. A two land paved road accesses property and useable area is continuous.

Score = 6

D. Deal Property - 20 total points

The Deal property has approximately 60% in timber. It is accessed by a two lane gravel road that would need to be upgraded. Useable area is not continuous.

Score = 4

E. Shope Property - 5 total points

The Shope property has approximately 95% in timber. It is accessed by a one lane gravel road with a wooden bridge. Both would need to be upgraded. Useable land is not continuous.

Score - 1

VI. COST PER ACRE - Value = 4

Cost per acre is based on 1983 evaluation. Effective cost per acre was calculated by multiplying the cost per acre time total acres, divided by the number of useable acres.

A. Ledford Property - 40 total points

Effective cost per acre - $2,548

Score = 10

B. Deal Property - 40 total points

Effective cost per acre - $2,551

Score = 10

C. Bradley Property - 40 total points

Effective cost per acre - $2,653

Score = 10

D. Hannah Property - 32 total points

Effective cost per acre - $3,223

Score = 8

E. Shope Property - 16 total points

Effective cost per acre - $6,718

Score = 4

VII. WILLINGNESS OF SELLER - Value = 4

Either yes or no.

A. Ledford property - 40 total points

Mr. Ledford has indicated he is willing to sell.

Score = 10

B. Shope property - 0 total points

Mr. Shope is not willing to sell.

Score = 0

C. Hannah property - 0 total points

The Hannah's are not willing to sell.

Score = 0

D. Bradley property - 0 total points

Mr. Bradley is not willing to sell.

Score = 0

E. Deal property - 0 total points

The Deal's are not willing to sell.

Score = 0

VIII. ADVERSE CONSEQUENCES OF A LANDFILL BEING SITED ON EACH PROPERTY.

A. Shope Property

The Shope property is a long time family farm having been purchased by the Shope family in 1845. The property is also valued as a wildlife habitat as sell as containing many wild plant and flowers that are currently listed as endangered species. There have also been finds of significant historical artifacts during archeological exploration. There are four residences located on the property which include a new house currently under construction by Mr. Shope.

B. Hannah Property

The Hannah property is located in Patton Valley. This area has a high potential for growth and the county would possibly stand a loss of revenue due to the relatively high land value. The property has also been owned by the Hannah family for many years and contains the residences for seven family members plus the Hannah homeplace. There is also a potential for a large number of people to be affected by noise, smell, etc.

C. Bradley Property

The Bradley property is a working farm that has been in the Bradley family for 50 years. There are two churches in the immediate area that could be adveresly affected due to the fact that the property would be difficult to screen from view. The Oak Grove area also has potential for growth. The Bradley homeplace is on property.

D. Ledford Property

The Ledford property now contains a hog farm. There is a potential for a large number of people to be affected by noise, smell, etc. There is also a question concerning the possibility of the property being annexed into the Franklin City limits.

E. Deal Property

The Deal property is also a working family farm. The surrounding area has a potential for growth in the future.

IX. RESULTS, CONCLUSION, RECOMMENDATIONS

The highest total points attainable through this evaluation is 420.

The five properties scored as follows:

#1 Ledford Property
377 total points

#2 Hannah Property
262 total points

#3 Bradley Property
174 total points

#4 Shope Property
171 total points

#5 Deal Property
169 total points

Each one of the five properties have both good and poor features. There is probably no such thing as a "perfect" site for a landfill. The purpose of this evaluation was to identify the best balanced choice. The Task Force feels that we have accomplished this goal.

The Task Force is unanamious in recommending to the Board of Commissioners that they take the necessary steps to acquire the Ledford property for the site of the Macon County landfill.

