Site Suitability Report

SITE SUITABILITY REPORT

Proposed Municipal Solid Waste Landfill

Randolph County, North Carolina

Volume I

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Distribution:

September 2013 **Project No. 1039684602**

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ACRONYM LIST

AMSL	Above Mean Sea Level
CWA	Clean Water Act
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
GS	General Statute
HUC	Hydrogeologic Unit Code
LOW	Limits of Waste
MSW	Municipal Solid Waste
NCAC	North Carolina Administrative Code
NCDENR	North Carolina Department of Environment and Natural Resources
NCGS	North Carolina Geological Survey
NCFPMP	North Carolina Flood Plain Mapping Program
NCSWP	North Carolina Solid Waste Permit
NCSWMR	North Carolina Solid Waste Management Regulations
NHP	National Heritage Program
NPEDS	National Pollutant Discharge Elimination System
NRHP	National Register of Historical Places
POTW	Publicly Owned Treatment Works
RA	Rural-Agricultural District
RJD	Request for Jurisdictional Determination
SNHA	Significant Natural Heritage Area
SUP	Special Use Permit
USGS	United States Geological Survey

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1.0 INTRODUCTION AND OVERVIEW

In accordance with the North Carolina Solid Waste Management Rules (NCSWMR), 15A of the North Carolina Administrative Code (NCAC) 13B .1617(a), Golder Associates NC, Inc. (Golder) is submitting this Site Suitability Report for Randolph County (the County) to demonstrate the suitability of the subject property for development as a municipal solid waste (MSW) landfill. This report documents the results of preliminary investigations conducted at the facility to evaluate the subject property and confirm compliance with the siting and design requirements of disposal sites as required in section 15A NCAC 13B .1618 of the NCSWMR. This document also includes siting restrictions included as part of NC Senate Bill 1492 (§130A-295.6).

The proposed Randolph County landfill facility is located in central Randolph County adjacent to the existing closed Randolph County MSW Landfill, North Carolina Solid Waste Permit (NCSWP) #76-01. The center of the proposed Randolph County MSW landfill is located at Latitude: 35.752822°N and Longitude: 79.755992°W. The proposed disposal site is bordered to the north by the Deep River, to the west by the closed Randolph County landfill, to the south by Henley Country Road, and to the east by Old Cedar Falls Road, as shown on *Figure SA-1*. The proposed MSW landfill is composed of several undeveloped parcels comprising approximately 667 acres, approximately 200 acres of which are proposed as the waste disposal unit. The footprint of the first phase of the proposed MSW landfill is approximately 34 acres and is located on the southeastern side of the subject property.

As part of the site suitability and hydrogeologic investigation, several piezometers and soil borings were installed in order to characterize the subsurface. Soil borings were abandoned in accordance with the North Carolina Well Construction Rules (NC 15A NCAC 2C). Piezometers that are not used for permanent monitoring will be properly decommissioned in accordance with NC 15A NCAC 2C. The remaining piezometers and monitoring wells will be used to collect seasonal groundwater levels and other hydrogeological information critical to the design and construction of the proposed MSW landfill.

2.0 SITE DESCRIPTION

This section describes the site location, its physical layout, and current land usage. Geologic and hydrogeologic characteristics are discussed in the accompanying Site / Design Hydrogeologic Report (included in *Volume II* of this report).

The proposed MSW landfill will be located on approximately 667 acres in unincorporated, central Randolph County, North Carolina (*Figure SA-1*) and will include a designed 200-acre waste footprint (shown on *Drawing SA-1*). The first phase of the proposed landfill will be designed to contain approximately 10 years of waste disposal and will occupy approximately 34 acres of the total 190-acre waste footprint.

The proposed landfill property is bordered by the Deep River to the north, Gabriel's Creek to the east, and relatively undeveloped agricultural and rural residential land on the south and west. A cell tower is also present on the County property. An inactive hydroelectric dam is present along the Deep River adjacent to the property. The County operated an unlined landfill under NC Department of Environment and Natural Resources (NCDENR) Solid Waste Permit No. 76-01, from 1972 to 1997 on the adjacent property and current operates an active MSW transfer station on that property. Energizer also operates an active industrial landfill on the adjacent property under NCDENR Solid Waste Permit No. 76-02.

The proposed landfill site currently consists of agricultural fields and wooded areas. Randolph County owns all of the parcels of the proposed MSW landfill property. Two power-line rights-of-way (ROWs) transect the proposed MSW landfill property, one running northeast-southwest and the other running northwest-southeast (*Drawing FP-1*). Asheboro is the closest municipality to the project area, and its municipal boundaries are located approximately 0.5 mile from the proposed landfill unit. A "Site Location Map" is provided as *Figure SA-1*; a property survey plat and copies of the associated deed book pages are provided as *Appendix SA-1*.

Currently, the proposed MSW development tract is accessed by the active transfer station and convenience center entrance located at 1254 County Land Road. The County has proposed an entrance for the MSW landfill that will be located off of Old Cedar Falls Road. The proposed footprint and the location of the entrance of the proposed MSW landfill are shown on *Drawing EIS-2*. The proposed entrance to the facility is shown on *Drawing FP-2*.

The project site is depicted on the United States Geological Survey (USGS) 7.5-minute quadrangle maps "Randleman, NC," dated 1981; "Grays Chapel, NC," dated 1974; "Asheboro, NC," dated 1994; and "Ramseur, NC," dated 1980 (*Drawing EIS-1*). The elevation in the vicinity of the site ranges from approximately 841 feet above mean sea level (AMSL) in the north-central portion of the site to approximately 550 feet AMSL in the northeastern portion of the site along the Deep River. The topographic highpoints are located in the north-central and south-central portions of the property. The topography within the proposed waste footprint varies from approximately 767 feet AMSL to approximately 561 feet AMSL. Mixed hardwood-pine bottoms drain in a northerly or easterly direction to Deep River or to Gabriel's Creek, respectively. An unimproved road traverses the central portion of the site. Surface water runoff from the property generally flows east-northeast into the Deep River. The Deep River drainage basin is located in the watershed denoted as 8-digit USGS Hydrologic Unit Code (HUC) #03030003. The existing site conditions, property boundaries, and surrounding topography are shown on *Drawing FP-1*.

3.0 REGIONAL CHARACTERIZATION STUDY

As required by 15A NCAC 13B .1618 (c)(1), a "regional characterization study" was conducted for the area that includes the proposed landfill facility and a 2-mile perimeter measured from the proposed boundary of the landfill facility. To fulfill the requirements of 15A NCAC 13B .1618 (c)(1) a 2-mile Radius Map was created and is included as *Drawing SA-1* of this report.

3.1 2-mile Radius Map

15A NCAC 13B .1618 (c)(1) Regional characterization study. The regional study area includes the landfill facility and a two mile perimeter measured from the proposed boundary of the landfill facility. The study shall include a report and a regional map identifying the following:

(A) General topography and features as illustrated on the most recent U.S.G.S. Topographic map, 7.5 Minute Series, horizontal scale of at least one inch equals 2000 feet

(B) Proposed landfill facility location

(C) Public water supply wells, surface water intakes, and service areas

(D) Residential subdivisions

(E) Waste transportation routes

(F) Public use airports and runways

As stated above *Drawing SA-1* of this report was constructed to fulfill the requirements of 15 NCAC 13B .1618 (c)(1). *Drawing SA-1* was created using ArcGIS, the industry standard geographic information system (GIS) software. The base map of *Drawing SA-1* is a USGS topographic map showing the 7.5 minute USGS quadrangles defined in *Section 2.0* of this report. The map scale is fixed at 1:24,000 or 1 inch equals 2,000 feet.

Drawing SA-1 shows several public water supply wells within the 2-mile radius of the proposed MSW landfill facility perimeter. Based on the location of the public water supplies (i.e., the presence of surface water barriers between the proposed landfill and the wells and the distance from the landfill) and modern design, construction, and monitoring of landfills, there does not appear to be a significant threat of contamination for these wells. There were no surface water intakes noted on the Deep River or any other adjacent tributaries within a 2-mile radius of the proposed MSW landfill. The closest downstream surface water intake is approximately 25 miles from the proposed landfill.

Currently, based on county records and the available county GIS information, public water (provided by the City of Asheboro) does not extend to the rural residential homes in the area surrounding the proposed landfill. A city water line (not depicted on the map) runs from the town of Central Falls along Henley

Country Road to the landfill; however, the residents along Henley Country Road are not currently hooked up to the City of Asheboro public water lines.

The majority of the area adjacent to the proposed area is zoned as rural agricultural as depicted on *Drawing SA-2.* On the western side of the proposed facility boundary the area is zoned as residential. There are some rural residential areas surrounding the proposed facility including an adjacent subdivision along the southeastern property boundary.

The currently proposed waste transportation routes are shown on *Drawing SA-1*. The County is proposing to use NC-64 as the major thoroughfare for moving MSW to the landfill. From NC-64, solid waste transportation vehicles will turn onto East Presnell Street and make an immediate right onto Henley Country Road. The transportation route follows Henley Country Road approximately 1.5 miles to Old Cedar Falls Road where solid waste transportation vehicles will turn right. The solid waste transportation route continues approximately 1.3 miles until the solid waste transportation vehicles will turn left onto the proposed facility access road.

Private and public airports that are located within Randolph County in close proximity to the proposed facility have been evaluated as part of the necessary siting criteria due to concerns related to potential interactions with birds. The nearest airfield is a small private turf-surfaced airport (Pugh Field) located approximately 1 mile southeast of the proposed landfill unit; available information suggests this field is currently inactive. A second active private airfield (Yorks Field) is located within 6 miles of the proposed landfill. The nearest public airport is the Asheboro Municipal Airport, which is located approximately 10 miles southwest of the proposed landfill.

The North Carolina Solid Waste Management Rule (NCSWMR) .1622 (1)(d)(i) defines an airport as “a public-use airport open to the public without prior permission and restrictions within the physical capacities of the available facilities.” According to this definition, the restrictions would not apply to the Pugh Field or Yorks Field private airports. NCSWMR .1622 (1)(a) specifies that a “new municipal solid waste landfill 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.” As stated above, no airfields, public or private, are located within 5,000 feet of the proposed landfill; the nearest active airfield is located approximately 25,000 feet from the proposed facility property line and cannot support turbine-powered aircraft.

The Federal Aviation Act, 49 U.S.C §40101 et seq., also places limitations on the construction or establishment of landfills near public airports. 49 U.S.C §44718(d) prohibits the construction or establishment of a new landfill that accepts putrescible wastes within 6 miles of a public airport that is primarily served by general aviation aircraft and that has regularly scheduled flights. The nearest public

airport that meets those criteria is the Asheboro Municipal Airport, located approximately 7 miles southwest of the proposed landfill property boundary; therefore, the proposed location of the landfill meets this siting requirement.

4.0 LOCAL CHARACTERIZATION STUDY

As required by 15A NCAC 13B .1618 (c)(2), a "local characterization study" was conducted on the area that includes the proposed landfill facility and a 2000-foot perimeter measured from the proposed boundary of the landfill facility. To fulfill the requirements of 15A NCAC 13B .1618 (c)(2) a 2000-foot Radius Map was created and is included as *Drawing SA-2* of this report.

4.1 2000-foot Radius Map

15A NCAC 13B .1618 (c)(2) Local characterization study. The local study area includes the landfill facility and a 2000-foot perimeter measured from the proposed boundary of the landfill facility. The study shall include an aerial photograph taken within one year of the original submittal date, a report, and a local map. The map and photograph taken within one year of the original submittal date, a report, and a local map. The map and photograph shall be at a scale of at least one inch equals 400 feet. The study must identify the following:

(A) The entire property proposed for the disposal site and any on-site easements

(B) Existing land-use and zoning

(C) The location of private residences and schools

(D) The location of commercial and industrial buildings, and other potential sources of contamination

(E) The location of potable wells and available documentation regarding well and completion and production rate

(F) Historic sites

(G) The existing topography and features of the disposal site including: general surface water drainage patterns and watersheds, 100-year floodplains, perennial and intermittent streams, rivers, and lakes

As stated above *Drawing SA-2* of this report was constructed to fulfill the requirements of 15 NCAC 13B .1618 (c)(2). *Drawing SA-2* was created using ArcGIS, the industry standard GIS software. The base map of *Drawing SA-2* is a combination of two aerial photographs. The aerial photograph depicting the majority of the area inside the proposed facility boundary was taken by Spatial Data Consultants, Inc. on April 11, 2012. The area surrounding the proposed facility boundary is depicted by a Bing aerial map obtained via Golder's ArcMap GIS license, the Bing aerial map was taken in 2010. The map scale is fixed at 1:4,800 or 1 inch equals 400 feet.

The facility property boundaries, the proposed limits of waste, and on-site easements are shown on *Drawing SA-2*. The facility property line was surveyed in October-November 2012; the results of this survey are included in this report as *Appendix SA-1*. The existing land-use and zoning layers shown on *Drawing SA-2* were obtained from the Randolph County GIS Department. The GIS zoning layer (a description of each zone is shown in the notes) obtained from the Randolph County GIS Department shows that the facility is located a residential-agricultural (RA) district. RA districts do allow for Special Use Permits (SUPs) for MSW landfills. The Randolph County Department of Public Works obtained a SUP from the Randolph County Planning Board on April 9, 2013, as allowed under North Carolina GS 153A-345 and described in Randolph County *Unified Development Ordinance, Amended September 2012*.

The location of private residences can be seen on the recent aerial shown on *Drawing SA-2*. The areas restricted to residential development by zoning districts are also shown on the map. A GIS layer created by the NC Department of Public Instruction shows the location of public schools and a GIS layer created by the NC Department of Administration show the location of non-public schools. As shown on *Drawing SA-2*, there are no public or private schools located within a 2000-foot radius of the proposed facility boundary.

The location of commercial and industrial buildings can be noted by viewing the zoning layer *Drawing SA-2*. A layer was also added to the map identifying large quantity generators of hazardous waste. One large quantity generator of hazardous waste (Prestige Fabricators, Inc.) was noted within a 2000-foot radius of the proposed facility property line. Three other large quantity generators (Sapona Manufacturing Co, Inc., Carolina Custom Finishing, LLC, and Kennametal) of hazardous waste were noted within a 2-mile radius of the proposed facility boundary. Based on their location and regulatory requirements, these large quantity generators of hazardous waste should not pose significant potential to contaminate the facility area or pose any potential conflict to monitoring groundwater at the facility.

The location of public water supply wells and surface water intake systems is shown on *Drawing SA-2*. There were no public water supply wells or surface water intakes noted within a 2000-foot radius of the proposed facility property line. As noted on *Drawing SA-1,* City of Asheboro public water is not supplied in the area surrounding the proposed facility, therefore it should be noted that there are several private potable water wells within the 2000-foot radius of the proposed property line. The potential for these areas to be affected by the proposed MSW landfill will be addressed in the *Site / Design Hydrogeologic Report* accompanying this *Site Application* as well as in the subsequent *Water Quality Monitoring Plan* required as a part of the *Application for Permit to Construct*.

A layer depicting the location of “Listed Historic Sites,” as listed by the National Register of Historic Places is included on *Drawing SA-2*. As shown, there are no “Listed Historic Sites” located within a 2000-foot radius of the proposed facility boundary. The potential for historic sites surrounding the proposed facility

and within the boundary of the proposed facility is summarized *Section 6.7* of this report and discussed in detail in the *Cultural Resources Survey for the Proposed Randolph County MSW Landfill* included with this report as *Appendix SA-5*.

The existing topography and features of the disposal site including: general surface water drainage patterns, 100-year floodplains, perennial and intermittent streams, rivers, and lakes are all shown on *Drawing SA-2.* An additional map was added to this report to better show watershed data and is included in this report as *Drawing SA-3*.

4.2 Local Watershed Identification Map

The additional *Local Watershed Identification Map* included in this report as *Drawing SA-3* visually shows the available local watershed information. This map was set at a 1:24,000 or 1 inch equals 2000-foot scale. The map includes information showing the boundaries of the 12-digit HUC area, the water supply watershed boundaries, NC listed classified (named) waters, and the listed 303d impaired waters.

The proposed MSW landfill is located in the Cape Fear River Basin in a sub basin identified as Haskett Creek-Deep River with the 12-digit HUC #030300030203. Drawing SA-3 illustrates the surrounding area and three critical water supply watersheds present in the County; however the proposed facility is not located in these areas. The proposed landfill facility boundary is adjacent to the Deep River and Gabriel's Creek which are listed as Class C waters according to the North Carolina 2L stream classification system.

To evaluate the quality and potential environmental regulation with respect to surface water quality the GIS layer provided by NCDENR illustrating the location of listed 303(d) impaired water was added to *Drawing SA-3*. This data layer shows that the adjacent portion of the Deep River (from Haskett Creek to Gabriel's Creek) is listed as a category 5 (one requiring the development of a total maximum daily load (TMDL)) 303(d) impaired for chlorophyll a, this type of impairment is common in reservoirs (and dammed portion of streams as is the case at the adjacent portion of the Deep River). This type of impairment commonly results in potential eutrophication as a response to the addition of substances such as nitrates and phosphates through fertilizers or sewage. The addition of these substances causes an increase in phytoplankton which causes hypoxia (the decrease of dissolved oxygen) which has the potential to reduce fish and other animal populations in the water body. It should also be noted that the Deep River is also category 5 303(d) impaired, from Gabriel's Creek to Bruch Creek, for copper as shown on Drawing SA-3.

5.0 SITE HYDROGEOLOGIC REPORT

Due to size constraints, the *Site / Design Hydrogeologic Report* is included in a separate notebook labeled as *Volume II* of this *Site Suitability Report*.

6.0 LOCATION RESTRICTIONS

Location restrictions for MSW landfill siting are provided in NCSWMR 15A NCAC 13B .1622. The siting criteria are listed below in italics, with site specific information for the proposed Randolph County MSW landfill in the following paragraphs.

6.1 Buffer Requirements

The NCSWMR 15A NCAC 13B .1622(1-10), 15A NCAC 13B .1624(b)(3)(A-E), NC Senate Bill 1492 (§130A-295.6), and agency policy stipulate that landfills meet or exceed the following buffer requirements:

- A 300-foot minimum buffer between property lines and disposal areas (15A NCAC 13B .1624(b)(3)(A))
- A 500-foot minimum buffer between private dwellings and wells and disposal areas (15A NCAC 13B .1624(b)(3)(B))
- A 50-foot minimum buffer between streams, rivers, lakes and disposal areas unless the alternative management of the water and any discharge will adequately protect human health and the environment and conform to the requirements of Section 404 and 401 of the Clean Water Act (CWA) (15A NCAC 13B .1624(b)(3)(C))
- A 200-foot buffer between any perennial stream or wetland and the nearest waste disposal unit of a sanitary landfill. The Department may approve a buffer of less than 200-feet, but in no case less than 100-feet and may encroach on a wetland if it conforms with Section 404 of the CWA and will not cause the violation of water quality standards or other applicable buffer restrictions (NC Senate Bill 1492 and 15A NCAC 13B .1622(3)(a)).
- An adequate buffer distance shall be established between a new MSW landfill unit and any existing landfill unit to establish a groundwater monitoring system as set forth in rule 15A NCAC 13B .1631 (15A NCAC 13B .1624(b)(3)(D))
- A 200-foot minimum buffer between a new landfill unit and a fault that has had displacement in Holocene time (See 15A NCAC 13B .1622(4)(a) for exception)

The Site Buffer, Boundary, and Existing Conditions drawing (*Drawing FP-2*) shows the boundary of the proposed facility, which is bordered by the Deep River to the north, an Gabriel's Creek to the east, and relatively undeveloped rural land on the south and west. The appropriate buffers separating the proposed facility boundary from the waste disposal area have been established and are indicated in *Drawing FP-2*.

6.2 Airport Safety

15A NCAC 13B .1622(1)(a) A new MSW landfill 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.

According to the data supplied by the Randolph County geographic information system (GIS) data records there is not an airport runway used by piston-powered aircraft within 5,000 feet or an airport

runway used by turbine powered aircraft within 10,000 feet. The location of any nearby runways can be seen on the 2-Mile Radius Map (*Drawing SA-1*).

15A NCAC 13B .1622(1)(b) Owners or operators proposing to site a new MSW landfill unit or lateral expansion within a 5 mile radius of any airport runway used by turbine powered or piston powered aircraft shall notify the affected airport and the Federal Aviation Administration prior to submitting a permit application to the Division.

According to the data supplied by the Randolph County GIS data records there is a private airport named York's Field within a 5 mile radius of the proposed MSW landfill. This private airport is a grass airstrip used only by piston-powered aircraft. The airport does not meet the definition of airport according to 15A NCAC 13B .1622(1)(d)(i) which defines an airport for the purposes of this buffer as "a public-use airport open to the public without prior permission and without restrictions within the physical capacities of the available facility."

49 U.S.C. § 44718(d), as amended, requires a minimum separation distance of six statute miles between a new MSWLF and a public airport. In determining this distance separation, measurements should be made from the closest point of the airport property boundary to the closest point of the MSWLF property boundary. Measurements can be made from a perimeter fence if the fence is co-located, or within close proximity to, property boundaries. It is the responsibility of the new MSWLF proponent to determine the separation distance.

The nearest public airport that meets the criteria above is the Asheboro Municipal Airport which is located approximately 7 miles southwest measure from the proposed MSW landfill property boundary to the airport property boundary. Therefore, the proposed location of the MSW landfill meets this siting requirement.

6.3 Flood Plains

15A NCAC 13B .1622(2)(a) New MSW landfill units, 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.

According to the NC Floodplain Mapping Program (NCFPMP) and the Federal Emergency Management Agency (FEMA), the proposed landfill site is not located within the 100-year floodplain, as detailed on the corresponding 2000-ft. Radius Map (*Appendix SA-2*).

6.4 Wetlands

15A NCAC 13B .1622(3)(a) New MSW landfill units and lateral expansions shall not be located in wetlands, unless the owner or operator can make the following demonstrations to the Division:

(i) Where applicable under Section 404 of the CWA 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.

(ii) The construction and operation of the MSW landfill unit will not:

(A) Cause or contribute to violations of any applicable State water quality standard;

(B) Violate any applicable toxic effluent standard or prohibition under Section 307 of the CWA;

(C) 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; and

(D) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary.

(iii) The MSW landfill unit will not cause or contribute to significant degradation of wetlands. The owner or operator shall demonstrate the integrity of the MSW landfill unit and its ability to protect ecological resources by addressing the following factors:

(A) Erosion, stability, and migration potential of native wetland soils, muds, and deposits used to support the MSW landfill unit;

(B) Erosion, stability, and migration potential of dredged and fill materials used to support the MSW landfill unit;

(C) The volume and chemical nature of the waste managed in the MSW landfill unit;

(D) Impacts on fish, wildlife, and other aquatic resources and their habitat from the release of the solid waste;

(E) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

(F) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

(iv) To the extent required under Section 404 of the CWA or applicable State wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by sub-item (3)(a)(i) of this Rule, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

(v) Sufficient information is available to make a reasonable determination with respect to these demonstrations.

A wetland delineation was conducted at the subject property by Golder representatives using the “Interim Regional Supplement to the Army Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region” to identify potential wetlands within the proposed MSW landfill boundary. Only a small percentage of the area (0.2%) of the proposed waste footprint has been delineated as a wetland.

During the wetland delineation 3 areas were identified as jurisdictional wetlands. These three areas only compose 0.68 acres of the 200 acres identified as the future MSW disposal area. The wetland areas can be described as scrub-shrub wetlands and were generally found adjacent to intermittent streams that transect the subject property. The streams on the subject property were evaluated using the North Carolina Division of Water Quality (NCDWQ) "Methodology for Identification of Intermittent and Perennial Streams and Their Origins." It was determined that 23 streams transect the subject property boundary. During the wetland delineation activities Golder representatives identified and flagged approximately 26,806 linear feet of perennial and intermittent streams located on the subject property.

A request for jurisdictional determination (RJD) was sent to the United States Army Corps of Engineers (USACE) regional office detailing the information gathered during the wetland delineation and stream identification activities performed by Golder. The NCDWQ was also contacted with regard The RJD was submitted on August 20, 2012, from the USACE and the Stream Determination was submitted from NCDENR on August 20, 2012 (See *Appendix SA-3*). Based on the preliminary designs completed to date, approximately 0.06 acres of wetland and 1,200 linear feet of intermittent stream bed is expected to be impacted over the life of the proposed facility. The proposed MSW landfill will be constructed in phases over a projected period of approximately 50-70 years based on the current facility design. Randolph County plans to work with the USACE to address the impacts to the 0.06 acres of wetlands and 1,200 linear feet of intermittent streams and the associated mitigation required for impacting these areas before the areas impacted.

The results of the wetland delineation are summarized below. A detailed explanation of the wetland delineation results can be found in the RJD submitted to the USACE (found in Appendix EIS-F of this report). The final results of the wetland delineation after approval from the USACE concluded that approximately 4,660 linear feet of jurisdictional perennial streams (i.e., not including those located on the property boundary), 5,170 linear feet of jurisdictional intermittent streams, and 920 linear feet of jurisdictional ephemeral streams are present within the proposed MSW landfill development tract. Based on the current design of the proposed MSW landfill waste unit and surrounding support features, no perennial stream will be disturbed (as required by NCSWMR) and approximately 1,200 linear feet of intermittent stream will be disturbed during the development of the proposed MSW landfill. Three wetland areas were identified by the delineation, totaling approximately 1.37 acres (not including the unmapped wetland area discussed above) mapped on the 667 acre property. Of the 1.37 acres of wetlands mapped, 0.06 acre of wetland will be disturbed by the development of the waste footprint.

Additional studies will be performed along Gabriel's Creek once the entrance road for the facility has been located and graded. At that time, additional field delineation and permitting will be performed with the USACE and NCDENR for the stream crossing. Also, as required, any potential impacts to the floodplain on and upstream of the property will be evaluated as part of this additional investigation.

6.5 Fault Areas & Seismic Impact Zones

15A NCAC 13B .1622 (4)(a) New MSW landfill units and lateral expansions shall not be located within 200 feet 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 will prevent damage to the structural integrity of the MSW landfill unit and will be protective of human health and the environment.

15A NCAC 13B .1622(5)(a) New MSW landfill 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.

After completion of a desktop study, no known faults were noted within 200 feet of the proposed MSW disposal area on the available North Carolina Geological Survey (NCGS) GIS fault database nor was the proposed MSW landfill mapped in a known seismic impact zone. In addition to the desktop study, Golder performed a geophysical and hydrogeologic investigation at the subject property. The geophysical investigation, which was performed to assess the rippability of bedrock at the subject property, did not show any obvious signs of recent or historical faulting. A complete copy of the geophysical investigation is included as *Appendix SA-4.* The hydrogeologic investigation was conducted at the proposed MSW landfill in accordance with 15A NCAC 13B .1623 and is included as part of this *Site Application*. As part of the hydrogeologic investigation 64 piezometers were installed, 6 temporary boreholes were drilled, 150 feet of coring was completed at 5 different borings, and a licensed geologist surveyed the geologic conditions at the subject property by walking the streams and uplands recording strikes and dips of outcrops wherever possible. During these field investigations no obvious signs of recent faulting were noted.

6.6 Unstable Areas

15A NCAC 13B .1622 (6)(a) Owners or operators of new MSW landfill units, existing MSW landfill units, and lateral expansions located in an unstable area shall demonstrate that engineering measures have been incorporated into the MSW landfill unit's design to ensure that the integrity of the structural components of the MSW landfill unit will not be disrupted. The owner or operator shall consider the following factors, at a 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).*

The proposed Randolph County MSW landfill will be constructed on a stable base of solid structural integrity. The majority of the proposed MSW landfill will be constructed on top of cut residuum, the areas that will be constructed on top of fill will be constructed via lifts of soil at optimum moisture and maximum

density as consistent with a stringent quality assurance and quality control (QA/QC) program that will be specified in the *Application for Permit to Construct* that will be submitted upon the approval of this *Site Application*. The hydrogeologic investigation that was conducted as a part of this *Site Application* was did not identify unusual on-site or local soil conditions, geologic or geomorphic features, or human-made features or events that may result in the possibility of significant differential settling.

6.7 Cultural Resources & State Nature and Historic Preservation

15A NCAC 13B .1622(7) A new MSW landfill unit or lateral expansion shall not damage or destroy an archeological or historical property. The Department of Cultural Resources shall determine archeological or historical significance. To aid in making a determination as to whether the property is of archeological 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.

15A NCAC 13B .1622(8) A new MSW landfill unit or lateral expansion shall not have an adverse impact on any lands included in the State Nature and Historic Preserve.

Golder submitted to the North Carolina Department of Cultural Resources' (NCDCR) State Historic Preservation Office on September 9, 2010 a letter to fulfill the regulatory requirements in 15A NCAC 13B .1622(7 & 8). A response to the September 9, 2010 letter was received on December 22, 2010 from the NCDCR. The State Historic Preservation Office suggested that the County conduct a comprehensive archaeological survey to evaluate the significance of archaeological remains that may be damaged or destroyed by the proposed project. The response issued also included on historic off-site structure, Cedar Falls Chapel, as a potentially impacted historic site. As suggest by the State Historic Preservation Office, Golder conducted a Cultural Resources Survey at the proposed Randolph County MSW landfill site on July 8-16, 2011. The Cultural Resources Survey was part of a preliminary environmental analysis package that addressed the suitability of the proposed study area for development into a MSW landfill. In addition to the cultural resource survey, Golder also investigated any potential impacts of developing the subject property into a MSW landfill to off-site historic structures, including Cedar Falls Chapel.

The proposed Randolph County MSW landfill site was surveyed for the presence of archeological and historic resources in two phases. Phase I of the survey was conducted in July 2011, during the first phase a majority of the site was surveyed with the exception of two parcels on the South side of the subject property; these parcels were surveyed in August 2012 in conjunction with the Phase II work. Phase I of the cultural resources survey consisted of a desktop study and a surface inspection and systematic shovel testing program. Phase I of the cultural resources survey resulted in the location and preliminary evaluation of 34 cultural resources sites, 19 archeological sites, and 15 isolated finds; of the identified sites 4 field sites, field sites FS 3, FS 4, FS 19, and FS 20 were considered to be potentially eligible for inclusion in the National Register of Historical Places (NHRP). To better assess the potential

for these 4 cultural resource field sites to be included in the NRHP and to complete the cultural resources survey on the entire property (including the two parcels that were excluded from the Phase I survey) as Phase II cultural resource survey was conducted in August 2012.

As, discussed above four of the archeological sites were initially considered as potentially eligible for inclusion in the NRHP. Golder evaluated two of the selected archeological sites that were anticipated to be disturbed during site development during a second survey (Phase II), and determined that the sites were not eligible for inclusion in the NRHP. The other two sites were located within the proposed buffer area outside of the proposed development area.

6.8 Water Supply Watersheds

15A NCAC 13B .1622(9)(a) A new MSW landfill 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-1, in accordance with the rules codified at 15A NCAC 2B .0200 – "Classifications and Water Quality Standards Applicable to Surface Waters of North Carolina".

15A NCAC 13B .1622(9)(b) A new MSW landfill 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 .200 – "Classifications and Water Quality Standards Applicable to Surface Waters of North Carolina".

The watershed classification of the subject property was determined by examining the County's online GIS website and water supply watershed data obtained from the NC OneMap website. The data obtained from the NC OneMap website was uploaded to the 2-Mile Radius Map and the Randolph County Watershed Map (*Drawing SA-1 and Drawing SA-3*). After this research was complete, it was determined that the subject property was not located in or near (within 2 miles) of a critical area of a water supply watershed or in the watershed for a stream segment classified as WS-1.

In accordance with 15A NCAC 13B .1624(b) the proposed new MSW landfill will be constructed with a base liner and leachate collection system. During the conceptual phase of landfill design conducted as a preliminary phase during which the County assessed the feasibility of constructing a landfill on the subject property, it was decided that leachate from the landfill would be collected in on-site leachate tanks and disposed via a sanitary sewer line to the public owned treatment works (POTW) facility located in Randolph County. Since no on-site treatment of leachate is being proposed at this time, there is no need to apply for a NPDES permit, the POTW will handle the facility's wastewater.

6.9 Endangered and Threatened Species

15A NCAC 13B .1622(10) A new MSW landfill 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.

To assess the existence of endangered or threatened species for the subject property, Golder sent a letter to the NCDENR Office of Conservation, Planning, and Community Affairs Natural Heritage Program (NHP) office on September 9, 2010 on behalf of Randolph County. The NHP responded with a letter dated September 22, 2010 which indicated the presence of the Central Falls Slope, a Significant Natural Heritage Area (SNHA) of County significance, containing four natural heritage communities and a large aquatic habitat. The response letter also identified the presence of the significant natural community, Piedmont Monadnock Forest, within the Central Falls Slope, as well as the presence of the rare vascular plant *Amorpha schwerinii (A. schwerinii).*

As suggested by the response from the NHP, a Golder ecologist conducted a brief survey in October 2010 of the proposed MSW landfill area and subsequently confirmed the occurrence of *A. schwerinii* on the northwestern slopes of the highland located on the northwest portion of the subject property. Since the presence of *A. schwerinii* was confirmed, the Golder ecologist scheduled a second site visit to be conducted in June 2011 during the optimal growing and blooming season for the plant. In June 2011, Golder ecologists performed a limited systematic botanical survey in the on the proposed MSW landfill site, including the area mapped by the NHP as the Piedmont Monadnock Forest. Golder ecologists found that the area mapped by the NHP as the Piedmont Monadnock Forest had been timbered in the winter of 2009, compromising observations of the natural conditions of the vegetative community due to the presence of logging debris and re-sprouting vegetation. Golder was able to discern the limits of the Piedmont Monadnock Forest by mapping the presence of Chesnut Oak (*Quercus Montana*). During the June 2011 limited systematic botanical survey, Golder identified four areas that contained *A. schwerinii*, and assigned each area a location number and estimated the number of plants, the size of the area containing the plants, the average height of the plants, the area of canopy created by each of the plants, and the number of flowering plants. The results of the limited botanical survey conducted at the proposed Randolph County MSW landfill site can be seen in the report contained in *Appendix SA-6*.

The *Limited Botanical Survey* concluded that due to the recent timbering of the Piedmont Monadnock Forest portion of the Central Falls Slope the natural heritage area has a diminished value as an intact example of a significant natural community; resulting in the NCNHP no longer considering the forest a high protection priority. The NCNHP nonetheless encourages the County to protect the *A. schwerinii* in its natural habitat. As Golder begins the conceptual design of the proposed Randolph County MSW landfill we will try to incorporate the suggestions of the NCNHP and preserve the significant populations of *A. schwerinii.*

A recent review of the NCNHP showed that a population of Schweinitz's Sunflower (*Helianthus schweinitzii*) has been mapped within two miles of the property boundary. *Helianthus schweinitzii* was listed as federally endangered on May 7, 1991. In 1991 when the species was originally listed, there were a total of 13 extant populations (8 in North Carolina and 5 in South Carolina). In 2006, during the USFWS 5-year review of the species records indicated that 165 element occurrences (or 78 distinct populations) in NC. During the initial evaluation of the facility, *H. schweinitzii* was not identified by the NCNHP as being present with a 2-mile radius of the facility. This endangered species was not noticed by Golder ecologists as they performed the wetland delineation and "The Limited Systematic Survey for *A. schwerinii*." Since the species was not identified as a concern at the time of the original notification to the NCNHP, a specific search for the plant was not performed.

Since a population of *H. schweinitzii* was identified close to the area proposed to develop as a MSW landfill, requests were made to the USFWS to obtain additional information about this species' occurrence in Randolph County. The proposed facility is within 0.7 miles of a known occurrence of this species. Therefore, they recommended that a Golder ecologist re-visit the site to perform a search for the endangered plant species during late summer/early fall when the plant is in bloom, with a major focus on the utility ROW and existing road shoulders. They also stated that "the discovery of this species does not preclude the potential to develop the property.

The proposed MSW property does harbor a habitat for the endangered plant species, specifically the utility ROWs that transect the property. According to the "5-Year Review" written by the USFWS, over 90% of the known *H. schweinitzii* populations occur in managed ROWs where the "vegetation management practices occasionally mimic patterns of natural disturbance now largely absent from the present landscape." While it is possible for the facility to potentially host a population of *H. schweinitzii*, it is not likely that the population is in good condition. Continuous mowing and traffic on the utility ROW have likely limited if not vanquished any population of *H. schweinitzii*. The County is planning to conduct a survey for *H. schweinitzii* during late summer / early fall of 2013 to determine if the species is present at the facility.

In addition to *H. Schweinitzii,* the USFWS lists the Cape Fear Shiner as a critically endangered species native to Randolph County and the Cape Fear River Basin, which may be present in the Deep River. According to the USFWS's "Cape Fear Shiner Recovery Plan," there are four documented remaining populations of the Cape Fear Shiner within the Cape Fear River Basin with the strongest community being located at the confluence of the Deep and Rocky Rivers located in Chatham and Lee Counties. The closest recognized Cape Fear Shiner community is located at the confluence of the Deep River and Fork Creek approximately 25 miles downstream from the proposed landfill property. Three dams separate the adjacent portion of the Deep River and the Cape Fear Shiner communities located in the southeastern

portion of Randolph County. Therefore, it is not likely that this species would be impacted from the proposed facility.

6.10 National Wildlife Refuge

G.S. §130A-265.6 (d)(1) The Department shall not issue a permit to construct any disposal unit of a sanitary landfill if, at the time the application is determined to be complete under G.S. §130A-295.8(e), any portion of the proposed waste disposal unit would be located within: (1) Five miles of the outermost boundary of a National Wildlife Refuge.

According to the data obtained from the Managed Areas of North Carolina GIS layer obtained from NC One Map depicting the location of managed lands in North Carolina, no national wildlife refuges are located within 5 miles of the outermost boundary of the proposed landfill. A web search of the USFWS webpage shows the closest national wildlife refuge locations in Anson and Richmond counties in south central North Carolina.

6.11 Gamelands

G.S. §130A-265.6 (d)(1) The Department shall not issue a permit to construct any disposal unit of a sanitary landfill if, at the time the application is determined to be complete under G.S. §130A-295.8(e), any portion of the proposed waste disposal unit would be located within: (2) One mile of the outermost boundary of a State gameland owned, leased, or managed by the Wildlife Resources Commission pursuant to G.S. §113-306.

A GIS layer named North Carolina Gamelands provided by the North Carolina Wildlife Resource Commission was downloaded from the NC One Map website. This GIS layer does not show gamelands within 1 mile of the outermost boundary of the proposed property boundary. A review of the North Carolina Wildlife Resources Commission website was also conducted and showed no gamelands within 1 mile of the proposed property boundary.

6.12 State Parks

G.S. §130A-265.6 (d)(1) The Department shall not issue a permit to construct any disposal unit of a sanitary landfill if, at the time the application is determined to be complete under G.S. §130A-295.8(e), any portion of the proposed waste disposal unit would be located within: (3) Two miles of the outermost boundary of a component of the State Parks System.

A review of the GIS layer called State-Owned Lands created by the North Carolina Department of Administration State Property Office yield no evidence of state parks within 2 miles of the outermost boundary of the proposed property line. The North Carolina State Parks website was also used to locate

potential parks in the area with 2 miles of the outermost proposed property boundary; no parks were located within this radius.

7.0 LOCAL GOVERNMENT APPROVAL

15A NCAC 13B .1618(c) (5) Local government approvals for municipal solid waste landfills.

(A) If the proposed municipal solid waste landfill site is located within an incorporated city or town, or within the extraterritorial jurisdiction of an incorporated city or town, the approval of the governing board of the city or town shall be required. Otherwise, the approval of the Board of Commissioners having authority in the county which the site is located shall be required.

Approval may be in the form of either a resolution or a vote on a motion. A copy of the resolution, or the minutes of the meeting where the vote was taken shall be submitted to the Division as part of the site study.

(i) Prior to approval, the jurisdictional local government where the landfill is to be located shall hold at least one public meeting to inform the community of the proposed waste management activities as described in the proposed facility plan prepared in accordance with Subparagraph (6) of this Paragraph.

(ii) For purposes of this Subpart, public notice shall include: a legal advertisement placed in a newspaper or newspapers serving the county; and provision of a news release to at least one newspaper, one radio station, and one TV station serving the county. Public notice shall include time, place, and purpose of the meetings required by this Subpart.

(iii) The local government where the landfill is to be located shall provide a public notice of the meeting at least 30 days prior to the meeting. Public notice shall be documented in the site study. A tape recording or a written transcript of the meeting, all written material submitted representing community concerns, and all other relevant written material distributed or used at the meeting shall be submitted as part of the site study.

(iv) The complete permit application, written transcripts of all public meetings and any additional material submitted or used at the meetings, and any additions or corrections to the applications, including any responses to notices of deficiencies shall be submitted to the closest local library in the county of the proposed site, with the request that the information be made available to the public until the permit decision is concluded.

(B) A letter from the unit of local government having zoning jurisdiction over the site which states that the proposal meets all the requirements of the local zoning ordinance, or that the site is not zoned shall be submitted to the Division as part of the site study.

(C) A letter from the unit of local government responsible for the implementation of a comprehensive solid waste management plan approved by the Division [in accordance with G.S. §130A-309.04(e)] setting forth a determination that the operation of the proposed municipal solid waste landfill is consistent with the approved solid waste management plan shall be submitted with the site study.

A copy of the resolution approved by the Board of Commissioners for Randolph County is included in *Appendix SA-7*. Prior to approval, the County held several public informational meetings including the following:

- 15 community group meetings conducted between May 2011 and January 2012 with communities including: Home Builders Association, City of Randleman, Town of Franklinville (open to the public), City of Liberty (open to the public), Kiwanis, City of Archdale (open to the public), Professional Business Women, Town of Seagrove (open to the public), Town of Staley (open to the public), Co-operative Extension Advisory Counsel, City of Trinity (open to the public), Guilford Fire Department – Coffee & Conversation (Archdale-Trinity), Randolph County Board of Education, Town of Ramseur (open to the public), and Asheboro Women's Club. The January 5, 2012, meeting with the City of Asheboro was cancelled by the City Council and not re-scheduled.
- September 24, 2012 - Neighborhood Information Meeting and Public Comment Session (for residents within 1000 feet of the proposed landfill boundary, residents were notified by letter)
- October 1, 2012 - Commissioners Public Information and Comment Session
- February 11, 2013 - Board of Health Meeting (open to public)

In addition, the public comment period at the beginning of each monthly Board of Commissioners meeting gave citizens an opportunity to comment on the proposed regional landfill facility. During the February 7, 2011, August 1, 2011, and February 4, 2013, Board of Commissioner meetings, Golder presented information and status updates about the proposed regional landfill activities; CDM-Smith presented data on the traffic study during the January 7, 2013, meeting. The Transportation Study (conducted by CDM-Smith), a Transporation Study Addendum (submitted by Volkert), and an Accident Data Analysis (conducted by CDM-Smith) are included as *Appendix SA-8* of this report. The agenda for these meetings was published in advance of the meeting and available to the public. Several newspaper articles about the landfill were also published in the Asheboro Courier-Tribune during the 2011 – 2013 timeframe.

The March 6-7, 2013, public hearing for the Special Use Permit (SUP) was publicized in advance to meet the local planning board requirements. Information about the proposed conceptual facility plan was presented at the March 6-7, 2013, public hearing for the SUP and the May 6, 2013, public hearing for the presentation of the resolution. Citizens from Randolph County and surrounding areas attended both hearings.

The County publicized the May 6, 2013, hearing included a legal advertisement placed in both of the local newspapers serving the county, one radio station, and one TV station serving the county. Public notice included time, place, and purpose of the meeting at least 30 days prior to the meeting. Documentation of these publications is included in *Appendix SA-7*. Also, the written transcript of the meeting and other relevant written material distributed or used at the meeting are included in *Appendix SA-7*.

The complete permit application, written transcripts of all public meetings and any additional material submitted or used at the meetings, and any additions or corrections to the applications, including any responses to notices of deficiencies will be submitted to the closest local library in the county of the proposed site, and the information will be made available to the public until the permit decision is concluded.

A copy of the Special Use Permit is included in *Appendix SA-7* which demonstrates compliance with the local zoning ordinance. The County is no longer required to update their Solid Waste Management Plan per G.S. § 130A-309.09A.

8.0 FACILITY PLAN

Due to size constraints, the *Facility Plan* is included in a separate notebook labeled as *Volume III* of this *Site Suitability Report*.

9.0 REFERENCES

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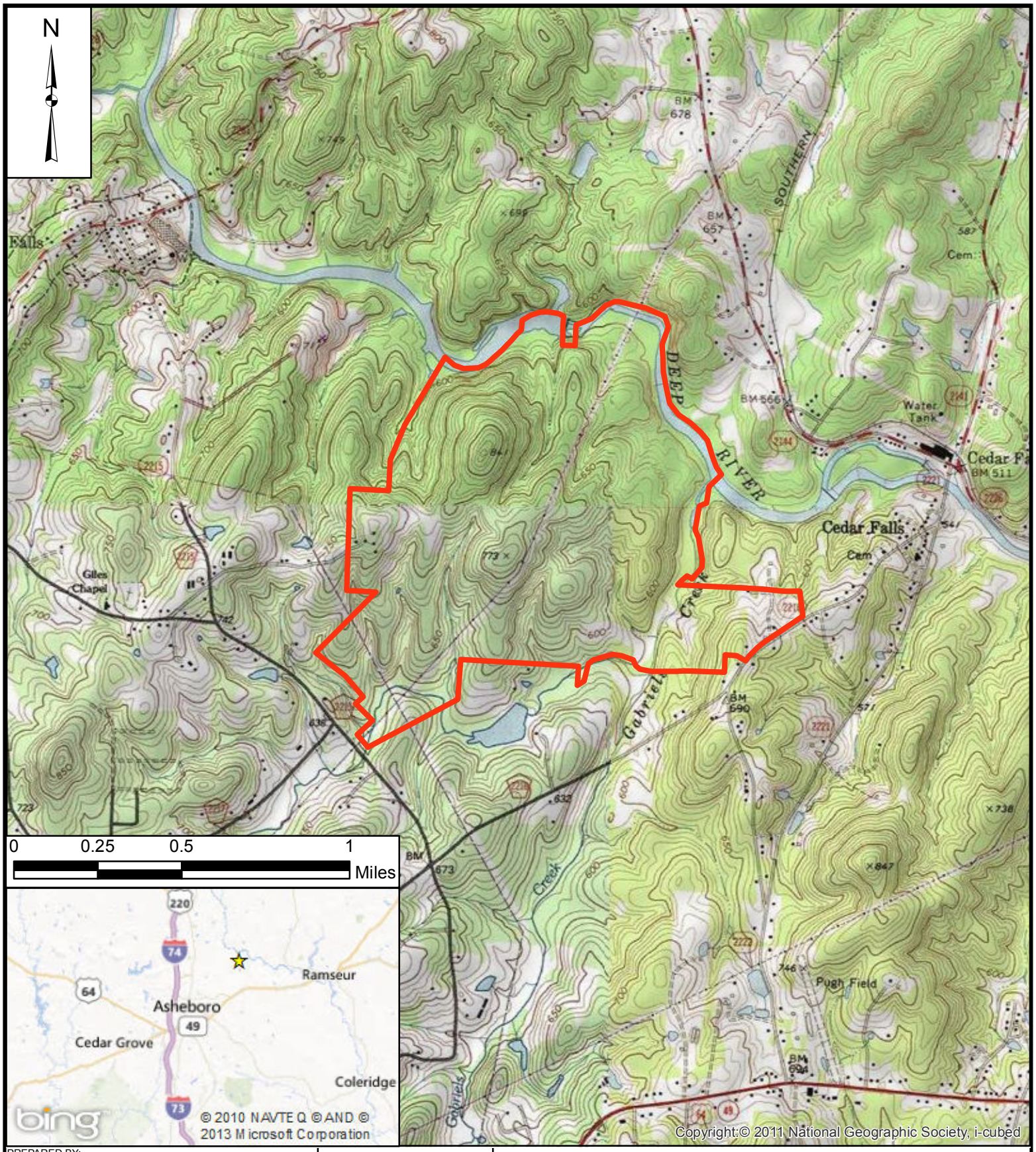
Figures



PREPARED BY:

Golder Associates

Golder Associates NC, Inc.

FACILITY: **RANDOLPH CO.**

PROJECT #: **1039684602**

SCALE: **1:24,000**

CHECKED BY \ DATE:

REVIEWED BY \ DATE:

PREPARED FOR:

RANDOLPH COUNTY, NC

TITLE:

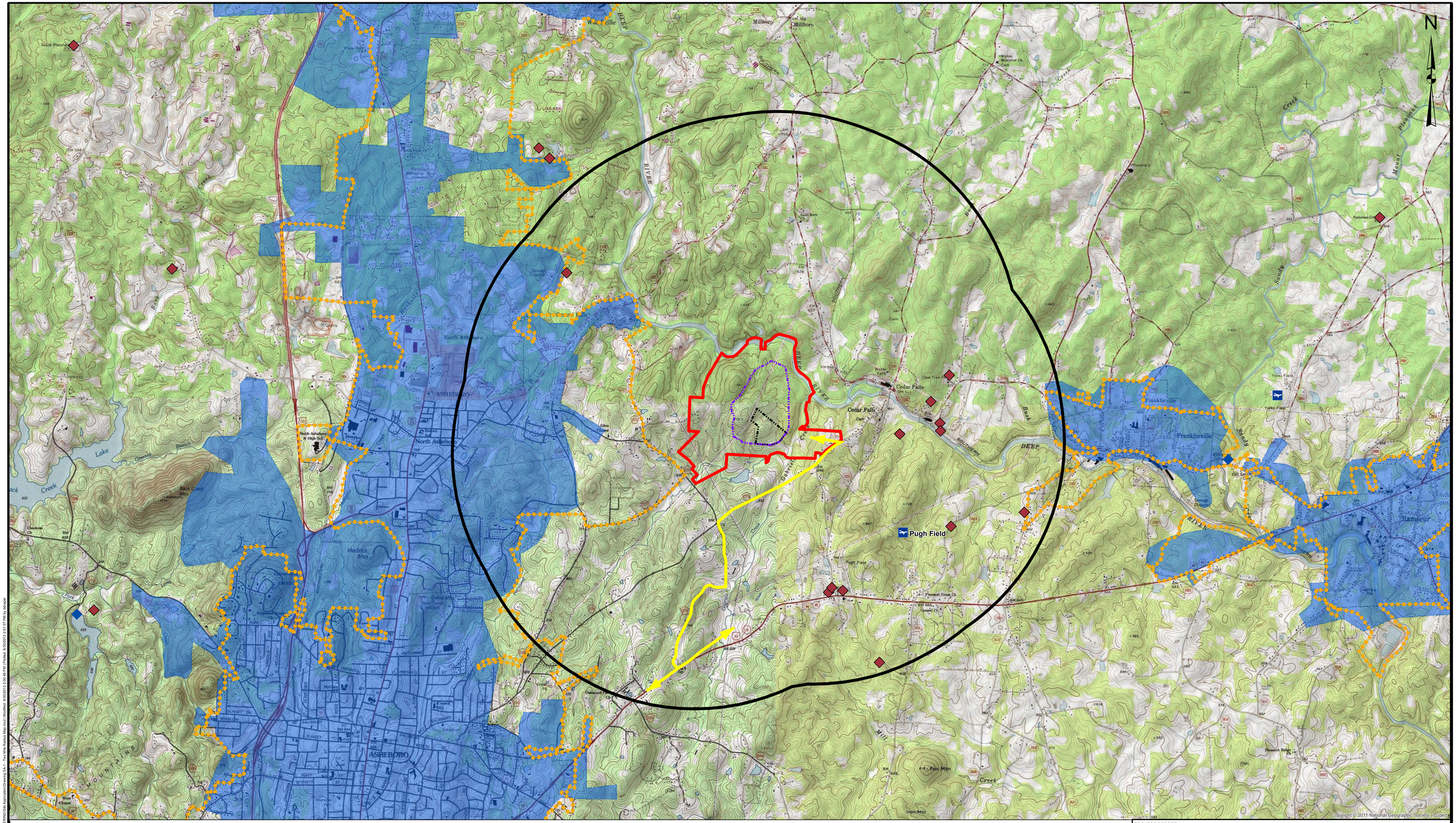
SITE LOCATION MAP

THIS MAP WAS CREATED USING DIGITAL RASTER GRAPHICS (DRG(s)) OF THE RANDLEMAN, GRAYS CHAPEL, ASHEBORO, AND RAMSEUR USGS 7.5 MINUTE TOPOGRAPHIC MAPS. THE MAP IS PROJECTED USING THE NORTH AMERICAN 1983 DATUM GEOGRAPHIC COORDINATE SYSTEM.

THIS FIGURE IS PROPERTY OF RANDOLPH COUNTY, NC AND IS NOT TO BE REPRODUCED OR USED FOR ANY PURPOSE EXCEPTED AS SPECIFIED BY RANDOLPH COUNTY, NC

FIG SA-1

Drawings



LEGEND

- Private Airports/Runways
- Public Airports/Runways
- Public Water Supply Wells
- Surface Water Intake Systems
- Type A Future Public Water Systems
- Proposed Waste Transportation Route
- Property Boundary
- 2 Mile Radius
- Proposed Preliminary Limits of Waste
- Proposed Phase I Area
- Urban/Suburban Areas (Census 2010)

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NOTES

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet

2,000 0 2,000 4,000 6,000

SCALE 1 " = 2,000 ' FEET

PROJECT/REPORT

RANDOLPH COUNTY
PROPOSED MSW LANDFILL
RANDLEMAN, RANDOLPH COUNTY, NC

TITLE

DRAWING SA-1
TWO MILE RADIUS MAP

Golder Associates
Golder Associates NC, Inc.
Greensboro, NC

PROJECT No. 1039684602

DWG SA-1

Map X:\Project\1039684 - Randolph County - Engineering\1039684602 - Site Suitability\ENGINEERING\Site Application\Drawing SA-1 - Two Mile Radius Map.mxd | Modified: 6/20/2013 2:20:42 PM | Plotted: 6/20/2013 2:21:07 PM by dcleaper

LEGEND

- Listed National Historic Site (as listed by the NRHP)
- Non-Public Schools
- Public Schools
- Large and Small Quantity Generator Hazardous Waste Facilities
- Groundwater Supply Wells
- Surface Water Intake Systems
- Site Topographic Contours
- Delineated Intermittent Streams
- Delineated Perennial Streams
- NC Classified (named) Water
- 2000 Ft Buffer
- Property Boundary
- Proposed Preliminary Limits of Waste
- Proposed Preliminary Phase I Area
- Subdivisions
- 100-yr. Flood Plain (as mapped by NC Floodplain mapping system)

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NOTES

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet

Zoning Districts: (Unified Development Ordinance, Randolph County, NC 2012)

CUB = Conditional Use Buisness District
CUI = Conditional Use Industrial District
CUOA = Conditional Use Overlay Agricultural District
CUR = Conditional Use Residential District
CURA = Conditional Use Rural Agricultural District
HC = Highway Comercial District
I = Industrial District
LI = Light Industrial District
R = Residential
RA = Rural Agricultural District
RA-CU = Rural Agricultural Conditional Use District
RE-CU = Residential Exclusive Commerical Use District
RM = Residential Mixed District
RR = Residential Restricted District
RR-CU = Residential Restricted Commercial Use District

400 0 400 800 1,200
SCALE 1" = 400' FEET

PROJECT

RANDOLPH COUNTY
PROPOSED MSW LANDFILL
RANDLEMAN, RANDOLPH COUNTY, NC

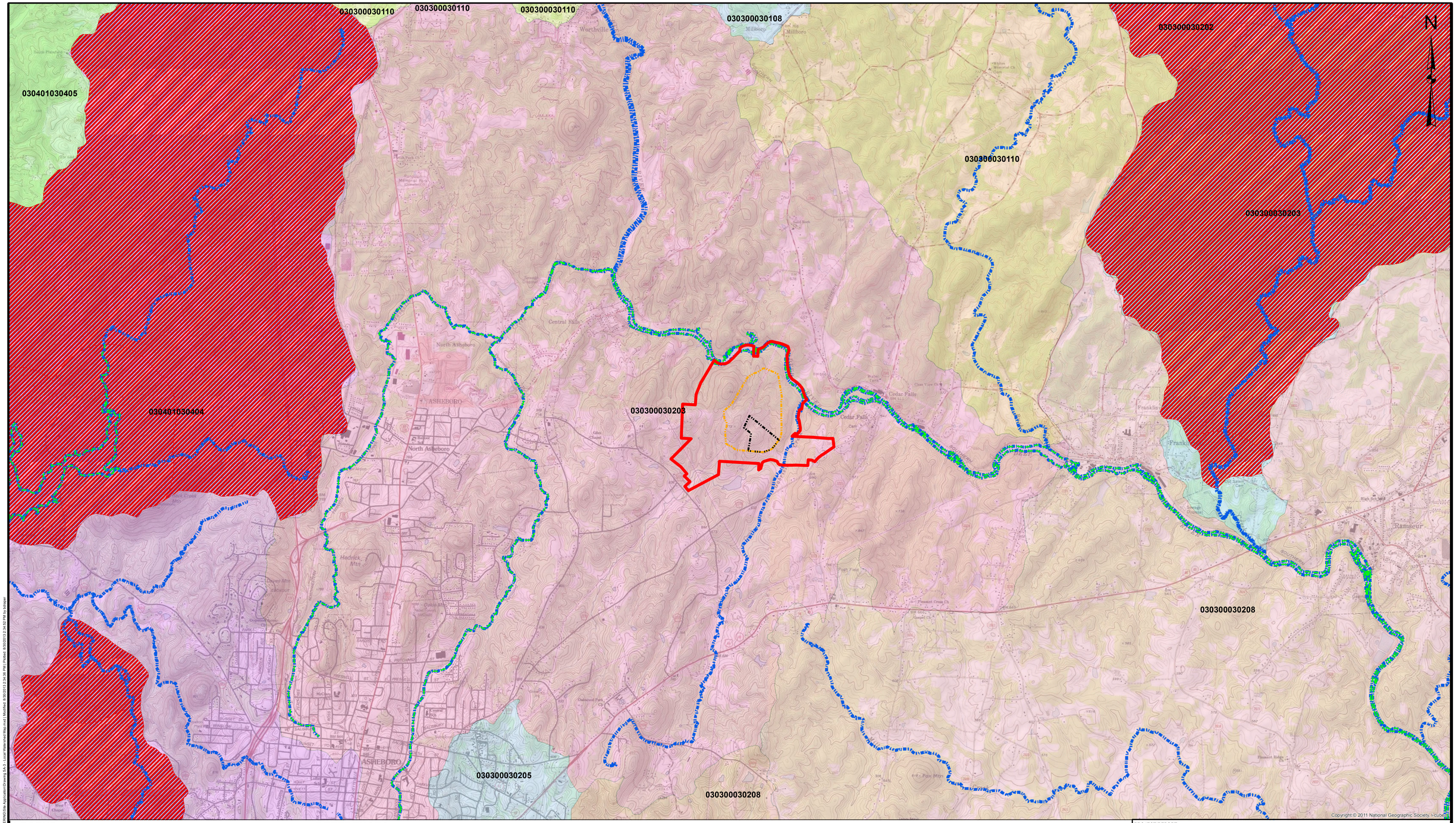
TITLE

DRAWING SA-2
2000-FT. RADIUS MAP

Golder Associates
Golder Associates NC, Inc.
Greensboro, NC

PROJECT No.
1039684602

DWG SA-2



LEGEND

- 303(d) Impaired Waters (IRC 4-5)
- NC Classified (named) Water
- Property Boundary
- Proposed Prelimary Limits of Waste
- Proposed Phase I Area
- Water Supply Watershed
- 030300030208 — 12-Digit Hydraulic Unit Code (HUC) (Note: Fill Color Varies)

REFERENCES

NCDENR, Division of Water Quality, Water Quality Data Assessment. 2010. 303(d) and Integrated Report Files (2010) and NC DWQ Classified Waters (Shapefiles: nc_2010_IR_Asmnt_20100928.shp and DWQ_classifications_20110208.shp). Obtained from: http://portal.ncdenr.org/web/wq/ps/mtu/assessment

NCDENR, Division of Water Quality Planning Section. 2007. Water Supply Watersheds (Shapefile: wsw.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

USDA and NCNRCS, United States Department of Agriculture and the North Carolina Natural Resources Conservation Service State Office. 2008. 12 -Digit Hydrologic Units (Shapefile: hu.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NOTES

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet

2,000 0 2,000 4,000 6,000

SCALE 1 " = 2,000 ' FEET

PROJECT/REPORT

RANDOLPH COUNTY
PROPOSED MSW LANDFILL
RANDLEMAN, RANDOLPH COUNTY, NC

TITLE

DRAWING SA-3
LOCAL WATERSHED IDENTIFICATION MAP

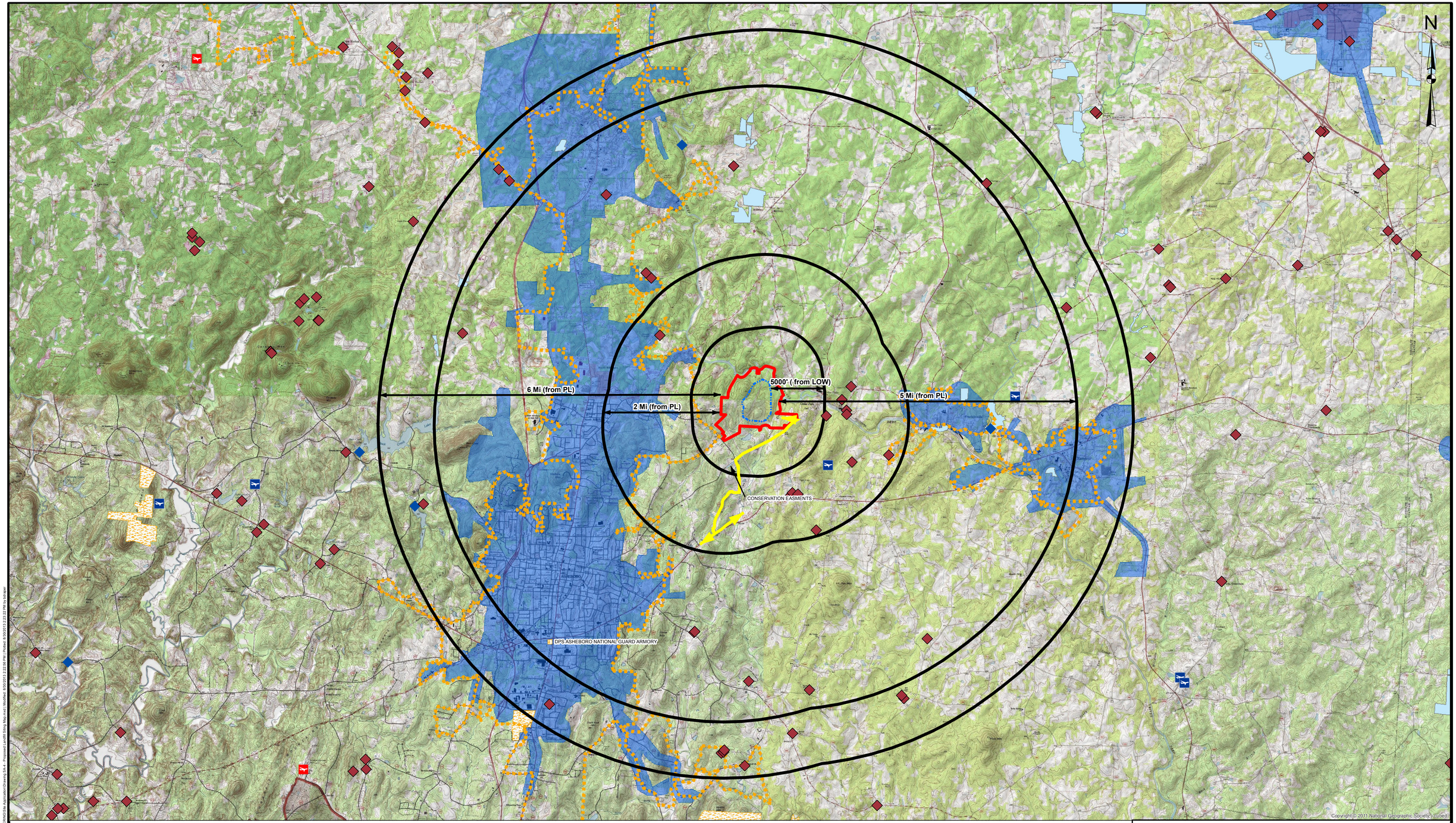
Golder Associates

Golder Associates NC, Inc.
Greensboro, NC

PROJECT No. 1039684602

DWG SA-3

Map: X:\Projects\1039684 - Randolph County - Engineering\1039684602 - SW Suitability\ENGINEERING\Site Applications\Drawing SA-3 Local Watershed Map.mxd | Modified: 8/30/2013 2:34:36 PM | Plotted: 8/30/2013 2:34:52 PM by kdreyer



LEGEND

- Private Airports/Runways
- Public Airports/Runways
- Public Groundwater Supply Wells
- Public Surface Water Intake Systems
- Type A Future Public Water Systems
- Proposed Waste Transportation Route
- Property Boundary
- Proposed Preliminary Limits of Waste
- Urban -Suburban Areas *Urban/Suburban Areas (Census 2010)*
- Federal Owned Lands
- State Owned Lands
- NC Game Lands
- Managed Areas in NC

REFERENCES

NGS (National Geographic Society). 2011. USA Topographic Maps – seamless, scanned images of USGS Topographic Maps. Obtained: As a base map available through our ArcMap GIS license.

NCDENR, Division of Environmental Health (DEH), Public Water Supply Section (PWSS). 2009. Public Water Supply Water Sources, Including Groundwater and Surface Water Sources (Shapefile: pwsws.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NCDENR, Division of Parks and Recreation, Natural Heritage Program. 2012. Managed Areas (or MAREAs) (Shapefile: manea.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NCCGIA, North Carolina Center for Geographic Information and Analysis. 2004. Airports (Shapefile: air.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NCCGIA, North Carolina Center for Geographic Information and Analysis (assisted by NC Rural Center w/ McGill & Associates and Hobbs, Upchurch, & Associates). 2004. NC1Map_Water_Sewer_2004 (Layer file: NC1Map_Water_Sewer_2004.lyr). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NCCGIA, North Carolina Center for Geographic Information and Analysis. 2007. Federal Land Ownership (Shapefile: fls.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

North Carolina Department of Administration, State Property Office. 2012. State-Owned Lands (Shapefile: sol.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NCWRC, North Carolina Wildlife Resource Commission. 2012. North Carolina Game Lands (Shapefile: gml.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

US Department of Commerce, US Census Bureau, Geography Division. 2011. 2010 Census Urban Areas (Shapefile: urbnareas.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NOTES

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet

4,000 0 4,000 8,000 12,000

SCALE 1 " = 4,000 ' FEET

PROJECT/REPORT

RANDOLPH COUNTY, NC
ENVIRONMENTAL IMPACT STATEMENT

TITLE

DRAWING SA-4
PROPOSED LANDFILL SITING MAP

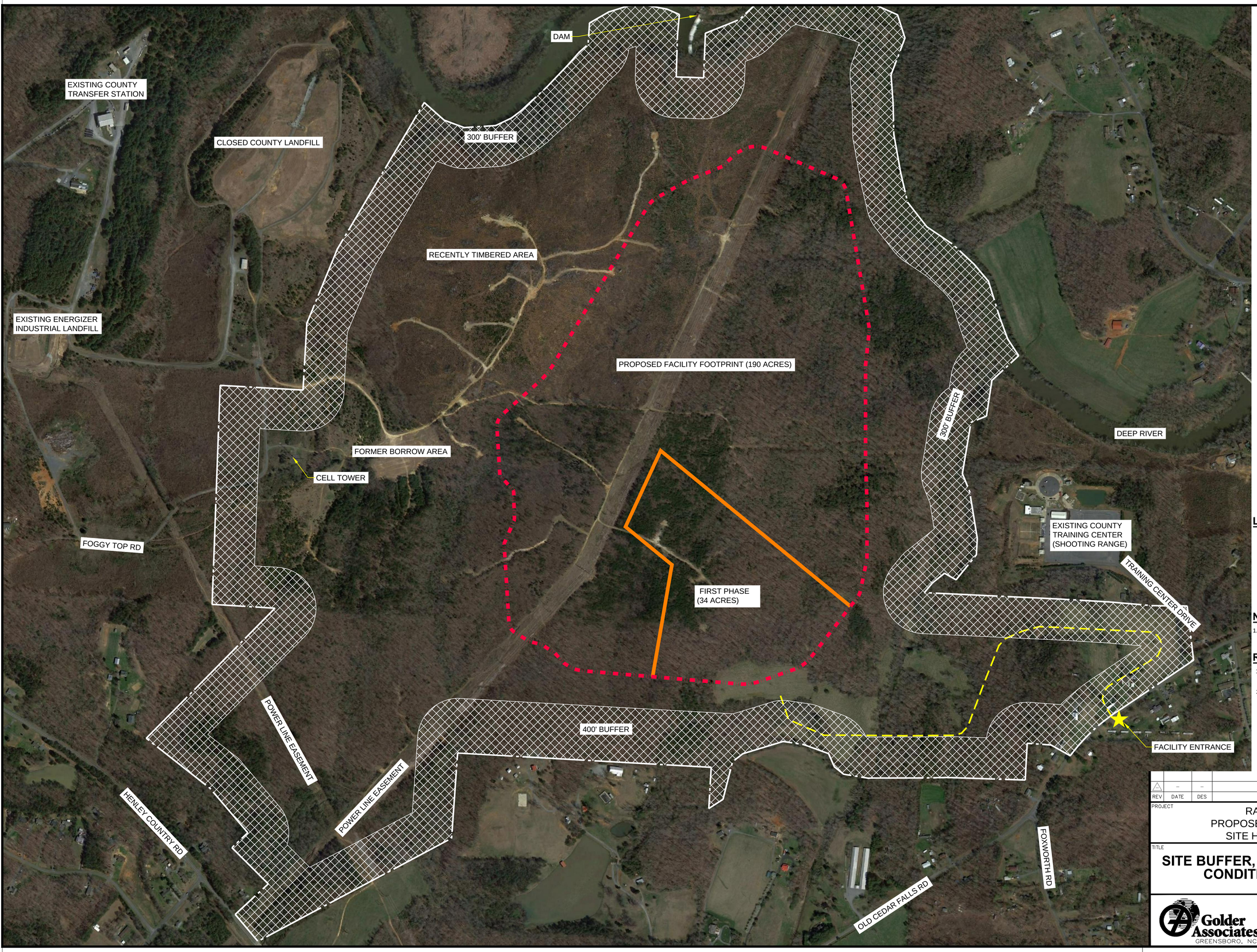
Golder Associates

Golder Associates NC, Inc.
Greensboro, NC

PROJECT No. 1039684602

DWG SA-4

Map: X:\Projects\1039684602 - Backcountry - Engineering\1039684602 - Site Suitability\ENGINEERING\Site Application\Drawing SA-4 - Proposed Landfill Siting Map.mxd | Modified: 8/30/2013 2:22:16 PM | Plotted: 8/30/2013 2:23:22 PM by bdreger



LEGEND

- PROPOSED BUFFER
- PROPOSED ACCESS ROAD
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE I BOUNDARY

NOTE

1. THIS DRAWING DISPLAYS FACILITY BOUNDARY, PROPOSED LANDFILL LIMITS OF WASTE, AND SURROUNDING FEATURES.

REFERENCE

1. AERIAL OBTAINED BY SPATIAL DATA CONSULTANTS INC. ON 3-23-2012.
2. ADDITIONAL AERIALS OBTAINED FROM GOOGLE EARTH PRO 2012.

300 0 300 600
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
–	–	–	– –	–	–	–

PROJECT
RANDOLPH COUNTY, NC
PROPOSED MSW REGIONAL LANDFILL
SITE HYDROGEOLOGIC REPORT

TITLE
SITE BUFFER, BOUNDARY, AND EXISTING CONDITIONS (AERIAL IMAGE)

Golder Associates
GREENSBORO, NC

PROJECT No.		103684602
DESIGN	CTF	3/15/13
CADD	LKB	03/15/13
CHECK	–	–
REVIEW	–	–

FILE No. Drawing SA-5
SCALE AS SHOWN REV. –

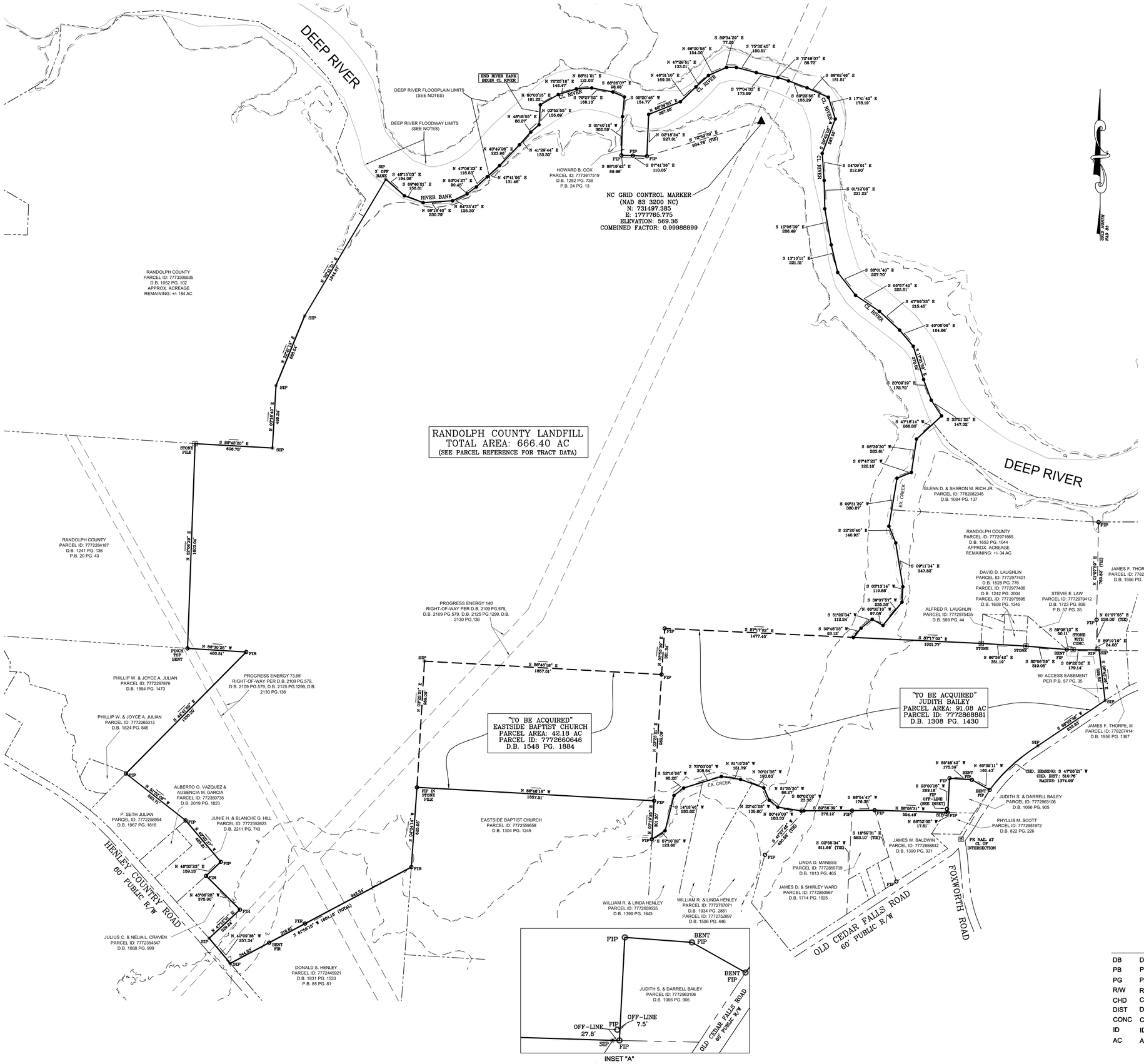
SA-5

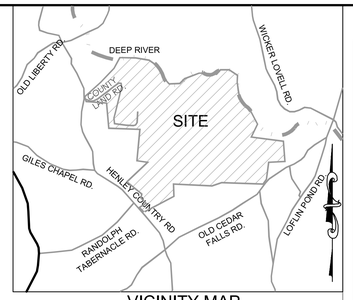
Appendix SA-1

Property Survey Description

Boundary Survey

MC BY: BC 11-29-2012





VICINITY MAP
1" = 3000'

SITE DATA

ADDRESS: 1294 COUNTY LAND ROAD, RANDLEMAN, NC 27317

TOTAL AREA: 666.40 AC

PROPERTY REFERENCE

PARCEL ID: 7772868881
OWNER: JUDITH BAILEY
D.B. 1308 PG. 1430

PARCEL ID: 7772775834
OWNER: RANDOLPH COUNTY
D.B. 1308 PG. 294

PARCEL ID: 7772971865 (PORTION)
OWNER: RANDOLPH COUNTY
D.B. 1653 PG. 1044
P.B. 57 PG. 35

PARCEL ID: 7772660646
OWNER: EASTSIDE BAPTIST CHURCH
D.B. 1548 PG. 1884

PARCEL ID: 7772670859
OWNER: RANDOLPH COUNTY
D.B. 2241 PG. 410

PARCEL ID: 7772786700
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 969

PARCEL ID: 7772797183
OWNER: RANDOLPH COUNTY
D.B. 1311 PG. 1988

PARCEL ID: 7772798400
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 1079

PARCEL ID: 7772797876
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 967

PARCEL ID: 7773707533
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 965

PARCEL ID: 7773716234
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 961

PARCEL ID: 7772598444
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 948

PARCEL ID: 7772461379
OWNER: RANDOLPH COUNTY
D.B. 1308 PG. 286
P.B. 34 PG. 11

PARCEL ID: 7772471980
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 826

PARCEL ID: 7773306535 (PORTION)
OWNER: RANDOLPH COUNTY
D.B. 1052 PG. 102

PARCEL ID: 7772690956
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 957

PARCEL ID: 7772692916
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 961

PARCEL ID: 7772693966
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 963

PARCEL ID: 7772695926
OWNER: RANDOLPH COUNTY
D.B. 1280 PG. 991

GENERAL NOTES

THIS MAP DOES NOT MEET G.S. 47-30 AND IS NOT FOR THE RECORDATION.

AREA DETERMINED BY D.M.D. METHOD, ERROR OF CLOSURE IS 1:10,000+

THIS MAP IS SUBJECT TO ANY EASEMENTS, AGREEMENTS OR RIGHTS OF WAY RECORDED PRIOR TO THE DATE OF THIS MAP WHICH WERE NOT VISIBLE AT THE TIME OF INSPECTION.

THIS MAP WAS PREPARED WITHOUT THE BENEFIT OF A TITLE INVESTIGATION, THEREFORE, THIS MAP IS SUBJECT TO ANY AND ALL FACTS AN ACCURATE TITLE INVESTIGATION MAY DISCLOSE.

NO NCGS MONUMENTS RECOVERED WITHIN 2000' OF THIS PROPERTY.

THIS PROPERTY IS LOCATED IN A FEMA FLOOD ZONE PER FIRM MAP #: 3710777300J EFFECTIVE DATE JANUARY 2, 2008 AND FIRM MAP #: 3710777200J EFFECTIVE DATE JANUARY 2, 2008.

FLOODWAY AND FLOODPLAIN DATA TAKEN FROM NC FLOODPLAIN MAPPING SYSTEM AND IS SUBJECT TO FIELD VERIFICATION.

LEGEND

DB	DEED BOOK	0.2% ANNUAL CHANCE FLOODPLAIN BOUNDARY
PB	PLAT BOOK	1.0% ANNUAL CHANCE FLOODPLAIN BOUNDARY
PG	PAGE	FLOODWAY
R/W	RIGHT-OF-WAY	COMPUTED POINT IN CREEK
CHD	CHORD	STONE OR PK NAIL
DIST	DISTANCE	FOUND IRON PIN/ROD (FIP/FIR)
CONC	CONCRETE	SET IRON PIN (SIP)
ID	IDENTIFIER	
AC	ACRE	

300 0 150 300 600 1200
1" = 300'

Fleming Engineering, Inc.
700 Carnegie Place Greensboro, NC 27409
Phone: 336-852-9797 • Fax: 336-852-9766
C-0950

RANDOLPH COUNTY LANDFILL
BOUNDARY SURVEY

CLIENT INFORMATION:
RANDOLPH COUNTY
725 EAST WORTH ST
ASHEBORO, NC 27205

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: RANDOLPH
TOWNSHIP: RANDLEMAN

NO.	DATE	REVISION NOTE
1		
2		
3		
4		
5		
6		

P:\FLEMING FILE PATH\CS\DRAWINGS & PROJECTS\2012\1800.01\Drawings\Master Plan.dwg

DRAWN BY:	BC
CHECKED BY:	CSF
DATE:	11/30/2012
PROJECT NO.:	1800.01
REF. NO.:	12-023
SCALE:	1" = 300'

NORTH CAROLINA PROFESSIONAL SEAL L-1462 LAND SURVEYOR CRAIG S. FLEMING 11/30/2012

SHEET
1 OF 1

Piezometer Survey

RANDOLPH COUNTY LANDFILL PIEZOMETER/WELL LOCATIONS

DESCRIPTION	POINT #	NORTHING	EASTING	ELEVATION
PZ-1 NL	1058	730179.70	1777251.33	637.46
PZ-1 TOP	1059	730180.36	1777251.96	640.73
PZ-2 IRON	1032	729710.03	1775634.13	835.46
PZ-2 TOP	1031	729709.40	1775635.26	837.81
PZ-3 NL	1054	728923.79	1775899.94	703.29
PZ-3 TOP	1053	728922.30	1775900.05	700.06
PZ-4 NL	1132	728758.87	1777782.84	650.50
PZ-4 TOP	1133	728757.95	1777783.10	653.58
PZ-5 NL	1049	728787.76	1774981.79	754.77
PZ-5 TOP	1050	728787.04	1774982.82	757.89
PZ-6 NL	1051	728866.28	1776472.94	733.54
PZ-6 TOP	1052	728866.95	1776472.08	736.75
PZ-7 NL	1139	728685.45	1777533.30	651.58
PZ-7 TOP	1140	728684.46	1777533.05	654.86
PZ-8 NL	1066	727960.52	1774592.81	718.90
PZ-8 TOP	1068	727959.99	1774591.82	722.13
PZ-9D NL	1079	726179.76	1774504.89	621.57
PZ-9D TOP	1080	726180.81	1774505.02	624.38
PZ-9S NL	1078	726184.19	1774501.72	622.11
PZ-9S TOP	1081	726185.13	1774501.89	624.18
PZ-10D NL	1061	729405.93	1774603.14	655.99
PZ-10D TOP	1062	729405.43	1774602.18	658.96
PZ-10S NL	1060	729409.99	1774613.93	658.22
PZ-10S TOP	1063	729409.55	1774612.93	660.99
PZ-11 NL	1069	728566.57	1773762.05	791.00
PZ-11 TOP	1070	728566.46	1773760.86	794.19
PZ-12 NL	1073	727624.95	1774146.02	681.83
PZ-12 TOP	1074	727624.57	1774147.73	684.53
PZ-13 NL	1090	726791.69	1774610.26	656.41
PZ-13 TOP	1091	726791.00	1774611.15	659.08
PZ-14 NL	1088	726389.48	1774970.89	611.43
PZ-14 TOP	1089	726389.80	1774970.26	613.93
PZ-15 NL	1236	727576.19	1775045.31	672.06
PZ-15 TOP	1235	727577.09	1775044.76	675.22
PZ-16 NL	1064	728467.40	1775219.76	708.21
PZ-16 TOP	1065	728466.06	1775219.35	710.92
PZ-17D NL	1043	729462.93	1775482.43	824.69
PZ-17D TOP	1046	729463.71	1775483.01	827.78
PZ-17S NL	1044	729482.76	1775478.96	826.46
PZ-17S TOP	1045	729481.87	1775478.44	829.34
PZ-18 NL	1035	730228.11	1775281.99	759.62
PZ-18 TOP	1036	730229.14	1775283.31	762.56
PZ-19 NL	1037	730843.17	1776520.81	628.26
PZ-19 TOP	1038	730842.49	1776521.01	631.11
PZ-20 NL	1040	729977.78	1776592.10	642.57
PZ-20 TOP	1039	729979.03	1776592.55	645.55
PZ-21 NL	1041	729845.69	1776217.62	719.05
PZ-21 TOP	1042	729845.51	1776219.21	722.02
PZ-22 NL	1076	728037.65	1775832.38	767.37
PZ-22 TOP	1077	728036.14	1775831.82	770.47
PZ-23 NL	1082	727523.14	1775769.35	727.96
PZ-23 TOP	1083	727522.19	1775770.05	731.05
PZ-24 NL	1085	726883.50	1775678.06	678.06
PZ-24 TOP	1087	726884.40	1775677.98	681.05
PZ-25 NL	1183	726461.99	1776477.83	592.41
PZ-25 TOP	1184	726462.38	1776477.29	595.05
PZ-26 NL	1238	727270.29	1779784.94	618.44
PZ-26 TOP	1239	727269.40	1779785.02	620.47
PZ-27 NL	1167	726785.21	1777141.50	605.01
PZ-27 TOP	1168	726785.99	1777141.28	607.92
PZ-28 NL	1179	726865.65	1776742.03	620.34
PZ-28 TOP	1180	726864.73	1776742.31	622.96
PZ-29 NL	1107	727083.04	1777660.08	568.91
PZ-29 TOP	1108	727082.06	1777660.68	567.06
PZ-30 NL	1174	727064.09	1777147.10	629.77
PZ-30 TOP	1175	727063.89	1777146.07	632.81
PZ-31 NL	1192	727237.76	1777398.86	608.61
PZ-31 TOP	1193	727238.69	1777399.22	611.69
PZ-32 NL	1113	727336.08	1778123.60	602.59
PZ-32 TOP	1114	727337.84	1778124.53	605.26
PZ-33 NL	1185	727389.22	1777042.95	668.52
PZ-33 TOP	1186	727389.71	1777041.96	671.56
PZ-34 NL	1196	727554.97	1776806.15	687.28
PZ-34 TOP	1197	727555.73	1776805.68	690.19
PZ-35 NL	1188	727521.74	1777247.29	639.76
PZ-35 TOP	1189	727522.65	1777246.97	643.16

RANDOLPH COUNTY LANDFILL PIEZOMETER/WELL LOCATIONS

DESCRIPTION	POINT #	NORTHING	EASTING	ELEVATION
PZ-36 NL	1194	727541.18	1777527.21	610.49
PZ-36 TOP	1195	727540.04	1777527.13	613.43
PZ-37 NL	1115	727586.96	1777856.75	611.70
PZ-37 TOP	1116	727587.70	1777857.22	614.01
PZ-38 NL	1212	727843.32	1776570.86	681.59
PZ-38 TOP	1213	727844.34	1776570.94	684.62
PZ-39 NL	1202	727850.16	1777085.71	660.04
PZ-39 TOP	1203	727851.35	1777086.23	662.88
PZ-40 NL	1204	727848.22	1777294.74	644.30
PZ-40 TOP	1205	727847.31	1777295.08	647.32
PZ-41 NL	1210	727746.50	1777488.68	621.22
PZ-41 TOP	1211	727745.32	1777489.02	624.22
PZ-42 NL	1120	727772.50	1777909.60	619.33
PZ-42 TOP	1121	727773.11	1777908.60	622.00
PZ-43 NL	1122	727863.87	1778079.75	641.68
PZ-43 TOP	1123	727863.86	1778078.92	644.80
PZ-44 NL	1109	727240.11	1777896.02	601.32
PZ-44 TOP	1110	727240.75	1777895.43	604.34
PZ-45 NL	1214	727961.27	1776632.87	664.72
PZ-45 TOP	1215	727960.39	1776632.63	667.88
PZ-46 NL	1207	728030.03	1777471.66	607.68
PZ-46 TOP	1208	728029.88	1777470.49	610.80
PZ-47 NL	1124	727928.79	1777859.35	614.91
PZ-47 TOP	1125	727928.74	1777860.06	617.78
PZ-48 NL	1165	728246.53	1777294.85	621.44
PZ-48 TOP	1166	728246.31	1777293.78	624.51
PZ-49 NL	1128	728261.72	1777730.72	628.50
PZ-49 TOP	1129	728260.86	1777731.05	631.61
PZ-50 NL	1094	726857.96	1777570.05	592.54
PZ-50 TOP	1095	726859.07	1777569.98	595.45
PZ-51 NL	1161	728392.62	1777136.26	664.50
PZ-51 TOP	1162	728392.09	1777137.20	666.65
PZ-52 NL	1169	726964.66	1777201.22	620.55
PZ-52 TOP	1170	726965.38	1777201.89	623.43
PZ-53 NL	1136	728410.62	1778337.50	620.84
PZ-53 TOP	1137	728411.11	1778337.43	623.67
PZ-54 NL	1156	728765.08	1776953.56	704.57
PZ-54 TOP	1157	728764.45	1776954.21	707.70
PZ-55 NL	1086	729604.43	1777132.96	619.49
PZ-55 TOP	1093	729603.24	1777133.45	622.43
PZ-56 NL	1143	729309.22	1777863.44	606.53
PZ-56 TOP	1144	729310.62	1777863.00	609.20
PZ-57D NL	1150	729824.11	1778192.89	566.96
PZ-57D TOP	1149	729823.56	1778192.79	569.64
PZ-57S NL	1147	729820.10	1778179.03	567.48
PZ-57S TOP	1148	729819.60	1778178.81	570.29
PZ-58 NL	1229	730512.13	1777740.21	619.54
PZ-58 TOP	1230	730511.35	1777739.67	622.76
PZ-59 NL	1055	731008.22	1777459.40	572.27
PZ-59 TOP	1056	731007.65	1777458.98	574.49
PZ-60 NL	1098	726676.40	1777599.82	578.67
PZ-60 TOP	1097	726675.58	1777599.73	581.54
PZ-61D NL	1100	726758.38	1777788.24	565.94
PZ-61D TOP	1101	726758.89	1777788.78	568.73
PZ-61S NL	1099	726749.52	1777787.37	566.34
PZ-61S TOP	1102	726750.07	1777787.86	568.90
PZ-62 NL	1104	727050.85	1778095.85	570.30
PZ-62 TOP	1105	727051.53	1778096.19	573.24
PZ-63 NL	1118	727652.39	1778029.37	634.76
PZ-63 TOP	1119	727652.33	1778030.24	637.50
PZ-64 NL	1177	727213.73	1776888.79	662.09
PZ-64 TOP	1178	727213.07	1776888.90	664.70
PZ-65 NL	1163	728189.33	1777081.47	635.67
PZ-65 TOP	1164	728188.44	1777082.08	638.58

SITE DATA

ADDRESS: 1294 COUNTY LAND ROAD, RANDLEMAN, NC 27317

GENERAL NOTES

THIS MAP DOES NOT MEET G.S. 47-30 AND IS NOT FOR THE RECORDATION OR CONVEYANCE OF PROPERTY.

THIS MAP IS SUBJECT TO ANY EASEMENTS, AGREEMENTS OR RIGHTS OF WAY RECORDED PRIOR TO THE DATE OF THIS MAP WHICH WERE NOT VISIBLE AT THE TIME OF INSPECTION.

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AERIAL INFORMATION PROVIDED BY GOLDER AND ASSOCIATES AND SPATIAL DATA CONSULTANTS - IMAGE DATED APRIL 11, 2012.

LEGEND

- BORE LOCATIONS (FIELD SURVEYED)
- EXISTING PIEZOMETER/WELL LOCATIONS (FIELD SURVEYED)
- NEW PIEZOMETER/WELL LOCATIONS (FIELD SURVEYED
- APPROXIMATE PROPOSED PROPERTY LINE (NOT FIELD SURVEYED, PROVIDED BY GOLDER AND ASSOCIATES)

300 0 150 300 600 1200

1" = 300'

RANDOLPH COUNTY BORE HOLE LOCATIONS

DESCRIPTION	POINT #	NORTHING	EASTING	ELEVATION
BH-1	1231	728764.82	1775528.44	735.07
BH-2	1012	729054.66	1775184.76	773.99
BH-3	1047	729435.80	1775145.05	765.22
BH-4	1033	729702.53	1775336.32	800.20
BH-5	1034	730080.74	1775557.73	798.50
BH-6	1153	729630.08	1777544.37	633.54

FEI Fleming Engineering, Inc.
700 Carnegie Place Greensboro, NC 27409
Phone: 336-852-9797 * Fax: 336-852-9766
C-0950

RANDOLPH COUNTY LANDFILL

PIEZOMETERS, WELLS, AND BORE HOLE LOCATIONS MAP

CLIENT INFORMATION:
RANDOLPH COUNTY
725 MCDOWELL ROAD
ASHEBORO, NC 27205

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: RANDOLPH
TOWNSHIP: RANDLEMAN

NO.	DATE	REVISION NOTE
1		
2		
3		
4		
5		
6		

DRAWING FILE PATH: E:\DRAWINGS & PROJECTS\PROJ\1800-01\Drawings\Master Plan.dwg

DRAWN BY: BC
CHECKED BY: CSF
DATE: 10/26/2012
PROJECT NO.: 1800.01
REF. NO.: 12-019
SCALE: 1" = 300'

NORTH CAROLINA PROFESSIONAL SEAL L-3469 LAND SURVEYOR CRAIG S. FLEMING 10/26/2012

SHEET
1 OF 1

Deed Book Pages

8.00 ne
30.00 it

020261

80.00

Excise Tax | Recording Time, Book and Page

Tax Lot No. _____ Parcel Identifier No. _____
Verified by _____ County on the _____ day of _____, 19____
by _____

Mail after recording to Randolph County Office Building 707 McDowell Road Asheboro NC 27203

This instrument was prepared by MOSER OGBURN HEAFNER SCHMIDLY & WELLS
Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of November, 19 90, by and between

GRANTOR	GRANTEE
JOHN M. JORDAN AND WIFE, MARGARET C. JORDAN	RANDOLPH COUNTY, a Poltical Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of _____, Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

TRACT NO. 1:
BEGINNING at a point in Clark Small's northern property line, said point being the southeast corner of Lot 2 of Jordan Estates (now presently owned by Jaeger); running thence along Jaeger's western property line North 7 degrees 45 minutes 30 seconds East 2,889.23 feet to a point; thence North 77 degrees 18 minutes 30 seconds East 87.29 feet; thence South 65 degrees 04 minutes East 81.85 feet to a point in Manley's northwest corner; thence along Manley's western property line North 7 degrees 45 minutes 30 seconds East 7,893.49 feet to a point in Small's northern property line; thence along Small's northern property line North 82 degrees 54 minutes 45 seconds West 160.00 feet to the point and place of the Beginning, containing approximately 10.669 acres more or less, according to survey entitled Map A-1 property of Jordan Estates, dated June 18th, 1980 by Moore Gardner & Associates.

TRACT NO. 2:
BEGINNING at a point in the northwest corner of a 10.025 acre tract owned by Zachary, said point also being in the western property line of a tract presently owned by Daniel Grant; running thence along Zachary's northern property line South 86 degrees 8 minutes 30 seconds East 1,364.31 feet to a point in the centerline of Deep River; thence along the centerline of Deep River the following courses and distances: North

44678

5 degrees 40 minutes 7 seconds East 272.35 feet, North 8 degrees 12 minutes 48 seconds West 199.73 feet, North 24 degrees 29 minutes 49 seconds East 185.81 feet, North 6 degrees 12 minutes 10 seconds East 192.58 feet, North 60 degrees 19 minutes 30 seconds West 486.37 feet, North 75 degrees 5 minutes 12 seconds West 270.61 feet, North 84 degrees 12 minutes 30 seconds West 175.71 feet, South 50 degrees 40 minutes 45 seconds West 311.40 feet, South 66 degrees 56 minutes 30 seconds West 259.23 feet; thence along Grant's eastern property line South 7 degrees 45 minutes 30 seconds West 772.00 feet to the point and place of the Beginning, containing 30.002 acres more or less, according to survey entitled Survey for Jordan Properties, dated November 20th, 1986 by Craven Surveyors.

020362

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1107, Page 367, Randolph County Registry.

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

John M. Jordan (SEAL)
John M. Jordan

Margaret C. Jordan (SEAL)
Margaret C. Jordan

..... (SEAL)

..... (SEAL)

SEAL-STAMP

NORTH CAROLINA, Alamance County.

I, a Notary Public of the County and State aforesaid, certify that John M. Jordan and wife, Margaret C. Jordan Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 26th day of November, 1990.

My commission expires: 8/31/94 Betty Fay Whismant Notary Public

Use Black Ink

SEAL-STAMP

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that .....

personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ..... 19.....

My commission expires: ..... Notary Public

Use Black Ink

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Betty Fay Whismant, N.P.

.....

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280, Page 961, This 27 day of November, 19 90 at 11 30 o'clock A. M.

Ann Shaw, Register of Deeds

By Marlene Dennis, Asst. Register of Deeds

Not Inc
255.00 Ab

RANDOLPH COUNTY

STATE OF NORTH CAROLINA SEP 20'91

Real Estate Excise Tax 258.00

000294

Excise Tax

Recording Time, Book and Page

Tax Lot No. Parcel Identifier No.

Verified by County on the day of , 19

by

wsd4 randolph

Mail after recording to

This instrument was prepared by W. Ed Gavin, Attorney at Law, 119 Worth Street, Asheboro, NC 27203

Brief description for the Index 7772829813

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 20th day of September , 19 91 , by and between

GRANTOR	GRANTEE
EDNA M. LAUGHLIN (widow)	RANDOLPH COUNTY, a political subdivision of the State of North Carolina
of Randolph County, North Carolina	707 McDowell Road Asheboro, North Carolina 27203

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of , Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEGINNING at Black Jack corner Lot #2 (this being Lot #3 in the division of the lands of Solomon Free); thence N. on old line 15 chs. to post oak; thence E. 70 chs. to white oak in J. M. Odell line; thence S. 7 chs. 50 links to Cedar Falls & Asheboro Road; thence S. about 25° W. the various courses of the road 2 chs. to stake; thence S. about 65° W. along small road 4 chs. 50 links to stump; thence S. 3 chs. to black oak; thence W. 18 chs. 25 links to Hickory Sprout in line of Lot #2; thence W. 3 1/2 chs. to stone; thence W. 2 1/2 chs. to stone; thence 3 1/2 chs. to stone; thence W. 38 chs. to the BEGINNING, containing one hundred acres, more or less.

Except 24 acres formerly deeded off to Joseph Spoon (see Deed Book 60, Page 229, Randolph County Registry) and one acre sold to A. R. Laughlin (see Deed Book 394, Page 321, Randolph County Registry) and one acre sold to B. S. Laughlin (see Deed Book 223, Page 492, Randolph County Registry).

108059

090295

The property hereinabove described was acquired by Grantor by instrument recorded in .....

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has personally set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Edna M. Laughlin (SEAL)
EDNA M. LAUGHLIN

..... (SEAL)

..... (SEAL)

..... (SEAL)

SEAL-STAMP

PHYLLIS J. HICKS NOTARY PUBLIC RANDOLPH COUNTY, N.C.

Use Black Ink

NORTH CAROLINA, Randolph County.

I, a Notary Public of the County and State aforesaid, certify that EDNA M. LAUGHLIN (widow), Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 20th day of September, 19.91.

My commission expires: August 21, 1995 Phyllis J. Hicks Notary Public

SEAL-STAMP

Use Black Ink

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that .....

personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ....., 19.....

My commission expires: ..... Notary Public

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Phyllis J. Hicks, N.P.

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1308, Page 294, This 20 day of September, 19 91 at 11:04 o'clock A M.

Ann Shaw, Register of Deeds

By Darlene Frey, Asst Register of Deeds

Mr. & Mrs. Edgar Warren Sower

001430 Mail to: Rt. 2, Box 556, Randleman, NC 27317 8.00

PREPARED BY O'BRIANT, O'BRIANT & BUNCH, ATTORNEYS, ASHEBORO, NORTH CAROLINA

This Deed, Made this the 17th day of September, A. D., 19 91, by Edgar Warren Sower and wife, Kay Frances Price Sower of Randolph County, North Carolina, parties of the first part (whether one or more persons) to

Judith Lynn Sower Bailey

of Randolph County, North Carolina, parties of the second part (whether one or more persons). Witnesseth: That the said parties of the first part in consideration of $10.00 and other good and valuable considerations paid by the said parties of the second part, the receipt of which is hereby acknowledged, have bargained and sold and by these presents do bargain, sell and convey unto the said parties of the second part and their heirs a tract or parcel of land, subject to the life estate as set out below in Franklinville Township, Randolph County, North Carolina, described as follows:

See Attached For Description

The above land was conveyed to grantor(s) by subject to the life estate See Book No. , Page

To have and to hold the aforesaid tract or parcel of land and all privileges and appurtenances thereunto belonging to the said parties of the second part and their heirs and assigns forever.

And the said parties of the first part do covenant that they are seized of said premises in fee and have the right to convey the same in fee simple; that the same are free from incumbrances; and that they will warrant and defend the said title to same against the claims of all persons whomsoever.

In Testimony Whereof the said parties of the first part have hereunto set their hands and seals the day and year first above written.

Witness:

Edgar Warren Sower (SEAL)
Edgar Warren Sower (SEAL)
Kay Frances Price Sower (SEAL)
Kay Frances Price Sower (SEAL)

NORTH CAROLINA — Randolph County

I, Diane F. Moll, a Notary Public of said County, do hereby certify that Edgar Warren Sower and wife, Kay Frances Price Sower grantors, personally appeared before me this day and acknowledged the execution of the foregoing deed of conveyance.

Witness my hand and seal, this the 27th day of September 19 91

My commission expires 5/13, 19 95 Diane F. Moll (SEAL)
NOTARY PUBLIC

NORTH CAROLINA — Randolph County

I, , a Notary Public of said County, do hereby certify that grantors, personally appeared before me this day and acknowledged the execution of the foregoing deed of conveyance.

Witness my hand and seal this the day of 19

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Diane F. Moll, NP 108463

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1308, Page 1430, This 27th day of September, 19 91 at 3:16 o'clock P M.

Ann Shaw, Register of Deeds

By Corkie Baynes, Deputy Register of Deeds

By , Register of Deeds

001431

TRACT NO. 1: BEGINNING at a hickory Trogdon's corner and running thence North 22 1/2 chains to a stone; thence West 2 chains and 50 links to a stone; thence South 3 1/2 chains to a stone; thence West 38 chains to a black jack in the old line; thence South on the old line 25 chains to the creek; thence down the various courses of Gabrials' Creek 21 chains to a stake; thence East 21 chains to the beginning, containing 80 acres, more or less.

TRACT NO. 2: BEGINNING at a white oak stump, North of M. C. Ferree's house and running thence South 16 rods to a stone South of said house; thence East 22 1/2 rods to a stone; thence North 16 rods persimmon; thence West to the beginning, containing 2 acres and 40 rods, more or less.

TRACT NO. 3: BEGINNING at a stone on Soloman H. Ferree's corner running West 6 chains and 7 links to a stake in said Ferree's line; thence North on said line 6 chains and 61 links to a stone in Ferree's line; thence East 5 chains and 47 links to a stone said Ferree's corner; thence South 5 degrees East on said Ferree's line 6 chains and 61 links to the beginning, containing 3 13/16 acres, more or less.

TRACT NO. 4: BEGINNING at a stone in Ferree's line; running thence 4 chains to a stone; thence South 5 degrees East 4 chains and 50 links to a stone on the North side of Cedar Falls and Asheboro Road; thence along the edge of said road South 57 degrees West to a stone on the same side of road; thence North 5 degrees West 6 chains and 61 links to the beginning, containing 2 3/16 acres, more or less.

TRACT NO. 5: BEGINNING at a stone corner of School lot and running 8.18 chains to a hickory stump; thence West 14.40 chains to a post oak in Ferree's line 1.77 chains to a stake, said Ferree's corner; thence East with said Ferree's line 6.07 chains to a stone on the North side of Cedar Falls and Asheboro road; thence North 57 degrees East along said road 4.65 chains to a stone on North side of said road, Ferree's corner; thence North 5 degrees West with said Ferree's line 4.50 chains to a stone said Ferree's corner; thence West with said Ferree's line 4 chains to a stone in original line; thence East along said line 9.18 chains to a stone W. H. Jennings' corner; thence South with said Jennings' line 4.13 chains to a stone on North side of Cedar Falls and Asheboro Road; thence along said road 1.30 chains to the beginning, containing 9 acres, more or less. A 4 acre tract on the South side of the road, sold to H. G. Grimes, is excepted from the aforesaid tract.

TRACT NO. 6: This being Lot #25 of the W. C. Trogdon Subdivision. BEGINNING at an iron stake in the Cedar Falls Road thence West 168 feet to a stone; thence South 7 degrees West 250 feet to an iron stake in edge of Cedar Falls Road; thence on said road 325 feet to the Beginning.

This deed is subject to a deed of easement recorded in Book 1306, Page 1286, Randolph County Registry.

For Back reference see deeds recorded in Book 375, Page 194, and Book 344, Page 102, Randolph County Registry.

The Grantors, Edgar Warren Sower and wife, Kay Frances Price Sower, hereby reserve a life estate in the above described property. The Grantors further reserve the right to sell the timber anytime during their life.

The law firm of O'Briant, O'Briant, Bunch, Whatley & Robins has neither examined nor certifies title to the above-described property.

Mr. & Mrs. Edgar Warren Sower

001430 Mail to: Rt. 2, Box 556, Randleman, NC 27317

PREPARED BY O'BRIANT, O'BRIANT & BUNCH, ATTORNEYS, ASHEBORO, NORTH CAROLINA

This Deed, Made this the 17th day of September, A. D., 19 91,

by Edgar Warren Sower and wife, Kay Frances Price Sower

of Randolph County, North Carolina, parties of the first part (whether one or more persons) to

Judith Lynn Sower Bailey

of Randolph County, North Carolina, parties of the second part (whether one or more persons). Witnesseth: That the said parties of the first part in consideration of $10.00 and other good and valuable considerations paid by the said parties of the second part, the receipt of which is hereby acknowledged, have bargained and sold and by these presents do bargain, sell and convey unto the said parties of the second part and their heirs subject to the life estate as set out below a tract or parcel of land, in Franklinville Township, Randolph County, North Carolina, described as follows:

See Attached For Description

The above land was conveyed to grantor(s) by subject to the life estate. See Book No. ....., Page .....

To have and to hold the aforesaid tract or parcel of land and all privileges and appurtenances thereunto belonging to the said parties of the second part and their heirs and assigns forever.

And the said parties of the first part do covenant that they are seized of said premises in fee and have the right to convey the same in fee simple; that the same are free from incumbrances; and that they will warrant and defend the said title to same against the claims of all persons whomsoever.

In Testimony Whereof the said parties of the first part have hereunto set their hands and seals the day and year first above written.

Witness:

Edgar Warren Sower (SEAL)
Edgar Warren Sower (SEAL)
Kay Frances Price Sower (SEAL)
Kay Frances Price Sower (SEAL)

NORTH CAROLINA — Randolph County

I, Diane F. Moll, a Notary Public of said County, do hereby certify that Edgar Warren Sower and wife, Kay Frances Price Sower grantors, personally appeared before me this day and acknowledged the execution of the foregoing deed of conveyance.

Witness my hand and seal, this the 27th day of September, 19 91

My commission expires 5/13, 19 95 Diane F. Moll (SEAL)
NOTARY PUBLIC

NORTH CAROLINA — Randolph County

I, ..., a Notary Public of said County, do hereby certify that .....

grantors, personally appeared before me this day and acknowledged the execution of the foregoing deed of conveyance.

Witness my hand and seal this the ..... day of 19

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Diane F. Moll, NP 108463

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1308, Page 1430, This 27th day of September, 19 91 at 3:16 o'clock P M.

Ann Shaw, Register of Deeds

By Corlie Baynes, Deputy Register of Deeds

By ....., Register of Deeds

001431

TRACT NO. 1: BEGINNING at a hickory Trogdon's corner and running thence North 22 1/2 chains to a stone; thence West 2 chains and 50 links to a stone; thence South 3 1/2 chains to a stone; thence West 38 chains to a black jack in the old line; thence South on the old line 25 chains to the creek; thence down the various courses of Gabrials' Creek 21 chains to a stake; thence East 21 chains to the beginning, containing 80 acres, more or less.

TRACT NO. 2: BEGINNING at a white oak stump, North of M. C. Ferree's house and running thence South 16 rods to a stone South of said house; thence East 22 1/2 rods to a stone; thence North 16 rods persimmon; thence West to the beginning, containing 2 acres and 40 rods, more or less.

TRACT NO. 3: BEGINNING at a stone on Soloman H. Ferree's corner running West 6 chains and 7 links to a stake in said Ferree's line; thence North on said line 6 chains and 61 links to a stone in Ferree's line; thence East 5 chains and 47 links to a stone said Ferree's corner; thence South 5 degrees East on said Ferree's line 6 chains and 61 links to the beginning, containing 3 13/16 acres, more or less.