	#1 SHOPE	#2 HANNAH	#3 BRADLEY	#4 LEOFORD	#5 DEAL
USEABLE ACRES	100	245	90	125	90
WT. 8	6 / 48	10 / 80	4 / 32	9 / 72	3 / 24
POLLUTION POTENTIAL	200 RESIDENCES DOWN STREAM. HIGH POTENTIAL	10 RESIDENCES DOWN STREAM LOW POTENTIAL	44 RESIDENCES DOWNSTREAM LOW POTENTIAL	0 RESIDENCES DOWNSTREAM LOW POTENTIAL	20 RESIDENCES DOWN STREAM HIGH POTENTIAL
WT. 8	1 / 8	3 / 24	3 / 24	10 / 80	2 / 16
PEOPLE WHO CAN SEE, HEAR OR SMELL LANDFILL	① 12 RESIDENCES. ② DRIVE THROUGH PROPERTY ③ COULD SCREEN	① 98 RESIDENCES 1/2 MILE RADIUS ② DRIVE BY PROPERTY ③ [redacted] SCREEN	① 58 RESIDENCES 1/2 MILE RADIUS ② DRIVE BY PROPERTY ③ NO SCREEN	① 400 RESIDENCES 1/2 MILE RADIUS ② DRIVE BY PROPERTY ③ EASY TO SCREEN	① 69 RESIDENCES 1/2 MILE RADIUS ② DRIVE THROUGH PROPERTY. ③ NO SCREEN
WT. 7	10 / 70	6 / 42	2 / 14	5 / 35	3 / 21
COST OF C ?ATION/ TRANSPORTATION	10.2 MILES FROM COURTHOUSE	4.2 MILES FROM COURTHOUSE	10.1 MILES FROM COURTHOUSE	2.0 MILES FROM COURTHOUSE	4.0 MILES FROM COURTHOUSE
WT. 6	4 / 24	9 / 54	4 / 24	10 / 60	8 / 48
COST OF PREPARATION	① 95% TIMBER ② 1 LANE GRAVEL ROAD - WOODEN BRIDGE. ③ USABLE AREA NOT CONTINUOUS	① 80% TIMBER ② 2 LANE PAVED ROAD. ③ USABLE AREA CONTINUOUS	① 10% TIMBER ② 2 LANE PAVED ROAD. ③ USABLE AREA CONTINUOUS	① >10% TIMBER. ② 2 LANE PAVED ROAD. ③ FENCED ④ USABLE AREA CONTINUOUS	① 60% TIMBER ② 2 LANE GRAVEL ROAD ③ USABLE AREA NOT CONTINUOUS
WT. 5	1 / 5	6 / 30	8 / 40	10 / 50	4 / 20
COST PER ACRE	$6718	$3223	$2653	$2548	$2551
WT. 4	4 / 16	8 / 32	10 / 40	10 / 40	10 / 40
WILLINGNESS OF SELLER	NO	NO	NO	YES	NO
WT. 4	0 / 0	0 / 0	0 / 0	10 / 40	0 / 0
TOTAL	171	262	174	*377	169

Section 5 – Appendix B

Water Resources Evaluation of Candidate Sites

Macon County Alternate Site Analysis. Water Resources Evaluation. 2-mile Radius. Raw Water Intakes; Well Systems.

Site A: MSW Landfill: Macon County: MCPID#'s: 6595371587; 6595260611; 6595273034; 6595272249; 6595483221; 6595482707

PWSID#	PWS Name	System Type	MCPID#	MC Property Owner	Notes
0157108	Riverbend Estates	Community	6596216011; 6596216048	Riverbend Water System INC	System has converted to a purchased water system; wells abandoned.
0157108	Riverbend Estates	Community	6596312733	Riverbend Water System INC	System has converted to a purchased water system; wells abandoned.
0157113	Swiss Colony POA	Community	6586809506	Swiss Colony Property Owners Assoc	
0157004	Windy Gap Baptist Church	Transient, Non-Community	6585576349	Windy Gap Baptist Church	
0157564	Franklin Ford	Transient Non-Community	6596711848	BCH of Franklin LLC	
0157413	Ridgecrest Baptist Church	Transient Non-Community	6596947249	C Raymond Thomas, Life Estate	
0157478	Mi Mountain Campground	Transient Non-Community	7506130279	Gregory D. Hoover	
1057008	The Gardens at Cat Creek Wells #1,#2	Community	7505226603; 7505226495	Cat Creek Properties LLC	System installed for subdivision that was never built, system never activated.
0157121	Holly View Subdivision	Community	7505088829	Hollyview Road and Water Assoc.	
0157475	Watauga Baptist Church	Transient, Non-Community	7506470225	Watauga Baptist Church	
0157527	Happy Valley Campground	Transient, Non-Community	7504068846	Dennis K McDowell	
0157515	Macon County Airport	Transient, Non-Community	6576948822	Macon County Airport Authority	Outside of 10,000-foot Buffer Requirement
0157420	Iotla Elementary School	Non-Transient, Non-Community	6586361626	Macon County	
0157544	Rose Creek Mine and Campground	Transient, Non-Community	6587500102	Victoria E Velasco	
0157521	Iotla Baptist Church	Transient, Non-Community	6586074932	Iotla Baptist Church of Franklin, INC	

Source Information: Contact with Buddy Melton, NCDENR, PWS Section: Database from portal website - North Carolina Source Water Assessment Program; Google Earth Layer for Spill Response Unit

Macon County Alternate Site Analysis. Water Resources Evaluation. 2-mile Radius. Raw Water Intakes; Well Systems.

Site B: Holly Springs: 478 Holly Springs Church Road: MCPID#'s: 7505541720; 7505429116; 7505666043

PWSID#	PWS Name	System Type	MCPID#	MC Property Owner	Notes
0157126	Holly Springs Mtn. Lake Resort	Transient Non-Community	7515355707	Russell B. Ginsberg	
0157121	Holly View Subdivision	Community	7505088829	Hollyview Road and Water Assoc.	
0157478	Mi Mountain Campground	Transient Non-Community	7506130279	Gregory D. Hoover	
0157413	Ridgecrest Baptist Church	Transient Non-Community	6596947249	C Raymond Thomas, Life Estate	
0157564	Franklin Ford	Transient Non-Community	6596711848	BCH of Franklin LLC	
0157527	Happy Valley Campground	Transient Non-Community	7504068846	Dennis K McDowell	
0157405	Sugarfork Baptist Church	Transient Non-Community	7504965098	Sugarfork Baptist Church and Parsonage	
0157112	Carolina Highlands Retirement Park	Community	7504840080	James D Beals	
0157108	Riverbend Estates	Community	6596312733	Riverbend Water System INC	System has converted to a purchased water system; wells abandoned.
Not in DB	Holly Springs Baptist Church	Transient Non-Community-Assumed	7505559722	Holly Springs Baptist Church	Not on PWS Database; adjacent to proposed landfill site.
1057008	The Gardens at Cat Creek Wells #1,#2	Community	7505226603; 7505226495	Cat Creek Properties LLC	System installed for subdivision that was never built, system never activated.
0157438	Camp Cullasaga	Transient Non-Community	7504946418	WNC Assemblies of God Camp INC	
0157132	Mountain View Resort Well #1	Non-Transient, Non-Community	7514030407	Phil Reed Properties LATD LLLP	

Source Information: Contact with Buddy Melton, NCDENR, PWS Section: Database from portal website - North Carolina Source Water Assessment Program; Google Earth Layer for Spill Response Unit

Macon County Alternate Site Analysis. Water Resources Evaluation. 2-mile Radius. Raw Water Intakes; Well Systems.

Site C: 441 South: 5091 Clarks Chapel Road; MCPID#'s: 6592006644; 6582916255

PWSID#	PWS Name	System Type	MCPID#	MC Property Owner	Notes
0157456	Union Elementary School	Transient, Non-Community	6582467571	Macon County Board of Education	
0157411	Hickory Knoll Church	Transient, Non-Community	6592209110	Hickory Knoll United Methodist Church	
0157563	Willow Brook Park	Transient, Non-Community	6581846536	Charles R Nichols, C/O Larry Bisgrove	
0157468	Tyler's Motel	Transient, Non-Community	6581820249	Trinity Assemply of God, Trustee	
0157539	Soco Springs Campground	Transient, Non-Community	6581220855	L M Burch	
0157408	Tessentee Church of God	Transient, Non-Community	6590186417	Tessentee Church of God	

Source Information: Contact with Buddy Melton, NCDENR, PWS Section: Database from portal website - North Carolina Source Water Assessment Program; Google Earth Layer for Spill Response Unit

Macon County Alternate Site Analysis. Water Resources Evaluation. 2-mile Radius. Raw Water Intakes; Well Systems.

Site 9-10: North Blain Branch: MCPID#'s: 6573558340; 6573564137; 6573563051; 6573579824

PWSID#	PWS Name	System Type	MCPID#	MC Property Owner	Notes
1057002	Cowee Convenience	Transient, Non-Communtiy	6583124456	Sherry Freimuth	
0157455	Country Woods RV Park	Transient, Non-Communtiy	6583437165	Country Woods Properties LLC	
0157470	Carolina Motel	Transient, Non-Communtiy	6583543841	Myatt Family Trust LLC	
0157458	Longview Baptist Church	Transient, Non-Communtiy	6583671782	Longview Baptist Church	
0157422	Louisa Chapel Church	Transient, Non-Communtiy	6584020429	Louisa Chapel United Methodist Church	
0157010	Cartoogechaye River	Surface Water Intake	6574432201	Town of Franklin	Raw Water Intake for Town of Franklin PWS
0157150	Heritage Hills	Community	6563873509	Heritage Hills Subdivision Homeowner's Association, INC	
0157433	Cartoogechaye Elementary School	Non-Transient, Non-Community	6564619220	Philip C Drake	No longer an Elementary School
0157437	Mt Hope Baptist Church	Transient, Non-Communtiy	6564814940	Mt Hope Baptist Church	
0157432	Loafers Glory	Transient, Non-Communtiy	6564834408	J H Duncan Oil INC	
0157551	The Pines RV Park	Transient, Non-Communtiy	6563591042	Louis J Ferrante, Jr.	
0157431	Inn of the Last Resort	Transient, Non-Communtiy	6564630164	Inn of the Last Resort	

Source Information: Contact with Buddy Melton, NCDENR, PWS Section: Database from portal website - North Carolina Source Water Assessment Program; Google Earth Layer for Spill Response Unit