TRACT NO. 4: BEGINNING at a stone in Ferree's line; running thence 4 chains to a stone; thence South 5 degrees East 4 chains and 50 links to a stone on the North side of Cedar Falls and Asheboro Road; thence along the edge of said road South 57 degrees West to a stone on the same side of road; thence North 5 degrees West 6 chains and 61 links to the beginning, containing 2 3/16 acres, more or less.

TRACT NO. 5: BEGINNING at a stone corner of School lot and running 8.18 chains to a hickory stump; thence West 14.40 chains to a post oak in Ferree's line 1.77 chains to a stake, said Ferree's corner; thence East with said Ferree's line 6.07 chains to a stone on the North side of Cedar Falls and Asheboro road; thence North 57 degrees East along said road 4.65 chains to a stone on North side of said road, Ferree's corner; thence North 5 degrees West with said Ferree's line 4.50 chains to a stone said Ferree's corner; thence West with said Ferree's line 4 chains to a stone in original line; thence East along said line 9.18 chains to a stone W. H. Jennings' corner; thence South with said Jennings' line 4.13 chains to a stone on North side of Cedar Falls and Asheboro Road; thence along said road 1.30 chains to the beginning, containing 9 acres, more or less. A 4 acre tract on the South side of the road, sold to H. G. Grimes, is excepted from the aforesaid tract.

TRACT NO. 6: This being Lot #25 of the W. C. Trogdon Subdivision. BEGINNING at an iron stake in the Cedar Falls Road thence West 168 feet to a stone; thence South 7 degrees West 250 feet to an iron stake in edge of Cedar Falls Road; thence on said road 325 feet to the Beginning.

This deed is subject to a deed of easement recorded in Book 1306, Page 1286, Randolph County Registry.

For Back reference see deeds recorded in Book 375, Page 194, and Book 344, Page 102, Randolph County Registry.

The Grantors, Edgar Warren Sower and wife, Kay Frances Price Sower, hereby reserve a life estate in the above described property. The Grantors further reserve the right to sell the timber anytime during their life.

The law firm of O'Briant, O'Briant, Bunch, Whatley & Robins has neither examined nor certifies title to the above-described property.

BK 1518 PG 1884

RANDOLPH COUNTY NC 04/03/98

$96.00

STATE OF NORTH CAROLINA

Real Estate Excise Tax

Excise Tax $

Recording Time, Book and Page

1000
96.00 R/S

Tax Lot No. _____ Parcel Identifier No. _____
Verified by _____ County on the ____ day of _____, 19____
by _____

Mail after recording to Grantee: Rt 6 E. Dixie Drive Asheboro NC 27203
This instrument was prepared by Lee W. Gavin 119 Worth St. Asheboro, NC 27203

Brief Description for the index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made Mar 10, 1998, by and between

GRANTOR	GRANTEE
William Harold Henson and wife, Hazel P. Henson Dolores H. Marter, Trustee of Her Declaration of Trust dated March 26, 1996	Trustees of East Side Baptist Church

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g., corporation or partnership

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of , Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEGINNING at a hickory in the old line, and running East on Spoon's line 28 chains and 50 links to a hickory at or near Spoon's corner; thence North 14 chains and 75 links to a stake, I.M. Caudell's line; thence West on Odell's line 28 chains and 50 links to a black gum, J.J. Hawkins' corner; thence South to the BEGINNING, containing 42 acres, more or less.

G807267

BK 1548 PG 1885

The property hereinabove described was acquired by Grantor by instrument recorded in Book , Page .

A map showing the above described property is recorded in Plat Book , Page .

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.

Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

_____ (Corporate Name)

By: _____

President

ATTEST:

_____

Secretary (Corporate Seal)

USE BLACK INK ONLY

William Harold Henson (SEAL)
William Harold Henson

Hazel P. Henson (SEAL)
Hazel P. Henson

Dolores H. Marter (SEAL)
Dolores H. Marter, Trustee of Her Declaration of Trust dated March 26, 1996

_____ (SEAL)

SEAL-STAMP

LISA WILLENBERG NOTARY PUBLIC RANDOLPH COUNTY, N.C.

USE BLACK INK ONLY

NORTH CAROLINA, Randolph County.
I, the undersigned, a Notary Public of the County and State aforesaid, certify that William Harold Henson and wife, Hazel P. Henson Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 3rd day of Mar, 1998.
Ner

My commission expires: 10/01/02

Lisa Willenberg Notary Public

SEAL-STAMP

VIRGINIA A. EICHLER NOTARY PUBLIC STATE OF KANSAS

USE BLACK INK ONLY

KANSAS, Johnson County.
I, the undersigned, a Notary Public of the County and State aforesaid, certify that Dolores H. Marter, Trustee of Her Declaration of Trust dated March 26, 1996 Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 16 day of Mar, 1998.

My commission expires: 08-20-2001

Virginia A. Eichler Notary Public

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Virginia A. Eichler NP & Lisa Willenberg, NP

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1548, Page 1884, This 3 day of April, 19 98 at 10:49 o'clock A M.

Ann Shaw, Register of Deeds

By Gail Kirby Deputy Register of Deeds

N.C. Bar Assoc. Form No. 3 © 1977
Printed by Agreement with the N.C. Bar Assoc.
#003

001039

Excise Tax

Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....

Verified by ..... County on the ..... day of ....., 19.....

by .....

Mail after recording to Randolph County Office Building 707 McDowell Road Asheboro, NC 27203

This instrument was prepared by MOSER OGBURN HEAFNER SCHMIDLY & WELLS

Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27 day of November, 19 90, by and between

GRANTOR	GRANTEE
ALEX V. MCCRACKEN AND WIFE, CAROL S. MCCRACKEN; WILBUR D. MCCRACKEN AND WIFE, JOYCE LAVERNE MCCRACKEN	RANDOLPH COUNTY, a Political Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEGINNING at a point marking the southwest corner of a 30.007 acre tract owned by Almon and McDougal as conveyed to them in Deed Book 1192, Page 162, Randolph County Registry; running thence along Almon's southern property line South 84 degrees 58 minutes 20 seconds East 2,150.54 feet to a point in the centerline of Deep River; thence along the centerline of Deep River the following courses and distances: South 9 degrees 35 minutes 06 seconds East 206.50 feet, South 9 degrees 35 minutes 00 seconds East 116.71 feet, South 23 degrees 57 minutes 50 seconds East 91.50 feet to a point marking the northeast corner of Crystal Renee McCraken (now Webster); thence along Webster's northern property line North 85 degrees 00 minutes 52 seconds West 2,295.24 feet to a point marking the northwest corner of Webster and being a point in the eastern property line of Grant; thence along Grant's eastern property line North 7 degrees 45 minutes 30 seconds East 395 feet to the point and place of the Beginning, containing 20.002 acres more or less, according to survey entitled survey for "Jordan Properties" by Craven Surveyors, dated November 20th, 1986.

94128

001080

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1192, Page 1087 Randolph County Registry.

A map showing the above described property is recorded in Plat Book ______ page ______.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

(Corporate Name)

By: ______________

______________ President

ATTEST:

______________ Secretary (Corporate Seal)

USE BLACK INK ONLY

Alex V. McCracken (SEAL)
Alex V. McCracken

Carol S. McCracken (SEAL)
Carol S. McCracken

Wilbur D. McCracken (SEAL)
Wilbur D. McCracken

Joyce Laverne McCracken (SEAL)
Joyce/Laverne McCracken

SEAL-STAMP

OFFICIAL SEAL
Notary Public, North Carolina
COUNTY OF FORSYTH
PATRICE B. WEST
MY COMMISSION EXPIRES MAR. 22, 1994

NORTH CAROLINA, Forsyth County.

Use Black Ink

I, a Notary Public of the County and State aforesaid, certify that Alex V. McCracken and wife, Carol S. McCracken Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 27th day of November, 19 90.

My commission expires: Patrice B. West Notary Public

****

(SEAL) EARLENE O. GUTHRIE NOTARY PUBLIC ALAMANCE COUNTY

NORTH CAROLINA, Alamance COUNTY.
I, a Notary Public of the County and State aforesaid, certify that Wilbur D. McCracken and wife, Joyce Laverne McCracken Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official seal, this 27th day of November, 1990.

My commission expires: 4-11-93 Earlene O. Guthrie
Notary Public

NORTH CAROLINA — Randolph County
The foregoing certificate(s) of Patrice B. West and Earlene O. Guthrie N.P.'s

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280 Page 1079. This 27 day of November, 1990 at 4:59 o'clock P. M.

Ann Shaw, Register of Deeds
By Krista M. Lowe Deputy Register of Deeds

10.00
DS 168.00

STATE OF NORTH CAROLINA
Real Estate
11/26/90
168.00

020826

Excise Tax

Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....
Verified by ..... County on the ..... day of ....., 19
by .....

Mail after recording to County Manager, Randolph County Administrative Office
707 McDowell Road, Asheboro, North Carolina 27203
This instrument was prepared by W. Ed Gavin, Attorney at Law, Post Office Box 786, Asheboro, NC 27204-0786
Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 26th day of November, 19 90, by and between

GRANTOR	GRANTEE
NEWTON WICKER and wife, GOLDA L. WICKER Route 2, Box 509 Randleman, NC 27317	RANDOLPH COUNTY, a political subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

For property description see Exhibit "A" attached hereto and incorporated herein.

94029

N.C. Bar Assoc. Form No. 3 © 1976, Revised 1977.
Printed by Agreement with the N.C. Bar Assoc.-1981.

020878

EXHIBIT "A"

Being adjoined now, or formerly, on the North and West by the Randolph County Landfill, on the East by Clark Small, and described as follows:

BEGINNING at a stone which marks the northeast corner of that approximately 56 acre tract of land conveyed by James A. Moody and wife, Faye D. Moody, by Deed dated June 29, 1989, and recorded in Deed Book 1241, Page 136, Randolph County Registry; thence from said BEGINNING corner in a southerly direction along the eastern boundary of said 56 acre tract of land, and continuing thereafter, a total distance of 1,914 feet to a stone and iron stake in the James Harold Allred line; thence East on Allred and Pickett's line 1,914 feet to a pipe, Small's corner; thence North to a stone on the south bank of the Old Cedar Falls Road, a corner of the John Jordan property; thence West along the Randolph County landifll line 1,914 feet to the BEGINNING, containing 84.1 acres, more or less, and being the identical lands conveyed to Newton Wicker by Deed of Coy Luck and wife, Margie Luck, dated January 3, 1946, and recorded in Deed Book 344, Page 510, Randolph County Registry.

Also conveyed by this Deed are all of the grantors' right, title, and interest in and to that certain right-of-way easement for ingress, regress, and egress from the western boundary of the above described lands and running in a westerly direction across the above mentioned 56 acre tract of land now owned by Randolph County and thereafter continuing in a westerly direction to the eastern right-of-way of State Road #2215, which right-of-way is 15 feet on each side of the centerline of said right-of-way, a dirt road, as said road is and has been located on portions of Lots Numbers 22, 23, 24, 25, and 26 of the Cecil Sewell property, a plat of which is found recorded in Plat Book 5, Page 71, in the office of the Register of Deeds of Randolph County, North Carolina.

This Deed is executed subject to the easement for Carolina Power and Light Company transmission line as shown on Plat Book 20, Page 43 (A317); also subject to the right-of-way easement to Carolina Power and Light Company for lines, recorded in Deed Book 1056, Page 2, Randolph County Registry.

This Deed is made subject to the following conditions:

1. The grantors shall have possession of their residence located on the above described lands until November 26, 1992.

2. The existing well on the premises shall remain a part of the property, but the seller shall have the right to own and remove the pump on said well.

3. The seller shall retain ownership of and have the right to remove the mobile home presently located on the above described lands.

Newton Wicker
Bertie P. Wicker

wsd4 wick-exb

000827

The property hereinabove described was acquired by Grantor by instrument recorded in .....

.....

A map showing the above described property is recorded in Plat Book ..... page.....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Newton Wicker (SEAL)
NEWTON WICKER

Golda L. Wicker (SEAL)
GOLDA L. WICKER

..... (SEAL)

..... (SEAL)

SEAL-STAMP PHYLLIS J. HICKS NOTARY PUBLIC RANDOLPH COUNTY, N.C.

Use Black Ink

NORTH CAROLINA, Randolph County.

I, a Notary Public of the County and State aforesaid, certify that NEWTON WICKER and wife, GOLDA L. WICKER, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 26th day of November, 20...

My commission expires: August 21, 1995 Phyllis J. Hicks Notary Public

SEAL-STAMP

Use Black Ink

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that .....

personally came before me this day and acknowledged that ..... he is ..... Secretary of

..... a North Carolina corporation, and that by authority duly

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Phyllis J. Hicks, NP

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280, Page 326, This 26 day of November, 1990 at 11:32 o'clock A M.

Ann Shaw, Register of Deeds

By Lu Ann Smith, Deputy Register of Deeds

..... REGISTER OF DEEDS FOR ..... COUNTY

By ..... Deputy/Assistant - Register of Deeds

000985

Excise Tax

Recording Time, Book and Page

Tax Lot No. _____ Parcel Identifier No. _____

Verified by _____ County on the _____ day of _____, 19 ____

by _____

Mail after recording to Randolph Coutny Office Building 707 McDowell Rd. Asheboro, NC 27203

This instrument was prepared by MOSER OGBURN HEAFNER SCHMIDLY & WELLS

Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of November, 19 90, by and between

GRANTOR	GRANTEE
RICKY C. ZACHARY AND WIFE, BRENDA M. ZACHARY	RANDOLPH COUNTY, a Political Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of _____, Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEGINNING at an iron pipe marking the southwest corner of the Jordan 30.002 acre tract in the Daniel Grant eastern line; thence with the Jordan southern line South 86 degrees 8 minutes 30 seconds East 1,364.31 feet to a point in the center of Deep River in the Ferree line; thence with the Ferree line South 5 degrees 36 minutes 40 seconds East 296.32 feet to a point in the river marking the northeast corner of the 30.007 acre tract conveyed to Almon; thence with the Almon north line North 87 degrees 32 minutes 15 seconds West 1,436.26 feet to an iron pipe in the Grant eastern line; thence with the Grant line North 7 degrees 45 minutes 30 seconds East 330 feet to the Beginning and containing 10.025 acres, more or less.

54080

020986

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1194, Page 356, Randolph County Registry

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Ricky C. Zachary (SEAL)
Ricky C. Zachary

Brenda M. Zachary (SEAL)
Brenda M. Zachary

..... (SEAL)

..... (SEAL)

SEAL-STAMP

Phyllis J. Hicks NOTARY PUBLIC RANDOLPH COUNTY, N.C.

NORTH CAROLINA, Randolph County.

I, a Notary Public of the County and State aforesaid, certify that Ricky C. Zachary and wife, Brenda M. Zachary Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 27th day of November, 19 90.

My commission expires: August 21, 1995 Phyllis J. Hicks Notary Public

Use Black Ink

SEAL-STAMP

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that ..... personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ....., 19.....

My commission expires: ..... Notary Public

Use Black Ink

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Phyllis J. Hicks, N.P.

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280, Page 965, This 27 day of November, 19 90 at 11:30 o'clock A. M.

Ann Shaw, Register of Deeds

By Darlene Graves, Asst Register of Deeds

N.C. Bar Assn. Form No. 3 © 1975, Revised 1977 Printed by Agreement with the N.C. Bar Assn. Poole Printing Co., Inc. P.O. Box 58487, Raleigh, N.C. 27658

No fee
37.00 R/S

RANDOLPH COUNTY 072223

STATE OF NORTH CAROLINA NOV 13 '91 P.S. 107

Real Estate Excise Tax ≈ 37.00

001988

Excise Tax

Recording Time, Book and Page

Tax Lot No. Parcel Identifier No. 7772892111

Verified by County on the day of , 19

by

Mail after recording to Randolph County Office Building, 707 McDowell Road, Asheboro, NC 27203

This instrument was prepared by Gavin, Cox and Pugh, 119 Worth Street, Asheboro, NC 27203

Brief description for the Index wsd4/webster.cr

10.004 Acres ; 7772992111

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 28th day of October, 19 91, by and between

GRANTOR	GRANTEE
Crystal Renee McCracken Webster and husband, Richard Douglas Webster	Randolph County, a Political Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of , Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEING bounded on the North, West and South by the Randolph County Landfill property, on the East by Deep River, and described as follows:

Beginning at an iron pipe in the eastern line of the tract of line formerly owned by Daniel Oliver Grant, and conveyed by Grant to Randolph County, which iron pipe marks the Southwest corner of the 30.006-acre tract, conveyed to Alex V. McCracken, et al., by deed recorded in Book 1192, Page 1087, Randolph County Registry; thence from said beginning point South 85 degrees 11 minutes 5 seconds East 2,314.55 feet to a point in the Western edge of Deep River at the mouth of a creek; thence North 60 degrees 57 minutes 10 seconds East 80 feet to a point in the center of the River; thence with the center of the River North 23 degrees 51 minutes 50 seconds West 157.85 feet to a point in the center of the River; thence North 85 degrees 52 seconds West 2,295.24 feet to an iron pipe in the formerly Daniel Oliver Grant eastern line; thence South 7 degrees 45 minutes 30 seconds West 190 feet to the BEGINNING, containing 10.004 acres being

110914

001989

the Southern portion of Tract #2 of the above mentioned deed.

For back reference, see Deed Book 1194, Page 358 and Deed Book 1199, Page 692, Randolph County Registry.

This description prepared according to survey entitled "Jordan Properties" prepared by Craven Surveyors, dated November 20, 1986.

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1194, Page 358 and Deed Book 1199, Page 692, Randolph County Registry.

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

x Crystal Renee McCracken Webster (SEAL)
Crystal Renee McCracken Webster

x Richard Douglas Webster (SEAL)
Richard Douglas Webster

..... (SEAL)

..... (SEAL)

SEAL-STAMP

VIRGINIA
~~NORTH CAROLINA~~, Hampton County.

Use Black Ink

I, a Notary Public of the County and State aforesaid, certify that Crystal Renee McCracken Webster and husband, Richard Douglas Webster ..... Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 13th day of November, 19 91.

My commission expires: 31 Oct 1995 Wilma B. Sullivan Notary Public

SEAL-STAMP

NORTH CAROLINA, ... County.

Use Black Ink

I, a Notary Public of the County and State aforesaid, certify that .....
personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.
Witness my hand and official stamp or seal, this ..... day of ..... 19.....

My commission expires: ..... Notary Public

NORTH CAROLINA — Randolph County
The foregoing certificate(s) of Wilma B. Sullivan, NP

.....

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1311, Page 1988, This 19 day of November, 19 91 at 2:30 o'clock P. M.

Ann Shaw, Register of Deeds
By Ann Shaw Register of Deeds

800 MC
51 50 St.

020969

Excise Tax

NORTH CAROLINA NOV27'90 P.B. 10710 $51.50

Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....
Verified by ..... County on the ..... day of ....., 19.....
by .....

Mail after recording to grantee: Randolph County office Building 707 McDowell Road Asheboro, NC 27203

This instrument was prepared by MOSER OGBURN HEAFNER SCHMIDLY & WELLS

Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of November, 19 90, by and between

GRANTOR	GRANTEE
MICHAEL R. MCMILLAN and wife, SUSAN S. MCMILLAN KENNETH W. LOFTIS and wife, LORI R. LOFTIS	RANDOLPH COUNTY, a Political Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of , Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEGINNING at an existing iron pipe mark the Clark Small northeast corner; thence with the Small line North 82 degrees 34' 45" West 309.95 feet to a point in the Daniel Grant eastern line; thence with Grant eastern line North 7 degrees 45' 30" East 383 feet to an iron pipe; thence South 85 degrees 11' 5" East 2314.55 feet to a point in the mouth of the creek where it enters Deep River; thence with the creek South 60 degrees 67' 10" West 151.14 feet to a point in the creek; thence continuing in the creek South 29 degrees 31' 20" West 180.71 feet to a point in the creek; thence continuing in the creek South 17 degrees 39' 35" West 426.33 feet to a point in the creek 50 feet from an existing iron pipe on the West bank of the creek and in the Clyde Laughlin line; thence with Clyde Laughlin line North 84 degrees 32' 30" West passing through said existing iron pipe for a total distance of 425 feet to an existing iron pipe in the Clyde Laughlin line; thence continuing with the Laughlin line North 84 degrees 32' 30" West 1313.03 feet to an existing iron pipe marking the Laughlin corner in the Clark Small eastern line; thence with the Clark Small eastern line North 7 degrees 4' East 249.84 feet to the Beginning containing 30.007 acres more or less as shown by survey of Craven Surveys entitled "Jordan Properties" dated November 20, 1986.

N.C. Bar Assoc. Form No. 3 © 1976, Revised 1977.
Printed by Agreement with the N.C. Bar Assoc.-1981.

94082

020930

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1193, Page 413, Randolph County Registry.

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated. Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Michael R. McMillan (SEAL)
Michael R. McMillan

Susan S. McMillan (SEAL)
Susan S. McMillan

Kenneth W. Loftis (SEAL)
Kenneth W. Loftis

Lori R. Loftis (SEAL)
Lori R. Loftis

SEAL-STAMP

NORTH CAROLINA, Randolph County.

I, a Notary Public of the County and State aforesaid, certify that Michael R. McMillan and wife, Susan S. McMillan Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 27th day of November, 19 90

My commission expires: August 21, 1995 Phyllis J. Hicks Notary Public

NORTH CAROLINA, Randolph COUNTY.
I, a Notary Public of the County and State aforesaid, certify that Kenneth W. Loftis and wife, Lori R. Loftis Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official seal, this 27th day of November, 1990.

(SEAL)

My commission expires: August 21, 1995 Phyllis J. Hicks
Notary Public

The foregoing certificate(s) of

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Phyllis J. Hicks, N.P.

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1230, Page 209, This 27 day of November, 19 90 at 11:30 o'clock A M.

Ann Shaw, Register of Deeds

By Marlene Evans, Asst. Register of Deeds

Moore Printing Co., Inc. P.O. Box 58487, Raleigh, N.C. 27658

RANDOLPH COUNTY REGISTER OF DEEDS-The following is an unofficial converted record which has not been verified.An official copy may be obtained at the Register of Deeds office

STATE OF NORTH CAROLINA,
RANDOLPH
COUNTY

THIS DEED, Made this 2nd day of August, A.D. 19 72,

by and between ALPINE VILLAGE, INC.

a Corporation duly organized and existing under the laws of the State of North Carolina, with its principal office in Cumberland County, North Carolina, herein called Grantor, and

THE COUNTY OF RANDOLPH

, herein called Grantee:

WITNESSETH: That the said Grantor, in consideration of Ten Dollars and other good and valuable consideration to him paid by said Grantee, the receipt of which is hereby acknowledged, has bargained and sold, and by these presents does bargain, sell and convey to said Grantee, and his heirs and assigns, certain land in Franklinville Township, Randolph County, State of North Carolina, described as follows:

BEGINNING at a stone pile in Jordan Spinning Company's line, Wickers' Northeast corner; running thence with said Wickers' line North 85 degrees 18 minutes West 1880.33 feet to a stone pile; said Wickers' Northwest corner; thence North 84 degrees 45 minutes West 1602.82 feet to a stone located on the east side of a road at a fence corner; thence North 03 degrees 52 minutes East 1531.76 feet to an iron post and stone; thence South 87 degrees 22 minutes East 224.76 feet to a stone; thence North 4 degrees 08 minutes East 239.30 feet to an iron post in the north edge of an old road near a large poplar tree; the point of the property line being located in the center line of said old road; thence with the center line of said old road the following courses and distances: North 58 degrees 09 minutes West 291.86 feet; North 64 degrees 26 minutes West 56.55 feet; North 57 degrees 56 minutes West 205.71 feet; North 35 degrees 11 minutes West 84.74 feet to a point in the approximate center line of said road, a southwest corner of Reeder; thence with said Reeder's line the following courses and distances: North 38 degrees 00 minutes East 528.40 feet; North 61 degrees 23 minutes East 427 feet; North 22 degrees 09 minutes East 238.75 feet; North 5 degrees 24 minutes East 204.89 feet to a point in the south bank of Deep River, said Reeder's northeast corner; thence with the south bank of Deep River the following courses and distances: South 81 degrees 29 minutes East 112.43 feet; South 81 degrees 45 minutes East 243.66 feet; North 49 degrees 37 minutes East 193.43 feet; North 87 degrees 00 minutes East 257.33 feet; South 82 degrees 08 minutes East 795.88 feet; South 57 degrees 23 minutes East 377.14 feet; South 40 degrees 35 minutes East 326.37 feet; South 27 degrees 04 minutes East 323.81 feet; South 17 degrees 21 minutes West 100 feet; South 22 degrees 23 minutes West 176.55 feet; South 17 degrees 45 minutes East 202.12 feet; South 35 degrees 54 minutes East 268.53 feet; South 25 degrees 34 minutes West 123.43 feet; South 60 degrees 02 minutes East 87.69 feet to an iron pin; North 51 degrees 56 minutes East 188.53 feet to an iron pin; North 82 degrees 30 minutes East 131.63 feet; South 77 degrees 26 minutes East 244.74 feet; North 76 degrees 05 minutes East 199.58 feet; North 55 degrees 23 minutes East 286.47 feet; North 46 degrees 59 minutes East 135.92 feet; North 44 degrees 16 minutes East 126.90 feet; North 49 degrees 47 minutes East 268 feet to an iron post in Jordan Spinning Company's line; thence with said Jordan Spinning Company's line South 5 degrees 21 minutes West 1819.03 feet to a stone pile in said Jordan Spinning Company's line; thence with said Jordan line

RANDOLPH COUNTY REGISTER OF DEEDS-The following is an unofficial converted record which has not been verified An official copy may be obtained at the Register of Deeds office.

North 83 degrees 31 minutes West 671.40 feet to a stone pile set in a stump hole, a corner of said Jordan, and in its line; thence with said line (Jordan's) South 2 degrees 37 minutes West 789.87 feet to the point or place of the BEGINNING, containing 253.03 acres, more or less.

This deed also grants and conveys unto the Grantee that certain right of way and easement granted in that certain instrument dated September 2, 1965, from Rolas B. York, Sr., et als., which is recorded in Book 919, at page 199, Randolph County, North Carolina, Registry.

RANDOLPH COUNTY REGISTER OF DEEDS-The following is an unofficial converted record which has not been verified.An official copy may be obtained at the Register of Deeds office

TO HAVE AND TO HOLD, the aforesaid land and all privileges and appurtenances thereto belonging, to the said Grantee, his heirs and assigns, to his only use and behoof forever.

And the said Grantor covenants that it is seized of said premises in fee, and has the right to convey the same in fee simple, that the same are free and clear from all encumbrances, and that it will warrant and defend the said title to the same against the lawful claims of all persons whomsoever.

Whenever used herein, the singular shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders as the context may require.

IN TESTIMONY WHEREOF, the Grantor has caused these presents to be signed in its name by its President, attested by its Secretary, and its Corporate Seal to be hereto affixed, all by proper authority duly granted by its Board of Directors the day and year first above written.

ALPINE VILLAGE, INC.

By: William A. Mohler
President

ATTEST:

Elsie M. Mohler
Secretary

NORTH CAROLINA, CUMBERLAND COUNTY

I, Marie A. Hall, a Notary Public in and for said County and State, do hereby certify that William A. Mohler personally appeared before me this day, who, being duly sworn, deposes and says: that he is the President of Alpine Village, Inc. and that Elsie M. Mohler is the Secretary; that the seal affixed to the foregoing instrument, in writing, is the Corporate Seal of said Corporation; that said instrument was signed and sealed by him and attested by the said Secretary, in behalf of said Corporation, all by its authority duly granted. And the said President acknowledged the said instrument to be the act and deed of said Corporation.

WITNESS my hand and Notarial Seal, this 2nd day of August, 1972

Marie A. Hall
Notary Public

My Commission Expires: 3-10-76

NORTH CAROLINA, ~~CUMBERLAND~~ Randolph COUNTY

The foregoing certificate of Marie A. Hall, a Notary Public, Cumberland County, N.C. is certified to be correct.

This instrument was presented for registration and recorded in this Office at Book 205 Page 102

This 30 day of August, 1972 at 11:35 o'clock A.M.

~~MARION BEAN~~
REGISTER OF DEEDS

By Annie Shaw
~~Deputy~~ Register of Deeds

RANDOLPH COUNTY 171735

STATE OF NORTH CAROLINA SEP 20 '91

Real Estate Excise Tax 250.00

Excise Tax

000286

No Fee - Recorded 250.00

Recording Time, Book and Page

Tax Lot No. Parcel Identifier No.

Verified by County on the day of , 19

by

wsd4 co-moore

Mail after recording to Ed Gavin

This instrument was prepared by W. Ed Gavin, Attorney at Law, 119 Worth Street, Asheboro, NC 27203

Brief description for the Index PART OF 2772452574

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 20th day of September, 1991, by and between

GRANTOR	GRANTEE
JANE MARIE LAUGHLIN MOORE and husband, RICHARD DEAN MOORE of Randolph County, North Carolina	RANDOLPH COUNTY, a political subdivision of the State of North Carolina 707 McDowell Road Asheboro, North Carolina 27203

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of , Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

For property description see Exhibit "A" attached hereto and incorporated herein.

108056

The property hereinabove described was acquired by Grantor by instrument recorded in .....

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

090287

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Jane Marie Laughlin Moore (SEAL)
JANE MARIE LAUGHLIN MOORE

Richard Dean Moore (SEAL)
RICHARD DEAN MOORE

..... (SEAL)

..... (SEAL)

SEAL-STAMP

PHYLLIS J. HICKS NOTARY PUBLIC RANDOLPH COUNTY, N.C.

Use Black Ink

NORTH CAROLINA, Randolph County.

I, a Notary Public of the County and State aforesaid, certify that JANE MARIE LAUGHLIN MOORE and husband, RICHARD DEAN MOORE, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 20th day of September, 19.91

My commission expires: August 21, 1995 Phyllis J. Hicks Notary Public

SEAL-STAMP

Use Black Ink

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that .....

personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ....., 19.....

My commission expires: ..... Notary Public

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Phyllis J. Hicks, N.P.

.....

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1308, Page 286, This 20 day of September, 1991 at 10:34 o'clock A. M.

Ann Shaw, Register of Deeds

By Knecia Rowe, Deputy Register of Deeds

3/2/2

FILED Krista M Lowe
Register of Deeds, Randolph Co.NC
Recording Fee $26.00
NC Real Estate Ex Tx:$836 00

2011071200011290O DEED
Bk:RE2241 Pg:410
07/12/2011 03 39 42 PM 1/3

NORTH CAROLINA GENERAL WARRANTY DEED

Purchase Price:$417,500.00 Revenue Stamps: $835.00
Mail to: Grantee: P.O. Box 4728, Asheboro, NC 27204
Prepared by: Smith, Alexander & Morgan, L.L.P., Attorneys, Asheboro, North Carolina 27203

THIS DEED is made this 12th day of July 2011, by and between the following Grantor and Grantee:

Grantor: **CHARLES LYNN SMALL (Single)**
4807 Walker Mill Road, Sophia, NC 27350

JOYCE SMALL WALKER and husband, CHARLES ROBERT WALKER
124 Kenn-Myer Drive, Thomasville, NC 27360

CAROLYN SMALL SMITH and husband, JAMES LARRY SMITH
4129 Hardins Farm Road, Sophia, NC 27350

Grantee: **RANDOLPH COUNTY**
725 McDowell Road, Asheboro, NC 27205

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall signify either singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple that certain lot or parcel of land situated in Franklinville Township, Randolph County, North Carolina, which is more particularly described as follows:

RE2241 411 2/3

BEGINNING at an iron pipe, Small and Jordan corner; running thence South 5 degrees 45 minutes West 250 feet to an iron pipe; thence South 5 degrees 55 minutes West 1,349.08 feet to a stake in stone pile, Presnell's corner; thence North 84 degrees 55 minutes West 1,895.86 feet along Presnell's line to an iron pipe, Whitaker's corner; thence North 6 degrees 27 minutes East 1,609.55 feet along Whitaker's line to an iron pipe in stone pile; thence South 84 degrees 17 minutes East 904.43 feet to an iron pipe; thence South 84 degrees 09 minutes East 198.65 feet to a stake and stone; thence South 84 degrees 23 minutes East 198.62 feet to an iron pipe; thence South 84 degrees 16 minutes East 574.66 feet to an iron pipe, the place and point of BEGINNING, containing 69.64 acres, more or less, according to an unrecorded survey by Clotus Craven, Registered Surveyor, December, 1960, Asheboro, North Carolina.

For back reference see Deed recorded in Deed Book 1246, Page 1078, Randolph County Registry.

The above described property is not the primary residence of the Grantor.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, the Grantors have hereunto set their hands and seals the day and year first above written.

Charles Lynn Small (SEAL)
Charles Lynn Small

Joyce Small Walker (SEAL)
Joyce Small Walker

Charles Robert Walker (SEAL)
Charles Robert Walker

Carolyn Small Smith (SEAL)
Carolyn Small Smith

James Larry Smith (SEAL)
James Larry Smith

RE2241 412 3/3

NORTH CAROLINA, RANDOLPH COUNTY.

I, Sharon A. Grose, a Notary Public of the County and State aforesaid, certify that **Charles Lynn Small,** Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 12th day of July, 2011.

My commission expires: May 5, 2013 Sharon A. Grose
Notary Public

SHARON A. GROSE NOTARY PUBLIC RANDOLPH COUNTY, NC

NORTH CAROLINA, RANDOLPH COUNTY.

I, Sharon A. Grose, a Notary Public of the County and State aforesaid, certify that **Joyce Small Walker and husband, Charles Robert Walker,** Grantors, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 12th day of July, 2011.

My commission expires: May 5, 2013 Sharon A. Grose
Notary Public

SHARON A. GROSE NOTARY PUBLIC RANDOLPH COUNTY, NC

NORTH CAROLINA, RANDOLPH COUNTY.

I, Sharon A. Grose, a Notary Public of the County and State aforesaid, certify that **Carolyn Small Smith and husband, James Larry Smith,** Grantors, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 12th day of July, 2011.

My commission expires: May 5, 2013 Sharon A. Grose
Notary Public

SHARON A. GROSE NOTARY PUBLIC RANDOLPH COUNTY, NC

N/S 31.50
Rec. 8.00

000948

31.00

Excise Tax | Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....
Verified by ..... County on the ..... day of ....., 19....
by .....

Mail after recording to Randolph County Office Building 707 McDowell Rd. Asheboro, NC 27203

This instrument was prepared by MOSER, OGBURN, HEAFNER, SCHMIDLY & WELLS
Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of November, 19 90, by and between

GRANTOR	GRANTEE
Carl A. Tomeo, Jr. and wife, Yon Cha Tomeo	Randolph County, a Political Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEGINNING at the southwest property corner of Jordan Estates, said corner being a common corner with Clark Small, Wicker, and the County of Randolph; thence along the common line of Jordan Estates and the County of Randolph three calls as follows: (1) North 5 degrees 00 minutes East 789.77 feet to a point; (2) thence South 81 degrees 04 minutes East 671.46 feet to a point; (3) thence North 07 degrees 45 minutes 30 seconds East 2027.49 feet to a point in the center line of the Deep River; thence down the center line of the Deep River North 77 degrees 18 minutes 30 seconds East 106.72 feet to a point; thence a new line South 07 degrees 45 minutes 30 seconds West 2831.25 feet to a point in the common property line of Jordan Estates and Clark Small; thence along said common property line North 82 degrees 54 minutes 45 seconds West 733.43 feet to the point of BEGINNING and containing 18.112 acres, more or less.

94073

N.C. Bar Assoc. Form No. 3 © 1976, Revised 1977.
Printed by Agreement with the N.C. Bar Assoc.-1981.

000949

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1136, Page 509, Randolph County Registry.

A map showing the above described property is recorded in Plat Book ..... page ..... .

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, this day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Carl A. Tomeo, Jr. (SEAL)

BY

~~Yon Cha Tomeo, Attorney-in-fact for~~ (SEAL)
~~Carl A. Tomeo, Jr.~~

Yon Cha Tomeo (SEAL)

(SEAL)

SEAL-STAMP

EARLENE O'GUTHRIE NOTARY PUBLIC ALAMANCE COUNTY, N.C.

NORTH CAROLINA, Randolph County.

I, a Notary Public of the County and State aforesaid, certify that Carl A. Tomeo Jr. Yon Cha Tomeo Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 27th day of November, 19 90

My commission expires: 4-11-93 Earlene O. Guthrie Notary Public

Use Black Ink

SEAL-STAMP

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that ..... personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ..... 19.....

My commission expires: ..... Notary Public

Use Black Ink

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Earlene O. Guthrie, N.P.

.....

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280, Page 948, This 27 day of November, 19 90 at 1:20 o'clock P. M.

Ann Shaw, Register of Deeds

By Marlene Evans, Asst. Register of Deeds

020957

Excise Tax

NOV 27 '90 PB. 167

Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....

Verified by ..... County on the ..... day of ....., 19.....

by .....

Mail after recording to grantee: Randolph County office Building 707 McDowell Road Asheboro NC 27203

This instrument was prepared by MOSER OGBURN HEAFNER SCHMIDLY & WELLS

Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of November, 19 90, by and between

GRANTOR	GRANTEE
RICHARD M. JAEGER AND WIFE, JUDY S. JAEGER	RANDOLPH COUNTY, a Political Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the XXXXXX Village of Cedar Falls, Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEGINNING at a point in the common property line of Jordan Estates and Clark Small, said point being located along said property line S 82 degrees 54' 45" E 733.43 feet from the common property corner of Jordan Estates, Clark Small, Wicker, and the County of Randolph; thence a new line N 07 degrees 45' 30" E 2831.25 feet to a point in the centerline of the Deep River; thence down the centerline of the Deep River N 77 degrees 18' 30" E 170.75 feet to a point; thence another new line S 7 degrees 45' 30" W 2889.03 feet to a point in the common property line of Jordan Estates and Clark Small; thence along said property line N 82 degrees 54' 45" W 160.00 feet to the point of BEGINNING and containing 10.505 acres, more or less.

94076

N.C. Bar Assoc Form No. 3 © 1976, Revised 1977.
Printed by Agreement with the N.C. Bar Assoc.-1981

020358

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1136, Page 506, Randolph County Registry

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Richard M. Jaeger (SEAL)

Judy S. Jaeger (SEAL)

..... (SEAL)

..... (SEAL)

SEAL-STAMP

NORTH CAROLINA, Guilford County.

I, a Notary Public of the County and State aforesaid, certify that Richard M. Jaeger and wife, Judy S. Jaeger Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 23rd day of November, 1990.

My commission expires: 1-19-91 Jeanette Alverson Notary Public

Use Black Ink

SEAL-STAMP

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that ..... personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ..... 19.....

My commission expires: ..... Notary Public

Use Black Ink

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Jeanette Alverson, N.P.

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280, Page 957. This 27 day of November, 19 90 at 11:30 o'clock A. M.

Ann Shaw, Register of Deeds

By Darlene Owens, Assistant Register of Deeds

8 00 AM
30 00 AL

020261

80.00

Excise Tax | Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....
Verified by ..... County on the ..... day of ....., 19 .....
by .....

Mail after recording to Randolph County Office Building 707 McDowell Road Asheboro NC 27203

This instrument was prepared by MOSER OGBURN HEAFNER SCHMIDLY & WELLS
Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of November, 19 90, by and between

GRANTOR	GRANTEE
JOHN M. JORDAN AND WIFE, MARGARET C. JORDAN	RANDOLPH COUNTY, a Poltical Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

TRACT NO. 1:
BEGINNING at a point in Clark Small's northern property line, said point being the southeast corner of Lot 2 of Jordan Estates (now presently owned by Jaeger); running thence along Jaeger's western property line North 7 degrees 45 minutes 30 seconds East 2,889.23 feet to a point; thence North 77 degrees 18 minutes 30 seconds East 87.29 feet; thence South 65 degrees 04 minutes East 81.85 feet to a point in Manley's northwest corner; thence along Manley's western property line North 7 degrees 45 minutes 30 seconds East 2,893.49 feet to a point in Small's northern property line; thence along Small's northern property line North 82 degrees 54 minutes 45 seconds West 166.00 feet to the point and place of the Beginning, containing approximately 10.669 acres more or less, according to survey entitled Map A-1 property of Jordan Estates, dated June 18th, 1980 by Moore Gardner & Associates.

TRACT NO. 2:
BEGINNING at a point in the northwest corner of a 10.025 acre tract owned by Zachary, said point also being in the western property line of a tract presently owned by Daniel Grant; running thence along Zachary's northern property line South 86 degrees 8 minutes 30 seconds East 1,364.31 feet to a point in the centerline of Deep River; thence along the centerline of Deep River the following courses and distances: North

94678

5 degrees 40 minutes 7 seconds East 272.35 feet, North 8 degrees 12 minutes 48 seconds West 199.73 feet, North 24 degrees 29 minutes 40 seconds East 185.81 feet, North 6 degrees 12 minutes 10 seconds East 192.58 feet, North 60 degrees 19 minutes 30 seconds West 480.37 feet, North 75 degrees 5 minutes 12 seconds West 270.61 feet, North 84 degrees 12 minutes 36 seconds West 175.71 feet, South 50 degrees 40 minutes 45 seconds West 311.40 feet, South 66 degrees 56 minutes 30 seconds West 259.23 feet; thence along Grant's eastern property line South 7 degrees 45 minutes 30 seconds West 772.00 feet to the point and place of the Beginning, containing 30.002 acres more or less, according to survey entitled Survey for Jordan Properties, dated November 20th, 1986 by Craven Surveyors.

020962

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1107, Page 367, Randolph County Registry.

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

John M. Jordan (SEAL)
John M. Jordan

Margaret C. Jordan (SEAL)
Margaret C. Jordan

..... (SEAL)

..... (SEAL)

SEAL-STAMP

NORTH CAROLINA, Alamance County.

I, a Notary Public of the County and State aforesaid, certify that John M. Jordan and wife, Margaret C. Jordan Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 26th day of November, 1990.

My commission expires: 8/31/94 Betty Gay Whisnant Notary Public

Use Black Ink

SEAL-STAMP

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that ..... personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ....., 19.....

My commission expires: ..... Notary Public

Use Black Ink

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Betty Gay Whisnant NP

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280, Page 941, This 27 day of November, 19 90 at 11 30 o'clock A. M.

Ann Shaw, Register of Deeds

By Marlene Owens, Asst Register of Deeds

5 00 ac
18 00

009963

Excise Tax

NOV 27 '90 P.B. C/O

Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....

Verified by ..... County on the ..... day of ....., 19.....

by .....

Mail after recording to Randolph County Office Building 707 McDowell Road Asheboro, NC 27203

This instrument was prepared by MOSER OGBURN HEAFNER SCHMIDLY & WELLS

Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of November, 19 90, by and between

GRANTOR	GRANTEE
CALVIN MANLEY AND WIFE, JERRI MANLEY	RANDOLPH COUNTY, a Political Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEGINNING at a point set in the northern property line of Clark Small, said point being the southeast corner of Lot 3 (now owned by John Jordan); thence along Jordan's eastern property line North 7 degrees 45 minutes 30 seconds East 2,893.49 feet to a point; thence South 65 degrees 04 minutes East 167.47 feet to a point in the northwest corner of Lot 5 of Jordan Estates, presently owned by Daniel Grant; thence along Grant's eastern property line South 7 degrees 45 minutes 30 seconds West 2,842.16 feet to a point in Clark Small's southern property line; thence along Small's southern property line North 82 degrees 54 minutes 45 seconds West 160.00 feet to the point and place of the Beginning, containing approximately 10.533 acres more or less, according to survey entitled Map A-1 of the property of Jordan Estates, dated June 18th, 1980 by Moore Gardner & Associates.

94079

020364

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1136, Page 505, Randolph County Registry.

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Calvin Manley (SEAL)

Geri Manley (SEAL)

..... (SEAL)

..... (SEAL)

SEAL-STAMP

PHYLLIS J. HICKS NOTARY PUBLIC RANDOLPH COUNTY, N.C.

NORTH CAROLINA, Randolph County.

I, a Notary Public of the County and State aforesaid, certify that Calvin Manley and wife, Geri Manley Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 27th day of November, 19 90.

Use Black Ink

My commission expires: August 21, 1995 Phyllis J. Hicks Notary Public

SEAL-STAMP

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that .....

personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ..... 19.....

Use Black Ink

My commission expires: ..... Notary Public

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Phyllis J. Hicks, N.P.

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280, Page 963, This 27 day of November, 19 90 at 11:30 o'clock A. M.

Ann Shaw, Register of Deeds

By Darlene Devers, Asst. Register of Deeds

11 00 REC
35 50 EX

35.50

Excise Tax

090991

Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....
Verified by ..... County on the ..... day of ....., 19.....
by .....

Mail after recording to Randolph County Office Building 707 McDowell Road Asheboro, NC 27203

This instrument was prepared by MOSER OGBURN HEAFNER SCHMIDLY & WELLS

Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 8th day of november, 19 90, by and between

GRANTOR	GRANTEE
DANIEL OLIVER GRANT (Single)	RANDOLPH COUNTY, a Political Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

See attached exhibit "A"

94091

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1182, Page 1012, Randolph County Registry.

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.
Title to the property hereinabove described is subject to the following exceptions:

000992

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

..... (Corporate Name)

By: .....

..... President

ATTEST:

..... Secretary (Corporate Seal)

USE BLACK INK ONLY

Daniel Oliver Grant (SEAL)
Daniel Oliver Grant

..... (SEAL)

..... (SEAL)

..... (SEAL)

SEAL-STAMP

PHYLLIS J. HICKS NOTARY PUBLIC RANDOLPH COUNTY, N.C.

Use Black Ink

NORTH CAROLINA, Randolph County.

I, a Notary Public of the County and State aforesaid, certify that Daniel Oliver Grant Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 27th day of November, 1990.

My commission expires: August 21, 1995 Phyllis J. Hicks Notary Public

SEAL-STAMP

Use Black Ink

NORTH CAROLINA, ... County.

I, a Notary Public of the County and State aforesaid, certify that ..... personally came before me this day and acknowledged that ..... he is ..... Secretary of ..... a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its ..... President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ....., 19.....

My commission expires: ..... Notary Public

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Phyllis J. Hicks, N.P.

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280, Page 991, This 27th day of November, 1990 at 12:02 o'clock P. M.

Ann Shaw, Register of Deeds

By Kimberly M. Rowe Deputy Register of Deeds

8.00 wc
51.50 w

020967

Excise Tax

Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....

Verified by ..... County on the ..... day of ....., 19.....

by .....

Mail after recording to grantee: Randolph County office Building 707 McDowell Road Asheboro, NC 27203

This instrument was prepared by MOSER OGBURN HEAFNER SCHMIDLY & WELLS

Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 27th day of November, 19 90, by and between

GRANTOR	GRANTEE
DANIEL NORRIS ALMAN AND WIFE, CATHEY SUE MCDOUGAL	RANDOLPH COUNTY, a political Subdivision of the State of North Carolina

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Franklinville Township, Randolph County, North Carolina and more particularly described as follows:

BEGINNING at an iron pipe in the Daniel Grant eastern line, which said iron pipe is located North 07 degrees 45' 30" East 968 feet from the southeast corner of the Daniel Grant 10-acre tract; thence South 84 degrees 58' 20" East 2150.54 feet to a point in the center of Deep River; thence with the center of Deep River the following courses and distances, to wit: North 39 degrees 59' 42" West 323.6 feet to a point; thence North 47 degrees 09' 15" West 410.83 feet to a point; thence North 31 degrees 43' 50" West 136.41 feet to a point; thence North 08 degrees 26' 05" West 199.01 feet to a point; thence leaving the river and proceeding North 87 degrees 32' 15" West 1436.26 feet to an iron pipe in the Grant eastern line; thence with the Grant eastern line, South 07 degrees 45' 30" West 720 feet to the Beginning, containing 30.847 acres, more or less.

9408

N.C. Bar Assoc. Form No. 3 © 1976, Revised 1977.
Printed by Agreement with the N.C. Bar Assoc.-1981

020968

The property hereinabove described was acquired by Grantor by instrument recorded in Deed Book 1192, Page 162, Randolph County Registry

A map showing the above described property is recorded in Plat Book ..... page .....

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated. Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

USE BLACK INK ONLY

..... (Corporate Name)

By: .....

..... President

ATTEST:

.....

..... Secretary (Corporate Seal)

Daniel Norris Alman (SEAL)
Daniel Norris Alman

Cathey Sue McDougal (SEAL)
Cathey Sue McDougal

..... (SEAL)

..... (SEAL)

SEAL-STAMP

~~NORTH~~ South CAROLINA, Pickens County.

I, a Notary Public of the County and State aforesaid, certify that Daniel Norris Alman and wife, Cathey Sue McDougal personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 23 day of November, 19 90

My commission expires: 10-16-96 Jane W. Bridges Notary Public

Use Black Ink

JANE W. BRIDGES NOTARY PUBLIC RANDOLPH COUNTY NORTH CAROLINA

SEAL-STAMP

~~NORTH~~ South CAROLINA, Pickens County.

I, a Notary Public of the County and State aforesaid, certify that .....,

personally came before me this day and acknowledged that ..... he is ..... Secretary of

..... a North Carolina corporation, and that by authority duly

given and as the act of the corporation, the foregoing instrument was signed in its name by its .....

President, sealed with its corporate seal and attested by ..... as its ..... Secretary.

Witness my hand and official stamp or seal, this ..... day of ....., 19.....

My commission expires: ..... Notary Public

Use Black Ink

NORTH CAROLINA — Randolph County

The foregoing certificate(s) of Jane W. Bridges, N.P.

.....

is (are) certified to be correct. This instrument was presented for registration and recorded in this office at Book 1280, Page 967, This 27 day of November, 19 90 at 11:30 o'clock A. M.

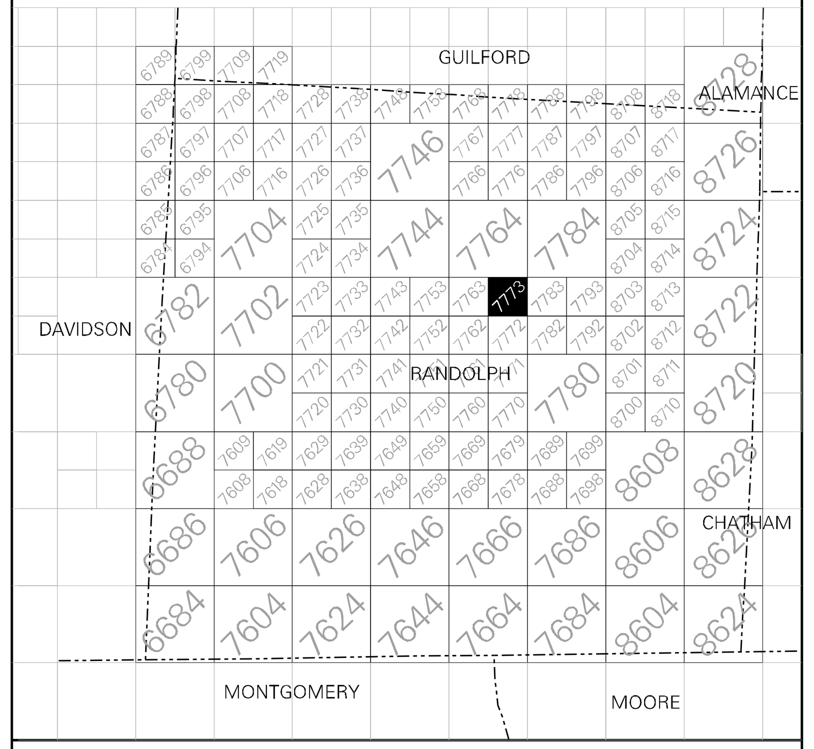
Ann Shaw Register of Deeds

By Darlene Owens, Asst Register of Deeds

Appendix SA-2

FEMA Flood Insurance Maps

STATE OF NORTH CAROLINA FIRM PANEL LOCATOR DIAGRAM



DATUM INFORMATION

The **projection** used in the preparation of this map was the North Carolina State Plane (FIPSZONE 3200). The **horizontal datum** was the North American Datum of 1983, GRS80 ellipsoid. Differences in datum, ellipsoid, projection, or Universal Transverse Mercator zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdictional boundaries. These differences do not affect the accuracy of this FIRM. All coordinates on this map are in U.S. Survey Feet, where 1 U.S. Survey Foot = 1200/3937 Meters.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. An average offset between NAVD 88 and the National Geodetic Vertical Datum of 1929 (NGVD 29) has been computed for each North Carolina county. This offset was then applied to the NGVD 29 flood elevations that were not revised during the creation of this statewide format FIRM. The offsets for each county shown on this FIRM panel are shown in the vertical datum offset table below. Where a county boundary and a flooding source with unrevised NGVD 29 flood elevations are coincident, an individual offset has been calculated and applied during the creation of this statewide format FIRM. See Section 6.1 of the accompanying Flood Insurance Study report to obtain further information on the conversion of elevations between NAVD 88 and NGVD 29. To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the North Carolina Geodetic Survey at the address shown below. You may also contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

North Carolina Geodetic Survey
121 West Jones Street
Raleigh, NC 27601
(919) 733-3836
http://www.ncgs.state.nc.us

County Average Vertical Datum Offset Table

County	Vertical Datum Offset (ft)
Randolph	– 0.76

Example: NAVD 88 = NGVD 29 + (–0.76)

All streams listed in the **Flood Hazard Data Table** below were studied by detailed methods using field survey. Other flood hazard data shown on this map may have been derived using either a coastal analysis or limited detailed riverine analysis. More information on the flooding sources studied by these analyses is contained in the Flood Insurance Study report.

FLOOD HAZARD DATA TABLE

Cross Section	Stream Station[1]	Flood Discharge (cfs)	1% Annual Chance (100-year) Water-Surface Elevation (feet NAVD 88)	Floodway Width (feet) Left/Right Distance From the Center of Stream to Encroachment Boundary (Looking Downstream) or Total Floodway Width
DEEP RIVER				
4477	447,736	25,900	549.4	120 / 170
4482	448,165	25,900	549.7	100 / 110
4487	448,665	25,900	550.2	90 / 90
4492	449,165	25,900	551.0	82 / 191
4497	449,665	25,900	551.7	82 / 192
4502	450,220	25,900	552.5	81 / 161
4507	450,748	25,900	553.1	90 / 90
4511	451,103	25,900	554.4	131 / 170
4516	451,615	25,800	569.7	137 / 170
4522	452,165	25,800	570.6	140 / 166
4527	452,665	25,800	571.4	150 / 100
4532	453,165	25,800	572.0	150 / 120
4536	453,619	25,800	572.6	95 / 200
4542	454,165	25,800	573.0	95 / 170
4547	454,710	25,800	573.5	150 / 200
4552	455,165	25,800	573.8	95 / 200
4557	455,665	25,800	574.3	250 / 250
4563	456,257	25,800	574.6	265 / 95
4568	456,832	25,800	575.1	290 / 305
4574	457,409	25,700	575.4	465 / 109
4579	457,917	25,700	575.7	294 / 226
4586	458,569	25,600	576.2	110 / 360
4593	459,297	25,600	578.1	145 / 135
4599	459,859	25,600	578.5	100 / 77
4603	460,253	25,600	579.2	95 / 70
4608	460,785	25,600	580.2	70 / 80
HASKETTS CREEK				
002	150	NA	580.2 [2]	57

[1] Feet above mouth
[2] Elevation includes backwater effects from Deep River

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100–year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water–surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of future conditions 1% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance and future conditions 1% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Symbol	Description
	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D Boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
~~513~~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

Symbol	Description
012	Cross section line
23 - - - - - - 23	Transect line
97° 07′ 30″, 32° 22′ 30″	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4276 000 M	1000–meter Universal Transverse Mercator grid ticks, zone 17
1 477 500 FEET	2500–foot grid values: North Carolina State Plane coordinate system (FIPSZONE 3200, State Plane NAD 83 feet)
BM5510 ×	North Carolina Geodetic Survey bench mark (for more information visit http://www.ncgs.state.nc.us)
BM5510 ⊗	National Geodetic Survey bench mark (for more information visit http://www.ngs.noaa.gov)
BM5510	NGS–58 GPS 2–5 cm Vertical Control Marks or Contractor–Established NCFMP Bench Marks (for more information visit http://www.ncgs.state.nc.us)
● M1.5	River Mile

GRID NORTH

MAP SCALE 1" = 500' (1 : 6,000)

250 0 500 1000 FEET

150 0 150 300 METERS

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles, Floodway Data, Limited Detailed Flood Hazard Data, and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole–foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of **regulatory floodways** shown on the FIRM for flooding sources studied by detailed methods were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data for flooding sources studied by detailed methods as well as **non-encroachment widths** for flooding sources studied by limited detailed methods are provided in the FIS report for this jurisdiction. The FIS report also provides instructions for determining a floodway using non–encroachment widths for flooding sources studied by limited detailed methods.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 4.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

Base map information and geospatial data used to develop this FIRM were obtained from various organizations, including the participating local community(ies), state and federal agencies, and/or other sources. The primary basis for this FIRM is aerial imagery acquired by Randolph County. The time period of collection for the imagery is 2004. Information and geospatial data supplied by the local community(ies) that met FEMA base map specifications were considered the preferred source for development of the base map. See geospatial metadata for the associated digital FIRM for additional information about base map preparation.

Base map features shown on this map, such as **corporate limits**, are based on the most up–to–date data available at the time of publication. **Changes in the corporate limits may have occurred since this map was published**. Map users should consult the appropriate community official or website to verify current conditions of jurisdictional boundaries and base map features. This map may contain roads that were not considered in the hydraulic analysis of streams where no new hydraulic model was created during the production of this statewide format FIRM.

This map reflects more detailed and up–to–date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

If you have **questions about this map**, or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1–877–336–2627) or visit the FEMA website at http://www.fema.gov.

An accompanying Flood Insurance Study report, Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) revising portions of this panel, and digital versions of this FIRM may be available. Visit the **North Carolina Floodplain Mapping Program** website at http://www.ncfloodmaps.com, or contact the **FEMA Map Service Center** at 1–800–358–9616 for information on all related products associated with this FIRM. The FEMA Map Service Center may also be reached by Fax at 1–800–358–9620 and its website at http://www.msc.fema.gov.

MAP REPOSITORY

Refer to listing of Map Repositories on Map Index or visit http://www.ncfloodmaps.com.

EFFECTIVE DATE OF FLOOD INSURANCE RATE MAP PANEL
JANUARY 2, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to statewide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent, the North Carolina Division of Emergency Management or the National Flood Insurance Program at the following phone numbers or websites:

NC Division of Emergency Management
(919) 715–8000 http://www.nccrimecontrol.org/nfip

National Flood Insurance Program
1–800–638–6620 http://www.fema.gov/business/nfip

NORTH CAROLINA Cooperating Technical State
FEMA'S COOPERATING TECHNICAL PARTNER

This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long term approach of floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map floodplain areas at the local level. As a part of this effort, the State of North Carolina has joined in a Cooperating Technical State agreement with FEMA to produce and maintain this digital FIRM.

www.ncfloodmaps.com

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 7773J

FIRM
FLOOD INSURANCE RATE MAP
NORTH CAROLINA

PANEL 7773

(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	CID No.	PANEL	SUFFIX
ASHEBORO, CITY OF	370196	7773	J
RANDOLPH COUNTY	370195	7773	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

EFFECTIVE DATE JANUARY 2, 2008

MAP NUMBER 3710777300J

State of North Carolina
Federal Emergency Management Agency

STATE OF NORTH CAROLINA FIRM PANEL LOCATOR DIAGRAM

DATUM INFORMATION

The **projection** used in the preparation of this map was the North Carolina State Plane (FIPSZONE 3200). The **horizontal datum** was the North American Datum of 1983, GRS80 ellipsoid. Differences in datum, ellipsoid, projection, or Universal Transverse Mercator zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdictional boundaries. These differences do not affect the accuracy of this FIRM. All coordinates on this map are in U.S. Survey Feet, where 1 U.S. Survey Foot = 1200/3937 Meters.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. An average offset between NAVD 88 and the National Geodetic Vertical Datum of 1929 (NGVD 29) has been computed for each North Carolina county. This offset was then applied to the NGVD 29 flood elevations that were not revised during the creation of this statewide format FIRM. The offsets for each county shown on this FIRM panel are shown in the vertical datum offset table below. Where a county boundary and a flooding source with unrevised NGVD 29 flood elevations are coincident, an individual offset has been calculated and applied during the creation of this statewide format FIRM. See Section 6.1 of the accompanying Flood Insurance Study report to obtain further information on the conversion of elevations between NAVD 88 and NGVD 29. To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the North Carolina Geodetic Survey at the address shown below. You may also contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

North Carolina Geodetic Survey
121 West Jones Street
Raleigh, NC 27601
(919) 733–3836
http://www.ncgs.state.nc.us

County Average Vertical Datum Offset Table

County	Vertical Datum Offset (ft)
Randolph	– 0.76
Example: NAVD 88 = NGVD 29 + (–0.76)	

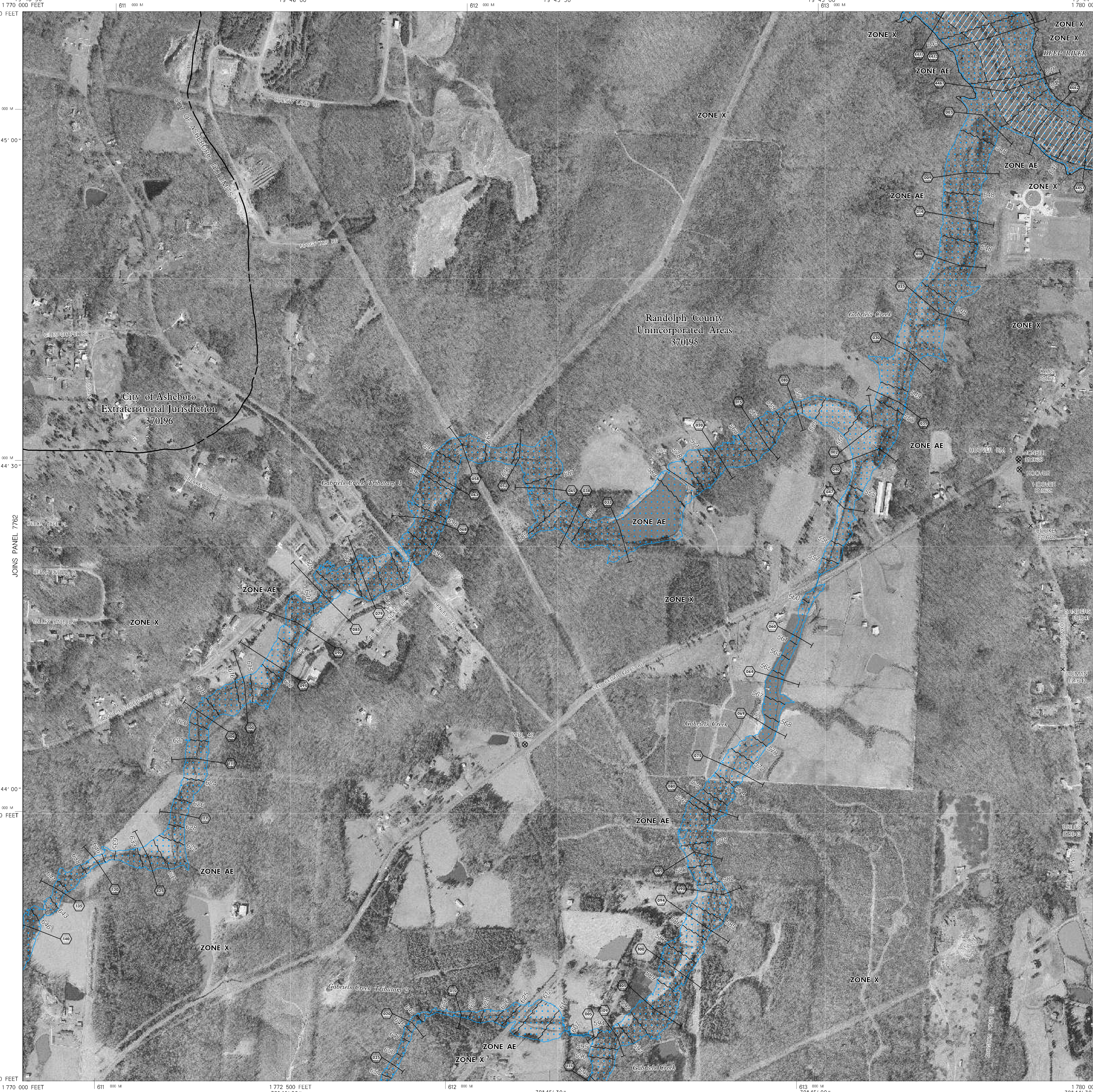
All streams listed in the **Flood Hazard Data Table** below were studied by detailed methods using field survey. Other flood hazard data shown on this map may have been derived using either a coastal analysis or limited detailed riverine analysis. More information on the flooding sources studied by these analyses is contained in the Flood Insurance Study report.

FLOOD HAZARD DATA TABLE

Cross Section	Stream Station[1]	Flood Discharge (cfs)	1% Annual Chance (100-year) Water-Surface Elevation (feet NAVD 88)	Floodway Width (feet) Left/Right Distance From the Center of Stream to Encroachment Boundary (Looking Downstream) or Total Floodway Width
DEEP RIVER				
4457	445,723	26,500	544.2	220 / 100
4462	446,246	26,500	546.1	200 / 100
4467	446,727	26,500	547.8	171 / 136
4473	447,250	25,900	548.8	120 / 130
4477	447,736	25,900	549.4	170 / 120

[1] Feet above mouth

JOINS PANEL 7773



JOINS PANEL 7771

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100–year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water–surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of future conditions 1% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance and future conditions 1% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D Boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
~~513~~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

012	Cross section line
23 - - - - 23	Transect line
97° 07′ 30″, 32° 22′ 30″	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4276 000 M	1000–meter Universal Transverse Mercator grid ticks, zone 17
1 477 500 FEET	2500–foot grid values: North Carolina State Plane coordinate system (FIPSZONE 3200, State Plane NAD 83 feet)
BM5510 ×	North Carolina Geodetic Survey bench mark (for more information visit http://www.ncgs.state.nc.us)
BM5510 ⊗	National Geodetic Survey bench mark (for more information visit http://www.ngs.noaa.gov)
BM5510 ◈	NGS–58 GPS 2–5 cm Vertical Control Marks or Contractor–Established NCFMP Bench Marks (for more information visit http://www.ncgs.state.nc.us)
● M1.5	River Mile

GRID NORTH

MAP SCALE 1" = 500' (1 : 6,000)

250 0 500 1000 FEET

150 0 150 300 METERS

NORTH CAROLINA Cooperating Technical State

FEMA'S COOPERATING TECHNICAL PARTNER

This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long term approach of floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map floodplain areas at the local level. As a part of this effort, the State of North Carolina has joined in a Cooperating Technical State agreement with FEMA to produce and maintain this digital FIRM.

www.ncfloodmaps.com

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles, Floodway Data, Limited Detailed Flood Hazard Data, and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole–foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of **regulatory floodways** shown on the FIRM for flooding sources studied by detailed methods were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data for flooding sources studied by detailed methods as well as **non-encroachment widths** for flooding sources studied by limited detailed methods are provided in the FIS report for this jurisdiction. The FIS report also provides instructions for determining a floodway using non–encroachment widths for flooding sources studied by limited detailed methods.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 4.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

Base map information and geospatial data used to develop this FIRM were obtained from various organizations, including the participating local community(ies), state and federal agencies, and/or other sources. The primary basis for this FIRM is aerial imagery acquired by Randolph County. The time period of collection for the imagery is 2004. Information and geospatial data supplied by the local community(ies) that met FEMA base map specifications were considered the preferred source for development of the base map. See geospatial metadata for the associated digital FIRM for additional information about base map preparation.

Base map features shown on this map, such as **corporate limits**, are based on the most up–to–date data available at the time of publication. **Changes in the corporate limits may have occurred since this map was published**. Map users should consult the appropriate community official or website to verify current conditions of jurisdictional boundaries and base map features. This map may contain roads that were not considered in the hydraulic analysis of streams where no new hydraulic model was created during the production of this statewide format FIRM.

This map reflects more detailed and up–to–date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

If you have **questions about this map**, or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1–877–336–2627) or visit the FEMA website at http://www.fema.gov.

An accompanying Flood Insurance Study report, Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) revising portions of this panel, and digital versions of this FIRM may be available. Visit the **North Carolina Floodplain Mapping Program** website at http://www.ncfloodmaps.com, or contact the **FEMA Map Service Center** at 1–800–358–9616 for information on all related products associated with this FIRM. The FEMA Map Service Center may also be reached by Fax at 1–800–358–9620 and its website at http://www.msc.fema.gov.

MAP REPOSITORY

Refer to listing of Map Repositories on Map Index or visit http://www.ncfloodmaps.com.

EFFECTIVE DATE OF FLOOD INSURANCE RATE MAP PANEL
JANUARY 2, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to statewide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent, the North Carolina Division of Emergency Management or the National Flood Insurance Program at the following phone numbers or websites:

NC Division of Emergency Management
(919) 715–8000 http://www.nccrimecontrol.org/nfip

National Flood Insurance Program
1–800–638–6620 http://www.fema.gov/business/nfip

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 7772J

FIRM
FLOOD INSURANCE RATE MAP
NORTH CAROLINA

PANEL 7772

(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	CID No.	PANEL	SUFFIX
ASHEBORO, CITY OF	370196	7772	J
RANDOLPH COUNTY	370195	7772	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

EFFECTIVE DATE
JANUARY 2, 2008

MAP NUMBER
3710777200J

State of North Carolina
Federal Emergency Management Agency

Appendix SA-3

Wetlands Jurisdictional Determination
Notification of Jurisdictional Determination, USACOE
Ephemeral, Intermittent, Perennial Determination, NCDENR

Request for Jurisdictional Determination (RJD)

August 20, 2012 1039684602

Mr. John Thomas
U.S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

RE: REQUEST FOR JURISDICTIONAL DETERMINATION
RANDOLPH COUNTY PUBLIC WORKS, PROPOSED LANDFILL SITE
RANDLEMAN, RANDOLPH COUNTY, NORTH CAROLINA

Dear Mr. Thomas:

Golder Associates NC, Inc. (Golder) on behalf of Randolph County Public Works (Randolph County) is pleased to present its request for jurisdictional determination for the waters of the U.S. (Appendix A) identified during a wetland delineation performed at a proposed landfill site located near Asheboro, Randolph County, North Carolina (35.752822 N, 79.755992 W; UTM Zone 44, Easting 387529, Northing 3957247).

Golder's services were requested by Randolph County to identify the presence and extent of wetlands and other water bodies located within the proposed landfill site. The site is located east of Asheboro and is addressed as 1257 County Land Road, Randleman, North Carolina (Figure 1). Deep River forms the northern property boundary of the site. Gabriel's Creek is located along the eastern boundary of the site. The site currently consists of approximately 665.9 acres of wooded land. According to county personnel, the central portion of the site was logged in the winter of 2009. Golder conducted a field investigation at the site from June 27 through July 1, 2011.

MAP REVIEW

The project site is depicted on the USGS 7.5 minute Quadrangle maps "Randleman, North Carolina", dated 1981; "Grays Chapel, NC", dated 1974; "Asheboro, NC", dated 1994; and "Ramseur, NC", dated 1980 (Figure 1). The elevation in the vicinity of the site ranges from approximately 841 feet above mean sea level (msl) in the north-central portion of the site to approximately 550 feet msl in the eastern portion of the site along the Deep River. The topographic highpoints are located in the central and south-central portions of the site. Mixed hardwood-pine bottoms drain in a northerly or easterly direction to Deep River or to Gabriel's Creek. An unimproved road traverses the central portion of the site, providing access to most of the streams that drain the site. An overhead power line traverses southwest to northeast through the central portion of the site. Surface water from the site generally flows east-northeast into the Deep River. The Deep River drainage basin is located in USGS Hydrologic Unit Code 0303003.

According to the NWI maps "Randleman, North Carolina"; "Grays Chapel, NC"; "Asheboro, NC"; and "Ramseur, NC" (Appendix F), wetlands are located along the banks and floodplain of the Deep River. The following aquatic features are depicted on the NWI mapping of the site:

- Freshwater Emergent
- Freshwater Forested/Shrub
- Freshwater Pond
- Lake
- Riverine

Golder Associates NC, Inc.
5B Oak Branch Drive
Greensboro, NC 27407
Tel: (336) 852-4903 Fax: (336) 852-4904 www.golder.com

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According to the USDA NRCS Soil Survey of Randolph County, North Carolina (Appendix G), soils at the project site include:

- Callison-Lignum complex, 2 to 6 percent slopes (CaB)
- Callison-Misenheimer complex, 6 to 10 percent slopes, frequently flooded (CbC)
- Chewacla loam, 0 to 2 percent slopes (ChA)
- Georgeville silt loam, 4 to 45 percent slopes (GbC and GdE)
- Riverview sandy loam, 0 to 2 percent slopes (RvA)
- Wynott-Enon complex, 2 to 45 percent slopes (WtB, WtC, WtD, WyC and WyE)

Of the listed soils located at the project site, the Callison-Lignum complex, Chewacla and Riverview soils are hydric.

The Callison series consists of deep, moderately well-drained soils. These soils formed in residuum weathered from Carolina slate in Piedmont uplands. Slopes range from 0 to 15 percent. Mean annual precipitation is 46 to 52 inches, and mean annual temperature is 57 to 63° Fahrenheit. The taxonomic class is thermic Aquic Hapludults.

The Lignum series consists of deep and moderately well to somewhat poorly drained soils. These soils formed in residuum weathered from Carolina slate in Piedmont uplands. Slopes range from 0 to 15 percent. Mean annual precipitation is 41 inches, and mean annual temperature is 57° F. The taxonomic class is fine, mixed, semiactive, thermic Aquic Hapludults.

The Chewacla series consists of somewhat poorly drained, moderate permeability soils. Slopes of this soil series range from 2 to 15 percent. The taxonomic class is fine-loamy, mixed, active, thermic Fluvaquentic Dystrudepts.

The Riverview series consists of very deep, well drained, moderately permeable soils formed in loamy alluvium on floodplains. Near the type location the average annual temperature is about 66° F and the average annual precipitation is about 58 inches. The taxonomic class is fine-loamy, mixed, active, thermic Fluventic Dystrudepts.

WETLANDS AND WATERS

Based on the wetland delineation and field reconnaissance, approximately 1.49 acres of forested and scrub-shrub wetlands, and 26,806 linear feet of perennial stream and intermittent streams (Figure 2) were identified and flagged. An Approved Jurisdictional Determination Form, routine wetland determination data forms (Appendix C), and North Carolina Department of Water Quality Stream forms (Appendix D) were completed and photographs were taken (Appendix E) for the drainage features. The following table describes each jurisdictional feature identified during the wetland delineation.

Table 1: Jurisdictional Features

Drainage Feature ID	Cowardin Class	Estimated Amount of Aquatic Resource in Project Area	Class of Aquatic Resource	NC DWQ Stream Score
Stream A	Perennial and Intermittent, RPW	515 LF Perennial 2,014 LF Intermittent	Non-Section 10, non-wetland	38
Stream B	Intermittent stream, RPW	1,144 LF	Non-Section 10, non-wetland	22
Stream C	Open water, adjacent to the Deep River	679 LF	Non-Section 10, non-wetland	Not scored. Relic channel of the Deep River.
Stream D	Perennial and Intermittent stream, RPW	265 LF Perennial 1,175 Intermittent	Non-Section 10, non-wetland	37.5 and 21

Drainage Feature ID	Cowardin Class	Estimated Amount of Aquatic Resource in Project Area	Class of Aquatic Resource	NC DWQ Stream Score
Stream E	Intermittent stream, RPW	197 LF	Non-Section 10, non-wetland	21.5
Stream F	Intermittent stream, RPW	225 LF	Non-Section 10, non-wetland	Not scored.
Stream G	Intermittent stream, RPW	1,224 LF	Non-Section 10, non-wetland	20.5
Stream I	Intermittent stream, RPW	423 LF	Non-Section 10, non-wetland	20
Stream J	Perennial and Intermittent stream, RPW	438 LF Perennial 2,555 LF Intermittent	Non-Section 10, non-wetland	20 and 32.5
Stream K	Intermittent stream, RPW	45 LF	Non-Section 10, non-wetland	Not scored. Stream K is a component of Stream J.
Stream L	Intermittent stream, RPW	161 LF	Non-Section 10, non-wetland	Not scored. Stream L is a component of Stream K.
Stream M	Perennial stream, RPW	2,212 LF	Non-Section 10, non-wetland	45.5
Stream N	Intermittent stream, RPW	2,293 LF	Non-Section 10, non-wetland	29
Stream O	Intermittent stream, RPW	126 LF	Non-Section 10, non-wetland	20.75
Stream P	Intermittent stream, RPW	1,857 LF	Non-Section 10, non-wetland	21
Stream Q	Intermittent stream, RPW	168 LF	Non-Section 10, non-wetland	26.5
Stream R	Intermittent stream, RPW	1,474 LF	Non-Section 10, non-wetland	20.5
Stream S	Perennial stream, RPW	1,596 LF	Non-Section 10, non-wetland	47
Stream T	Intermittent stream, RPW	2,110 LF	Non-Section 10, non-wetland	22.5
Stream U	Intermittent stream, RPW	383 LF	Non-Section 10, non-wetland	Not scored. Stream U is a component of Stream T.
Stream V	Intermittent stream, RPW	133 LF	Non-Section 10, non-wetland	Not scored. Stream V is a component of Stream T.
Stream W	Perennial stream, RPW	3,394 LF	Non-Section 10, non-wetland	Not scored. Stream W is Gabriels Creek.
Wetland A	PSS1A - Wetland	0.056 AC	Non-Section 10, wetland	NA
Wetland B	PSS1A - Wetland	0.003 AC	Non-Section 10, wetland	NA
Wetland C	PSS1A - Wetland	1.282 AC	Non-Section 10, wetland	NA
Wetland D	PSS1A - Wetland	0.036 AC	Non-Section 10, wetland	NA
Wetland E	PSS1A - Wetland	0.117 AC	Non-Section 10, wetland	NA

AC = acres
LF = linear feet
RPW = Relatively Permanent Water
NA = Not Applicable

The Deep River is a perennial, Traditionally Navigable and Relatively Permanent Water (RPW). Since the Deep River forms the site boundary and has well-established top-of-bank features, the Deep River was not flagged during the wetland delineation. Also, Stream X, located in the southeastern portion of the site, was not flagged due to site access constraints. Based on visual observations made from the adjacent property to the east, Stream X appeared to be an intermittent stream.

Gabriel's Creek and its associated floodplain and wetlands were not accessed due to the proximity of a police firing range posted with "No Trespassing" signs. Based on topographic maps, aerial photographs and visual observations of its upper reach, Gabriel's Creek appears to remain a perennial stream throughout its length along the eastern property boundary.

In addition to the wetland and waters delineation, Golder performed a limited cultural resources survey and a survey for the rare plant species, *Amorpha schwerini*. No Federally threatened or endangered species were observed during the site reconnaissance. Reports on these limited surveys will be issued as separate documents.

SITE ACCESS AND DIRECTIONS TO SITE

The majority of the proposed landfill site is owned by Randolph County. Access to the project site can be provided upon request. Randolph County requires all visitors to sign-in and register at the scale house at the adjacent transfer station. The Randolph County transfer station is located at 1257 County Land Road, Randleman, North Carolina, 27317. Randolph County requests that site visits be scheduled in advance. To schedule a site visit, please contact Mr. David Townsend, III, PE, Randolph County Public Works, at 336-318-6605 or 336-736-7983.

From downtown Asheboro, North Carolina, go north on N. Fayetteville Street. Turn right onto Old Liberty Road. Turn right onto Gant Street. Gant Street becomes Henly Country Road; continue straight. Turn left onto County Land Road. The destination will be on the left. Arrive at 1257 County Land Road, Randleman, North Carolina 27317.

CLOSING

Should you have questions or require clarification on this request for Jurisdictional Determination, please do not hesitate to contact us.

Sincerely,

GOLDER ASSOCIATES INC.

Christopher Brookshire, PWS
Senior Project Ecologist

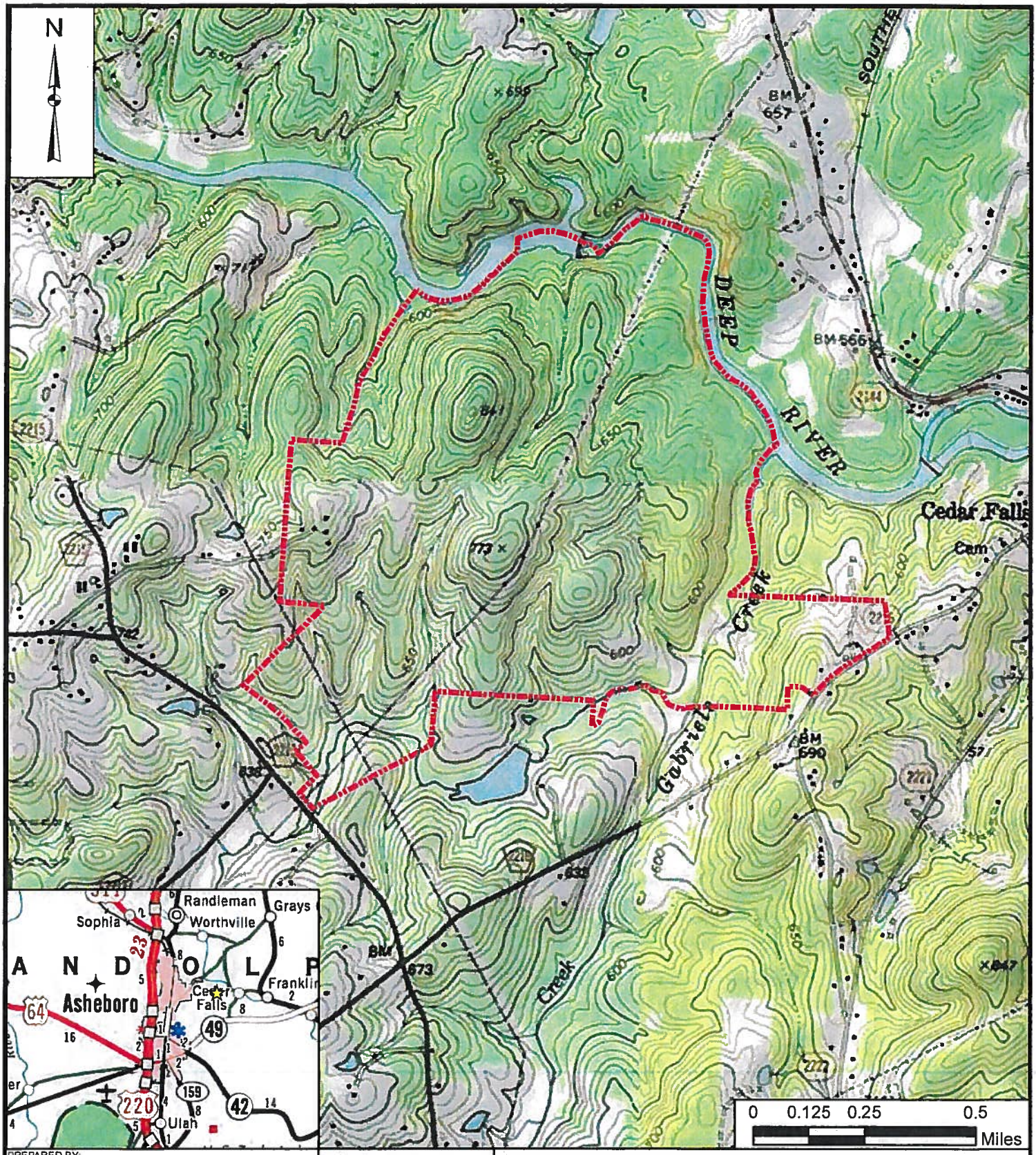
William M. Griffin
Senior Ecologist

Cc: Rachel P. Kirkman, PG, Golder Associates NC, Inc.
David Townsend, III, PE, Randolph County Public Works
Lauren Witherspoon, NC Department of Environmental and Natural Resources

Attachments:
Figure 1: USGS Topographic Map
Figure 2: Wetland Delineation Map
Appendix A: Approved Jurisdictional Determination Form
Appendix B: NC Natural Heritage Program Letter dated September 22, 2010
Appendix C: Data Forms – Routine Wetland Determination
Appendix D: North Carolina DWQ Stream Identification Forms
Appendix E: Site Photographs
Appendix F: National Wetlands Inventory Map
Appendix G: Soil Survey Map – Randolph County, North Carolina

CCB/WMG/sdp

FIGURES



PREPARED BY:

Golder Associates

Golder Associates NC, Inc.

FACILITY: RANDOLPH CO.

PROJECT #: 1039684602.100

SCALE: 1:18,000

CHECKED BY \ DATE: BSD \ 9-7-11

REVIEWED BY \ DATE: WMG \ 9-7-11

PREPARED FOR:

RANDOLPH COUNTY, NC

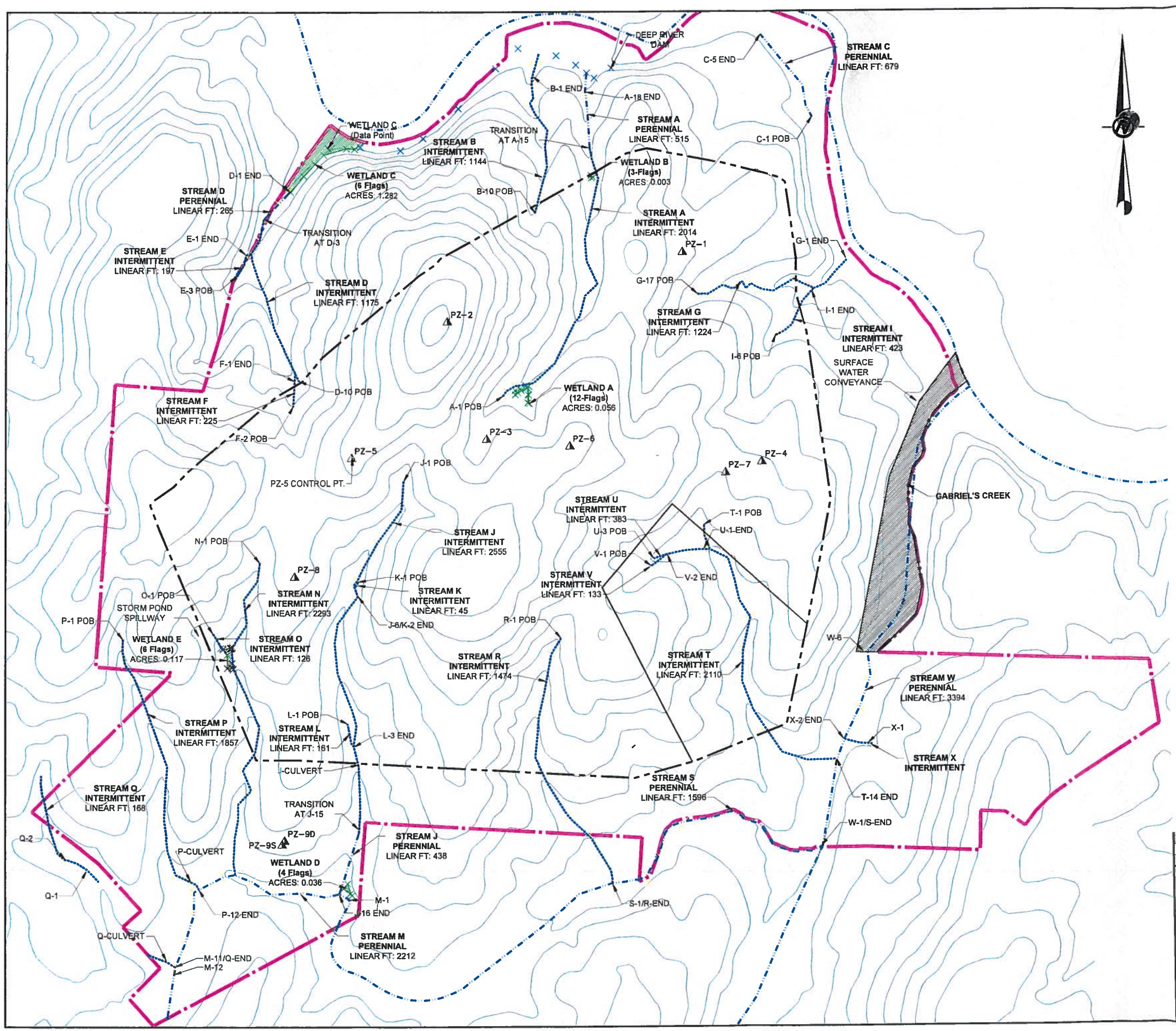
TITLE:

SITE LOCATION MAP

THIS MAP WAS CREATED USING DIGITAL RASTER GRAPHICS (DRG(s)) OF THE RANDLEMAN, GRAYS CHAPEL, ASHEBORO, AND RAMSEUR USGS 7.5 MINUTE TOPOGRAPHIC MAPS. THE MAP IS PROJECTED USING THE NORTH AMERICAN 1983 DATUM GEOGRAPHIC COORDINATE SYSTEM.

THIS FIGURE IS PROPERTY OF RANDOLPH COUNTY, NC AND IS NOT TO BE REPRODUCED OR USED FOR ANY PURPOSE EXCEPTED AS SPECIFIED BY RANDOLPH COUNTY, NC

FIGURE 1



LEGEND

- PROPERTY PARCEL BOUNDARY
- EXISTING 4-FOOT GROUND SURFACE CONTOUR
- APPROXIMATE POTENTIAL LIMITS OF WASTE
- PROPOSED PHASE 1 BOUNDARY
- INTERMITTENT STREAM
- PERENNIAL STREAM
- WETLAND DELINEATION POINT (GPS POINT)
- STREAM DELINEATION POINT (GPS POINT)
- PZ-7 / PZ-1 — EXISTING PIEZOMETER IDENTIFICATION
- WETLAND BOUNDARY
- UNABLE TO ASSESS DUE TO POLICE FIRING FIRING RANGE
- WETLAND AREA

NOTES

1. TOPOGRAPHIC CONTOUR INTERVAL = 4 FEET
2. TOTAL ACREAGE 685.9 ACRES
3. LIMITS OF WASTE ACREAGE 324 ACRES
4. PHASE 1 ACREAGE 38.5 ACRES
5. POB = POINT OF BEGINNING FOR INTERMITTENT STREAMS
6. STREAM X WAS ONLY SURVEYED IN ONE LOCATION DUE TO PROPERTY ACCESS ISSUES EVERYTHING TO THE WEST OF STREAM W WAS SURVEYED

REFERENCES

1. TOPOGRAPHIC CONTOURS PROVIDED AS LIDAR DATA FROM NCDOT GIS WEBSITE.

250 0 250 500
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
-	-		--	-	-	-

PROJECT: RANDOLPH COUNTY

TITLE: WETLAND DELINEATION MAP

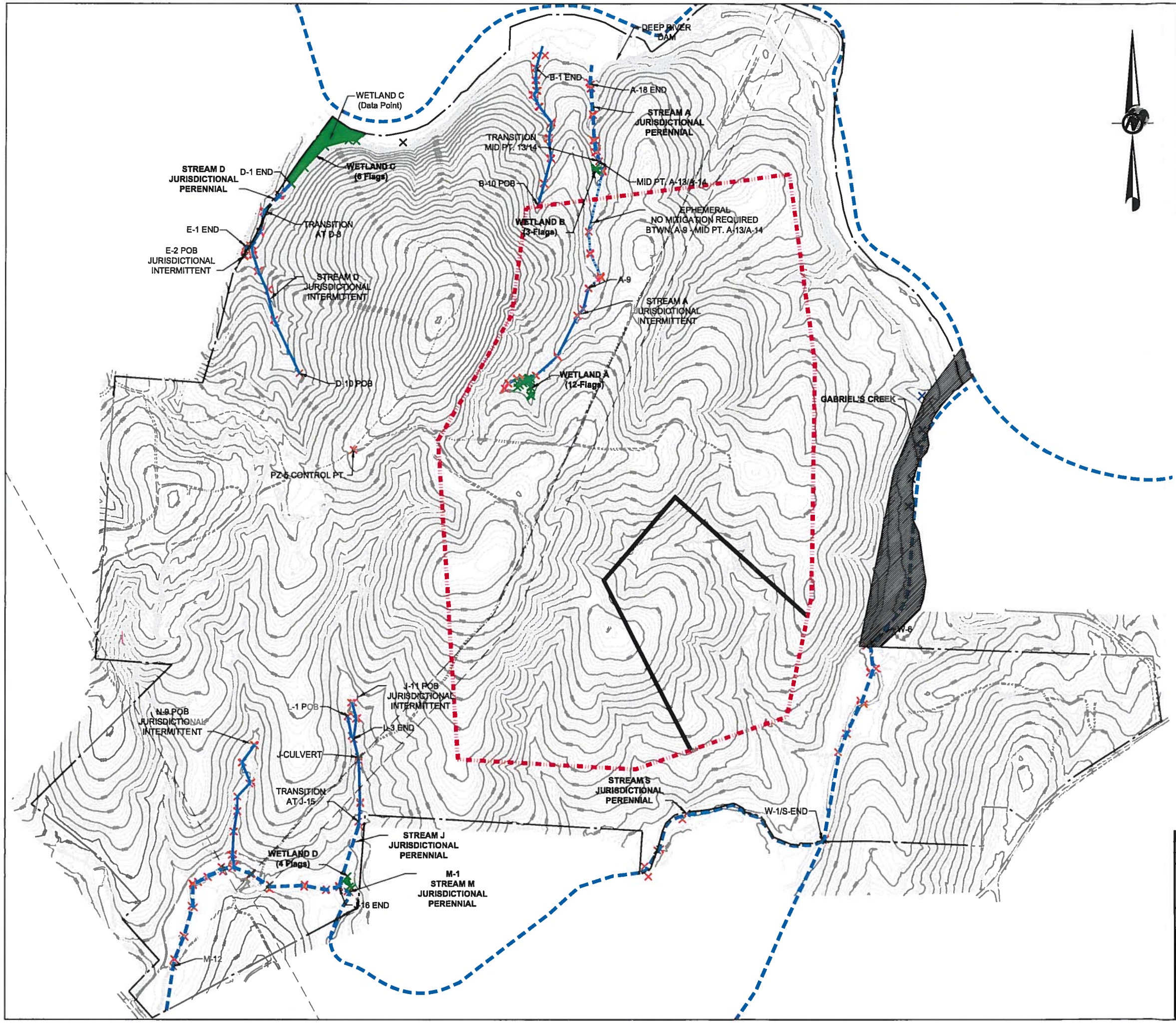
Golder Associates
GOLDER ASSOCIATES NC, INC.

PROJECT No.		10396846	FILE No.	
DESIGN	CB	7-19-11	SCALE AS SHOWN	REV. 0
CADD	BD	7-19-11		
CHECK	CB	8-30-11	FIGURE 2	
REVIEW	WG	9-7-11		

FIGURE 2

REVISED VERSION

02/18/13



SITE STREAM SUMMARY

Stream ID	Length	Classification
A	1605.2	Perennial/Intermittent to mid pt. 13/14
B	1144.28	Intermittent
D	1441.33	Perennial/Intermittent to D-3
E	100.33	Intermittent
J	1277.92	Perennial/Intermittent to J-15
L	160.50	Intermittent
M	2209.38	Perennial
N	907.08	Intermittent
S	1586.22	Perennial
W	3313.00	Perennial

LEGEND

- PROGRESS ENERGY RIGHT OF WAY
- EXISTING ROADWAY OR PATH
- EXISTING 2-FOOT CONTOUR
- EXISTING 10-FOOT CONTOUR
- PROPOSED PROPERTY BOUNDARY
- PROPOSED LIMITS OF PHASE 1
- PROPOSED FACILITY LIMITS OF WASTE
- INTERMITTENT STREAM
- PERINNEAL STREAM
- JURISDICTIONAL EPHEMERAL (NO MITIGATION REQUIRED)
- WETLAND
- WETLAND DELINEATION POINT (GPS POINT)
- STREAM DELINEATION POINT (GPS POINT)
- UNABLE TO ASSESS DUE TO POLICE FIRING RANGE

NOTES

1.) PROPOSED LIMITS OF WASTE = 199 ACRES. PROPOSED PHASE 1 LIMITS OF WASTE = 31.5 ACRES.

2.) REGULATORY REQUIRED MINIMUM BUFFERS INCLUDE 200-FEET BUFFERS FROM ANY PERENNIAL STREAM OR PROPERTY BOUNDARY.

REFERENCES

1.) TOPOGRAPHIC CONTOURS PROVIDED BY SPATIAL DATA CONSULTANTS INC. USING PHOTOGRAMMETRIC METHODS FROM AERIAL AERIAL PHOTOGRAPHY TAKEN APRIL 11, 2012. CONTOURS WHICH ARE IN WOODED OR DENSE VEGETATED AREAS ARE APPROXIMATIONS ONLY.

2.) PROPOSED FACILITY PROPERTY BOUNDARY AND PIEZOMETER SURVEY PROVIDED BY FLEMING ENGINEERING INC. DATED NOVEMBER 30, 2012.

3.) WETLANDS AND STREAM LOCATIONS ARE APPROXIMATE.

300 0 300 600
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
2	02/18/13	BSD	PER NCDENR MADE REQUESTED CHANGES TO STREAM A	BSD		
1	12/13/12	BSD	UPDATE STREAM LOCATIONS AFTER USACE AND NCDENR JD REQUEST	BSD	–	–

PROJECT

RANDOLPH COUNTY

TITLE

WETLAND DELINEATION STREAM IDENTIFICATION MAP

Golder Associates
GOLDER ASSOCIATES NC, INC.

PROJECT No.		1039684602	FILE No.	
DESIGN	BSD	12/14/12	SCALE AS SHOWN	REV. 2
CADD	BSD	7–19–11	DWG 1	
CHECK	–	–		
REVIEW	–	–		

APPENDIX A

Approved Jurisdictional Determination Form

U.S. Army Corps of Engineers

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: North Carolina County/parish/borough: Randolph City: Randleman
Center coordinates of site (lat/long in degree decimal format): Lat. 35.752822° N, Long. 79.755992° W.
Universal Transverse Mercator: Zone 44 E387529, N3957247
Name of nearest waterbody: Deep River Non-TNW and RPW
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Cape Fear River
Name of watershed or Hydrologic Unit Code (HUC): 03030003

- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Appear to be** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- ☐ Waters subject to the ebb and flow of the tide.
- ☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: Deep River abuts the review area/project site and is in fact navigable in character. It has been used in the past for mill sites and includes a sizeable river channel that may be reasonably passable by small craft.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☒ TNWs, including territorial seas
   - ☒ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☒ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 26,806 linear feet: 1 to 20 width (ft) and/or acres.
   Wetlands: 1.49 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): Unknown.

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: **Deep River.**

   Summarize rationale supporting determination: Channel is navigable by small craft.

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) **General Area Conditions:**
   Watershed size: 349 **square miles**
   Drainage area: 35 **acres**
   Average annual rainfall: 44 inches
   Average annual snowfall: 4.7 inches

   (ii) **Physical Characteristics:**
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **1 (or less)** river miles from TNW.
   Project waters are **1 (or less)** river miles from RPW.
   Project waters are **1 (or less)** aerial (straight) miles from TNW.
   Project waters are **1 (or less)** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: No.

   Identify flow route to TNW[5]: The project site is drained by three first order RPW streams; a second order RPW stream; and Gabriel's Creek, a third order stream. These discharge into Deep River, a TNW immediately adjacent to the site.

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: Streams A, B, E, F, G, I, J, K, L, N, P, O, Q, R, T, U, V, and X are 1st order RPW streams. Streams D, G, J, N, T are 2nd order RPW streams entirely or become 2nd order streams below the confluence of Irst order streams listed above, and ultimately discharge to Deep River floodplain, or to Gabriel's Creek, which discharges to Deep River. Stream M is an unnamed perennial third-order RPW tributary to Gabriel's Creek, which is also a third-order RPW non-TNW stream, which flows to Deep River, a fourth order TNW stream.

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☒ Natural
- ☐ Artificial (man-made). Explain: .
- ☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 1 to 20 feet
Average depth: 0.1 to 3 feet
Average side slopes: **2:1**.

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☒ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Streams appear to be slightly entrenched and stable with some rock outcropping.
Presence of run/riffle/pool complexes. Explain: Runs, riffles and pools are evident in the streams.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 3 %

(c) Flow:
Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: The streams at the project site are intermittent RPW and perennial RPW.
Other information on duration and volume: .

Surface flow is: **Confined**. Characteristics: The intermittent and perennial streams were flowing at the time of the wetland delineation in June 2011.

Subsurface flow: **Pick List**. Explain findings: .
- ☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☒ Bed and banks
- ☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☒ sediment sorting
☒ leaf litter disturbed or washed away	☒ scour
☒ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

- ☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☒ High Tide Line indicated by:	☒ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: .

Identify specific pollutants, if known: Water in the streams appeared clear. Some evidence of silt was observed. The silt most likely originated from upgradient logging activities. Refer to the North Carolina Department of Water Quality Stream Indentification Forms.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): Averages 200 feet wide along both intermittent and perennial streams.

☒ Wetland fringe. Characteristics: Headwater and riparian wetlands abutting RPWs.

☒ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:Total of: 0 acres adjacent; 1.49 acres are abutting acres

Wetland type. Explain: All are forested wetlands abutting RPWs; none adjacent.

Wetland quality. Explain: Moderate to Good; logging in the watershed.

Project wetlands cross or serve as state boundaries. Explain: No, they do not.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: Steep drainage area and presence of apparent bedrock creates flashy runoff charcteristics; seepage flow occurs on a near perennial basis and baseflow near stream channels drives wetland hydrology.

Surface flow is: **Pick List**

Characteristics: .

Subsurface flow: **Yes**. Explain findings: Shovel test.

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain: .

☐ Ecological connection. Explain: .

☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **1 (or less)** river miles from TNW.

Project waters are **1 (or less)** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width): .

☐ Vegetation type/percent cover. Explain: .

☐ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **5**

Approximately (1.49) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Y			

ID	COWARDIN	DIRECTLY ABUTS?	SIZE	CLASS
WET A	PSS1A - Wetland	Y	0.056 SQ FT	Non-Section 10, wetland
WET B	PSS1A - Wetland	Y	0.003 SQ FT	Non-Section 10, wetland
WET C	PSS1A - Wetland	Y	1.282 SQ FT	Non-Section 10, wetland
WET D	PSS1A - Wetland	Y	0.036 SQ FT	Non-Section 10, wetland
WET E	PSS1A - Wetland	Y	0.117 SQ FT	Non-Section 10, wetland

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Streams D, J, M, S, and W are RPWs that flow into the Deep River, (a TNW), or into Gabriels Creek (Non-TNW, RPW), which flows into the Deep River. Refer to the North Carolina Department of Water Quality Stream Identification Forms.

☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Streams A, B, C, E, F, G, I, K, L, N, O, P, Q, R, T, U, and V are seasonal Non-RPWs that flow into the Deep River (a TNW) or Gabriels Creek (Non-TNW, RPW), which flows into the Deep River. Refer to the North Carolina Department of Water Quality Stream Identification Forms.

Provide estimates for jurisdictional waters in the review area (check all that apply):

☒ Tributary waters: **26,806** linear feet **1 to 20** width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**

☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetland soils and vegetation are continuous with flow into stream. See discussion at III.B.3.**

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Wetland soils and vegetation are continuous with flow into stream. See discussion at III.B.3.

Provide acreage estimates for jurisdictional wetlands in the review area: **1.49** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or

☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

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[8]See Footnote # 3.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

E. **ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):**[10]

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. **NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):**

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. **SUPPORTING DATA. Data reviewed for JD (check all that apply** - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Figures 1, 2, 3 and 4.
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☒ U.S. Geological Survey Hydrologic Atlas: 03010104.
  - ☐ USGS NHD data.
  - ☒ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: Figure 1 Cluster Springs, NC.
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☒ National wetlands inventory map(s). Cite name: .
- ☐ State/Local wetland inventory map(s): .

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[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): Figure 4.
  or ☒ Other (Name & Date):Appendix E, February 2010.
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD:

TABLE 1

JURISDICTIONAL FEATURES

Drainage Feature ID / Cowardin Class / Estimated Amount of Aquatic Resource in Project Area / Class of Aquatic Resource / NC DWQ Stream Score

STREAMS (LF= Linear feet)

A	Perennial and Intermittent, RPW	2,529 LF	Non-Section 10, stream/38
B	Intermittent stream, RPW	1,144 LF	Non-Section 10, stream/22
C	Open water, RPW	678 LF	Non-Section 10, non-wetland ; Not scored; Relic channel of the Deep River.
D	Perennial and Intermittent stream, RPW	1,440 LF	Non-Section 10, stream/37.5 and 21
E	Intermittent stream, RPW	197 LF	Non-Section 10, stream/21.5
F	Perennial stream, RPW	225 LF	Non-Section 10, stream/Not scored.
G	Intermittent stream, RPW	1,224 LF	Non-Section 10,stream/20.5
I	Intermittent stream, RPW	423 LF	Non-Section 10, stream/20
J	Perennial and Intermittent stream, RPW	2,993 LF	Non-Section 10, stream/20 and 32.5
K	Intermittent stream, RPW	45 LF	Non-Section 10, stream; Not scored. Stream K is a component of Stream J.
L	Intermittent stream, RPW	161 LF	Non-Section 10, stream; Not scored. Stream L is a component of Stream K.
M	Intermittent stream, RPW	2,212 LF	Non-Section 10, stream/45.5; Gabriels Creek.
N	Intermittent stream, RPW	2,293 LF	Non-Section 10, stream/29
O	Intermittent stream, RPW	126 LF	Non-Section 10, stream/20.75
P	Intermittent stream, RPW	1,857 LF	Non-Section 10, stream/21
Q	Intermittent stream, RPW	168 LF	Non-Section 10, stream/26.5
R	Intermittent stream, RPW	1,474 LF	Non-Section 10, stream/20.5
S	Perennial stream, RPW	1,580 LF	Non-Section 10, stream/47
T	Intermittent stream, RPW	2,110 LF	Non-Section 10, stream/22.5
U	Intermittent stream, RPW	383 LF	Non-Section 10, stream; Not scored. Stream U is a component of Stream T.
V	Intermittent stream, RPW	133 LF	Non-Section 10, stream; Not scored. Stream V is a component of Stream T.
W	Perennial stream, RPW	3,394 LF	Non-Section 10, stream; Not scored. Stream W is Gabriels Creek, listed also as Stream M.

WETLANDS (Ac. = Acres)

WET A	PSS1A - Wetland	0.056 Ac.	Non-Section 10, wetland
WET B	PSS1A - Wetland	0.003 Ac.	Non-Section 10, wetland
WET C	PSS1A - Wetland	1.282 Ac.	Non-Section 10, wetland
WET D	PSS1A - Wetland	0.036 Ac.	Non-Section 10, wetland
WET E	PSS1A - Wetland	0.117 Ac.	Non-Section 10, wetland.

APPENDIX B

North Carolina Natural Heritage Program Letter

September 22, 2010

NCDENR
North Carolina Department of Environment and Natural Resources
Office of Conservation, Planning, & Community Affairs
Beverly Eaves Perdue, Governor | **Linda Pearsall, Director** | Dee Freeman, Secretary

September 22, 2010

Mr. Benjamin S. Draper
Golder Associates NC, Inc.
5B Oak Branch Drive
Greensboro, NC 27407

Subject: Randolph County Municipal Solid Waste Landfill – Proposed Expansion; Randolph County

Dear Mr. Draper:

The Natural Heritage Program has several records of rare species, significant natural communities, and a significant natural heritage areas within the project area. I have enclosed a map and some materials.

Our Program has identified a natural area named the Central Falls Slope, of County significance, located in the north-central portion of the project site. This site is 149 acres in size, and lies mainly south of the Deep River. It appears to be currently unprotected. The State Significantly Rare piedmont indigo-bush (*Amorpha schwerinii*) and an example of a Piedmont Monadnock Forest are included within this site, which was identified in the Randolph County Natural Heritage Inventory (Bates and Coomans 1999). A copy of the site report, along with a map of the project area, are enclosed.

The proposed expansion could entirely destroy the Randolph County site of the natural area, which is essentially 80% of the site. The natural area would cease to exist under such a scenario. We suggest that your company conduct a biological inventory of the undeveloped portions of the project area, to determine which areas should be avoided for landfill expansion. It is greatly hoped that this area can be spared from destruction, and I am sending copies of this letter, the project proposal, and the enclosures to the land trusts that operate in Randolph County. Our Program hopes that, because the natural area already exists on County-owned land, that it can be set aside as a nature preserve or other protected area.

You may wish to check the Natural Heritage Program database website at www.ncnhp.org for a listing of rare plants and animals and significant natural communities in the county and on the quad map. Our Program also has a new website that allows users to obtain information on element occurrences and significant natural heritage areas within two miles of a given location: <http://nhpweb.enr.state.nc.us/nhis/public/gmap75_main.phtml>. The user name is "public" and the password is "heritage". You may want to click "Help" for more information.

NC OneMap now provides digital Natural Heritage data online for free. This service provides site specific information on GIS layers with Natural Heritage Program rare species occurrences and Significant Natural Heritage Areas. The NC OneMap website provides Element Occurrence (EO) ID numbers (instead of species name), and the data user is then encouraged to contact the Natural Heritage Program for detailed information. This service allows the user to quickly and efficiently get site specific NHP data without visiting the NHP workroom or waiting for the Information Request to be answered by NHP staff. For more information about data formats and access, visit <www.nconemap.com>, then click on "FTP Data Download", and then "nheo.zip" [to the right of "Natural Heritage Element Occurrences"]. You may also e-mail NC OneMap at <datag@ncmail.net> for more information.

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
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One NorthCarolina Naturally

Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.

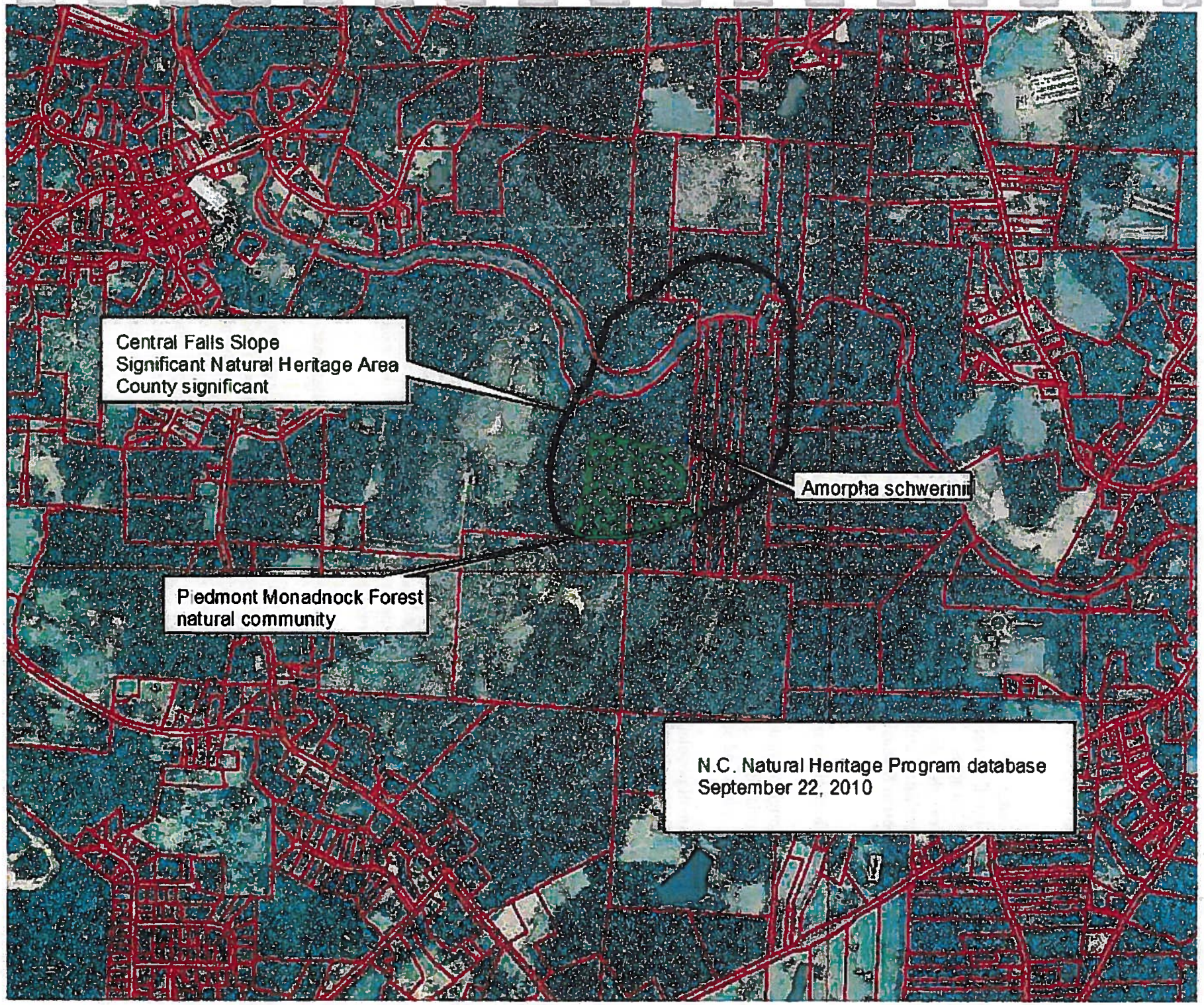
Sincerely,

Harry E. LeGrand, Jr.

Harry E. LeGrand, Jr., Zoologist
Natural Heritage Program

cc: Piedmont Land Conservancy
Land Trust for Central North Carolina

Enclosures


Central Falls Slope
Significant Natural Heritage Area
County significant
Amorpha schwerinii
Piedmont Monadnock Forest
natural community
N.C. Natural Heritage Program database
September 22, 2010

Randolph County Natural Heritage Inventory

Central Falls Slopes

Site Code: D3
Site Significance: County
Size: 260 acres
Quadrangle: Randleman
Ownership: Public & private
Protection Status: None; part of the site is owned by the county but is not protected in any way.

Significant Factors:

1. Though of moderate size Central Falls Slopes includes a wide range of habitats and associated
   plant and animal communities, from xeric uplands to the aquatic habitat of the reservoir.

2. A small population of Amorpha schwerinii (Piedmont indigo-bush; North Carolina status: Significantly Rare) is present.

3. There are several small wetlands, here classified as Floodplain Pools. Floodplain Pools are uncommon in the Piedmont and are an important source of breeding sites for amphibians.

General Description/Landscape Relationships:

Central Falls Slopes is approximately 2 mi south of Worthville Woods; Lake Ramseur Woods is about 4 miles to the east. The Deep River serves as a corridor to connect the three. The site includes a small reservoir resulting from a 20 foot dam, known as Cox Dam, that formerly powered a small hydroelectric plant. Wetlands are present along the margin of the reservoir in several places. Elsewhere wooded slopes come to the edge of the water. Pool level is about 550'. The surrounding slopes support undisturbed forest, with few exceptions. A rounded hill south of the reservoir that contains mature forest crests at 841'.

Description of Natural Communities and Rare Plant Populations:

Central Falls Slopes contains four natural communities and a large area of aquatic habitat. Cox Dam, a twenty foot dam associated with an abandoned hydroelectric plant has created a small reservoir on the Deep River. Like most impoundments in the Piedmont, the resulting pool is narrow, long and relatively shallow. At at least three points along the margin of the reservoir small marshy wetlands are present. It appears that these developed where small creeks flow into the reservoir through sedimentation of the small cove or inlet that would have existed when the dam was first built and subsequent formation of a small levee at the margin of the reservoir

through sediment deposition from the river itself. Though this is not the normal mechanism by which Floodplain Pools develop, these occurrences best fit that community in structure and composition. When visited in September, at the end of an extended dry period, two of the three lacked standing water. It is likely they flood for variable lengths of time in the winter and spring. The Floodplain Pools lack a canopy but scattered individuals and snags of flood tolerant species such as Salix nigra (Black willow) and Fraxinus sp. (Ash) are present in their interior. Wetland shrubs such as Alnus serrulata (tag alder), Cephalanthus occidentalis (Buttonbush) and Cornus amomum (Silky dogwood) are present on the margins. Herbaceous vegetation dominates. Aneilema keisak forms extensive mats and a variety of other herbs are present including Peltandra virginica (Green arrow-arum), Commelina virginica (A dayflower), Impatiens capensis (Orange jewelweed), Leersia oryzoides (Rice cutgrass) and Boehmeria cylindrica (False nettle). Where there is standing water aquatics such as Wolffia papulifera (Water-meal), Lemna perpusilla (Small duckweed) and Myriophyllum brasiliense (Parrot-feather) are present.

At several points the base of the slope supports Piedmont Heath Bluff. The canopy contains trees from the surrounding communities including Fagus grandifolia (Beech), Liriodendron tulipifera (Tuliptree), Nyssa sylvatica (Black gum) and Quercus spp. (Oaks). The subcanopy includes canopy species as well as Ostrya virginiana (Hop-hornbeam), Carpinus caroliniana (Ironwood), Ilex opaca (American holly) and Magnolia acuminata (Cucumber-tree). Areas of Piedmont Heath Bluff are dominated by a dense shrub layer of Kalmia latifolia (Mountain laurel); a variety of other shrubs occur intermittently including Symplocos tinctoria (Horsesugar), Viburnum acerifolium (Mapleleaf arrowwood) and Calycanthus floridus (Eastern sweetshrub). Herbs are sparse. Among those present in summer were Chimaphila maculata (Pipsissewa), Mitchella repens (Partridge berry), Iris cristata (Dwarf crested iris), Galax aphylla (Galax) and Hexastylis virginica (Virginia heartleaf).

Other areas along the shore of the reservoir support a strip of alluvial vegetation variable in width. Woody vegetation dominates including species such as Salix nigra (Black willow), Fraxinus sp. (An ash), Betula nigra (River birch), Platanus occidentalis (Sycamore), Acer negundo (Box elder), Asimina triloba (Common pawpaw) and Ligustrum sinense (Chinese privet). Herbs and vines present include Humulus japonicus (Japanese hops), Mikania scandens (Climbing hempvine), Carex spp. (Sedges) and grasses.

The hill south of the reservoir has a small Piedmont Monadnock Forest at the summit. This area is dry and rocky and dominated by Quercus montana (Chestnut oak). Quercus alba (White oak) and Carya sp. (Hickory) are also present in the canopy. The shrub and herb layers are sparse, and it is here that a small population of Amorpha schwerinii (Piedmont indigo-bush) occurs. Most of the upland portions of the site contain Dry Oak-Hickory Forest. The canopy contains a variety of oaks (Quercus montana, Chestnut oak; Quercus alba, White oak; Quercus stellata, Post oak; Quercus falcata, Spanish oak), Acer rubrum (Red maple) and Oxydendrum arboreum (Sourwood). Included in the subcanopy are Cornus florida (Flowering dogwood), Acer rubrum (Red maple) and Nyssa sylvatica (Black gum). A variety of shrubs are present including Vaccinium arboreum (Sparkleberry), Viburnum acerifolium (Mapleleaf arrowwood), Kalmia

latifolia (Mountain laurel), Symplocos tinctoria (Horsesugar) and Aesculus sylvatica (Painted buckeye). Vitis rotundifolia (Muscadine) is the most common vine. Herbs are sparse. Included here are common Piedmont species such as Chimaphila maculata (Pipsissewa), Tipularia discolor (Cranefly orchid), Desmodium nudiflorum (Woodland tick-trefoil) and Polystichum acrostichoides (Christmas fern). The lower slopes are more mesic and support Dry-Mesic Oak--Hickory Forest. Liriodendron tulipifera (Tuliptree), Fagus grandifolia (Beech) and Tilia sp. (Basswood) appear in the canopy in addition to those present further up slope. Both the subcanopy and shrub layer become more diverse and include Ostrya virginiana (Hop-hornbeam), Amelanchier arborea (Downy serviceberry), Ilex opaca (American holly), Viburnum dentatum (Arrowwood) and Hamamelis virginiana (Witch-hazel).

Description of Faunal Communities and Rare Animal Populations:

Central Falls Slopes includes a range of animal habitats. The forested slopes and uplands are large enough to provide cover and forage for birds and mammals. Most significant is the aquatic and wetland habitat created by the damming of the Deep River. Large numbers of waterfowl are present, as are many turtles and fish. Though no sign was noted it is likely that otter may be present, as their presence has been verified elsewhere in the Deep River Corridor. Beaver and muskrat are also likely inhabitants. The wetlands along the margin of the reservoir provide food and cover for birds and mammals and may be valuable as breeding sites for amphibians.

Management/Protection Recommendations:

The forested margins of the reservoir are generally undisturbed and contain mature or maturing forest. In some places the north shore contains significant numbers of pines, a sign of past disturbance. These slopes should remain undisturbed. A few residences closely border the water on the north; purchase of conservation easements may be a means of preventing additional development, ensuring preservation of a riparian buffer that will allow the site to continue to provide valuable wildlife habitat and breeding sites. The county should be encouraged to limit their activities, as much as possible, to areas already cleared. The landfill is already extremely close to the water. The associated noise is a disturbance and sedimentation, leaching or runoff are potential threats to the aquatic habitat.

Natural Heritage Inventory - Randolph County 1998

Central Falls Slope - (D3)
Deep River Corridor
USGS Randleman Quadrangle

APPENDIX C

Data Forms – Routine Wetland Determination

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: PROPOSED LANDFILL City/County: RANDOLPH CO. Sampling Date: 6/27/11

Applicant/Owner: RANDOLPH CO. PUBLIC WORKS State: NC Sampling Point: WET A

Investigator(s): C. BROOKSHIRE Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): CONCAVE Slope (%): 2%

Subregion (LRR or MLRA): LRR- 45 C Lat: 35° 45' 4.941" N Long: 79° 45' 16.223" W Datum: NAD83

Soil Map Unit Name: Georgeville silt loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks: Vegetation in WETA has been impacted by logging activities.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1"
Water Table Present?	Yes X	No _____	Depth (inches): SURFACE
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): SURFACE

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydric indicators are present at WET A.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WETA

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ostrya virginiana	20	Y	FACU
2. Acer rubrum	5	N	FAC
3. Liquidambar styraciflua	3	N	FAC
4. Quercus alba	2	N	FACU
5. Quercus velutina	2	N	UPL
6. Carya tomentosa	2	N	FAC
7.			
8.			
	34 = Total Cover		17 / 6.8

Sapling/Shrub Stratum (Plot size: 30')			
1. Lindera benzoin	5	Y	FACW
2. Rhododendron calendulaceum	5	Y	FAC
3. Ilex opaca	3	N	FAC-
4. Liriodendron tulipifera	2	N	FACU
5. Diospyros virginiana	2	N	FAC
6. Ulmus alta	2	N	FACU
7.			
8.			
9.			
10.			
	19 = Total Cover		9.5 / 3.8

Herb Stratum (Plot size: 30')			
1. Cyperus strigosus	20	Y	FACW+
2. Juncus effusus	10	Y	FACW+
3. Eupatorium capillifolium	8	N	FACU
4. Microstegium vimineum	8	N	FAC+
5. Rubus sp.	8	N	FAC
6. Ambrosia artemisiifolia	2	N	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	56 = Total Cover		28 / 11.2

Woody Vine Stratum (Plot size: 30')			
1. Vitus rotundifolia	2	N	FAC
2.			
3.			
4.			
5.			
6.			
	2 = Total Cover		1 / 0.4

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	9	x 3 =	27
FACU species	6	x 4 =	24
UPL species	1	x 5 =	5
Column Totals:	19 (A)		62 (B)

Prevalence Index = B/A = 6.89

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation is present at WETA.

SOIL

Sampling Point: WET A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 3/2	90	2.5Y 5/1	10	RM	M	SiL	ORGANICS, FINE ROOTS
4								REFUSAL / ROCK

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ROCK

Depth (inches): 4

Hydric Soil Present? Yes X No ___

Remarks:

Hydric soils are present at WET A. WET A IS LOCATED AT THE UPPER REACH OF STREAM A.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: PROPOSED LANDFILL City/County: RANDOLPH CO. Sampling Date: 6/27/11

Applicant/Owner: RANDOLPH CO. PUBLIC WORKS State: NC Sampling Point: UP A

Investigator(s): C. BROOKSHIRE Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILLSLOPE Local relief (concave, convex, none): NONE Slope (%): 5%

Subregion (LRR or MLRA): LRR-45C Lat: _____ Long: _____ Datum: NAD 83

Soil Map Unit Name: Georgeville silt loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks: Vegetation at UP A has been impacted by logging activities.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil pit was 3 inches deep due to refusal/bedrock.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: UP A

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 30')			
1. Liriodendron tulipifera	10	Y	FACU
2. Quercus alba	2	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	12 = Total Cover		6/2.4
Herb Stratum (Plot size: 30')			
1. Eupatorium capillifolium	20	Y	FACU
2. Rubus argutus	20	Y	FAC
3. Andropogon virginicus	2	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	42 = Total Cover		21/8.4
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	2	x 3 =	6
FACU species	3	x 4 =	12
UPL species		x 5 =	
Column Totals:	5 (A)		18 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation has been impacted by logging activities.

SOIL

Sampling Point: UP A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 5/4	100					Si. loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 3

Hydric Soil Present? Yes ___ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: PROPOSED LANDFILL City/County: RANDOLPH Co. Sampling Date: 6/27/11

Applicant/Owner: RANDOLPH CO. PUBLIC WORKS State: NC Sampling Point: WET B

Investigator(s): C. BROOKSHIRE Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILL SLOPE Local relief (concave, convex, none): CONCAVE Slope (%): 3%

Subregion (LRR or MLRA): LRR-45C Lat: 35° 45' 19.301" N Long: 79° 45' 10.433" W Datum: NAD 83

Soil Map Unit Name: Georgeville silt loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____
Hydric Soil Present?	Yes X	No _____
Wetland Hydrology Present?	Yes X	No _____

Is the Sampled Area within a Wetland? Yes X No _____

Remarks: Vegetation has been impacted by logging activities.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 5
Water Table Present?	Yes X	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology appears to be supported by a spring head seep. Water is clear and cold coming from toe slope.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WETB

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 30')			
1. Acer rubrum	10	Y	FAC
2. Hamamelis virginiana	10	Y	FACU
3. Oxydendrum arboreum	10	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		15/6

Herb Stratum (Plot size: 30')			
1. Scirpus cyperinus	80	Y	OBL
2. Typha angustifolia	2	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	82 = Total Cover		41/16.4

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species		x 2 =	
FAC species	1	x 3 =	3
FACU species	2	x 4 =	8
UPL species		x 5 =	
Column Totals:	4 (A)		12 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation is present at WETB.

SOIL

Sampling Point: WET B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 3/2	100					Si Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 5

Hydric Soil Present? Yes X No ___

Remarks:

Hydric Soils present at WET B.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: PROPOSED LANDFILL City/County: RANDOLPH Co. Sampling Date: 6/28/11

Applicant/Owner: RANDOLPH Co. PUBLIC WORKS State: NC Sampling Point: WETC

Investigator(s): C. BROOKSHIRE Section, Township, Range: _____

Landform (hillslope, terrace, etc.): FLOODPLAIN Local relief (concave, convex, none): CONCAVE Slope (%): 2%

Subregion (LRR or MLRA): LRR-45C Lat: 35° 45' 20.999" N Long: 79° 45' 30.754" W Datum: NAD83

Soil Map Unit Name: Chewacla loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
WET C IS LOCATED AT THE CONFLUENCE OF STREAM D AND THE DEEP RIVER, WITHIN THE FLOODPLAIN.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): 0	
Water Table Present?	Yes X	No _____	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0	Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology is present at WET C.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WETC

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	20	Y	OBL
2. Ostrya virginiana	5	N	FACU
3. Fraxinus pennsylvanica	2	N	FACW
4.			
5.			
6.			
7.			
8.			
	27 = Total Cover		13.5 / 5.4

Sapling/Shrub Stratum (Plot size: 30)			
1. Salix nigra	5	Y	OBL
2. Alnus serrulata	5	Y	FACW
3. Liquidambar styraciflua	2	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	12 = Total Cover		6 / 2.4

Herb Stratum (Plot size: 30)			
1. Polygonum arifolium	65	Y	OBL
2. Impatiens capensis	20	Y	FACW
3. Scirpus cyperinus	10	N	OBL
4. Peltandra virginica	5	N	OBL
5. Microstegium vimineum	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		50 / 20

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation is present at WETC.

SOIL

Sampling Point: WETC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/4	50	5Y 5/2	50			SiLoam	Fine roots, REDOX
4+	5Y 5/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Hydric Soils present at WETC.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: PROPOSED LANDFILL City/County: RANDOLPH CO. Sampling Date: 6/28/11

Applicant/Owner: RANDOLPH CO. PUBLIC WORKS State: NC Sampling Point: UP C

Investigator(s): C. BROOKSHIRE Section, Township, Range: _____

Landform (hillslope, terrace, etc.): HILL SLOPE Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): LRR-45C Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Chewacla loam NWI classification: NONE

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
UP C is located abutting WETLAND - WET C.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (Includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrologic indicators not present at UPC.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: UPC

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	70	Y	FACU
2. Acer rubrum	20	Y	FAC
3. Liquidambar styraciflua	5		FAC
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		47.5 / 19

Sapling/Shrub Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	20	Y	FACU
2. Hamamelis virginiana	5		FACU
3. Rhododendron chlendulaceum	5		FAC
4. Ostrya virginiana	5		FACU
5. Oxydendrum arboreum	2		FACU
6. Ilex opaca	2		FAC-
7.			
8.			
9.			
10.			
	39 = Total Cover		19.5 / 7.8

Herb Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	4	x 3 =	12
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	9 (A)		32 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation is not dominant or prevalent at UPC.

SOIL

Sampling Point: UPC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					SILT	FINE ROOTS, LEAF LITTER
2+	BEDROCK		REFUSAL					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: BEDROCK

Depth (inches): 2

Hydric Soil Present? Yes ___ No X

Remarks:

Hydric Soils are not present at UPC.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: PROPOSED LANDFILL City/County: ASHEBORO/RANDOLPH Sampling Date: 6/29/11

Applicant/Owner: RANDOLPH COUNTY PUBLIC WORKS State: NC Sampling Point: WET D

Investigator(s): C BROOKSHIRE Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): CONCAVE Slope (%): <2%

Subregion (LRR or MLRA): LRR-45C Lat: 35° 44' 30.957" N Long: 79° 45' 29.953" W Datum: NAD 83

Soil Map Unit Name: Wynott-Enon complex NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No _____		**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present? Yes X No _____		
Wetland Hydrology Present? Yes X No _____		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrologic indicators are present at WET D.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WETD

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	20	Y	FACU
2. Liquidambar styraciflua	10	Y	FAC+
3. Quercus velutina	8		UPL
4. Oxydendrum arboreum	4		FACU+
5.			
6.			
7.			
8.			
	42 = Total Cover		21 / 8.4

Sapling/Shrub Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carpinus caroliana	10	Y	FAC
2. Ilex opaca	10	Y	FAC-
3. Ligustrum sinese	8	Y	FAC
4. Liquidambar styraciflua	8	Y	FAC+
5. Acer rubrum	5		FAC
6. Cercis canadensis	5		FACU
7. Cornus florida	5		FACU
8.			
9.			
10.			
	51 = Total Cover		25.5 / 10.2

Herb Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Polystichum acrostichoides	20	Y	FAC
2. Lobelia cardinalis	8	Y	FACW+
3. Arisaema triphyllum	5		FACW-
4. Chasmanthium latifolium	5		FAC-
5. Microstegium vimineum	5		FAC+
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	43 = Total Cover		21.5 / 8.6

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation is dominant.

SOIL

Sampling Point: WET D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 6/2	80	7.5YR 5/6	20			Si Clay	ORGANICS, REDOX Oxydized Rhyzosomes

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: BEDROCK

Depth (inches): 10

Hydric Soil Present? Yes X No ___

Remarks:

WET D IS A WETLAND.

Hydric Soils are present. WET D IS A COMPONENT OF STREAM P.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: PROPOSED LANDFILL City/County: ASHEBORO/RANDOLPH Sampling Date: 6/29/11

Applicant/Owner: RANDOLPH COUNTY PUBLIC WORKS State: NC Sampling Point: WET E

Investigator(s): C. BROOKSHIRE Section, Township, Range: _____

Landform (hillslope, terrace, etc.): IMPOUNDED STREAM Local relief (concave, convex, none): CONCAVE Slope (%): 2%

Subregion (LRR or MLRA): LRR- 45 C Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Badin-Tarrus Complex NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

WET E IS A COMPONENT OF STREAM N. IT APPEARS A BERM ALONG THE DOWNGRADIENT SIDE OF WET E IS EITHER CREATED BY MAN OR BEAVERS. NO EVIDENCE OF MAINTENANCE.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches): _____
Water Table Present?	Yes _____	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 10

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Moisture to Surface. Hydrologic indicators are present at WET E.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WET E

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30')			
1. Salix nigra	5	Y	OBL
2. Acer rubrum	5	Y	FAC
3. Cornus florida	2	Y	FACU
4. Liriodendron tulipifera	2	Y	FACU
5. Baccharis halimifolia	2	Y	FAC
6.			
7.			
8.			
9.			
10.			
	16 = Total Cover		B/3.2
Herb Stratum (Plot size: 30')			
1. Polygonum sagittatum	10	Y	OBL
2. Scirpus cyperinus	10	Y	OBL
3. Microstegium vimineum	10	Y	FAC+
4. Rubus sp.	10	Y	FAC
5. Boehmeria cylindrica	2		FACW+
6. Leersia oryzoides	2		OBL
7.			
8.			
9.			
10.			
11.			
12.			
	44 = Total Cover		22/8.8
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 77.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation is dominant at WET E.

SOIL

Sampling Point: WET E

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	7.5YR 5/6	90	10YR 5/4	10			Si Clay	Sediment Deposits
20+	2.5Y 5/2	60	5YR 4/4	40			SiClay	REDOX ORGANICS

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

IT APPEARS 20" BELOW SURFACE IS NATIVE SOILS. SOILS ABOVE ARE SEDIMENT DEPOSITS CAPTURED BY BERM. NATIVE SOILS ARE HYRIC AT WET E.

APPENDIX D

North Carolina DWQ Stream Forms

NC DWQ Stream Identification Form Version 4.11

Date: 6/27/2011	Project/Site: RANDOLPH CO. LANDFILL	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH Co.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 38	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other A-15 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 19)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 6)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 13)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: TAD POLES. STREAM A TURNS FROM PERENNIAL TO INTERMITTENT AT FLAG A-15. STREAM A DRAINS INTO DEEP RIVER.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/27/2011	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 22	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other B-7 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 13)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 4)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 5)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM B IS INTERMITTENT. UPPER REACH OF STREAM B HAS BEEN IMPACTED BY LOGGING ACTIVITES. STREAM B DRAINS INTO THE DEEP RIVER.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/28/2011	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 37.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other D-3 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 21)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 6.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 10)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: LOTS OF TRASH & TIRES ALONG STREAM BANKS. STREAM D CHANGES FROM PERENNIAL TO INTERMITTENT AT FLAG D-3

Sketch: STREAM D DRAINS INTO THE DEEP RIVER. WETLAND C IS ABUTTING STREAM D IN THE LOWER REACH NEAR THE CONFLUENCE TO THE DEEP RIVER.

NC DWQ Stream Identification Form Version 4.11

Date: 6/28/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 21.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other E-2 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 13)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 5.5)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: TRASH AND TIRES ALONG STREAM E. STREAM E IS INTERMITTENT. STREAM E DRAINS INTO STREAM D. STORMWATER DETENTION POND IS LOCATED ABOVE THE POINT OF BEGINNING (P.O.B.) OF STREAM E.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/28/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 21	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other D-7 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 12)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 2.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 6.5)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM D IS INTERMITTENT AT FLAG D-7. STREAM D DRAINS INTO THE DEEP RIVER.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/28/2011	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 20.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other *e.g. Quad Name:* G-4

A. Geomorphology (Subtotal = 15)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 2.5)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM G IS INTERMITTENT. STREAM G DRAINS INTO THE DEEP RIVER.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/28/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 20	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other I-5 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 11)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 5.5)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM I IS INTERMITTENT. STREAM I DRAINS INTO STREAM G.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/28/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other SURFACE DRAINAGE *e.g. Quad Name:* 1

A. Geomorphology (Subtotal = 3.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	(0)	1	2	3
2. Sinuosity of channel along thalweg	0	(1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	(1)	2	3
4. Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	(0)	1	2	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	(0)	1	2	3
8. Headcuts	(0)	1	2	3
9. Grade control	(0)	0.5	1	1.5
10. Natural valley	0	(0.5)	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 1.5)				
12. Presence of Baseflow	(0)	1	2	3
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	1.5	1	0.5	(0)
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	(1.5)
17. Soil-based evidence of high water table?	No = (0)		Yes = 3	

C. Biology (Subtotal = 0)				
18. Fibrous roots in streambed	3	2	1	(0)
19. Rooted upland plants in streambed	3	2	1	(0)
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = (0)			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: SURFACE DRAINAGE 1 IS A STORMWATER CONVEYANCE. NO EVIDENCE OF GROUNDWATER INFLUENCE WAS OBSERVED.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/29/11	Project/Site: RANDOLPH Co.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH Co.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 20	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other J-2 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 11)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 4)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 5)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM J IS INTERMITTENT AT FLAG J-2.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/29/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 32.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other *e.g. Quad Name:* J-15

A. Geomorphology (Subtotal = 21)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 2.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 9)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM J TURNS FROM INTERMITTENT TO PERENNIAL AT FLAG J-15.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/29/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 45.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other M-4 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 25)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 15)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM M IS PERENNIAL.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/29/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 29	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other N-14 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 27)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 4)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM N IS INTERMITTENT.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/29/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 20.75	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other 0-1 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 14)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 3.25)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75 OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM O IS INTERMITTENT. STREAM O DRAINS INTO STREAM N AND WETLAND E.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/29/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 21	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other *e.g. Quad Name:* P-6

A. Geomorphology (Subtotal = 15)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 2.5)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM P IS INTERMITTENT. STREAM P DRAINS INTO STREAM M. STREAM P HAS BEEN IMPACTED BY A POWER LINE EASEMENT.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/29/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 26.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other Q-2 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 15)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 2.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 8)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM Q IS INTERMITTENT.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/30/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 20.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other R-4 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 14.5)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 2)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 4)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM R IS INTERMITTENT. STREAM R DRAINS INTO STREAM S.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/30/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 47	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other S-3 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 29)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 6)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 12)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM S IS PERENNIAL.

Sketch:

NC DWQ Stream Identification Form Version 4.11

Date: 6/30/11	Project/Site: RANDOLPH CO.	Latitude:
Evaluator: C. BROOKSHIRE	County: RANDOLPH CO.	Longitude:
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 22.5	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other T-3 *e.g. Quad Name:*

A. Geomorphology (Subtotal = 16.5)	Absent	Weak	Moderate	Strong
1[a] Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 2)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 4)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: STREAM T IS INTERMITTENT. STREAM T DRAINS INTO STREAM S.

Sketch:

APPENDIX E

Site Photographs

PHOTO 1 Entrance into Randolph County transfer station on 1254 County Land Road.	
PHOTO 2 Stream L.	

PHOTO 3 Wetland E.	
PHOTO 4 Stream N.	

PHOTO 5 Stream W – Gabriels Creek.	
PHOTO 6 Stream S.	

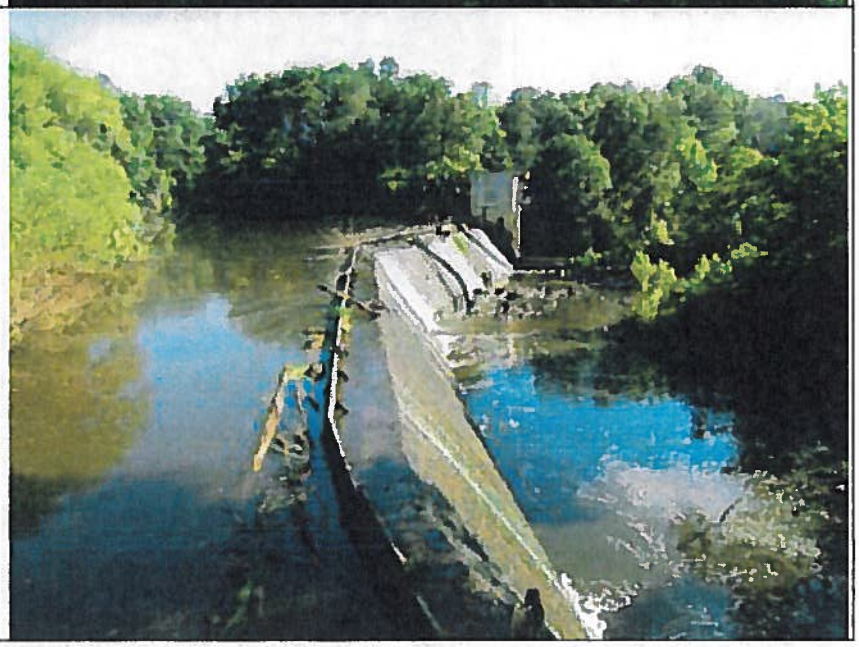
PHOTO 7 Wetland along the Deep River.	
PHOTO 8 Dam structure along the Deep River.	

PHOTO 9 The Deep River.	
PHOTO 10 Wetland C.	

APPENDIX F

National Wetlands Inventory Map

U.S. Fish and Wildlife Service

National Wetlands Inventory

New Landfill

Sep 14, 2010

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deetwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

Status

- Digital
- Scan
- Non-Digital
- No Data

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

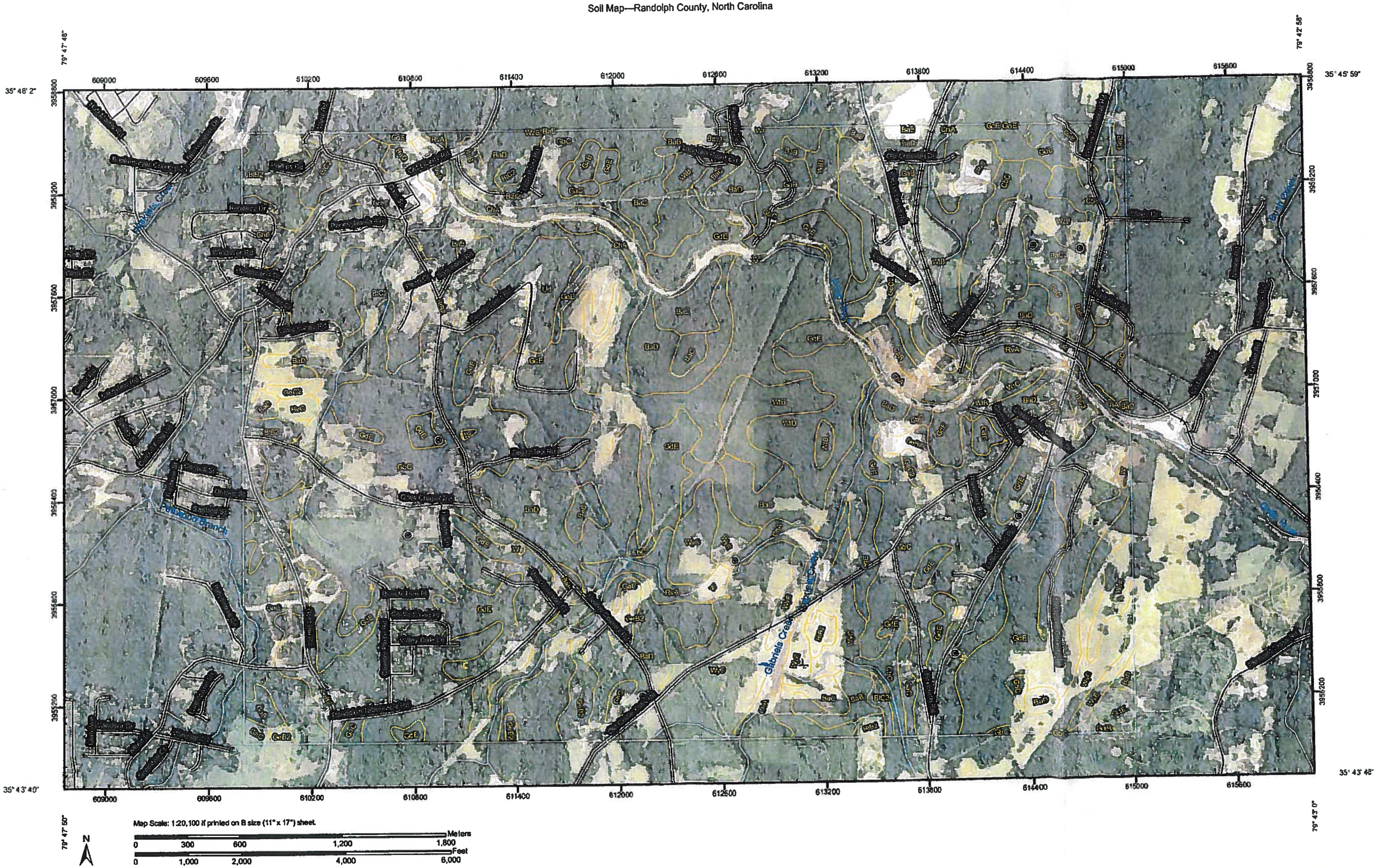
User Remarks:

Randolph

APPENDIX G

Soil Survey Map

Randolph County, North Carolina


79° 47' 48"
35° 46' 2"
79° 42' 58"
35° 45' 59"
35° 43' 40"
35° 43' 46"
79° 47' 50"
79° 43' 0"
609000
609600
610200
610800
611400
612000
612600
613200
613800
614400
615000
615600
3958800
3958200
3957600
3957000
3956400
3955800
3955200
Gabriels Creek
Map Scale: 1:20,100 if printed on B size (11" x 17") sheet.
Meters
0
300
600
1,200
1,800
Feet
0
1,000
2,000
4,000
6,000
N

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Special Point Features

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

Special Line Features

- Gully
- Short Steep Slope
- Other

Political Features

- Cities

Water Features

- Oceans
- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads

MAP INFORMATION

Map Scale: 1:20,100 if printed on B size (11" × 17") sheet.

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

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

Soil Survey Area: Randolph County, North Carolina
Survey Area Data: Version 16, Jan 7, 2008

Date(s) aerial images were photographed: 6/29/2006

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

Map Unit Legend

Randolph County, North Carolina (NC151)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BaB	Badin-Tarrus complex, 2 to 8 percent slopes	63.3	1.4%
BaC	Badin-Tarrus complex, 8 to 15 percent slopes	84.3	1.8%
BaD	Badin-Tarrus complex, 15 to 25 percent slopes	534.1	11.6%
BaE	Badin-Tarrus complex, 25 to 45 percent slopes	38.5	0.8%
BtB2	Badin-Tarrus complex, 2 to 8 percent slopes, moderately eroded	192.0	4.2%
BtC2	Badin-Tarrus complex, 8 to 15 percent slopes, moderately eroded	164.9	3.6%
CaB	Callison-Lignum complex, 2 to 6 percent slopes	11.2	0.2%
CbC	Callison-Misenheimer complex, 6 to 10 percent slopes	92.7	2.0%
ChA	Chewacla loam, 0 to 2 percent slopes, frequently flooded	118.3	2.6%
GaB	Georgeville silt loam, 2 to 8 percent slopes	56.9	1.2%
GaC	Georgeville silt loam, 8 to 15 percent slopes	113.0	2.5%
GbC	Georgeville silt loam, 4 to 15 percent slopes, extremely stony	1,312.1	28.6%
GdE	Georgeville silt loam, 15 to 45 percent slopes, extremely bouldery	683.2	14.9%
GeB2	Georgeville silty clay loam, 2 to 8 percent slopes, moderately eroded	64.7	1.4%
GeC2	Georgeville silty clay loam, 8 to 15 percent slopes, moderately eroded	56.3	1.2%
GmC	Georgeville-Urban land complex, 2 to 10 percent slopes	83.5	1.8%
GoE	Goldston very channery silt loam, 15 to 50 percent slopes	44.7	1.0%
HeC	Helena sandy loam, 6 to 10 percent slopes	7.5	0.2%
RvA	Riverview sandy loam, 0 to 2 percent slopes, frequently flooded	76.7	1.7%
Ud	Udorthents, loamy	55.1	1.2%
W	Water	70.9	1.5%
WtB	Wynott-Enon complex, 2 to 8 percent slopes	142.5	3.1%
WtC	Wynott-Enon complex, 8 to 15 percent slopes	44.0	1.0%
WtD	Wynott-Enon complex, 15 to 25 percent slopes	76.5	1.7%
WyC	Wynott-Enon complex, 4 to 15 percent slopes, extremely bouldery	258.2	5.6%

Randolph County, North Carolina (NC151)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
WyE	Wynott-Enon complex, 15 to 45 percent slopes, extremely bouldery	91.5	2.0%
WzB	Wynott-Wilkes-Poindexter complex, 2 to 8 percent slopes	58.8	1.3%
Totals for Area of Interest		**4,595.4**	**100.0%**

Notification of Jurisdictional Determination (NOJD), USACOE

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **201300471** County: **Randolph** U.S.G.S. Quad: **Randleman**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: **Paxton Arthurs, P.E. - Public Works Director, Randolph County Public Works**
Address:
Randolph County Office Building
725 McDowell Road
Asheboro, NC 27205
Telephone No.:

Property description:
Size (acres) _____ Nearest Town **Asheboro**
Nearest Waterway **Deep River** River Basin **Cape Fear**
USGS HUC **03030003** Coordinates N 35.752794 W -79.756936
Location description **Randolph County Landfill located off of County Landfill Road adjacent to Gabriels Creek & other unnamed tributaries of Deep River, east of Asheboro, in Randolph County, North Carolina.**

Indicate Which of the Following Apply:

A. Preliminary Determination

_ Based on preliminary information, there may be wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

X There are waters of the U.S. including wetlands on the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

X The waters of the U.S. including wetland on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

_ The wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

Action ID: _____

_ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Washington, NC, at (252) 946-6481 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **John Thomas** at **919 554-4884 ext. 25**.

C. Basis For Determination

There are stream channels within your project site which are tributaries of Deep River which flows to the Cape Fear River and the Atlantic Ocean.

D. Remarks

E. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Division
Attn:Jean Gibby, Project Manager,
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **May 12, 2013**.

It is not necessary to submit an RFA form to the District Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: _____

Date **03/12/2013**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://regulatory.usacesurvey.com/ to complete the survey online.

Copy furnished: Rachel P. Kirkman, Golder Associates NC, Inc., 5B Oak Branch Drive, Greensboro, North Carolina 27407

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **Randolph County Landfill / Paxton Arthurs, P.E., Public Works Director**	File Number: SAW 2013 00471	Date: March 12, 2013
Attached is:		See Section below
☐ INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
☐ PROFFERED PERMIT (Standard Permit or Letter of permission)		B
☐ PERMIT DENIAL		C
☐ APPROVED JURISDICTIONAL DETERMINATION		D
☒ PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: John Thomas @ 919 554-4884 ext. 25	If you only have questions regarding the appeal process you may also contact: Administrative Appeal Review Officer CESAD-ET-CO-R U.S. Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 9M15 Atlanta, Georgia 30303-8801

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits and approved Jurisdictional Determinations send this form to:

District Engineer, Wilmington Regulatory Division, Attn:Jean Gibby, Project Manager, Raleigh Regulatory Field Office, 3331 Heritage Trade Drive , Suite 105, Wake Forest, North Carolina 27587

For Permit denials and Proffered Permits send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Administrative Appeal Officer, CESAD-ET-CO-R, 60 Forsyth Street, Room 9M15, Atlanta, Georgia 30303-8801

Ephemeral, Intermittent, Perennial Stream Determination, NCDENR

North Carolina Department of Environment and Natural Resources
Division of Water Quality

Pat McCrory
Governor

Charles Wakild, P. E.
Director

John E. Skvarla, III
Secretary

February 19, 2013

Mr. Benjamin Draper
Golder Associates NC, Inc.
5B Oak Branch Drive
Greensboro, NC 27407

Subject Property: Randolph County Proposed Landfill, Randleman NC, Randolph County

On-Site Determination for Applicability to the Mitigation Rules (15A NCAC 2H .0506(h))

Dear Mr. Draper:

On October 31, 2012, November 14, 2012 and December 11, 2012, at your request and in yours or Charlie Hiner's attendance, Sue Homewood conducted on-site determinations to review features located on the subject property for intermittent/perennial determinations with regards to the above noted state regulations. John Thomas with the US Army Corps of Engineers (USACE) was also present at the site visit. The features that were reviewed are identified on the attached map.

The Division acknowledges the areas and boundaries identified as jurisdictional wetlands by the USACE. The stream channels identified on the attached revised Wetland Delineation/Stream Identification Map prepared by Golder Associates are an accurate depiction of all field determinations.

Please note that at the time of this letter, all intermittent and perennial stream channels and jurisdictional wetlands found on the property are subject to the mitigation rules cited above. These regulations are subject to change in the future.

The owner (or future owners) should notify the DWQ (and other relevant agencies) of this decision in any future correspondences concerning this property. This on-site determination shall expire five (5) years from the date of this letter.

Landowners or affected parties that dispute a determination made by the DWQ or Delegated Local Authority that a surface water exists and that it is subject to the buffer rule may request a determination by the Director. A request for a determination by the Director shall be referred to the Director in writing c/o Cyndi Karoly, DWQ, 401 Oversight/Express Review Permitting Unit, 2321 Crabtree Blvd., Suite 250, Raleigh, NC 27604-2260. Individuals that dispute a determination by the DWQ or Delegated Local Authority that "exempts" surface water from the buffer rule may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. Applicants are hereby notified that the 60-day statutory appeal time does not start until the affected party (including downstream and adjacent landowners) is notified of this decision. DWQ recommends that the applicant conduct this notification in order to be certain that third party appeals are made in a timely manner. To ask for a hearing, send a written petition, which conforms to Chapter 150B of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. This determination is final and binding unless you ask for a hearing within 60 days.

This letter only addresses the applicability to the mitigation rules and the buffer rules and does not approve any activity within Waters of the United States or Waters of the State or their associated buffers. If you have any additional questions or require additional information please contact me at 336-771-4964 or sue.homewood@ncdenr.gov

Sincerely,

Sue Homewood
DWQ Winston-Salem Regional Office

Enclosures: USGS Topo Map
Golder Associates Delineation Map

cc: David Townsend, Randolph County Public Works
John Thomas, USACE Raleigh Regulatory Office (via email)
DWQ, Winston-Salem Regional Office

Appendix SA-4

Preliminary Geophysical Investigation Report

GEOPHYSICAL REPORT

PRELIMINARY GEOPHYSICAL INVESTIGATION REPORT

Proposed Landfill Site, Randolph County, North Carolina

Submitted To: Randolph County Public Works
725 McDowell Road
Asheboro, NC 27204

Submitted By: Golder Associates NC, Inc.
5B Oak Branch Drive
Greensboro, NC 27407

Distribution: Randolph County Public Work (3 hard copies, 1 electronic copy)
GANCI Greensboro Office (1 hard copy, 1 electronic copy)
Golder Richmond Office (1 hard copy, 1 electronic copy)

Date: November 2011
Project No. 1039684602

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November 16, 2011

Golder Reference No.: 1039684602

Randolph County Public Works
725 McDowell Road
Asheboro, NC 27204

Attn: Mr. David Townsend, P.E.

RE: PRELIMINARY GEOPHYSICAL INVESTIGATION REPORT
PROPOSED LANDFILL SITE, RANDOLPH COUNTY, NORTH CAROLINA

Dear Mr. Townsend:

Golder Associates NC, Inc. (Golder) is pleased to submit three bound copies of our report titled "*Preliminary Geophysical Investigation Report – Proposed Landfill Site, Randolph County, North Carolina.*" The geophysical survey was completed to provide a non-intrusive assessment of the subsurface conditions at the site and more specifically to assess the depth to non-rippable bedrock. The geophysical results were calibrated to lithologic data obtained site borings and should be useful in locating future soil borings and monitoring wells and estimating construction costs. As additional soil boring data becomes available, the results of the geophysical survey can be refined and calibrated to the new data.

We hope that the results of this study will provide valuable insight into the subsurface conditions at the subject site and look forward to continued work on this important project. Please do not hesitate to contact us if you have any questions or would like to discuss our findings in more detail.

Sincerely,
GOLDER ASSOCIATES NC, INC.

Mac M. Morrow
Project Geophysicist

Brent B. Waters, C.P.G.
Associate and Senior Consultant

Rachel Kirkman, P.G.
Associate and Senior Geologist

Robert K. Davis
Senior Geophysicist

Golder Associates North Carolina, Inc.
5B Oak Branch Drive
Greensboro, NC 27407 USA
Tel: (336) 852-4903 Fax: (336) 852-4904 *www.golder.com*

EXECUTIVE SUMMARY

Golder Associates NC, Inc. (Golder) has completed an electrical resistivity imaging (ERI) and a seismic refraction geophysical survey at a proposed landfill site in Randolph County, North Carolina (NC). The geophysical survey was completed to provide a non-intrusive assessment of the subsurface conditions at the site and more specifically to assess the depth to non-rippable bedrock. The geophysical surveys were completed mostly along ridgelines with the study area to evaluate the probable depth that weathered bedrock can be excavated with mechanized equipment without drilling and blasting. The results of the geophysical survey also identify potential groundwater pathways and may assist in locating site monitoring wells.

Data quality from electrical resistivity imaging (ERI) survey at the geophysical surveys was excellent. The results of the ERI survey clearly identify high resistivity sandy overburden deposits and low resistivity weathered bedrock or saprolite overlying highly undulating resistive bedrock. The seismic refraction survey clearly identifies unconsolidated soil, weathered bedrock, and competent bedrock. Seismic velocities are also used to identify soil and bedrock material that is rippable, marginally rippable, and non-rippable assuming use of a single or multiple shank No. 9 Ripper (i.e., Caterpillar D-9).

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LIST OF ACRONYMS

AGI ..... Advanced Geosciences, Inc.
DC ..... Direct Current
EM ..... Electromagnetic
ERI ..... Electrical Resistivity Imaging
ft ..... feet
ft/s ..... feet per second
Golder ..... Golder Associates NC, Inc.
GPS ..... Global Positioning System
IP ..... Induced Polarization
m ..... meter
ms ..... millisecond
mS/m ..... millisiemens per meter
Ohm-m ..... Ohm-meter
ppt ..... parts per thousand
s ..... second
RMS ..... Root Mean Square
TOR ..... Top of Rock
Vp ..... Compressional wave velocity, P-wave

LIST OF DEFINITIONS[1]

array (electrical): In resistivity and IP prospecting, the arrangement of current and potential electrodes is referred to as array type. Several array types are shown in Figure A-18. Resistivity array types include the following: **(a) dipole-dipole array**, an array in which one dipole (a connected pair of electrodes) sends current into the ground and the other dipole serves as the potential-measuring pair. The separation between pairs is often comparable to (or only a few times greater than) the spacing within each pair, so the electrode pairs are not ideal dipoles. In deep resistivity sounding, the separation is larger. The dipole pairs are usually collinear (in line) but other orientations are also used. **(b) pole-dipole array**, a voltage-measuring pair of grounded potential electrodes separated successively from one current electrode (pole) while traversing a survey line. The second current electrode (the infinity electrode) is so far away that its location has negligible effect on the measurements. Data can be plotted below the mid-point between the current and the near potential electrode on a pseudosection. **(c) pole-pole array**, one current and one potential electrode (poles) are traversed or successively expanded on a survey line. The other current and potential electrodes are located so far away that their location has negligible effect on the measurements. Data are plotted either at the potential electrode or halfway between the two poles. **(d) schlumberger array**, has the inner voltage-measuring pair of potential electrodes closer together than the outer current electrode pair by a factor of about 6. MN is usually but not necessarily at the center of AB. **(e) Wenner array** has four equally spaced inline electrodes; either the electrodes are all moved along a traverse or their separation is successively expanded. **(f) Gradient array** is a variation of the Schlumberger array and has an arrangement in which a pair of potential electrodes measure the voltage between points of a rectangular grid between two distant, fixed current electrodes. The usual or α-configuration has the center two electrodes as the potential electrodes; the β-configuration has the first two electrodes as potential electrodes; and the γ-configuration alternates current and potential electrodes.

[1] Sheriff, Robert E. *Encyclopedic Dictionary of Applied Geophysics.* Tulsa, Oklahoma: Society of Exploration Geophysicists, 2002.

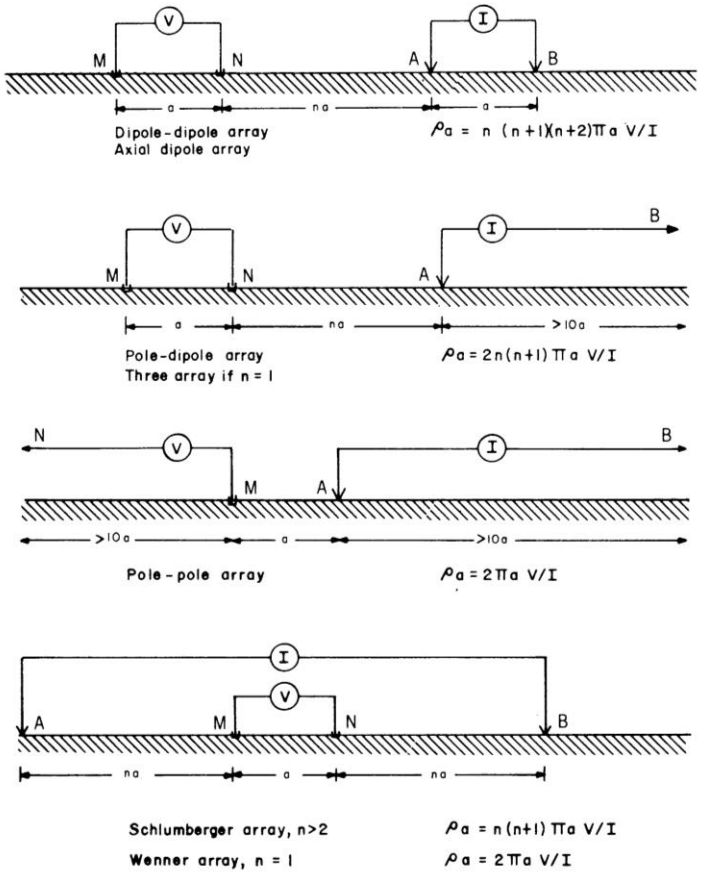


FIG. A-18. Colinear **arrays** used in resistivity surveying. The equation for the apparent resistivity ρ_a is given for each array.

apparent resistivity: The resistivity of homogeneous, isotropic ground that would give the same voltage-current relationship as measured. Direct current apparent resistivity, ρ_a, is an Ohm's-law ratio of measured voltage *V* to applied current *I*, multiplied by a geometric constant *k* which depends on the electrode array: $\rho_a = kV/I$. Usually has units of ohm-meters.

chargeability (*M*): One of several units of induced polarization in the time domain. **1**. The ratio of initial decay voltage (or secondary voltage) to primary voltage.

conductivity: The ability of a material to conduct electrical current, sometimes called specific conductance. In isotropic material, conductivity is the reciprocal of resistivity. Units are siemens per meter.

depth of investigation: The depth to which an exploration system can effectively resolve subsurface features or anomalies. The DOI depends on array design, spacing, property contrast, body geometry, and signal-to-noise ratio.

electromagnetic method (**EM method):** A method in which the magnetic and/or electric fields associated with artificially generated subsurface currents are measured. In general, electromagnetic methods are considered to be those in which the electric and magnetic fields in the earth satisfy the diffusion equation (which ignores displacement currents) but not Laplace's equation (which ignores induction effects) nor the wave equation (which includes displacement currents). One normally excludes

methods such as *ground-penetrating radar* that use microwave or higher frequencies (and which consequently have little effective penetration) and methods that use dc or very low frequencies where induction effects are not important (resistivity and IP methods).

geophone: The instrument used to transform seismic energy into an electrical voltage; a **seismometer, seis, detector, receiver, jug, bug**, or **pickup**. Geophones ordinarily respond to only one component of the ground's displacement, velocity, or acceleration that is involved in the passage of a seismic wave. Three mutually orthogonal phones are used to record all three components. Most land geophones are of the moving-coil type. A coil is suspended by springs in a magnetic field (the magnet may be integral with the case of the instrument). A seismic wave moves the case and the magnet, but the coil remains relatively stationary because of its inertia. The relative movement of a magnetic field with respect to the coil generates a voltage across the coil, the voltage being proportional to the relative velocity of the coil with respect to the magnet (when above the natural frequency of the geophone). Below the natural frequency, the output (for input of constant velocity of magnet motion) is proportional to frequency and hence to the acceleration involved in the seismic wave passage.

geophone cable: Insulated cable to which geophone groups are connected.

geophone interval: 1. The distance between adjacent geophones within a group. **2**. Sometimes used for **group interval**, the separation between the centers of adjacent geophone groups.

geophone offset: The distance from the source point to a geophone or to the center of a geophone group.

half-space: A mathematical model bounded only by one plane surface, i.e., the model is so large in other dimensions that only the one boundary affects the results. Properties within the model are usually assumed to be homogeneous and isotropic, though other models are also used.

induced polarization (**IP):** An exploration method involving measurement of the slow decay of voltage in the ground following the cessation of an excitation current pulse (**time-domain method)** or low-frequency (below 100 Hz) variations of earth impedance (**frequency-domain** or **overvoltage method)**. Most of the stored energy involved with IP is chemical, involving variations in the mobility of ions (*membrane polarization (*q.v.) or the **normal IP effect)** and variations because of the change from ionic to electronic conduction where metallic minerals are present (**electrode polarization, induced potential**, or **interfacial polarization)**; the latter is usually the larger effect. Various electrode configurations are used, especially the dipole-dipole array.

mho: A unit of conductance or admittance, the reciprocal of ohm. The SI equivalent is called siemens. A unit of conductivity; the conductivity for which a meter cube offers a resistance of one ohm between opposite faces. Reciprocal of ohm-meter.

ohm-meter: A unit of resistivity, also written ohm-meter^2/meter; the resistance of a meter cube to the flow of current between opposite faces. Reciprocal of mho/m.

Ohm's law: The voltage drop across a linear element equals the current through it times its resistance. Earth materials are not necessarily linear and therefore do not always obey Ohm's law, especially at high current densities.

permeability: A measure of the ease with which a fluid can pass through the pore spaces of a formation.

porosity: Pore volume per unit gross volume. Effective porosity is the porosity available to free fluids, excluding unconnected porosity and space occupied by bound water and disseminated shale.

refraction survey: 1. A program to map geologic structure by using head waves. Head waves involve energy that enters a high-velocity medium (refractor) near the critical angle and travels in the high-velocity

medium nearly parallel to the refractor surface. The objective is to determine the arrival times of the head waves to map the depth to the refractors in which they travel.

resistivity: The property of a material that resists the flow of electrical current, also called specific resistance. The ratio of electric-field intensity to current density. The reciprocal of resistivity is conductivity. Resistivity is a tensor in nonisotropic material, the inverse of the conductivity tensor.

resistivity method: Observation of electric fields caused by current introduced into the ground as a means for studying earth resistivity. The term normally includes only those methods in which a very low frequency or direct current is used to measure the apparent resistivity. Includes electric profiling and electric sounding. Various arrays are used.

P-wave: An elastic body wave in which particle motion is in the direction of propagation. The type of seismic wave assumed in conventional seismic exploration. Also called primary wave (undae primae), compressional wave, longitudinal wave, push-pull wave, pressure wave, dilatational wave, rarefaction wave, and irrotational wave. In an isotropic homogeneous solid, the P-wave velocity *Vp* can be expressed in terms of the elastic constants and the density (ρ):

RMS Error: The square root of the average of the squares of the differences between a series of *n* measurements *m* and their mean. Also called the standard deviation.

shot: 1. The detonation of an explosive. **2**. Any impulsive source of seismic energy. **3**. Any source of seismic energy. **4**. A measurement through an alidade or transit sighting on a stadia rod.

siemens (S): The SI unit of electrical conductivity; an ampere/volt, the reciprocal of ohm. Also called **mho**. Siemens is both the singular and plural form. Named for Werner (1816–1892) and Wilhelm (1823–1883) Siemens, German inventors who pioneered electricity applications.

spread: 1. Arrangement of geophone groups in relation to the source point. Various arrangements are used. Spreads are **interlocking** if the geophone group location and the source for one profile are located at the source and geophone group location (respectively). Spreads are **reversed** if the same array of geophones is shot into from sources in opposite directions inline.

1.0 INTRODUCTION

1.1 Purpose

Golder Associates NC, Inc. (Golder) is pleased to present this report to the Randolph County Public Works Department (Randolph County or the County) documenting the results of a geophysical investigation at the proposed municipal solid waste (MSW) landfill in Randolph County, North Carolina (Figure 1). It is our understanding that the initial development phase of approximately 20 to 30 acres is proposed and that borings completed during the preliminary site investigations indicate the depth to bedrock is highly variable. Of particular interest is the depth of bedrock and rippability of the soil and weathered bedrock beneath topographic highs. Golder utilized geophysical methods to rapidly and non-intrusively determine these characteristics beneath ridgelines. This information will also assist with locating future soil borings and estimating overburden volumes. The results of the geophysical survey are calibrated to lithologic data obtained from existing borings completed by during preliminary hydrogeologic investigation of the site (Golder, April 2011). The geophysical results will be re-examined and calibrated further following completion of the proposed next phase of geologic borings at the site and an amendment to this initial report will be provided to the County.

1.2 Scope of Work Completed

The geophysical survey was completed by acquiring two-dimensional electrical resistivity imaging (ERI) and seismic refraction profile data along six survey lines that crisscrossed the ridgelines in the central portion of the property (Figure 2). The geophysical survey lines utilized existing access roads and paths along ridgelines within the area of investigation to minimize clearing efforts and impacts. In total, the six geophysical lines ranged from 930 feet to 2,230 feet in length for a total of 8,100 linear feet of survey completed. ERI data was collected along the entire length of all six lines since electrical resistivity methods are less labor intensive to both collect in the field and to process in the office and typically provide more detailed resolution of subsurface conditions than seismic methods. A total of 15,395 individual measurements were completed as part of the electrical resistivity survey. Thirteen seismic refraction spreads were shot with seven shots per spread for over 2,100 seismic refraction traces.

Seismic refraction methods, on the other hand, are typically more accurate in delineating the top of bedrock and the seismic velocity data generated from these surveys can be used to evaluate the ripability of stiff soil and weathered bedrock. For this reason, seismic refraction surveys were completed over portions of each of the six survey lines typically at the beginning, middle and end of each line. The seismic data is used to help calibrate ERI data to allow more accurate interpretation of subsurface conditions (i.e., top of weathered and competent bedrock and the likely rippability of weathered bedrock) beneath the entire survey area. A more detailed description of the principles of electrical resistivity and

seismic refraction geophysical methods, data collection effort, and data processing and analysis procedures is provided in Section 3.

1.3 Limitations of Geophysical Methods

Geophysical methods provide information about the physical properties of the earth's subsurface. Accurate interpretation of geophysical data relies on the site specific correlation of information with data obtained from drilling or other direct observation methods. The geophysical methods employed on this project may not detect all subsurface features, geologic contacts, or hydrogeologic/geotechnical features. It is possible that interpreted features may upon intrusive sampling prove to have been misinterpreted and the depth of investigation may not accurately resolve desired features at depth. In addition, due to inverse modeling procedures, the geophysical results of the inversion process do not necessarily represent a unique solution, resulting in a degree of inherent uncertainty in the inverted sections.

2.0 GEOLOGIC SETTING

2.1 Site Description

The proposed MSW landfill is located at 1252 County Land Road, to the east of the existing closed MSW landfill. Randolph County owns over 600 acres in the area surrounding the proposed landfill. The current preliminary landfill design may utilize approximately 325 acres. The first phase of the landfill may be approximately 30 acres. The site is a southeast trending upland area, bounded to the north by the Deep River, which flows east-southeast in this area. Steep slopes on either side of the upland area have natural drainage features that discharge to intermittent streams. The site's maximum elevation is located in the north-central portion of the potential waste footprint and is approximately 835 feet above mean sea level (AMSL). The minimum elevation of approximately 530 feet AMSL occurs along the Deep River. Much of the site is undeveloped, logged forest. A power line easement that trends north-northeast through the proposed site divides it roughly in half. The surrounding areas consist of agricultural land, residential homes, and commercial enterprises.

2.2 Site Geology

The proposed Randolph County municipal solid waste landfill is located within the Carolina Slate Belt. The Carolina Slate Belt is comprised of several geologic units with areas of similar rock types and geologic history. More specifically, the site is underlain by the Uwharrie Formation, which includes slightly metamorphosed volcanic and sedimentary rocks. The rocks of the Uwharrie Formation are Late Proterozoic age and were likely metamorphosed and deformed during the early to middle Paleozoic age (Butler and Secor, 1991).

Several rock types (all members of the Uhwarrie Formation) were identified at the site. Quartzite was identified near PZ-2 and PZ-5, the highest elevation of the proposed site, and may be associated with meta-volcanic-epiclastic rock. The quartzite is only found on the large hill on the northern side of the proposed Randolph County MSW landfill footprint and appears to be a remnant bedrock high. The majority of the rock identified at the proposed Randolph County MSW landfill was light gray to greenish gray meta-argilite and meta-mudstone. Minor rock types identified during the November and December 2010 drilling include phyllite and meta-conglomerates.

2.3 Results of Borehole Drilling Program

A total of 10 boreholes were completed during the preliminary hydrogeologic investigation of the site. Based on the results of this preliminary drilling program, the observed depth to competent bedrock ranged from 8 feet to 29 feet below the ground surface (ft bgs) with an average depth to bedrock of 18 ft bgs. The soil overburden primarily consisted of clayey to sandy silt, which was either gray to greenish gray or tan to orange depending mostly on the parent material (i.e., meta-argillite or quartzite).

Weathered bedrock zones varied from 0 to over 9 feet thick and varied in composition from highly weathered, moist, moderate plasticity clay to coarse, pebble-size rock cuttings. Weathered and highly fractured zones were also found below the identified top of competent bedrock surface. These highly weathered bedrock zones were found as deep as 40 to 45 ft bgs and were as much as 10 feet thick.

2.4 Site Hydrogeology

A total of ten piezometers were installed on the proposed Randolph County MSW landfill property during the initial phase of investigations. The stabilized measured groundwater level in these piezometers ranged from 31 to 70 ft bgs. The average depth to water was approximately 45 ft bgs. In most instances, the depth to saturated groundwater was below the soil-bedrock interface.

3.0 GEOPHYSICAL METHODS AND PROCEDURES

3.1 Electrical Resistivity Imaging (ERI)

3.1.1 Principles of Electrical Resistivity Imaging

Electrical resistivity geophysical surveys determine variations in the electrical properties of subsurface materials by measuring electrical potentials at the surface. Electrical resistivity is a fundamental property of a material that describes how easily the material can transmit electrical current. High values of resistivity imply that the material is resistant to the flow of electricity; low values of resistivity imply that the material transmits electrical current very easily. Resistivity measurements are made by injecting current into the ground through two current electrodes and measuring the resulting voltage difference at two potential electrodes. Resistivity (ρ) is then calculated by:

$$\rho = k\frac{V}{I}$$

(*Equation 1: Ohm's Law*)

where V is the voltage potential measured between two points, I is the injected current in amperes and k is the geometric factor which depends on the cross-sectional area and length of the current flow path. Resistivity is typically expressed in ohm-meters (ohm-m).

The primary properties that affect the resistivity of subsurface materials are porosity, water content, clay mineral and metal content, pore interconnectivity, and pore water salinity. Since most soil and rock-forming minerals are essentially nonconductive, most current flow takes place through the material's pore water. Therefore, resistivity decreases with increasing porosity and water saturation and increases with lower porosity and pore water interconnections. Clay minerals and certain metallic minerals tend to be conductive because of the availability of free ions. Similarly, dissolved ions in groundwater make the water more conductive to electric current. Thus, electrical resistivity decreases with increasing clay content and ionic strength of the pore fluids. Resistivity values of common rocks and soil materials are provided in Table 1.

TABLE 1: RESISTIVITY VALUES OF COMMON ROCK AND SOIL MATERIALS

MATERIAL	RESISTIVITY (OHM-M)
Bedrock	
Granite/Granodiorite	5000 - 10^6
Basalt	1000 - 10^6
Sandstone	100 – 4000
Shale	20 – 2000
Porous Limestone	100 – 1000
Dense Limestone	1000 - 10^6
Soil and Water	
Clay	1 - 20
Sand (wet to moist)	20 – 200
Dry Loose Sand	500 - 10^5
Groundwater (fresh)	10 – 100
Sea Water	0.2

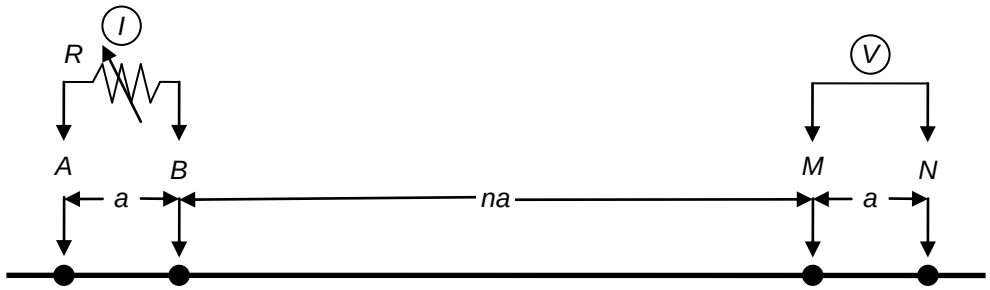
Numerous configurations of electrode placement are commonly employed (i.e., Wenner, Schlumberger, dipole-dipole, gradient, etc.), each with unique data characteristics due to their geometric configuration. For the Wenner and Schlumberger configuration, a current is applied to the two exterior current electrodes (*A* and *B*) positioned a predetermined distance apart. The Wenner array has a fixed arrangement where the four electrodes are each separated by the same distance (*a*). The Schlumberger array has a varied arrangement where the outer current electrodes are separated from the inner potential electrodes by a factor of n, where n is greater than 2. The voltage across two potential electrodes (*M* and *N*) is measured simultaneously with the applied current.

For the dipole-dipole array, current is applied to two adjacent current electrodes (*A* and *B*) positioned a predetermined distance apart (distance *a*). The voltage across two potential electrodes (*M* and *N*) is measured simultaneously with the applied current. The current electrodes are always spaced distance *a* apart and the distance between the current and potential electrodes is always a multiple of *a* ($n \bullet a$). To obtain resistivity values, the voltage and current measurements are input into the following formula for dipole-dipole surveys (Loke, 1997):

$$\rho_a = \pi n(n+1)\cdot(n+2)\cdot a\cdot\frac{\Delta V}{I}$$

Equation 2: Apparent resistivity in a dipole-dipole array

An example of dipole-dipole electrode configuration is shown in Schematic 1.



Schematic 1: Dipole-Dipole array

The different types of arrays have different strengths and weaknesses. Wenner and Schlumberger arrays produce higher quality data in electrically noisy areas (i.e. utilities and buried metal conduits) due to their high signal strength. These arrays are good choices for vertical resolution of horizontal strata. They are weak, however, at discriminating small and sensitive targets. Dipole-dipole arrays are a good choice for horizontal resolution of vertical targets, increased data coverage per time spent surveying, and the discrimination of small and sensitive targets, but are poor in areas that have significant electrical noise. Gradient arrays are designed to gather larger amounts of data along the edges and corners of the cross-section, but can have poor near-surface data coverage.

3.1.2 ERI Field Procedures and Data Acquisition

The electrical resistivity survey was conducted using a SuperSting™ R8/IP 8-channel automatic resistivity imaging system manufactured by Advanced Geosciences, Inc. of Austin, Texas. Using this system, up to 112 electrodes are connected to 18-inch stainless steel stakes that are pounded into the ground at a spacing that typically ranges from 5 meters (16.4 feet) to 10 meters (32.8 feet). The electrodes are attached to a multi-core cable, which is connected to an electronic switching unit. The switching unit automatically selects the appropriate electrodes for each measurement. The number of electrodes used and the spacing between electrodes vary based on desired resolution, depth of penetration and the length of survey line possible on each site. Measurements are initiated at one end of the line and are incrementally moved through the electrodes until readings have been taken at every position along the line. Typically, between 1,000 and 3,100 separate measurements are collected during a 56-electrode and a 112-electrode dipole-dipole survey.

The area around each stake was watered with saltwater to improve the coupling between the stakes and the ground and to reduce the measured contact resistance. A portable Honda generator was used to power the SuperSting. While the survey was running, the crew completed field notes, and began laying out the next line. Upon completion of the survey, the data file was transferred to a field laptop and inverted to check data quality. A decision was then made to collect a repeat line or move to the next location.

Each electrode takeout was surveyed using a Trimble global positioning system (GPS) unit that had a site-specific accuracy of +/- 1 meter. Electrode positions are labeled by ERI line number and electrode number. For example, L1-28 represents ERI Line 1 electrode station 28. Each line begins with electrode 1 at 0 meters, so electrode 28 is located 270 meters from the beginning of the line assuming 10-meter spacing. Photographic documentation of the field investigation is presented in Appendix A.

3.1.3 ERI Data Processing and Analysis Procedures

Once the resistivity data was collected, it was downloaded to a laptop computer, processed and interpreted. The resistivity value measured in the field is not the true resistivity of the subsurface, but an "apparent resistivity" value because it is a combination of all the subsurface material and contained fluids along the entire path of the electrical current. To determine the true subsurface resistivity, apparent resistivity values have to be processed using inversion and forward modeling techniques. This was completed using AGI's EarthImager2D™ inversion software to process the data. The software program uses a smooth model inversion technique to generate a model of actual two-dimensional resistivity values along the profile. Details of the inversion process may be found in Advanced Geosciences, Inc. Instruction Manual (2005). These programs produce an image of modeled resistivity values along the profile, which can then be contoured to evaluate spatial trends in subsurface resistivity values.

The primary objective of inversion is to reduce data "misfit" between field measurements and calculated data of a reconstructed model; in other words, to find a resistivity model whose response (predicted data) best fits the measured data. Data quality or "fit" is quantified by the root mean squared (RMS) error between the measured and predicted resistivity data in percent (%). L2-norm is another measure of data misfit. It is defined as the sum of the squared weighted data errors. When the normalized L2-norm is 1.0 or smaller, the inversion is considered converged (AGI, 2008). Golder reviewed the results of each inversion trial; specifically the RMS error, the L2 value, and the "Data Misfit Crossplot" for each inversion trial. If a decision was made to run another inversion trial, Golder would remove the desired percentage of noisy data prior to starting the next trial. Data processing plots and quality assurance plots from the electrical resistivity data inversion and modeling procedures are provided in Appendix A.

3.2 Seismic Refraction

3.2.1 Principles of Seismic Refraction

The seismic refraction method utilizes the refraction of seismic (i.e., P and S) waves to characterize subsurface geologic conditions and geologic structures. Seismic energy is provided by a source (hammer, blank shotgun shells, and chemical explosives) located on the surface. Energy radiates out from the shot point, either travelling directly through the upper layer (direct arrivals), or travelling down to and then laterally along higher velocity layers (refracted arrivals) before returning to the surface. The

refracted seismic signals are received by a series of geophones that are connected to a seismic cable laid on the ground in a linear configuration. In order for seismic refraction to be successful, the thickness, density and velocity must increase with depth.

This method enables the propagation velocity of the seismic waves (i.e., typical compressional or P-wave velocity) and the approximate depth to this boundary or layer to be determined. By conducting continuous seismic refraction profiling, a 2-dimensional seismic velocity cross section is produced to illustrate two-dimensional variations of the seismic velocity of soil and rock beneath the survey line. Seismic velocity is the speed at which a wave travels though the subsurface. It is governed by the subsurface material's density, shear modulus, and bulk modulus (only P-waves). Seismic velocity information then can be used to interpret different geologic layers and calculate their physical properties. For instance, near surface soils (overburden) generally have a seismic velocity of 600 to 2,500 feet per second (ft/s) when dry and up to 6,000 ft/s when saturated. In uniform geologic conditions, this difference allows determination of the depth to groundwater to be determined. The velocity of competent bedrock is typically more than 6,000 ft/s and can range up to 20,000 ft/s depending on rock type and fracture density. The large velocity contrast between bedrock and overlying unconsolidated soil and weathered bedrock, make seismic methods useful in the determination of the depth to weathered and competent bedrock. Table 2 summarizes typical wave propagation velocities for various types of earth material.

TABLE 2: SEISMIC P-WAVE VELOCITIES OF COMMON ROCK AND SOIL MATERIALS

Material	Velocity (ft/s)
Dry, loose silt, sand, gravel, rock, talus, and moist fine-grained topsoil	600-2,500
Water (saturated materials should have velocities equal to or exceeding that of water)	4,700
Weathered, fractured, or partly decomposed rock	2,500-7,500
Shale	2,000-10,000
Sandstone	8,000-18,000
Limestone	11,000-19,000
Igneous rock	12,000-20,000
Metamorphic Rock	10,000-16,000

3.2.2 Seismic Refraction Field Procedures and Data Acquisition

Golder used a Geode 24-channel seismograph manufactured by Geometrics to record a 24-channel spread. Each spread consisted of 24 4.5 Hz geophones that were planted at 10 ft geophone intervals, and connected to the Geode by a geophone cable. A 12-lb. sledge hammer was used as the energy source. Seven shots were recorded per spread; 60 ft off each end, 10 ft off each end, between geophones 6 and 7, between geophones 12 and 13, and between geophones 18 and 19. Typically, the shots start from the far offset relative to geophone 1 and move through the spread to the far offset from geophone 24.

The recording parameters used were: 0.125 ms sample interval, 1 s record length, and no filters.

3.2.3 Seismic Data Processing and Analysis Procedures

The raw seismic traces are processed with commercially available software (Optim's SeisOptPicker first break picker software). The first arrival seismic energy is picked from the data, the spread geometry is entered, and a file is created for input to commercially available seismic modeling software.

Golder used Optim's SeisOptPro interpretation software to create a velocity-depth model based on these arrival times and geometry. SeisOpt® @2D™ Version 3.0, by Optim™ software, is an automatic refraction interpretation package that performs velocity optimization calculations (Pullammanappallil and Louie, 1994). SeisOpt® @2D™ uses the first-arrival travel times and the survey geometry to derive subsurface velocity information. It uses a nonlinear optimization technique called generalized simulated annealing and it involves forward modeling. Test velocity models are created through which travel times are calculated. These calculated travel times are compared with the observed data. Testing every possible velocity model would take far too long, so SeisOpt® @2D™ uses Optim's proprietary algorithm to search through only a small percentage of the many possible models, yet still find the best model. It is called an optimization because the discrepancy, or error, between the calculated and observed travel times is optimized. In this case the optimal solution is the velocity model with the minimum travel time error.

The velocity models are presented in two-dimensional profiles.

4.0 GEOPHYSICAL SURVEY RESULTS

4.1 Geophysical Survey Locations

A total of 6 ERI lines were completed across portions of the property between July 25 and July 29, 2011 (Figure 2) using a 4-person crew. The ERI lines ranged in length from 930 feet to over 2,430 feet for a total combined length of 8,100 feet. The ERI lines typically followed the ridge lines and were designed to help evaluate the depth to rippable bedrock across portions of the site where the bedrock elevation was expected to be highest. Electrode positions were flagged and are labeled sequentially from west to east or south to north. Following completion of the electrical resistivity survey, Golder re-mobilized to the site with seismic survey equipment and completed 13 24-geophone spreads between August 1 and August 3, 2011. The seismic refraction surveys were generally completed at the beginning and end of each ERI lines. A third spread was completed in the middle of the longest ERI line (Line 1).

4.2 Comparison of Geophysical Results and Lithologic Data

Golder has compared the modeled and contoured electrical resistivity imaging data and the seismic P-wave velocities to the lithology and hydrogeologic data from boreholes PZ-2 and PZ-5 both on Line 6 to help in the interpretation of the geophysical data (Figure 3). This comparison to actual subsurface conditions allows us to calibrate the geophysical results so that subsurface conditions between boreholes can be inferred across the site with greater confidence. A conceptual model of the ERI and seismic results is then developed to allow interpretation of probable subsurface conditions across the entire study area. This iterative process can be repeated to improve our interpretation of the subsurface conditions at the site as additional boreholes are completed in the vicinity of the geophysical lines.

Borehole PZ-5 is situated near electrode station 37 on Line 6. The stratigraphy at PZ-5 consists of dry silty sand (0-8’), weathered bedrock (8-10’), competent bedrock (10-13’), back into weathered bedrock and soil (13-20’), then competent bedrock from 20 ft bgs to the bottom of the borehole at a depth of 65 ft bgs. The measured depth to groundwater in PZ-5 is approximately 40 ft bgs. Resistivity values for the dry surficial silt/sand layer are moderately high, ranging from 90-500 ohm-m, likely reflecting a low moisture and clay content. Resistivity values for the weathered bedrock are lower, ranging from 50-100 ohm-m, likely reflecting a slightly higher clay and soil moisture content of the weathered bedrock. The resistivity of the underlying competent bedrock gradually increases from 100 to 1,000 ohm-m over an interval of approximately 20 feet then increases rapidly to over 4,500 ohm-m reflecting the dry, resistive nature of the poorly fractured and low saturated porosity bedrock. Seismic velocities at PZ-5 for the surficial dry sand are around 3,500 ft/s, slightly higher than the maximum 2,500 ft/s which is typically considered the upper limit of unconsolidated soil material. The top of competent bedrock coincides with a seismic velocity of 4,500 ft/s and the top of rippable bedrock (7,250 ft/s) occurs at an approximate depth of 24 ft bgs just below the weathered bedrock zone.

Borehole PZ-2 is situated near electrode station 150 on Line 6. The stratigraphy at PZ-2 consists of silty sand (0-7'), moist sandy silt (7-14'), highly weathered bedrock (14-16'), and competent quartzite bedrock to the bottom of the borehole at a depth of 53 ft bgs. The measured depth to groundwater in PZ-2 is approximately 45 ft bgs. Modeled resistivity values at PZ-2 are relatively high throughout the entire depth of the profile reflecting the dry, well drained, deep water table conditions and the general absence of clay weathered from quartzite bedrock. Resistivity values range from 100 to 200 ohm-m in the upper 15 feet and increase rapidly to over 4,000 ohm-m as the soil profile transitions into competent, resistive bedrock. The resistivity of the underlying competent bedrock gradually increases from 100 to 1,000 ohm-m over an interval of approximately 20 feet then increases rapidly to over 4,500 ohm-m reflecting the dry, resistive nature of the poorly fractured and low saturated porosity bedrock. Seismic velocities at PZ-2 increase from 3,000 to 4,500 ft/sec corresponding with the soil and weathered bedrock. The top of competent bedrock coincides well with a seismic velocity of approximately 4,500 ft/s. There is a shallow high velocity zone at electrode 149 which is indicative of possible float (i.e., more competent bedrock surrounded by saprolite). The top of rippable bedrock (7,250 ft/s) occurs at an approximate depth of 18 ft bgs.

4.3 Electrical Resistivity Imaging Results

The interpretative results of the electrical resistivity imaging profiles (i.e., 2-D vertical cross sections of electrical resistivity values) are illustrated in Figures 4 through 10. The profiles are annotated with elevation in feet above mean sea level, electrode station number, distance in feet from the beginning of the line, seismic data depicting the estimated top of bedrock and top of rippable rock based on seismic velocity data, and borehole data depicting overburden thickness and known depth to weathered and competent bedrock from the geologic logs. All figures have the same electrical resistivity scale for ease of comparison. Lithologic data from site borings and rock cores are divided into overburden (OB), soft/weathered rock (SR), and hard/competent rock (HR). The borings are primarily used to show the overburden thickness and the top of bedrock surface on the profiles. This comparison of the ERI results to both the seismic refraction results and actual subsurface lithologic and hydrogeologic data allows us to infer subsurface conditions between boreholes across the site with greater confidence. Based on this, a conceptual model of the ERI results has been developed and is presented in Table 3 based on electrical resistivity values, our knowledge of the geologic conditions in the region, and calibration to site-specific lithologic data.

TABLE 3

CONCEPTUAL INTERPRETATION OF SUBSURFACE GEOLOGY BASED ON GEOPHYSICAL PROPERTIES

Electrical Resistivity (ohm-m)	Seismic Velocity (ft/sec)	Geologic/Geotechnical Interpretation
100 – 500	**< 2,500**	**Soil/Saprolite** – This layer is a thin discontinuous surficial layer with a moderately high resistivity. It represents thin silty or sandy soil with a low clay content and dry soil conditions due to relatively deep water table conditions. This layer may include some highly weathered bedrock or saprolite typically where sandy. This layer is generally 0 to 15 feet deep and have resistivity values on the order of 100-500 ohm-m and seismic velocities of less than 2,500 ft/sec.
10 – 100	**2,500 – 4,500**	**Weathered Bedrock** – This layer is typically continuous, undulating layer with low resistivity values (<100 ohm-m) and moderate seismic velocities (2,500-4,500 ft/s). The lower resistivity values are presumed to be due to increased clay and soil moisture content found within the weathered bedrock. This layer is generally 0 to 20 feet thick but may be as thick as 60 feet in places. It is assumed that this layer is thicker where the parent material is less resistant meta-volcanic or meta-argillite bedrock or where bedrock is highly fractured with water or clay infilling. Higher resistivity and velocities are expected where parent material consists of quartzite.
>100 – 4,000	**>4,500 – 21,250**	**Bedrock** - The top of competent bedrock surface is identified by a rapid increase in electrical resistivity from 100 ohm-m to more than 4,000 ohm-m in places. The high resistivity reflects the low fracture porosity, low clay content and low saturation of the bedrock. Seismic velocities increase from 4,500 to over 21,000 ft/s.
	< 7,250	**Rippable Material** – Bedrock material with seismic velocities less than 7,250 ft/s are considered rippable according to Caterpillar's seismic wave velocity charts for a single or multiple shank No. 9 Ripper.
	7,250 – 9,000	**Marginally Rippable Material** – Bedrock material with seismic velocities between 7,250 ft/s and 9,000 ft/s are considered marginally rippable.
	> 9,000	**Rippable Bedrock** – Bedrock material with seismic velocities greater than 9,000 ft/s are non-rippable.

4.4 Seismic Refraction Results

The seismic refraction profiles are shown in Figures 11 through 23 and illustrate calculated compressional wave velocity, also known as P-wave velocity (Vp), on two-dimensional profiles. Based on the known site geology and drilling results (specifically PZ-2 and PZ5), material with seismic wave velocity less than 2,500 ft/s likely represent loose unconsolidated soil and 4,500 ft/s represents the approximate top of bedrock. The gradation of velocities from 2,500 ft/s to 7,250 ft/s likely represents a gradual transition from soil to saprolite to weathered and rippable fractured bedrock. According to Caterpillar's seismic wave velocity charts for a single or multiple shank No. 9 Ripper, material with seismic velocities less than 7,250 ft/s are rippable, while material between 7,250 ft/s and 9,000 ft/s are considered marginally rippable, and material with velocities greater than 9,000 ft/s are non-rippable.

4.5 Depth to Bedrock Estimates

The top of bedrock is approximated by the seismic velocity contour of 4,500 ft/s. This corresponds very closely with available lithologic data from site boreholes and corresponds relatively well with a rapid increase in electrical resistivity values from several hundred to several thousand ohm-meters. In some instances, the 4,500 ft/s contour corresponds with lower resistivity values, which may reflect increased bedrock fractures and soil infilling near the bedrock-soil interface. Based on an analysis of the seismic data, the depth to the top of rock beneath the 13 seismic spreads varies from 0 to 60 ft bgs and averages approximately 15 ft bgs with a standard deviation of 11 feet. A summary of estimated depth to bedrock thicknesses based on the depth to the 4,500 ft/s seismic contour is provided in Appendix B. Figure 24 is a contour map of the depth to the top of bedrock where red represents areas with the shallowest bedrock and blue represents areas with the deepest bedrock and thickest soil and weathered rock overburden. As shown, the top of bedrock appears to be shallowest most of Line 6, the central and eastern portion of Line 1, the western part of Line 2 and 3 and the eastern part of Line 5. The top of bedrock is deepest along the eastern portion of Line 3 and the northwestern portion of Line 4.

The depth to rippable bedrock is approximated by the 7,250 ft/s seismic velocity contour and ranges from 0 to 83 ft bgs and averages 30 ft bgs. This surface corresponds with the top of bedrock in some places but is generally at least 5 feet to over 40 feet below the estimated top of bedrock in most areas surveyed. Figure 25 is a contour map of the depth to the top of marginally rippable bedrock by a D-9 Caterpillar. Appendix B summarizes the depth to the 7,250 ft/s seismic velocity contour line beneath each geophone.

5.0 CONCLUSIONS

Golder has completed an ERI and a seismic refraction geophysical survey at a proposed landfill site in Randolph County, North Carolina. The geophysical survey was completed to provide a non-intrusive assessment of the subsurface conditions at the site and more specifically to assess the depth to non-rippable bedrock. The geophysical surveys were completed mostly along ridgelines with the study area to evaluate the probable depth that weathered bedrock can be excavated with mechanized equipment without drilling and blasting.

A total of 6 ERI lines were completed across portions of the property. The ERI lines ranged in length from 930 feet to over 2,430 feet for a total combined length of 8,100 feet. The ERI lines typically followed the ridge lines and were designed to help evaluate the depth to rippable bedrock across portions of the site where the bedrock elevation was expected to be highest. Following completion of the electrical resistivity survey, Golder completed 13 24-geophone spreads at the beginning and end of each ERI lines. A third spread was completed in the middle of the longest ERI line.

A conceptual model of subsurface geologic and geotechnical conditions was developed based on electrical resistivity and seismic velocities, area geologic maps, and site-specific borehole data. Based on these results, the depth to competent bedrock (i.e., thickness of overburden and highly weathered bedrock or saprolite) appears to vary from 0 (i.e., rock at the ground surface) to as deep as 60 ft bgs. The average depth to bedrock is 15 feet and the standard deviation is approximately 10 feet. It is suspected that the areas of the site underlain by quartzite, which is more resistant to weathering, will tend to have the shallowest depth to bedrock, while areas underlain by less-resistant meta-volcanic and argillite rock types will have deeper bedrock. The deepest suspected bedrock is situated in the central and eastern areas of the site along Lines 3 and 4.

6.0 REFERENCES

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FIGURES

0 5 10 20 30 Miles

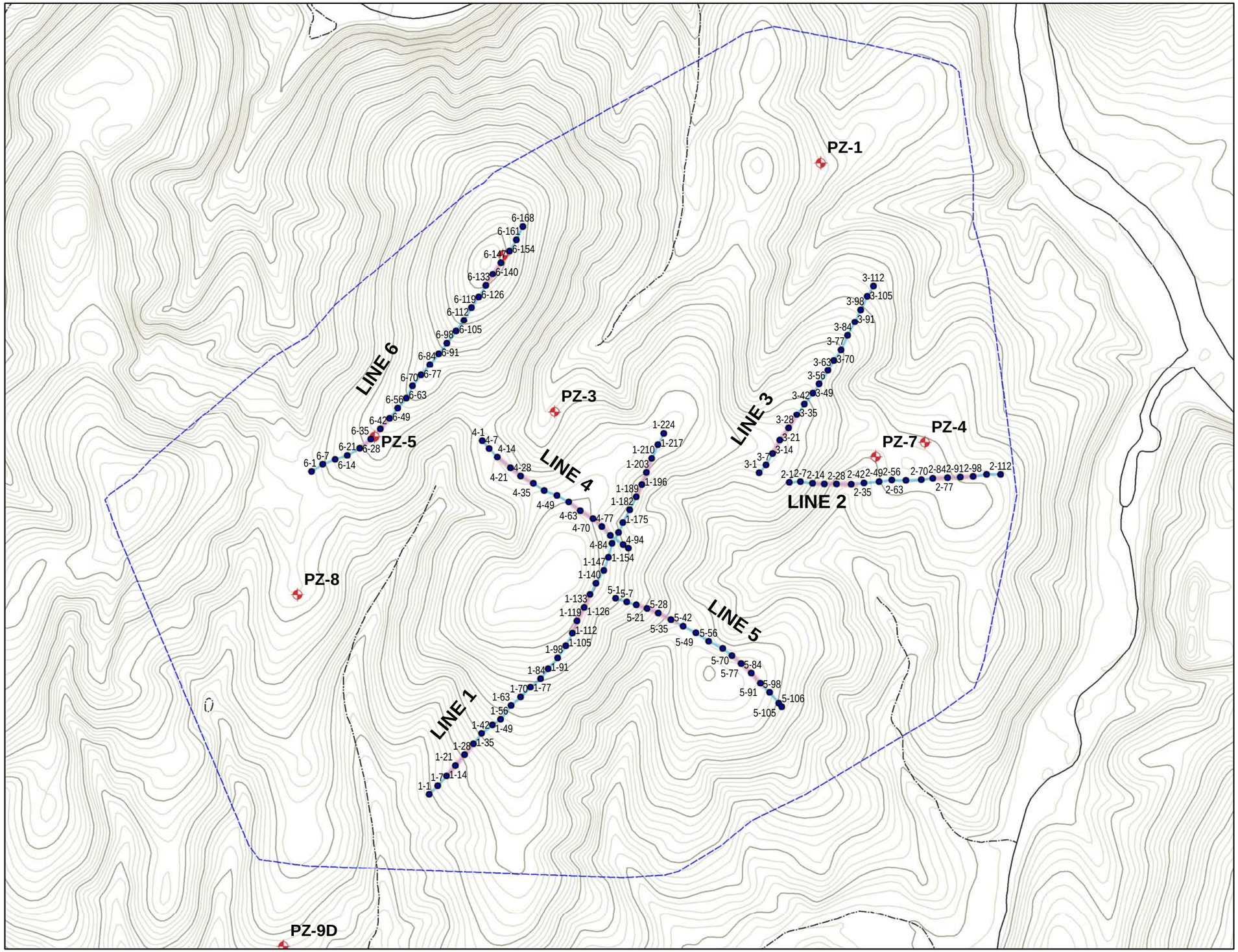
1 in = 16 miles

Reference: ESRI StreetMap World 2D Layer from ESRI ArcGIS Map Server
Projection: NAD 1983 North Carolina State Plane feet

2108 W Laburnum Ave.
Richmond, VA 23227
Golder Associates

Project: 1039684602	Title	GENERAL LOCATION MAP OF THE PROPOSED RANDOLPH COUNTY LANDFILL
Date: 11-16-2011		
Design: BBW		
File: Figure 1 - General Location Map.mxd	Review: RPK	Client: Randoph County Public Works

Figure 1



REGIONAL LOCATION MAP

Legend

- ERI Waypoints
- Existing Borings
- Seismic Lines
- ERI Lines

0 250 500 750 1,000 Feet

1 inch = 500 feet

REFERENCE

Projection: NAD 83 NC SP ft.

Title:

GEOPHYSICAL SURVEY LINES AND TEST BORING LOCATIONS RANDOLPH COUNTY, NC

Client:

Randolph County Public Works

Date: 11-16-2011	Check: BBW
Design: BBW	Review: RPK

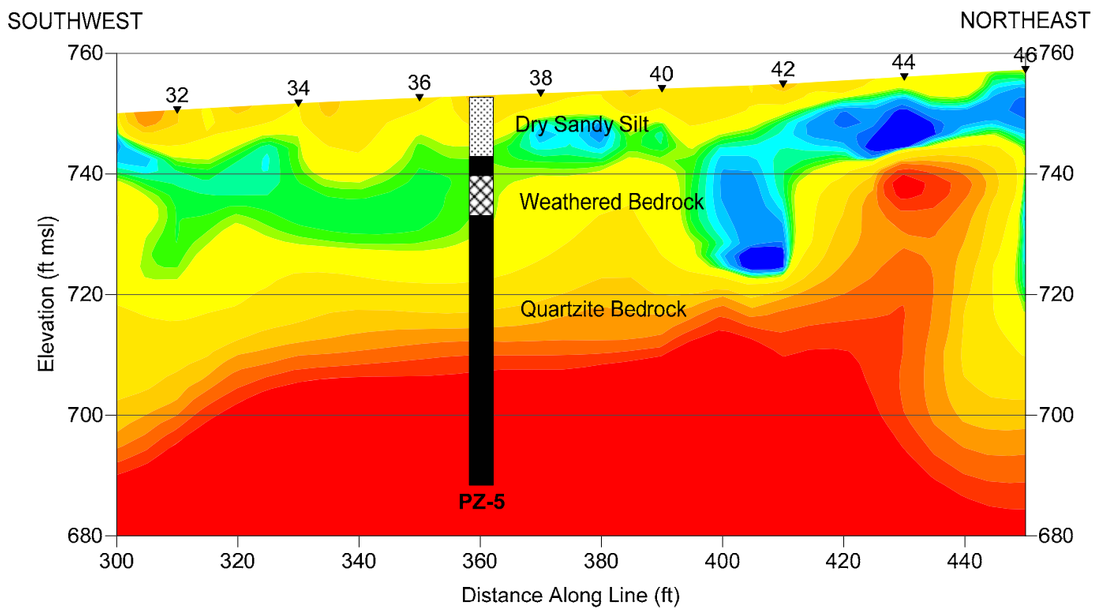
5B Oak Branch Drive
Greensboro, NC 27407
(336) 852-4903

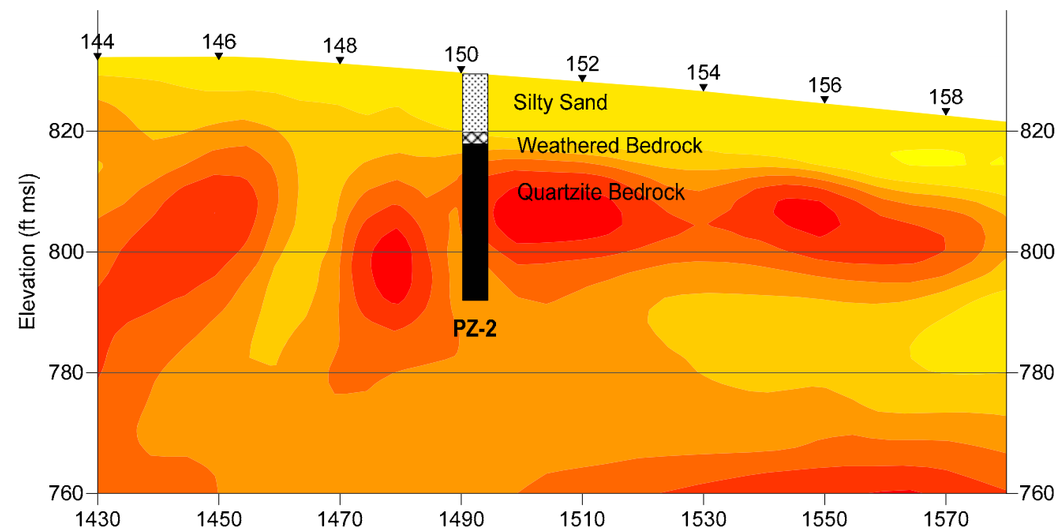
Golder Associates

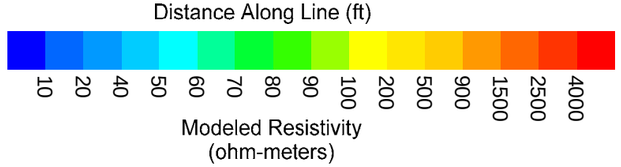
Project No. **1039684602**

Figure No. **1**

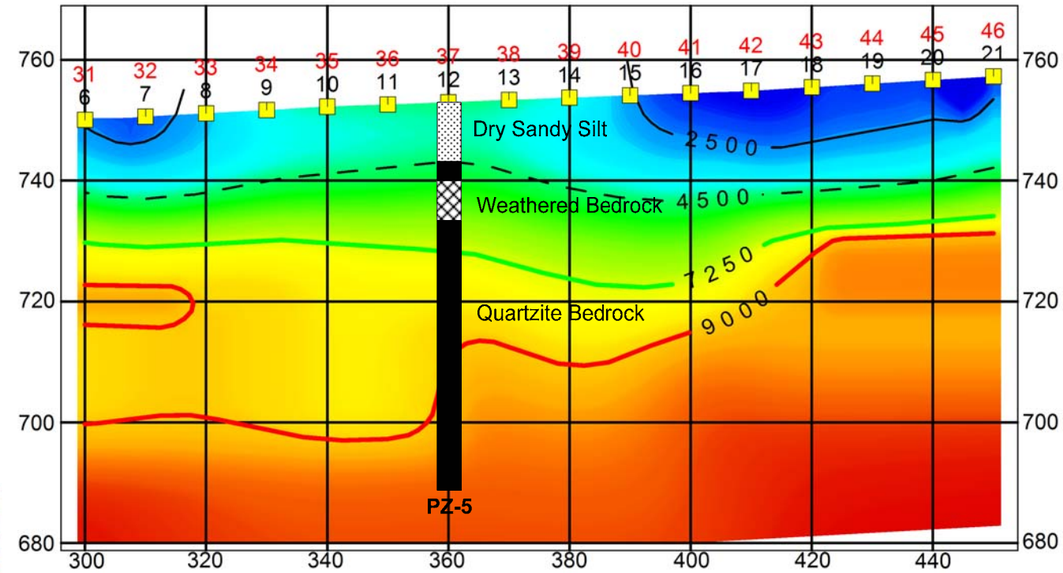
Modeled Electrical Resistivity Profile

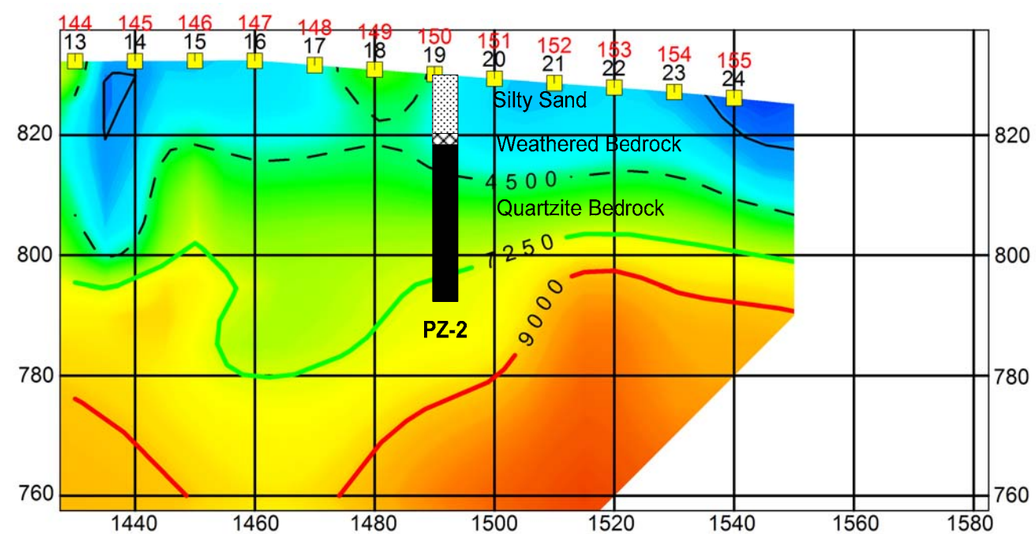


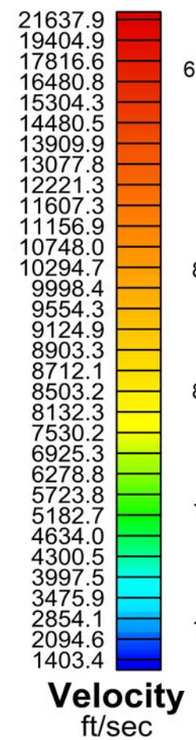




Seismic Refraction Profile







Boring Legend

- Overburden (OB)
- Soft Rock (SR)
- Hard Rock (HR)

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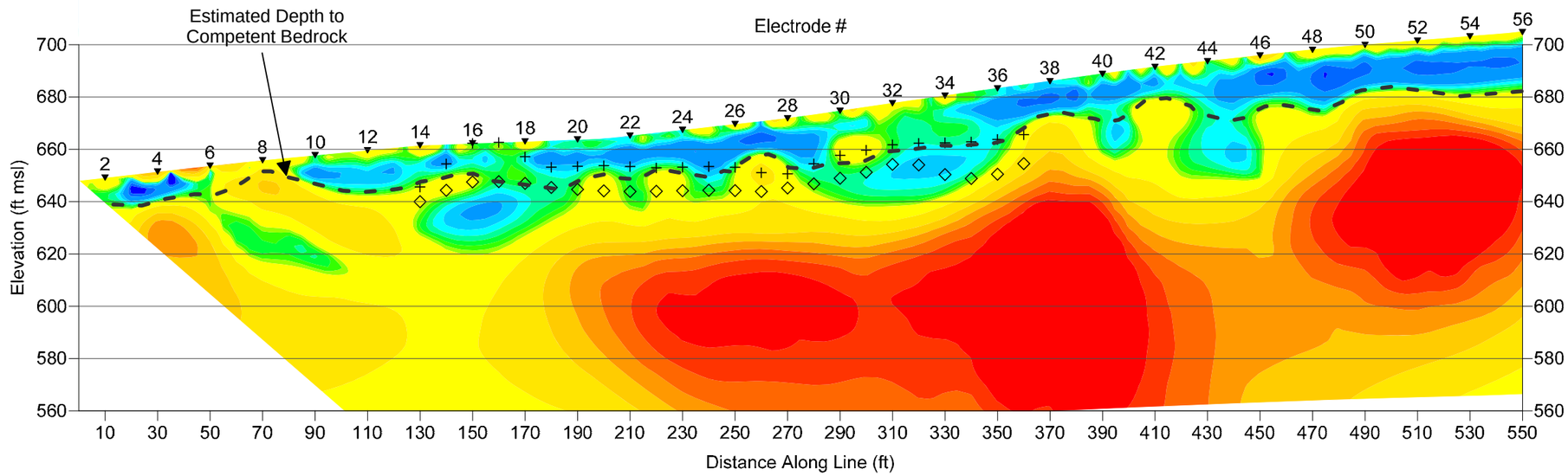
Richmond, VA 23227
(804) 358-7900

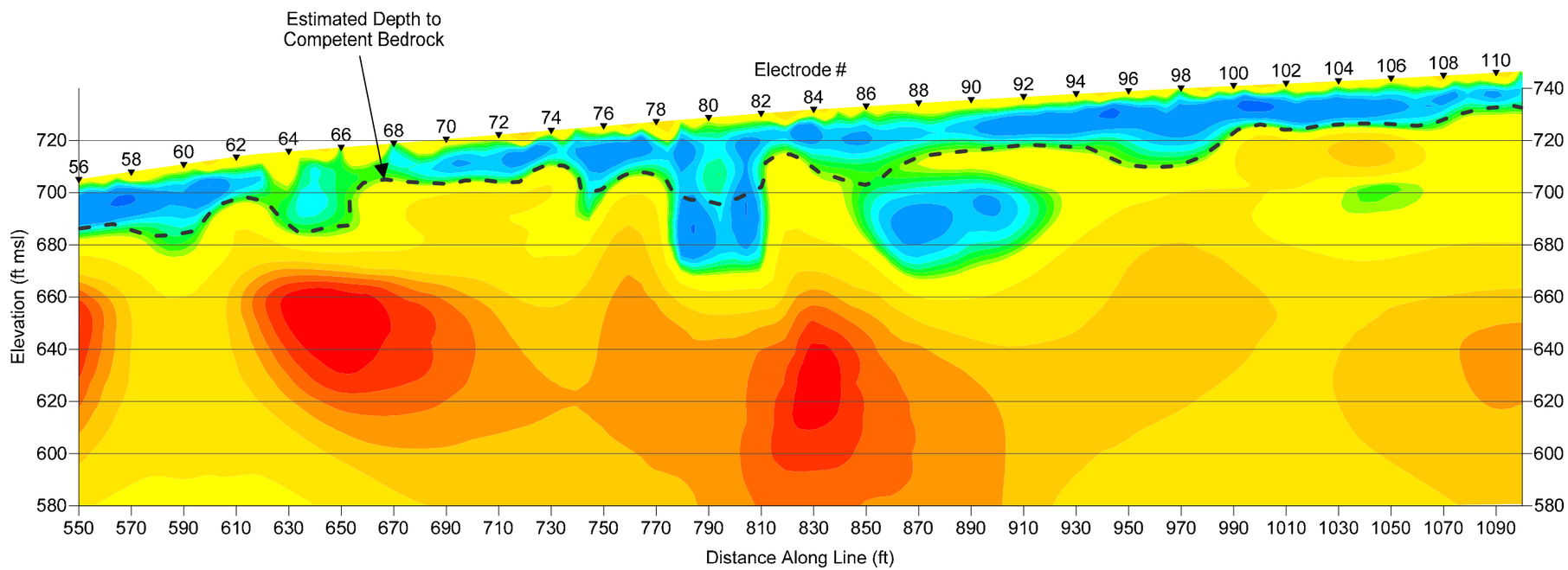
CLIENT: Randolph County Public Works		PROJECT: Proposed MSW Landfill Siting Study	
DRAWN: MGM	DATE: 08-27-2011	TITLE: **Comparison of Geophyiscal Data with Borehole Data**	
CHECKED: BBW	DATE: 10-27-2011		
SCALE: H: 1"=65' V: 1"=65'	DATUM: N83 SP NC FT	PROJECT NO.: 1039684602	REVISION NO.: R001 / FIGURE NO.: 3

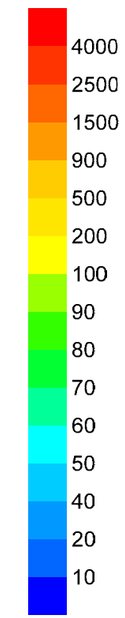
SOUTHWEST

ERI Line 1-224 (Electrodes 1-112) Modeled Resistivity Profile

NORTHEAST







Modeled Resistivity Ohm-meters

+ Top of Bedrock (Pv>4,500 ft/sec)

◇ Top of Rippable Rock (Pv>7,250 ft/sec)

NOTES:
Line 1-224 Dipole-Dipole Array
224 Electrodes, 10 ft Spacing
Recorded on July 26, 2011
Earthimager 2D Processing
Trial 4, Iteration 6
RMS = 4.22%, L2 = 1.95

Boring Legend

- Overburden (OB)
- Soft Rock (SR)
- Hard Rock (HR)

NOTES: Electric resistivity profiles were derived through reverse modeling techniques using AGI's EARTHIMAGER software package. Resistivity data was collected using AGI's SuperSting R8 112 electrode automatic resistivity system.

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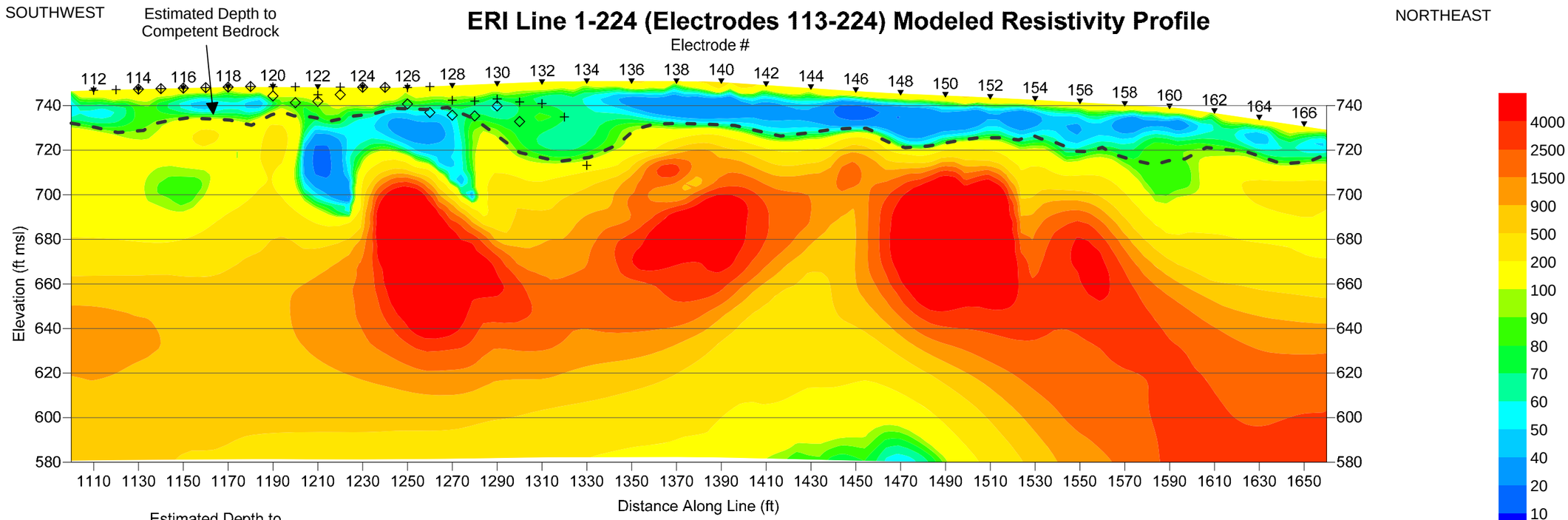
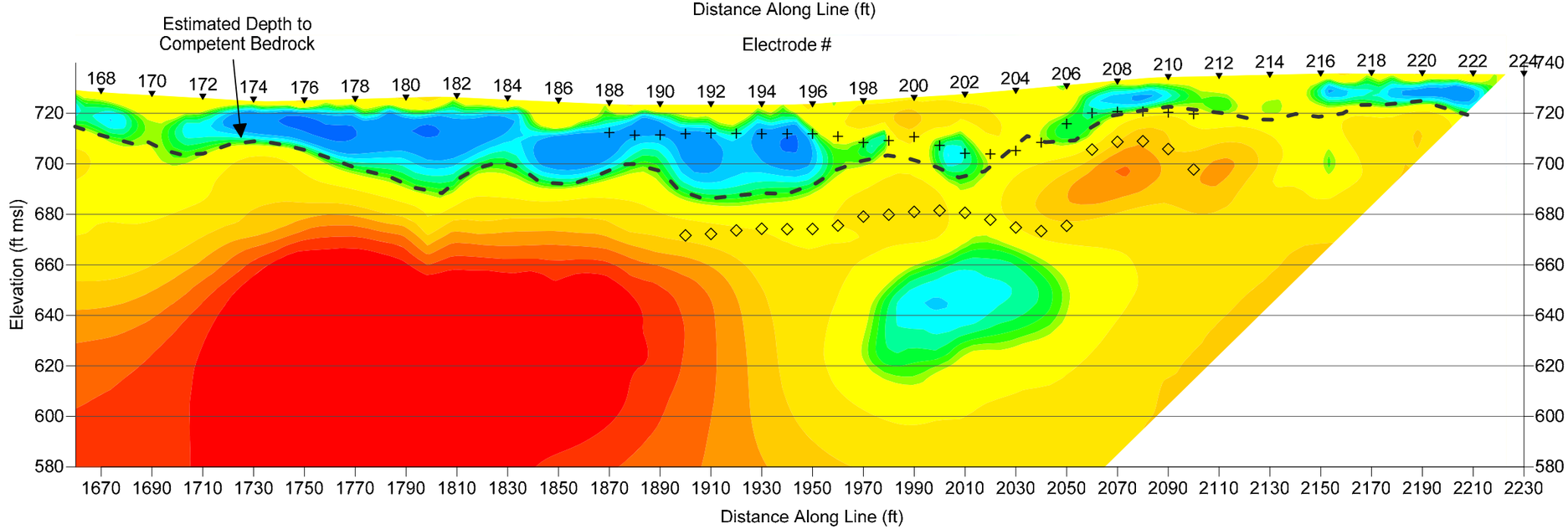
CLIENT: Randolph County Public Works		PROJECT: Proposed MSW Landfill Siting Study	
DRAWN: MGM	DATE: 08-15-2011	TITLE: **Modeled Electrical Resistivity Profile 1-224 (Electrodes 1-112 shown)**	
CHECKED: BBW	DATE: 10-27-2011		
SCALE: H: 1"=50' V: 1"=50'	DATUM: N83 SP NC FT	PROJECT NO.: 1039684602	REVISION NO.: R001 / FIGURE NO.: 4

ERI Line 1-224 (Electrodes 113-224) Modeled Resistivity Profile





+ Top of Bedrock (Pv>4,500 ft/sec)

◇ Top of Rippable Rock (Pv>7,250 ft/sec)

NOTES:
Line 1-224 Dipole-Dipole Array
224 Electrodes, 10 ft Spacing
Recorded on July 26, 2011
Earthimager 2D Processing
Trial 4, Iteration 6
RMS = 4.22%, L2 = 1.95

Boring Legend

- Overburden (OB)
- Soft Rock (SR)
- Hard Rock (HR)

NOTES: Electric resistivity profiles were derived through reverse modeling techniques using AGI's EARTHIMAGER software package. Resistivity data was collected using AGI's SuperSting R8 112 electrode automatic resistivity system.

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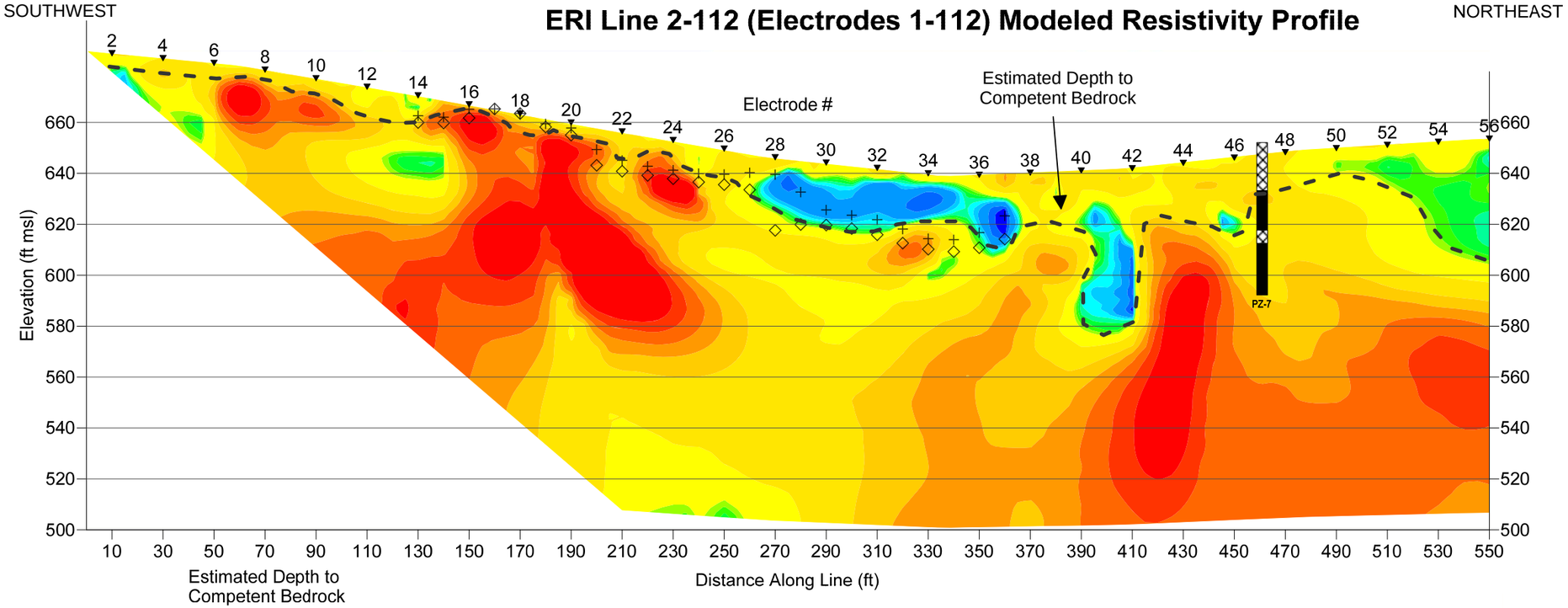
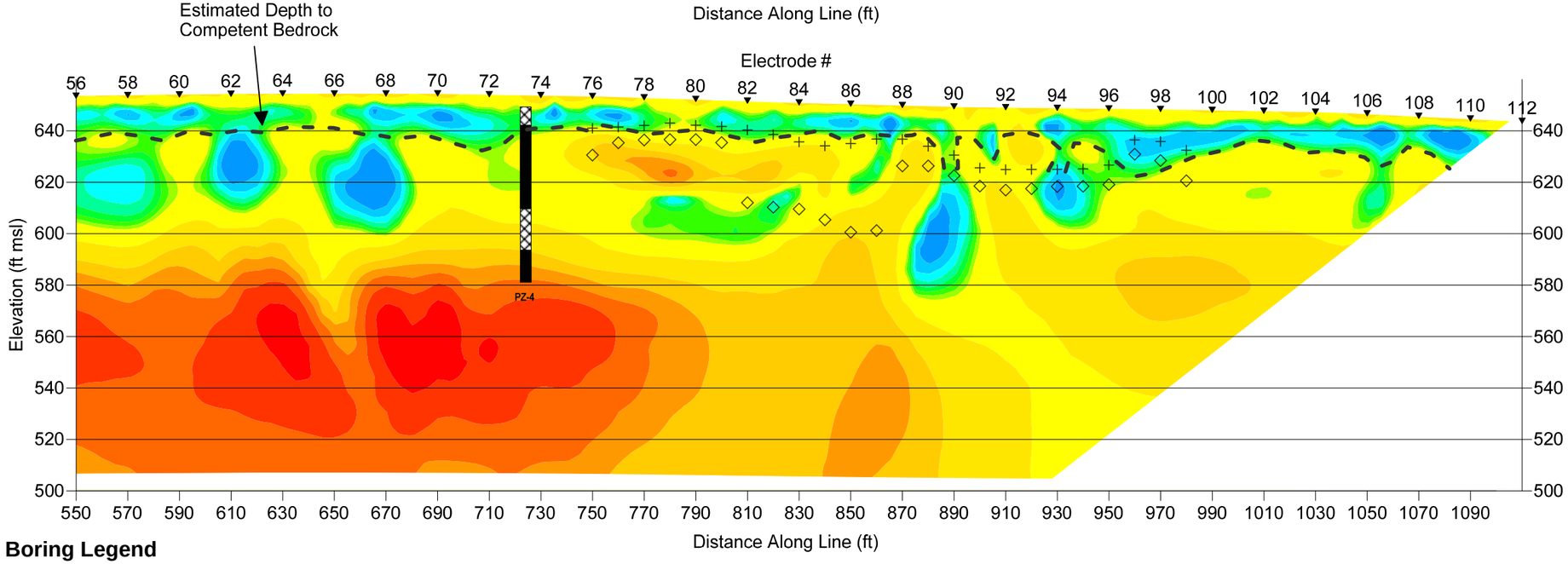
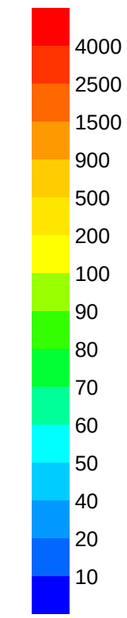
CLIENT: Randolph County Public Works		PROJECT: Proposed MSW Landfill Siting Study	
DRAWN: MGM	DATE: 08-15-2011	TITLE: **Modeled Electrical Resistivity Profile 1-224 (Electrodes 113-224 shown)**	
CHECKED: BBW	DATE: 10-27-2011		
SCALE: H: 1"=50' V: 1"=50'	DATUM: N83 SP NC FT	PROJECT NO. 1039684602	REVISION NO. R001 / FIGURE NO. 5

ERI Line 2-112 (Electrodes 1-112) Modeled Resistivity Profile







+ Top of Bedrock (Pv>4,500 ft/sec)

◇ Top of Rippable Rock (Pv>7,250 ft/sec)

NOTES:
Line 2-112 Dipole-Dipole Array
112 Electrodes, 10 ft Spacing
Recorded on July 27, 2011
Earthimager 2D Processing
Trial 3, Iteration 8
RMS = 4.08%, L2 = 1.83

Boring Legend

- Overburden (OB)
- Soft Rock (SR)
- Hard Rock (HR)

NOTES: Electric resistivity profiles were derived through reverse modeling techniques using AGI's EARTHIMAGER software package. Resistivity data was collected using AGI's SuperSting R8 112 electrode automatic resistivity system.

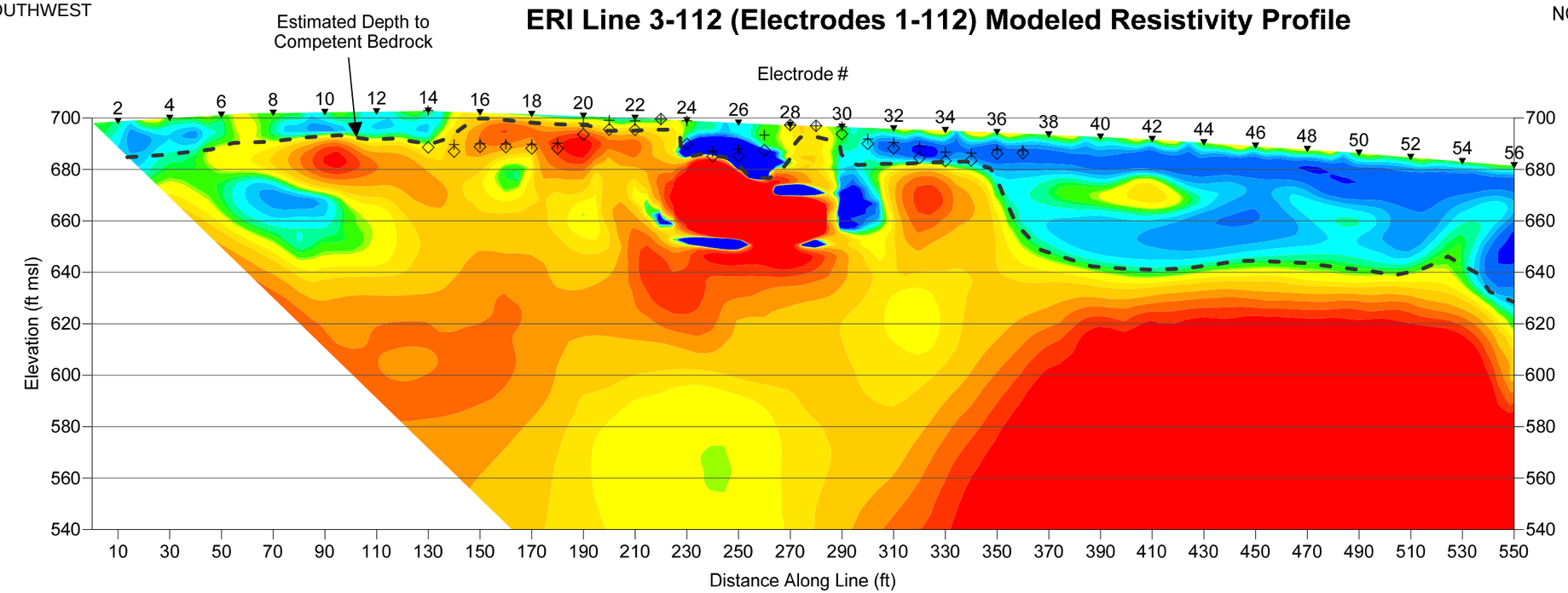
2108 W Laburnum Ave
Richmond, VA 23227
(804) 358-7900
Golder Associates

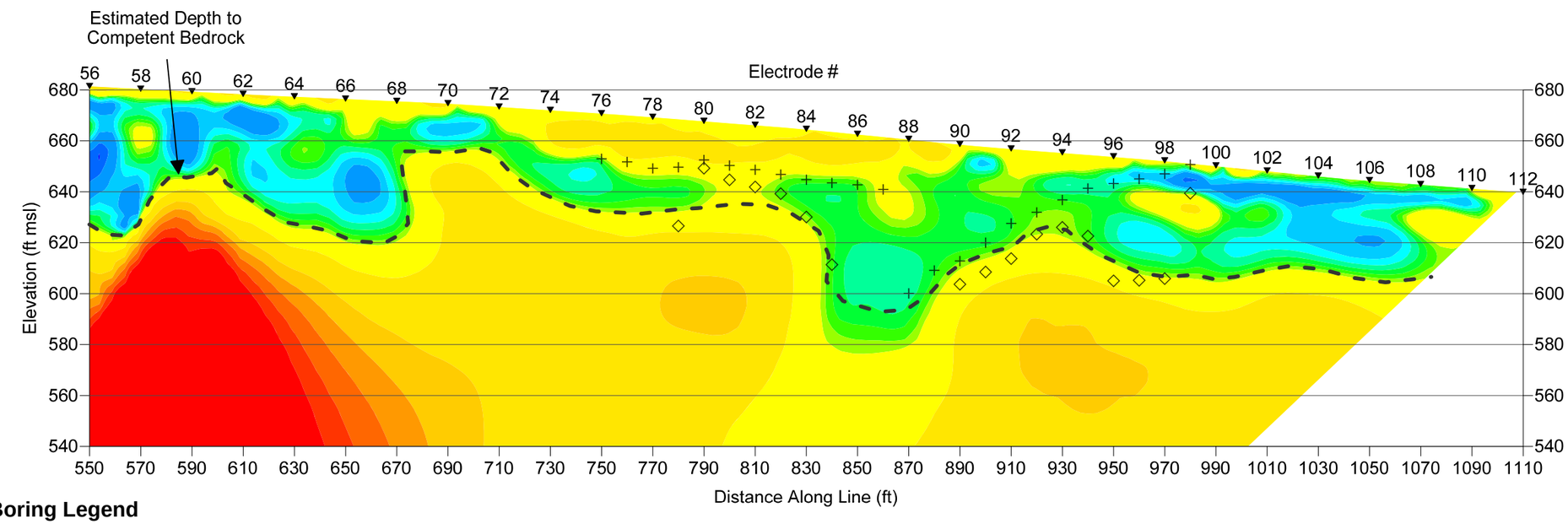
CLIENT: Randolph County Public Works		PROJECT: Proposed MSW Landfill Siting Study	
DRAWN: MGM	DATE: 08-15-2011	TITLE: **Modeled Electrical Resistivity Profile 2-112**	
CHECKED: BBW	DATE: 10-27-2011		
SCALE: H: 1"=50' V: 1"=50'	DATUM: N83 SP NC FT	PROJECT NO.: 1039684602	REVISION NO.: R001 / FIGURE NO.: 6

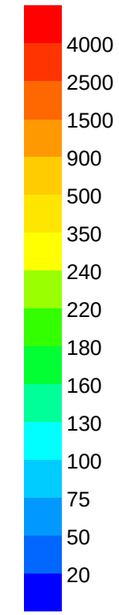
ERI Line 3-112 (Electrodes 1-112) Modeled Resistivity Profile

SOUTHWEST

NORTHEAST







Modeled Resistivity Ohm-meters

+ Top of Bedrock (Pv>4,500 ft/sec)

◇ Top of Rippable Rock (Pv>7,250 ft/sec)

NOTES:
Line 3-112 Dipole-Dipole Array
112 Electrodes, 10 ft Spacing
Recorded on July 27, 2011
Earthimager 2D Processing
Trial 4, Iteration 7
RMS = 4.36%, L2 = 2.08

Boring Legend

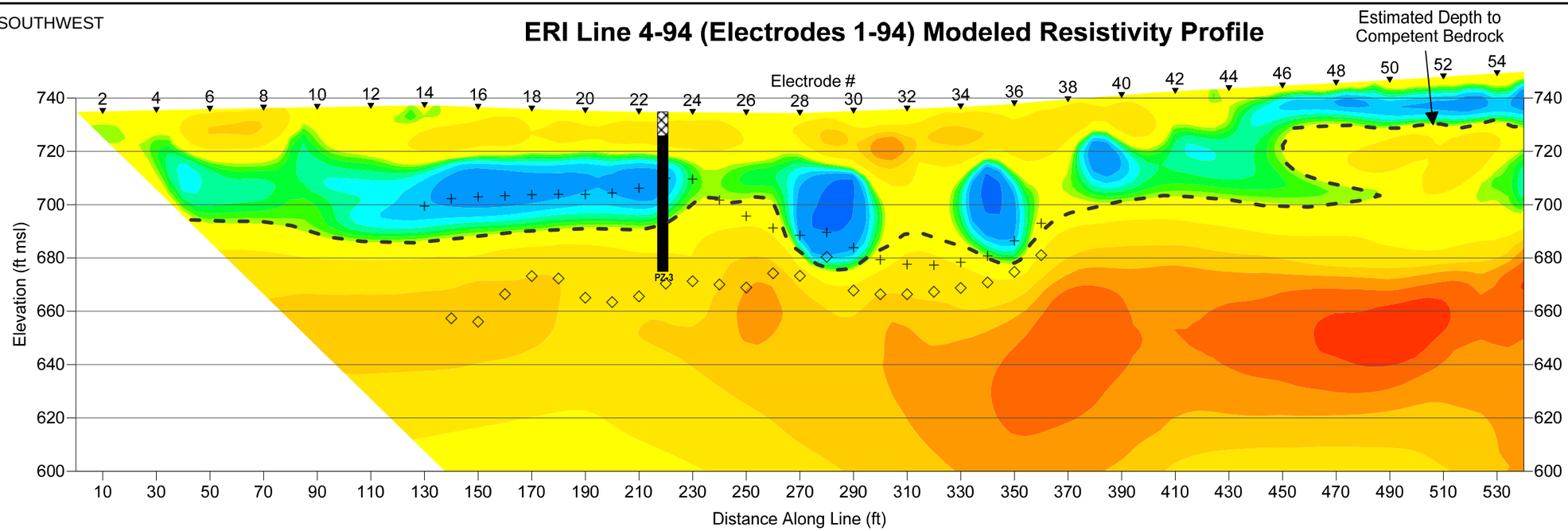
- Overburden (OB)
- Soft Rock (SR)
- Hard Rock (HR)

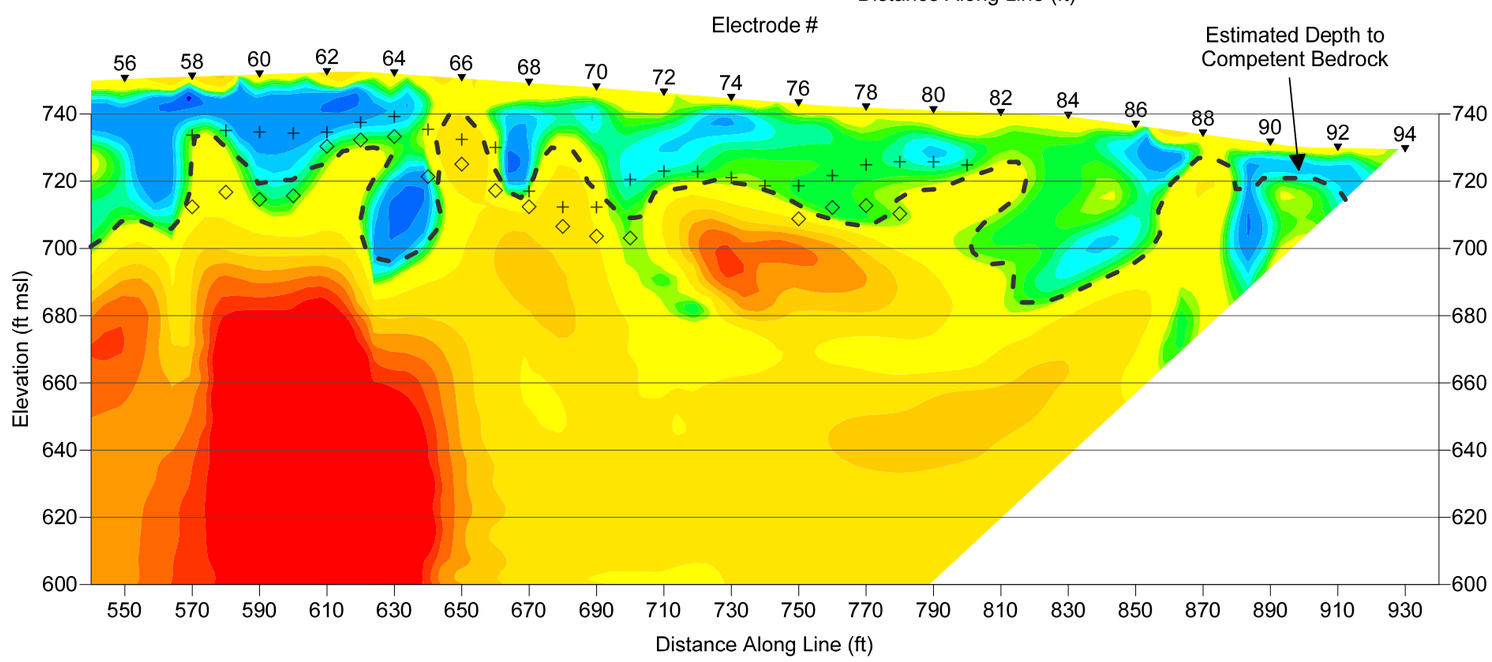
NOTES: Electric resistivity profiles were derived through reverse modeling techniques using AGI's EARTHIMAGER software package. Resistivity data was collected using AGI's SuperSting R8 112 electrode automatic resistivity system.

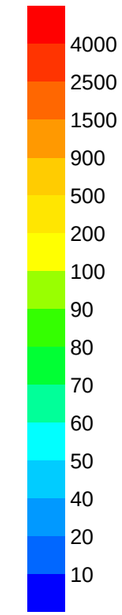
Golder Associates
2108 W Laburnum Ave
Richmond, VA 23227
(804) 358-7900

CLIENT: Randolph County Public Works		PROJECT: Proposed MSW Landfill Siting Study	
DRAWN: MGM	DATE: 08-15-2011	TITLE: **Modeled Electrical Resistivity Profile 3-112**	
CHECKED: BBW	DATE: 10-27-2011		
SCALE: H: 1"=50' V: 1"=50'	DATUM: N83 SP NC FT	PROJECT NO.: 1039684602	REVISION NO.: R001 / FIGURE NO.: 7

ERI Line 4-94 (Electrodes 1-94) Modeled Resistivity Profile







Modeled Resistivity Ohm-meters

+ Top of Bedrock (Pv>4,500 ft/sec)

◇ Top of Rippable Rock (Pv>7,250 ft/sec)

NOTES:
Line 4-94 Dipole-Dipole Array
94 Electrodes, 10 ft Spacing
Recorded on July 28, 2011
Earthimager 2D Processing
Trial 3, Iteration 8
RMS = 3.01%, L2 = 0.99

Boring Legend

- Overburden (OB)
- Soft Rock (SR)
- Hard Rock (HR)

NOTES: Electric resistivity profiles were derived through reverse modeling techniques using AGI's EARTHIMAGER software package. Resistivity data was collected using AGI's SuperSting R8 112 electrode automatic resistivity system.

Golder Associates
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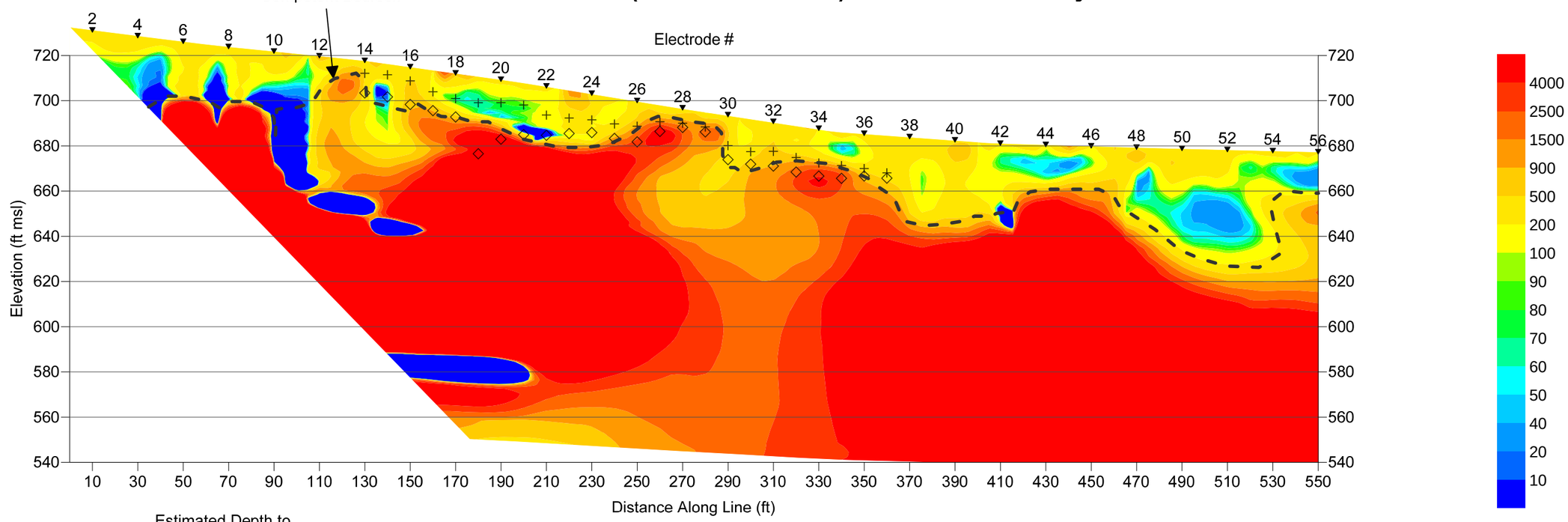
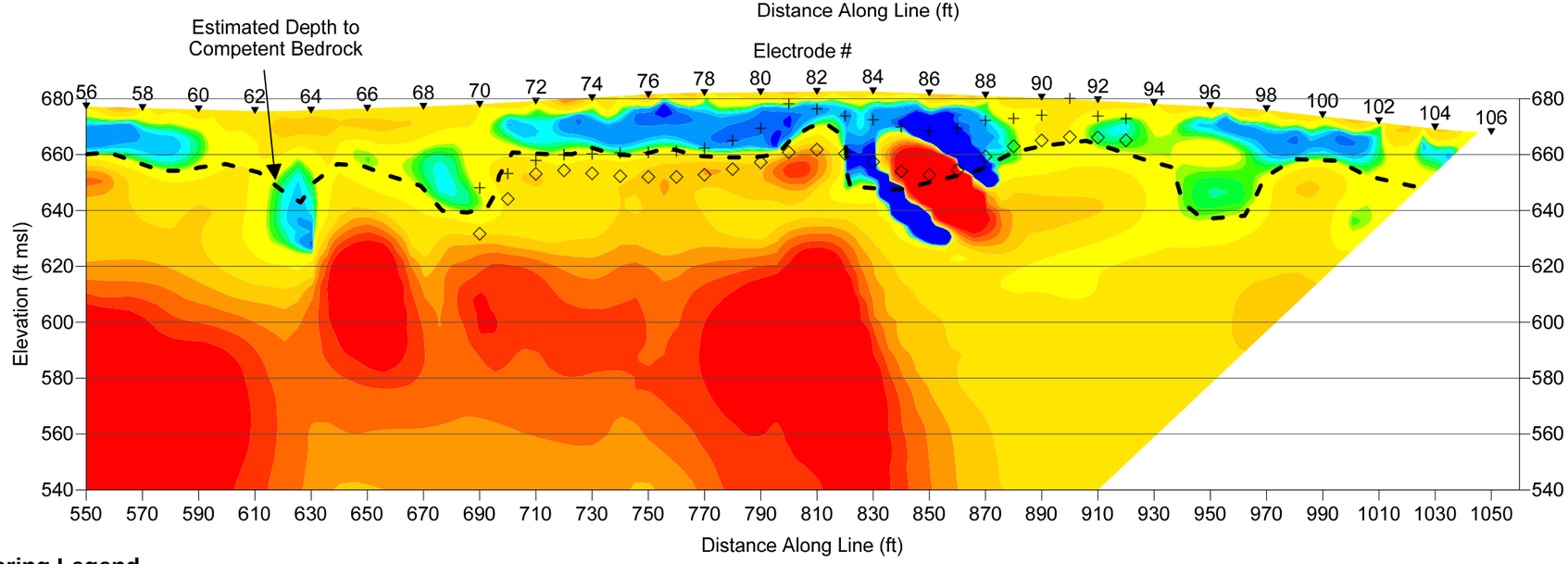
Richmond, VA 23227
(804) 358-7900

CLIENT: Randolph County Public Works		PROJECT: Proposed MSW Landfill Siting Study	
DRAWN: MGM	DATE: 08-15-2011	TITLE: **Modeled Electrical Resistivity Profile 4-94**	
CHECKED: BBW	DATE: 10-27-2011		
SCALE: H: 1"=50' V: 1"=50'	DATUM: N83 SP NC FT	PROJECT NO.: 1039684602	REVISION NO.: R001 / FIGURE NO.: 8

ERI Line 5-106 (Electrodes 1-106) Modeled Resistivity Profile





+ Top of Bedrock (Pv>4,500 ft/sec)

◇ Top of Rippable Rock (Pv>7,250 ft/sec)

NOTES:
Line 5-106 Dipole-Dipole Array
94 Electrodes, 10 ft Spacing
Recorded on July 28, 2011
Earthimager 2D Processing
Trial 3, Iteration 8
RMS = 4.32%, L2 = 2.06

Boring Legend

- Overburden (OB)
- Soft Rock (SR)
- Hard Rock (HR)

NOTES: Electric resistivity profiles were derived through reverse modeling techniques using AGI's EARTHIMAGER software package. Resistivity data was collected using AGI's SuperSting R8 112 electrode automatic resistivity system.

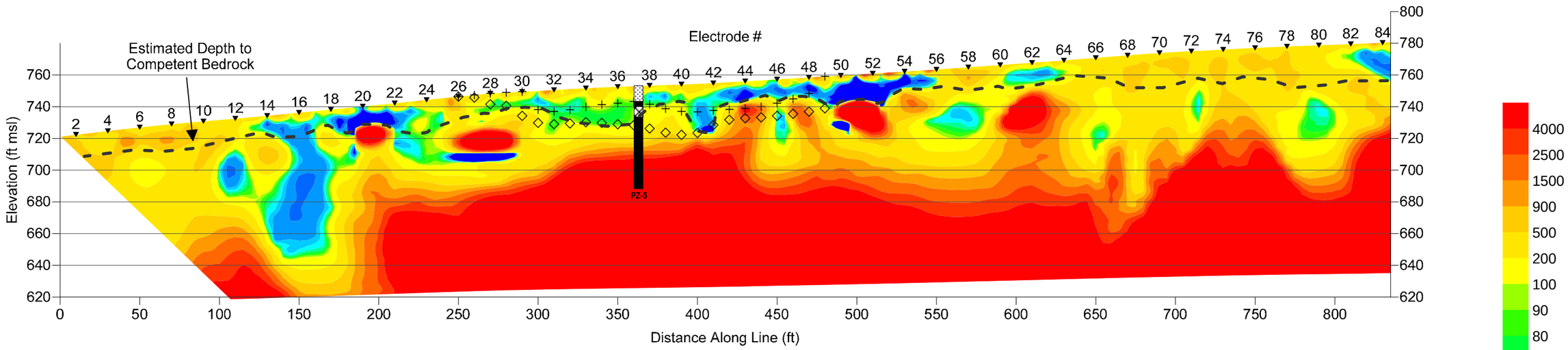
Golder Associates
2108 W Laburnum Ave
Richmond, VA 23227
(804) 358-7900

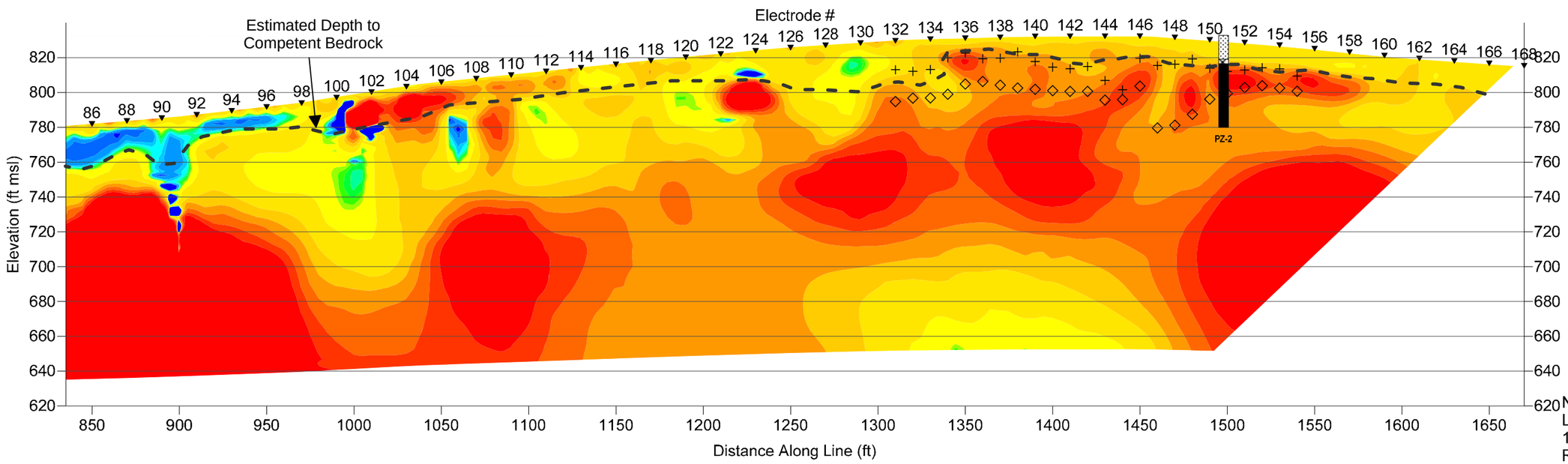
CLIENT: Randolph County Public Works		PROJECT: Proposed MSW Landfill Siting Study	
DRAWN: MGM	DATE: 08-15-2011	TITLE: **Modeled Electrical Resistivity Profile 5-106**	
CHECKED: BBW	DATE: 10-27-2011		
SCALE: H: 1"=400' V: 1"=100'	DATUM: N83 SP NC FT	PROJECT NO. 1039684602	REVISION NO. R001 / FIGURE NO. 9

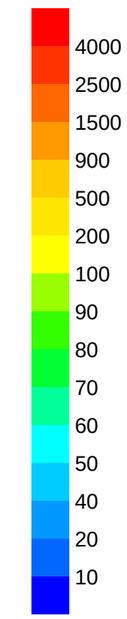
ERI Line 6 (Electrodes 6-168) Modeled Resistivity Profile

SOUTH

NORTH







Modeled Resistivity Ohm-meters

+ Top of Bedrock (Pv>4,500 ft/sec)

◇ Top of Rippable Rock (Pv>7,250 ft/sec)

NOTES:
Line 6-168 Dipole-Dipole Array
168 Electrodes, 10 ft Spacing
Recorded on July 29, 2011
Earthimager 2D Processing
Trial 3, Iteration 8
RMS = 4.89%, L2 = 2.64

Boring Legend

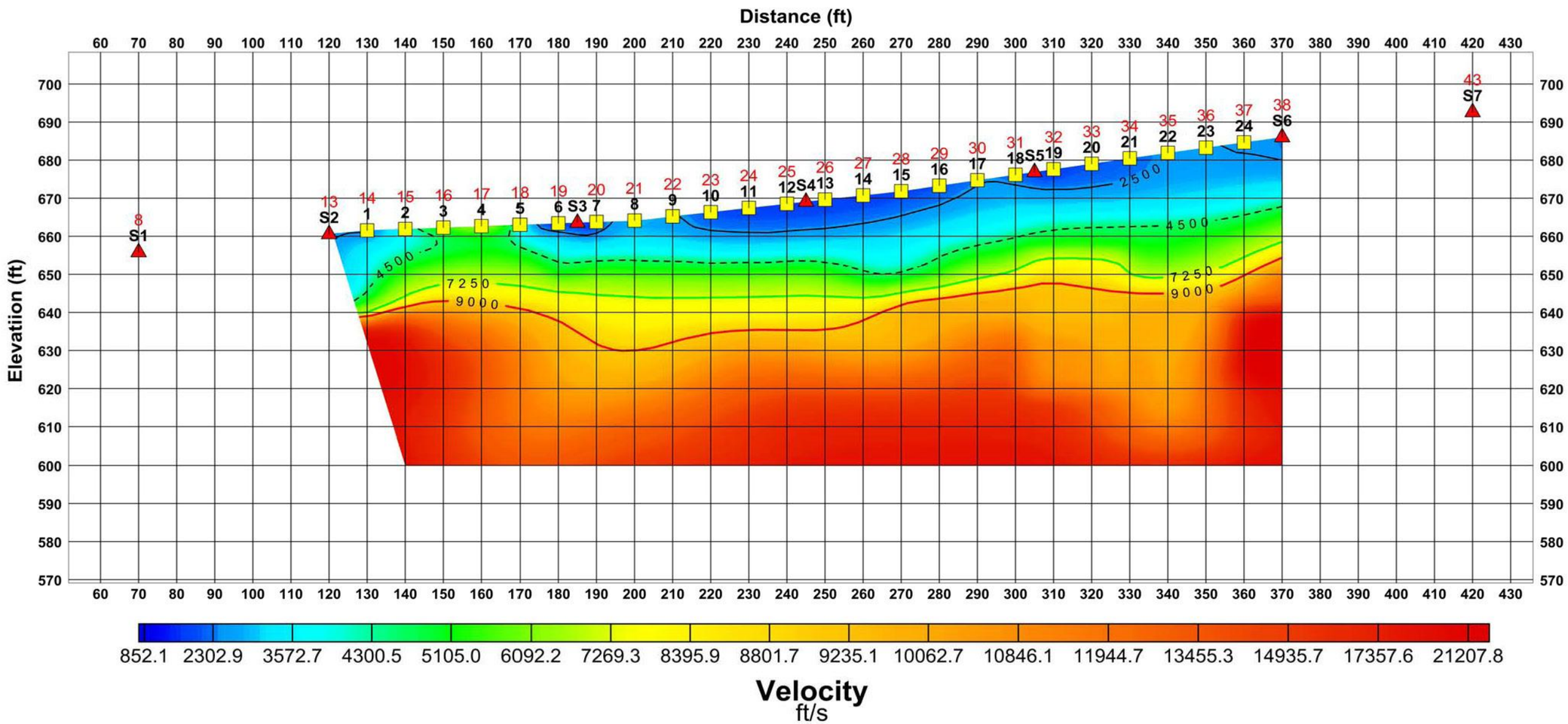
- Overburden (OB)
- Soft Rock (SR)
- Hard Rock (HR)

NOTES: Electric resistivity profiles were derived through reverse modeling techniques using AGI's EARTHIMAGER software package. Resistivity data was collected using AGI's SuperSting R8 112 electrode automatic resistivity system.

2108 W Laburnum Ave
Richmond, VA 23227
(804) 358-7900
Golder Associates

CLIENT: Randolph County Public Works		PROJECT: Proposed MSW Landfill Siting Study	
DRAWN: MGM	DATE: 08-15-2011	TITLE: **Modeled Electrical Resistivity Profile 6-168**	
CHECKED: BBW	DATE: 10-27-2011		
SCALE: H: 1"=65' V: 1"=65'	DATUM: N83 SP NC FT	PROJECT NO.: 1039684602	REVISION NO.: R001 / FIGURE NO.: 10

Line 1 Modeled Seismic Refraction Results - Spread 1 (Electrodes 14-37)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

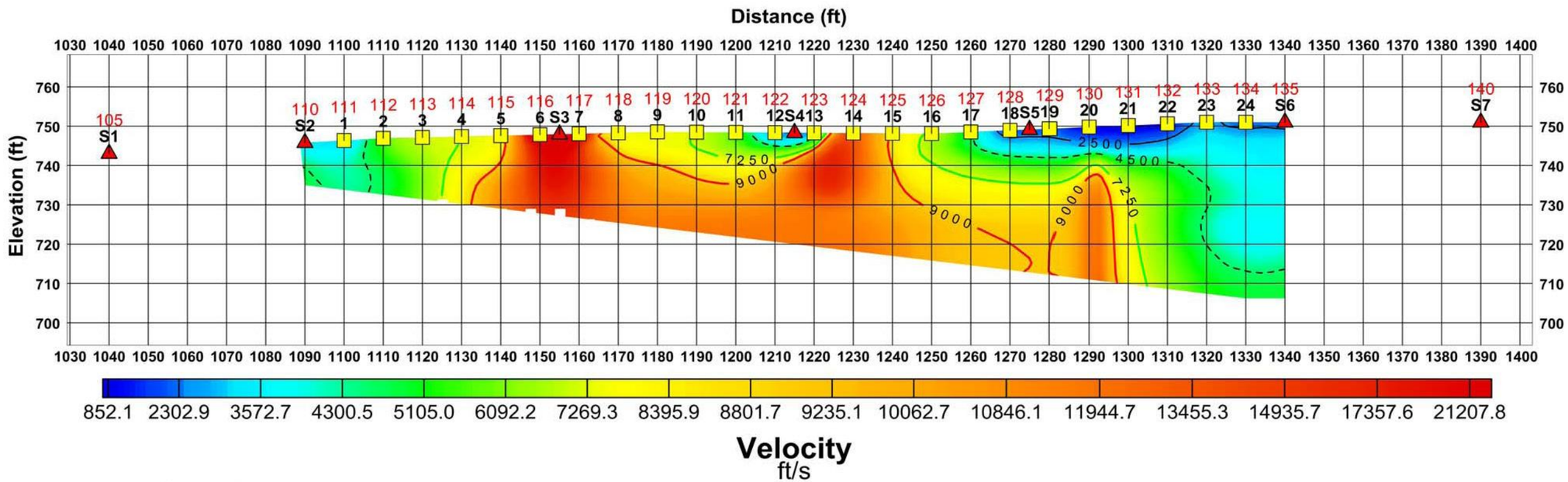
24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 6.483400e-007 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

2108 W Laburnum Ave Richmond, VA 23227 Golder Associates	Date: 11-16-2011 Project: 1039684602 Prepared By: RKD Reviewed By: BBW	Title: **SEISMIC REFRACTION PROFILE L1-14** **Proposed MSW Landfill Siting Study** **Randolph County Public Works**	**Figure No.** **11**

Line 1 Modeled Seismic Refraction Results - Spread 2 (Electrodes 111-134)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

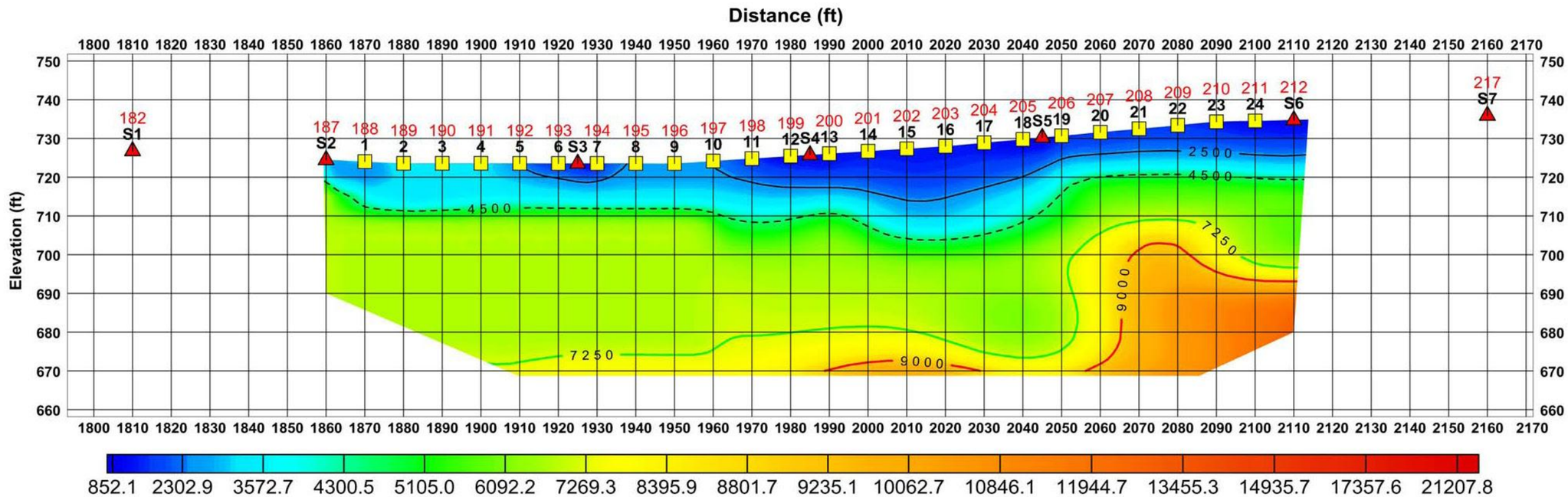
24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 2.158782e-006 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

2108 W Laburnum Ave Richmond, VA 23227 Golder Associates	Date: 11-16-2011 Project: 1039684602 Prepared By: RKD Reviewed By: BBW	Title: **SEISMIC REFRACTION PROFILE L1-111** **Proposed MSW Landfill Siting Study** **Randolph County Public Works**	**Figure No.** **12**

Line 1 Modeled Seismic Refraction Results - Spread 3 (Electrodes 188-211)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

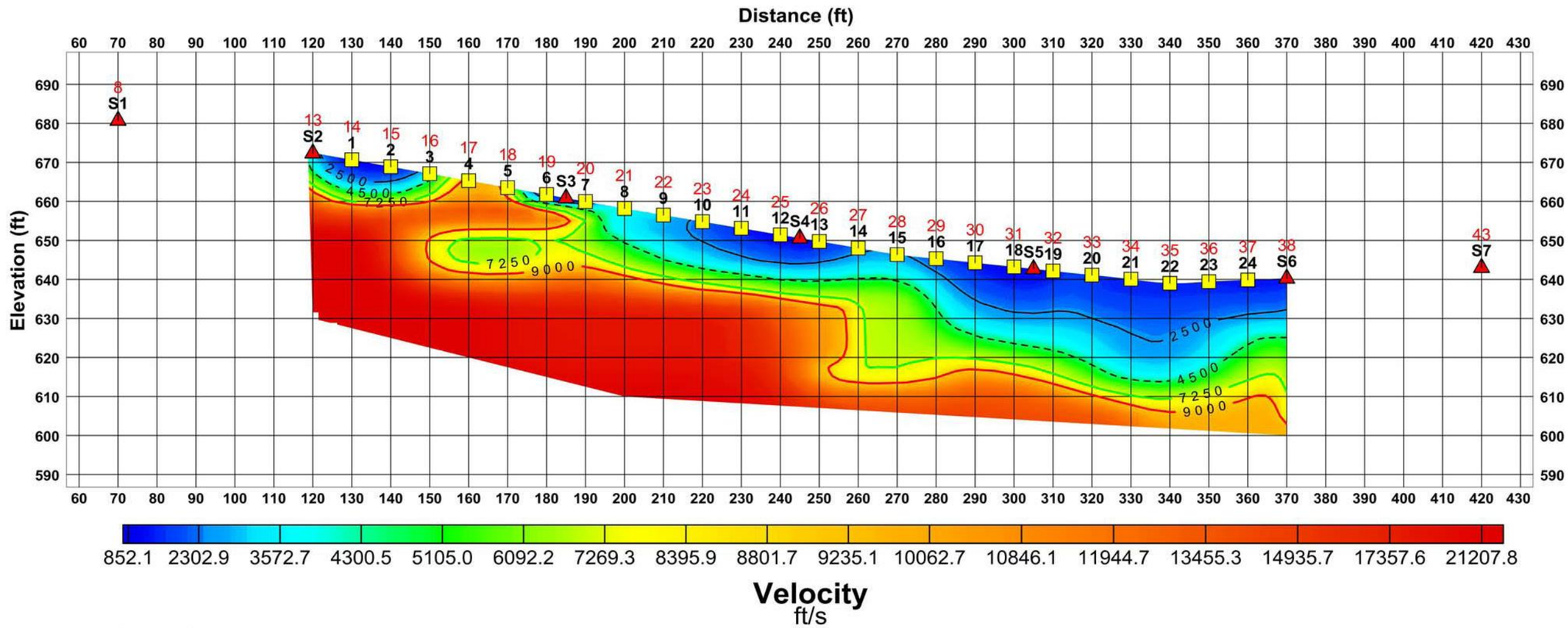
24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 1.907266e-006 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

Golder Associates	Date: 11-16-2011 Project: 1039684602 Prepared By: RKD Reviewed By: BBW	Title: **SEISMIC REFRACTION PROFILE L1-188** **Proposed MSW Landfill Siting Study** **Randolph County Public Works**	**Figure No.** **13**

Line 2 Modeled Seismic Refraction Results - Spread 1 (Electrodes 14-37)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 1.738723e-006 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

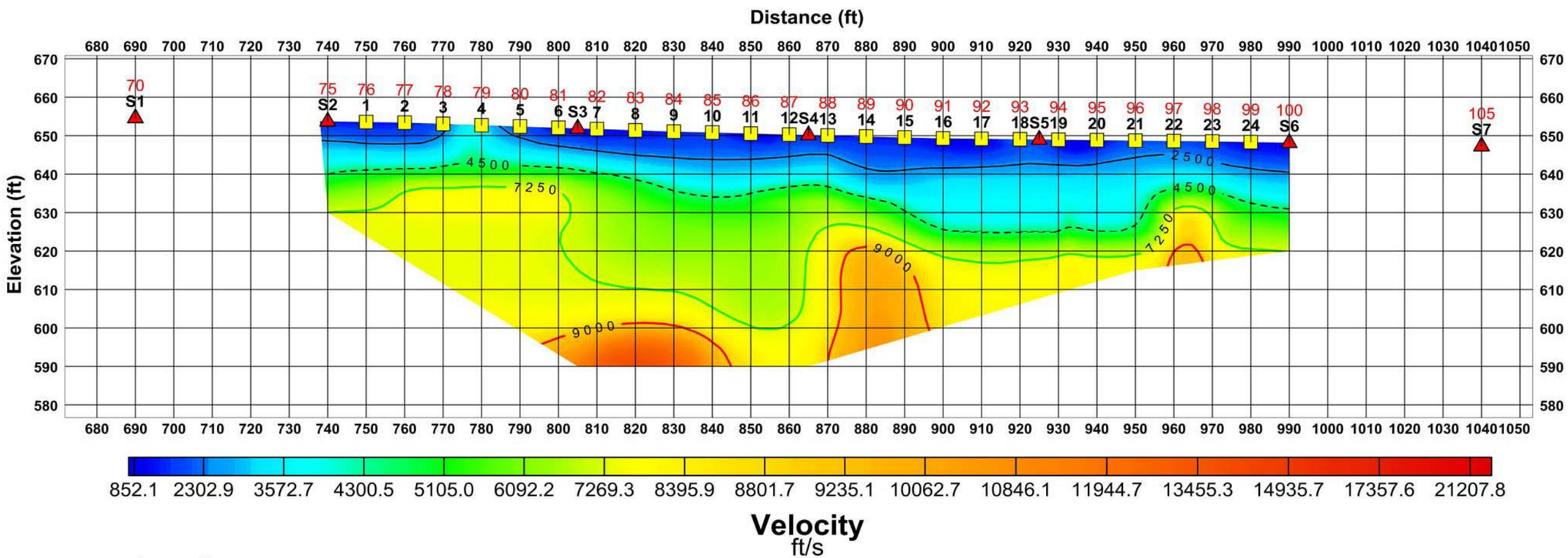
Golder Associates

Date: 11-16-2011	
Project: 1039684602	
Prepared By: RKD	
Reviewed By: BBW	

Title:
SEISMIC REFRACTION PROFILE L2-14
Proposed MSW Landfill Siting Study
Randolph County Public Works

Figure No.
14

Line 2 Modeled Seismic Refraction Results - Spread 2 (Electrodes 76-99)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 9.405503e-007 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

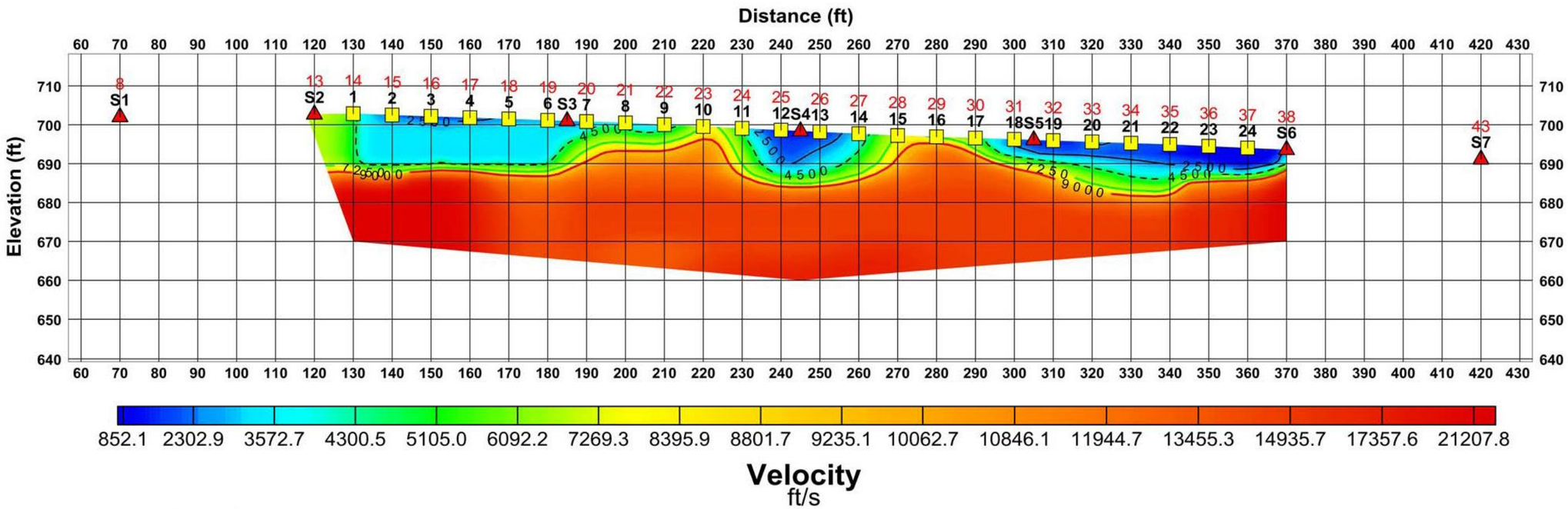
Golder Associates

Date: 11-16-2011	
Project: 1039684602	
Prepared By: RKD	
Reviewed By: BBW	

Title:
SEISMIC REFRACTION PROFILE L2-76
Proposed MSW Landfill Siting Study
Randolph County Public Works

Figure No.
15

Line 3 Modeled Seismic Refraction Results - Spread 1 (Electrodes 14-37)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 2.871504e-006 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

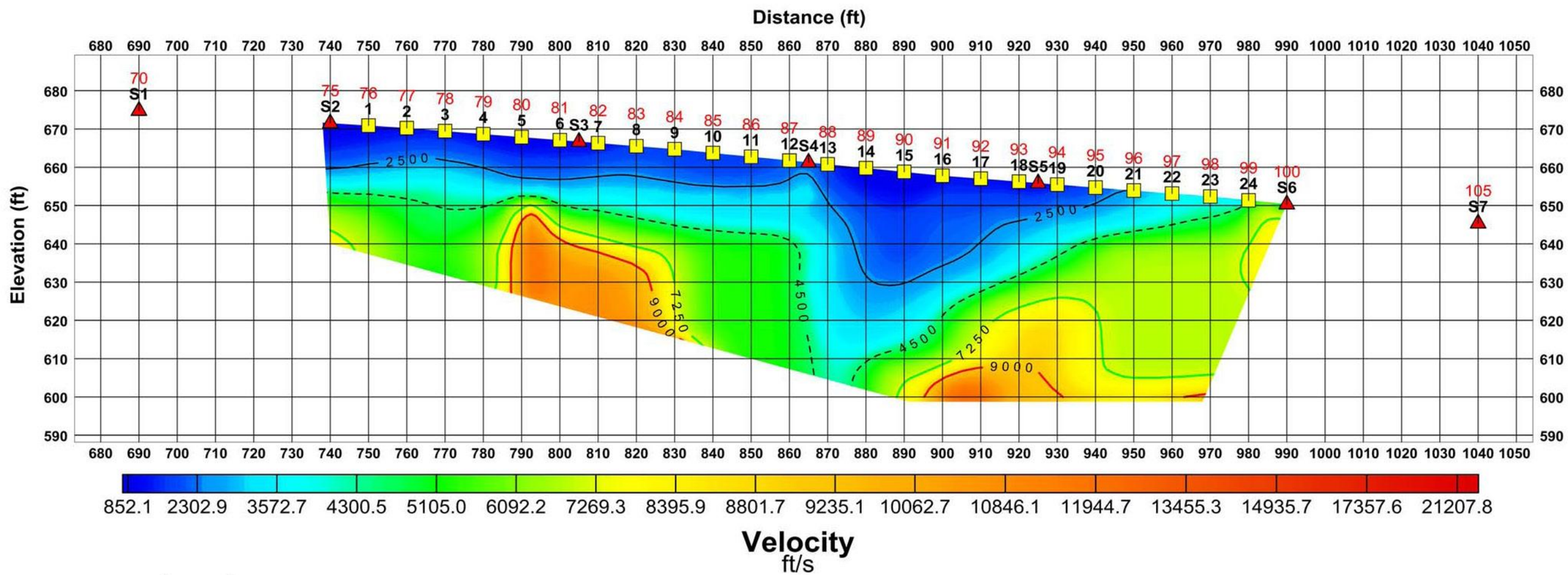
Golder Associates

Date: 11-16-2011	
Project: 1039684602	
Prepared By: RKD	
Reviewed By: BBW	

Title:
SEISMIC REFRACTION PROFILE L3-14
Proposed MSW Landfill Siting Study
Randolph County Public Works

Figure No.
16

Line 3 Modeled Seismic Refraction Results - Spread 2 (Electrodes 76-99)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

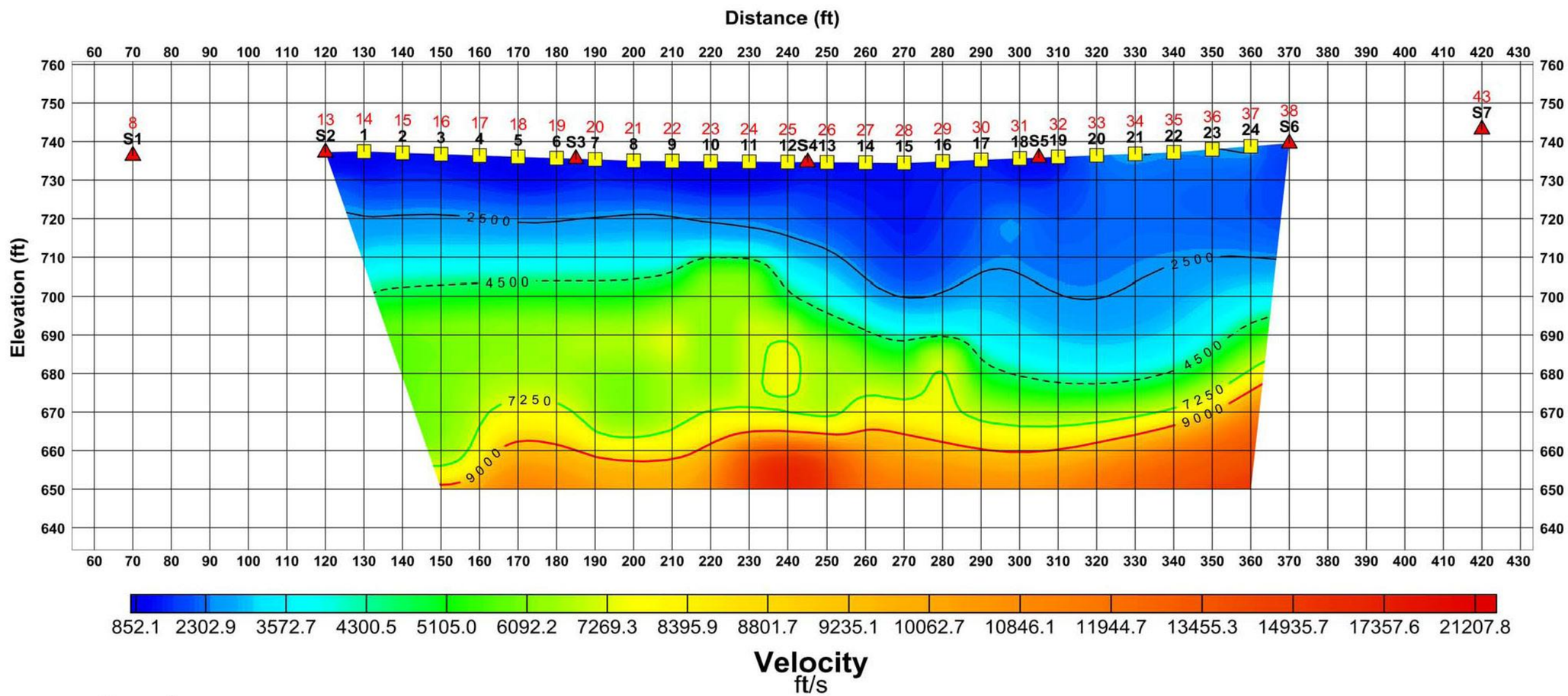
24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 2.457221e-006 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

Golder Associates	Date: 11-16-2011 Project: 1039684602 Prepared By: RKD Reviewed By: BBW	Title: **SEISMIC REFRACTION PROFILE L3-76** **Proposed MSW Landfill Siting Study** **Randolph County Public Works**	**Figure No.** **17**

Line 4 Modeled Seismic Refraction Results - Spread 1 (Electrodes 14-37)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

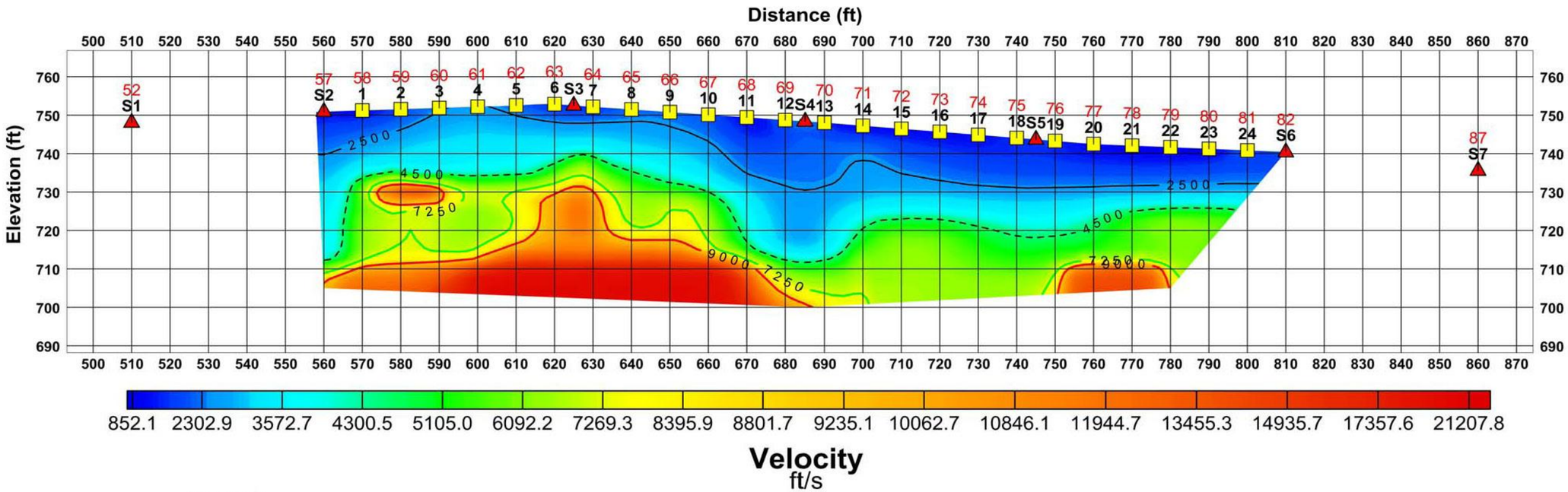
24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 1.810862e-006 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

Golder Associates	Date: 11-16-2011 Project: 1039684602 Prepared By: RKD Reviewed By: BBW	Title: **SEISMIC REFRACTION PROFILE L4-14** **Proposed MSW Landfill Siting Study** **Randolph County Public Works**	**Figure No.** **18**

Line 4 Modeled Seismic Refraction Results - Spread 2 (Electrodes 58-81)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 3.072574e-006 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

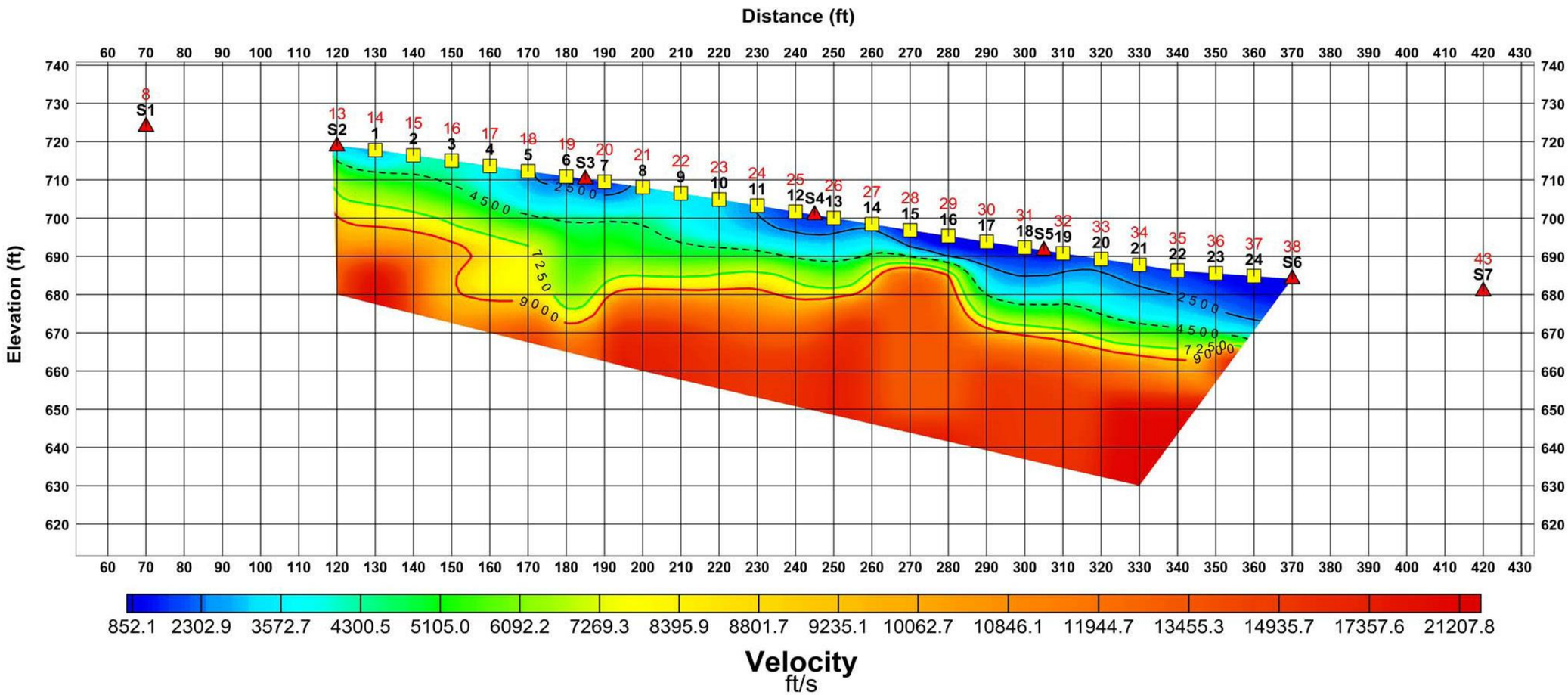
Golder Associates

Date: 11-16-2011	
Project: 1039684602	
Prepared By: RKD	
Reviewed By: BBW	

Title:
SEISMIC REFRACTION PROFILE L4-58
Proposed MSW Landfill Siting Study
Randolph County Public Works

Figure No.
19

Line 5 Modeled Seismic Refraction Results - Spread 1 (Electrodes 14-37)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 1.961931e-006 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

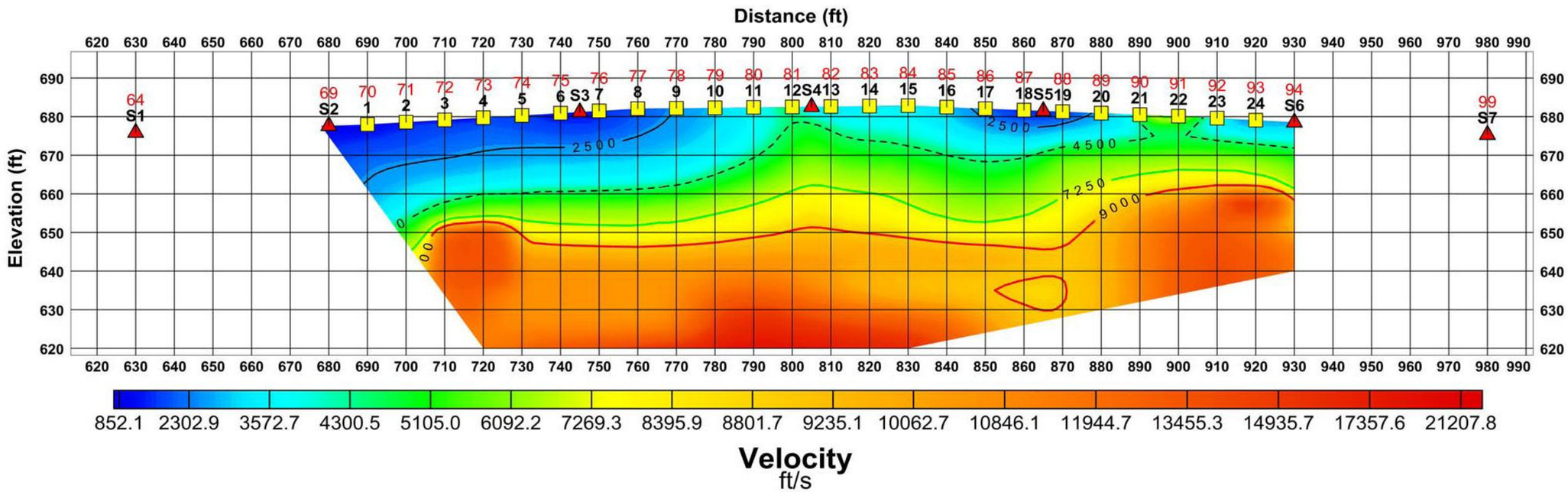
Golder Associates

Date: 11-16-2011	
Project: 1039684602	
Prepared By: RKD	
Reviewed By: BBW	

Title:
SEISMIC REFRACTION PROFILE L5-14
Proposed MSW Landfill Siting Study
Randolph County Public Works

Figure No.
20

Line 5 Modeled Seismic Refraction Results - Spread 2 (Electrodes 70-93)



Legend:

- Shot location
- Geophone location
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

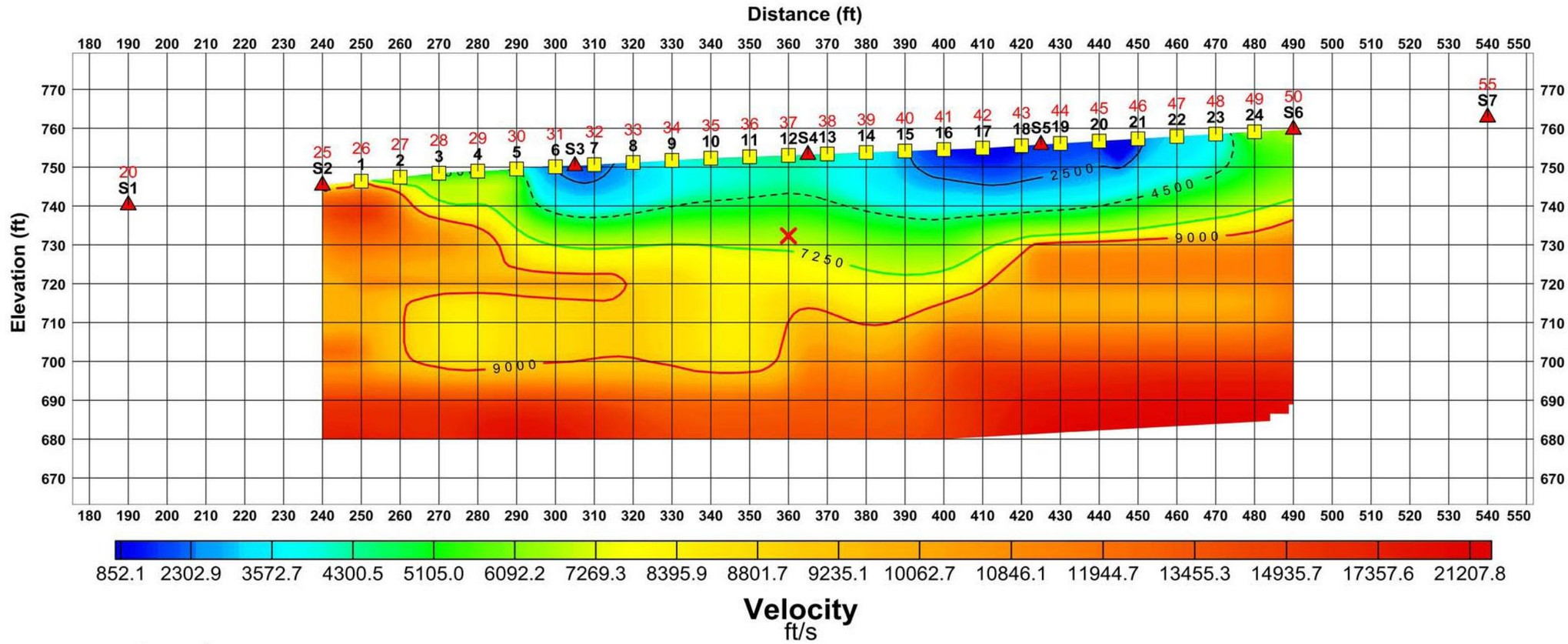
24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 9.794375e-007 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

Golder Associates	Date: 11-16-2011 Project: 1039684602 Prepared By: RKD Reviewed By: BBW	Title: **SEISMIC REFRACTION PROFILE L5-70** **Proposed MSW Landfill Siting Study** **Randolph County Public Works**	**Figure No.** **21**

Line 6 Modeled Seismic Refraction Results - Spread 1 (Electrodes 26-49)



Legend:

- Shot location
- Geophone location
- PZ-5 Top of rock
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 9.272921e-007 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

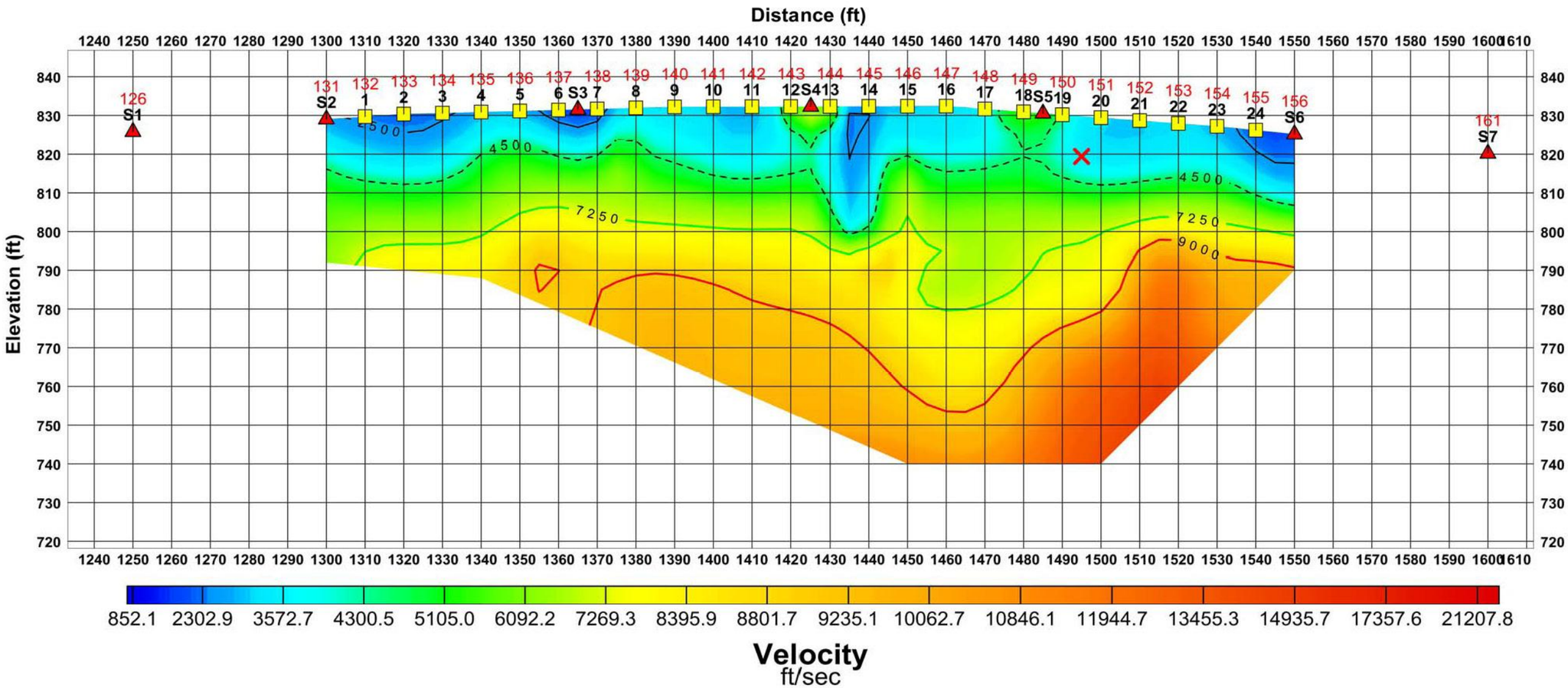
Golder Associates

Date: 11-16-2011	
Project: 1039684602	
Prepared By: RKD	
Reviewed By: BBW	

Title:
SEISMIC REFRACTION PROFILE L6-26
Proposed MSW Landfill Siting Study
Randolph County Public Works

Figure No. **22**

Line 6 Modeled Seismic Refraction Results - Spread 2 (Electrodes 132-155)



Legend:

- Shot location
- Geophone location
- PZ-2 Top of rock
- ERI electrode numbers posted in red above shot & geophone locations
- 4,500 ft/s contour is the assumed top of rock
- 7,250 ft/s contour is the limit of rippable rock for a Cat D9R ripper
- 9,000 ft/s contour is unrippable rock for a Cat D9R ripper

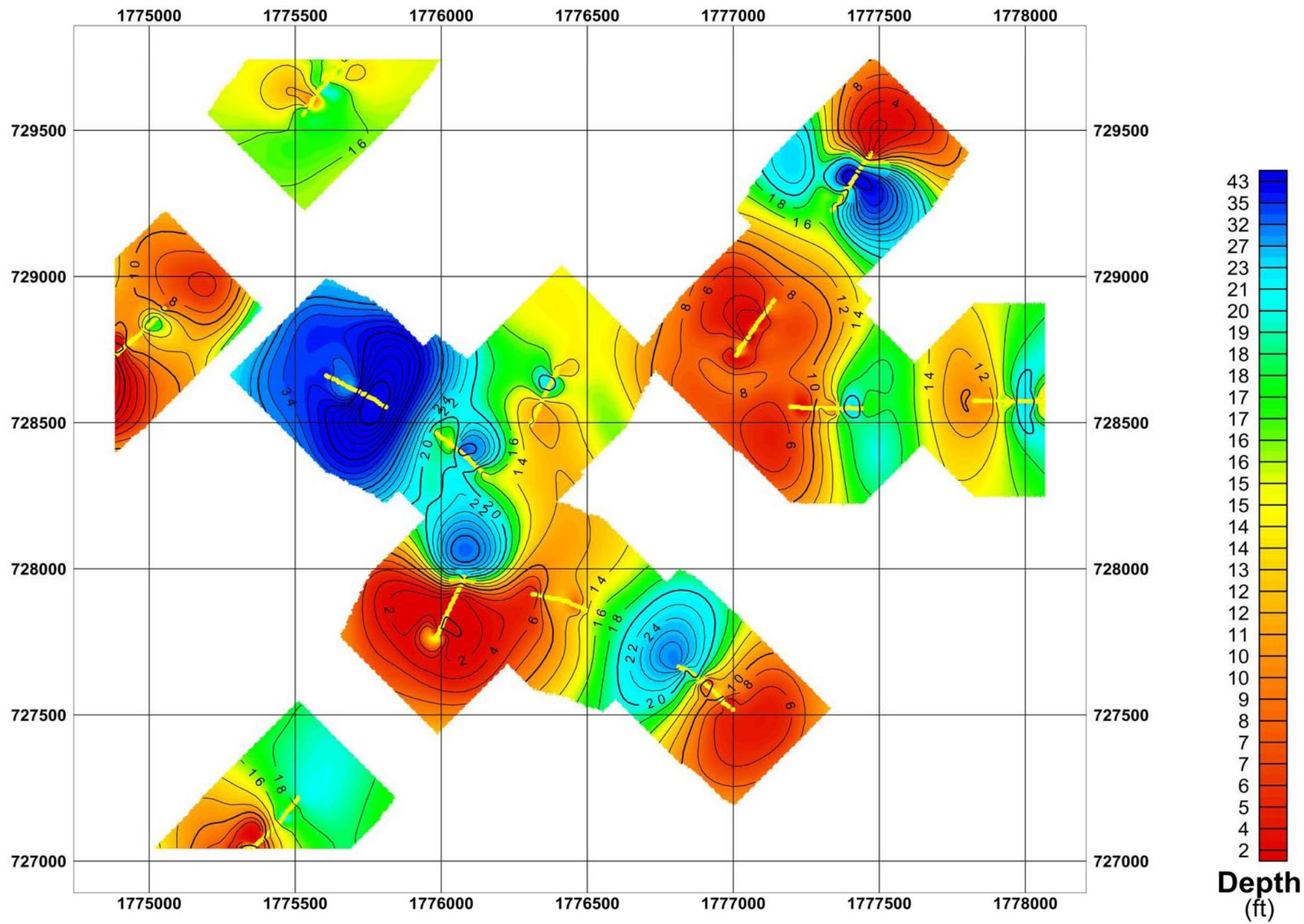
24 - 4.5 Hz geophones at 10 ft Spacing
0.125 ms sample interval, 1 s record length, no filters
Recorded on August 1- 4, 2011

SeisOpt Pro Processing
Least-square error between picks and calculated times through the final model = 2.887123e-006 s^2

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

Golder Associates	Date: 11-16-2011 Project: 1039684602 Prepared By: RKD Reviewed By: BBW	Title: **SEISMIC REFRACTION PROFILE L6-132** **Proposed MSW Landfill Siting Study** **Randolph County Public Works**	**Figure No.** **23**

Depth To The Top of Bedrock (4,500 ft/s)

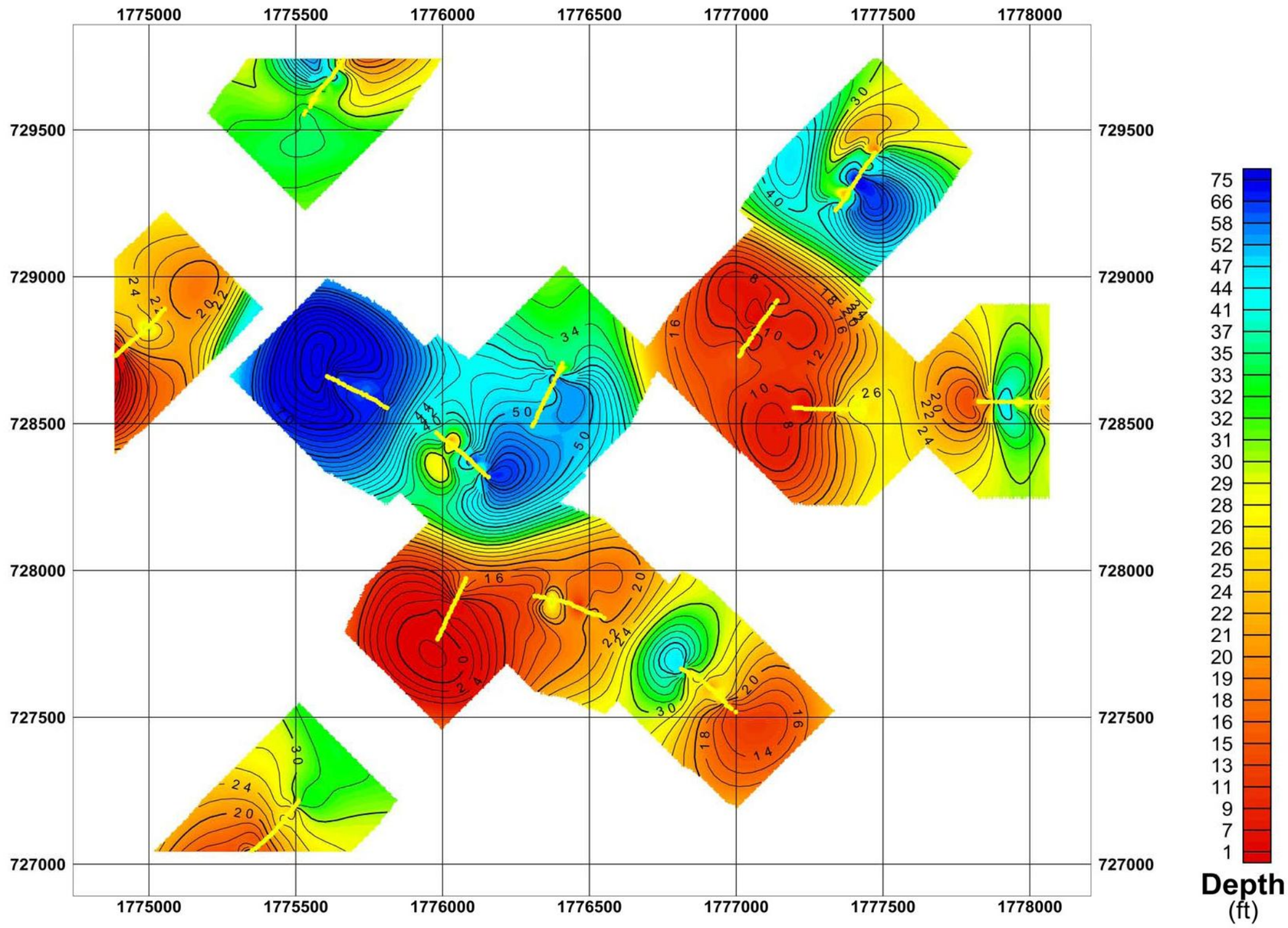


The yellow lines represent the location of each of the 24-channel seismic refraction spreads

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

Golder Associates	Date: 11-16-2011 Project: 1039684602 Prepared By: RKD Reviewed By: BBW	Title: **DEPTH TO THE TOP OF BEDROCK** **Proposed MSW Landfill Siting Study** **Randolph County Public Works**	**Figure No.** **24**

Depth To The Marginally Rippable Material (7,250 ft/s)



The yellow lines represent the location of each of the 24-channel seismic refraction spreads

NOTES: Seismic refraction profiles were derived through reverse modeling techniques using Optim's SeisOpt Pro software package. Refraction data was collected using Geometric's Geode 24-channel seismograph.

Golder Associates	Date: 11-16-2011 Project: 1039684602 Prepared By: RKD Reviewed By: BBW	Title: **DEPTH TO MARGINALLY RIPPABLE MATERIAL** **Proposed MSW Landfill Siting Study** **Randolph County Public Works**	**Figure No.** **25**

APPENDIX A

FIELD PHOTOGRAPHS

Project Title:	**Randolph County, NC Electrical Resistivity & Seismic Surveys**
PHOTO 1 SuperSting ERI equipment	
PHOTO 2 ERI line along power easement	

Project Title:	**Randolph County, NC Electrical Resistivity & Seismic Surveys**
PHOTO 3 ERI Line 4 looking East	
PHOTO 4 Single seismic geophone	

Project Title:	**Randolph County, NC Electrical Resistivity & Seismic Surveys**
PHOTO 5 Sledge hammer and metal plate seismic source	
PHOTO 6 Seismic cable and geophone spread	

Project Title:	**Randolph County, NC Electrical Resistivity & Seismic Surveys**
PHOTO 7 Seismic energy source	
PHOTO 8 PC controlled refraction data collection using a Geode 24-channel seismograph	

APPENDIX B

DEPTH TO BEDROCK ESTIMATES

FROM SEISMIC VELOCITY DATA

Table B-1 contains the results for the seismic refraction inversion.

Table B-1: Summary of seismic refraction inversion

Line	Ph	Dist (ft)	East (ft)	North (ft)	Elev. Ground Surface (ft)	Elev. Rip Surf (ft)	Depth Rip Surf (ft)	Elev. TOR Surface (ft)	Depth TOR (ft)
L1-14	1	130	1775351.232	727046.421	661.541	639.980	21.561	645.582	15.959
L1-14	2	140	1775363.156	727053.61	661.911	644.307	17.604	654.381	7.530
L1-14	3	150	1775372.113	727060.822	662.281	647.514	14.767	662.281	0.000
L1-14	4	160	1775378.103	727068.056	662.652	647.616	15.036	662.652	0.000
L1-14	5	170	1775384.066	727071.651	663.022	646.954	16.068	657.143	5.879
L1-14	6	180	1775393.023	727078.862	663.392	645.427	17.965	653.161	10.231
L1-14	7	190	1775399.013	727086.097	663.762	644.663	19.099	653.482	10.280
L1-14	8	200	1775407.97	727093.308	664.132	644.103	20.029	653.739	10.393
L1-14	9	210	1775416.927	727100.52	665.233	643.849	21.384	653.417	11.816
L1-14	10	220	1775422.917	727107.754	666.335	643.951	22.384	652.904	13.431
L1-14	11	230	1775431.874	727114.966	667.436	644.154	23.282	653.161	14.275
L1-14	12	240	1775437.892	727125.84	668.537	644.307	24.230	653.417	15.120
L1-14	13	250	1775446.849	727133.052	669.638	644.205	25.433	653.096	16.542
L1-14	14	260	1775452.839	727140.286	670.739	643.849	26.890	651.041	19.698
L1-14	15	270	1775458.829	727147.521	671.84	645.223	26.617	650.591	21.249
L1-14	16	280	1775464.847	727158.395	673.279	646.801	26.478	654.445	18.834
L1-14	17	290	1775470.865	727169.269	674.718	648.939	25.779	657.657	17.061
L1-14	18	300	1775479.822	727176.481	676.158	651.230	24.928	659.648	16.510
L1-14	19	310	1775485.812	727183.715	677.597	654.233	23.364	661.703	15.894
L1-14	20	320	1775488.807	727187.332	679.036	654.029	25.007	662.281	16.755
L1-14	21	330	1775494.797	727194.566	680.476	650.364	30.112	662.474	18.002
L1-14	22	340	1775500.787	727201.801	681.915	648.837	33.078	662.859	19.056
L1-14	23	350	1775506.777	727209.035	683.288	650.466	32.822	663.758	19.530
L1-14	24	360	1775509.799	727216.292	684.661	654.538	30.123	665.621	19.040
L1-111	1	1100	1775982.83	727765.971	746.358			730.000	16.358
L1-111	2	1110	1775985.852	727773.228	746.906			746.906	0.000
L1-111	3	1120	1775991.842	727780.463	747.141			747.141	0.000
L1-111	4	1130	1775994.892	727791.36	747.375	747.375	0.000	747.375	0.000
L1-111	5	1140	1775997.915	727798.617	747.61	747.610	0.000	747.61	0.000
L1-111	6	1150	1776003.904	727805.851	747.844	747.844	0.000	747.844	0.000
L1-111	7	1160	1776006.955	727816.748	748.079	748.079	0.000	748.079	0.000
L1-111	8	1170	1776009.977	727824.005	748.313	748.313	0.000	748.313	0.000
L1-111	9	1180	1776013.027	727834.902	748.547	748.547	0.000	748.547	0.000
L1-111	10	1190	1776019.017	727842.136	748.486	744.319	4.167	748.486	0.000
L1-111	11	1200	1776022.067	727853.033	748.426	741.316	7.110	748.426	0.000
L1-111	12	1210	1776028.057	727860.267	748.365	741.906	6.459	744.846	3.519
L1-111	13	1220	1776031.107	727871.164	748.304	744.909	3.395	748.304	0.000
L1-111	14	1230	1776034.13	727878.421	748.243	748.243	0.000	748.243	0.000
L1-111	15	1240	1776040.119	727885.656	748.182	748.182	0.000	748.182	0.000
L1-111	16	1250	1776043.169	727896.553	748.121	740.726	7.395	748.121	0.000
L1-111	17	1260	1776049.159	727903.787	748.533	736.919	11.614	748.533	0.000

Line	Ph	Dist (ft)	East (ft)	North (ft)	Elev. Ground Surface (ft)	Elev. Rip Surf (ft)	Depth Rip Surf (ft)	Elev. TOR Surface (ft)	Depth TOR (ft)
L1-111	18	1270	1776052.209	727914.684	748.945	735.686	13.259	742.424	6.521
L1-111	19	1280	1776058.227	727925.558	749.357	735.364	13.993	742.033	7.324
L1-111	20	1290	1776061.249	727932.815	749.77	739.868	9.902	742.932	6.838
L1-111	21	1300	1776067.266	727943.689	750.182	732.844	17.338	741.604	8.578
L1-111	22	1310	1776070.289	727950.946	750.595			740.900	9.695
L1-111	23	1320	1776076.306	727961.821	751.007			734.885	16.122
L1-111	24	1330	1776079.356	727972.718	751.008			713.205	37.803
L1-188	1	1870	1776305.846	728491.517	724.035	674.760	49.275	712.346	11.689
L1-188	2	1880	1776308.868	728498.774	723.581	674.180	49.401	711.322	12.259
L1-188	3	1890	1776314.858	728506.009	723.576	673.700	49.876	711.436	12.140
L1-188	4	1900	1776320.903	728520.523	723.571	671.662	51.909	711.891	11.680
L1-188	5	1910	1776323.953	728531.42	723.566	672.246	51.320	712.081	11.485
L1-188	6	1920	1776326.975	728538.677	723.562	673.635	49.927	712.005	11.557
L1-188	7	1930	1776332.964	728545.911	723.557	674.275	49.282	711.891	11.666
L1-188	8	1940	1776336.014	728556.808	723.552	674.136	49.416	711.891	11.661
L1-188	9	1950	1776342.032	728567.683	723.548	674.191	49.357	711.891	11.657
L1-188	10	1960	1776345.054	728574.94	724.179	675.553	48.626	710.867	13.312
L1-188	11	1970	1776348.076	728582.197	724.812	679.083	45.729	708.403	16.409
L1-188	12	1980	1776354.066	728589.431	725.444	679.861	45.583	709.199	16.245
L1-188	13	1990	1776357.116	728600.328	726.077	681.001	45.076	710.678	15.399
L1-188	14	2000	1776363.105	728607.563	726.709	681.501	45.208	707.265	19.444
L1-188	15	2010	1776366.155	728618.46	727.342	680.612	46.730	704.118	23.224
L1-188	16	2020	1776372.172	728629.334	727.975	677.888	50.087	703.891	24.084
L1-188	17	2030	1776378.162	728636.568	728.879	674.803	54.076	705.218	23.661
L1-188	18	2040	1776381.239	728651.105	729.783	673.385	56.398	708.441	21.342
L1-188	19	2050	1776390.224	728661.957	730.688	675.470	55.218	715.835	14.853
L1-188	20	2060	1776393.246	728669.214	731.593	705.655	25.938	720.082	11.511
L1-188	21	2070	1776396.268	728676.471	732.498	708.684	23.814	720.650	11.848
L1-188	22	2080	1776399.318	728687.368	733.403	708.934	24.469	720.726	12.677
L1-188	23	2090	1776405.308	728694.602	734.307	705.849	28.458	720.347	13.960
L1-188	24	2100	1776408.358	728705.499	734.543	697.789	36.754	719.702	14.841
L2-14	1	130	1777196.5	728553.927	670.659	659.977	10.682	662.633	8.026
L2-14	2	140	1777205.401	728553.859	668.874	659.802	9.072	662.036	6.838
L2-14	3	150	1777214.303	728553.792	667.088	661.773	5.315	665.120	1.968
L2-14	4	160	1777223.204	728553.725	665.303	665.303	0.000	665.303	0.000
L2-14	5	170	1777235.045	728549.995	663.518	663.518	0.000	663.518	0.000
L2-14	6	180	1777243.946	728549.928	661.732	658.225	3.507	659.449	2.283
L2-14	7	190	1777255.814	728549.838	659.947	655.027	4.920	657.807	2.140
L2-14	8	200	1777267.683	728549.748	658.162	643.154	15.008	649.351	8.811
L2-14	9	210	1777282.518	728549.636	656.475	640.832	15.643	645.072	11.403
L2-14	10	220	1777294.387	728549.546	654.788	639.211	15.577	642.784	12.004
L2-14	11	230	1777306.255	728549.457	653.101	637.897	15.204	641.242	11.859
L2-14	12	240	1777315.156	728549.389	651.414	636.583	14.831	639.899	11.515
L2-14	13	250	1777324.058	728549.322	649.727	635.575	14.152	639.600	10.127
L2-14	14	260	1777335.926	728549.232	648.04	633.560	14.480	640.247	7.793

Line	Ph	Dist (ft)	East (ft)	North (ft)	Elev. Ground Surface (ft)	Elev. Rip Surf (ft)	Depth Rip Surf (ft)	Elev. TOR Surface (ft)	Depth TOR (ft)
L2-14	15	270	1777344.827	728549.165	646.353	617.613	28.740	639.551	6.802
L2-14	16	280	1777353.729	728549.098	645.302	619.891	25.411	632.636	12.666
L2-14	17	290	1777362.63	728549.031	644.252	619.672	24.580	625.622	18.630
L2-14	18	300	1777374.471	728545.301	643.202	618.314	24.888	623.533	19.669
L2-14	19	310	1777383.399	728548.874	642.152	615.904	26.248	621.792	20.360
L2-14	20	320	1777395.295	728552.424	641.101	612.575	28.526	618.110	22.991
L2-14	21	330	1777404.169	728548.717	640.051	610.209	29.842	614.330	25.721
L2-14	22	340	1777416.038	728548.627	639.002	609.245	29.757	613.932	25.070
L2-14	23	350	1777427.906	728548.537	639.428	610.779	28.649	616.718	22.710
L2-14	24	360	1777439.774	728548.448	639.854	614.196	25.658	623.284	16.570
L2-76	1	750	1777825.717	728574.654	653.54	630.562	22.978	640.999	12.541
L2-76	2	760	1777831.651	728574.609	653.372	635.340	18.032	641.414	11.958
L2-76	3	770	1777840.552	728574.542	653.039	636.402	16.637	642.066	10.973
L2-76	4	780	1777849.453	728574.475	652.706	636.570	16.136	642.984	9.722
L2-76	5	790	1777861.322	728574.385	652.373	636.598	15.775	642.154	10.219
L2-76	6	800	1777870.223	728574.318	652.04	635.396	16.644	641.621	10.419
L2-76	7	810	1777885.058	728574.206	651.708	612.035	39.673	640.288	11.420
L2-76	8	820	1777896.927	728574.117	651.375	610.275	41.100	638.511	12.864
L2-76	9	830	1777905.828	728574.05	651.042	609.548	41.494	635.668	15.374
L2-76	10	840	1777914.729	728573.983	650.789	605.385	45.404	634.098	16.691
L2-76	11	850	1777929.565	728573.871	650.536	600.550	49.986	635.016	15.520
L2-76	12	860	1777938.466	728573.804	650.283	601.193	49.090	636.734	13.549
L2-76	13	870	1777947.367	728573.737	650.03	626.342	23.688	636.704	13.326
L2-76	14	880	1777956.269	728573.669	649.777	626.315	23.462	633.980	15.797
L2-76	15	890	1777968.137	728573.58	649.524	622.514	27.010	630.514	19.010
L2-76	16	900	1777977.038	728573.513	649.271	618.490	30.781	625.568	23.703
L2-76	17	910	1777985.94	728573.446	649.158	616.953	32.205	624.916	24.242
L2-76	18	920	1777997.808	728573.356	649.045	617.512	31.533	624.946	24.099
L2-76	19	930	1778009.676	728573.267	648.933	618.351	30.582	624.975	23.958
L2-76	20	940	1778018.578	728573.2	648.821	618.434	30.387	625.153	23.668
L2-76	21	950	1778030.446	728573.11	648.708	619.105	29.603	626.664	22.044
L2-76	22	960	1778039.347	728573.043	648.596	630.869	17.727	636.408	12.188
L2-76	23	970	1778051.216	728572.954	648.483	628.410	20.073	635.846	12.637
L2-76	24	980	1778063.084	728572.864	648.31	620.558	27.752	632.439	15.871
L3-14	1	130	1777010.896	728730.052	702.845	688.533	14.312	702.845	0.000
L3-14	2	140	1777016.885	728737.286	702.508	686.908	15.600	689.654	12.854
L3-14	3	150	1777019.907	728744.543	702.171	688.818	13.353	689.888	12.283
L3-14	4	160	1777019.962	728751.823	701.833	688.696	13.137	689.810	12.023
L3-14	5	170	1777025.951	728759.058	701.496	688.127	13.369	689.732	11.764
L3-14	6	180	1777031.941	728766.292	701.158	688.086	13.072	690.123	11.035
L3-14	7	190	1777037.902	728769.887	700.821	693.532	7.289	697.935	2.886
L3-14	8	200	1777043.919	728780.762	700.484	695.482	5.002	699.029	1.455
L3-14	9	210	1777046.941	728788.019	700.02	695.401	4.619	698.794	1.226
L3-14	10	220	1777052.903	728791.614	699.556	699.556	0.000	699.556	0.000
L3-14	11	230	1777058.947	728806.128	699.092	689.834	9.258	698.873	0.219

Line	Ph	Dist (ft)	East (ft)	North (ft)	Elev. Ground Surface (ft)	Elev. Rip Surf (ft)	Depth Rip Surf (ft)	Elev. TOR Surface (ft)	Depth TOR (ft)
L3-14	12	240	1777064.937	728813.363	698.628	685.079	13.549	686.919	11.709
L3-14	13	250	1777070.926	728820.597	698.164	685.242	12.922	687.935	10.229
L3-14	14	260	1777076.943	728831.472	697.7	687.395	10.305	693.326	4.374
L3-14	15	270	1777082.959	728842.346	697.236	697.236	0.000	697.236	0.000
L3-14	16	280	1777088.949	728849.581	696.908	696.908	0.000	696.908	0.000
L3-14	17	290	1777094.938	728856.816	696.58	693.735	2.845	696.58	0.000
L3-14	18	300	1777100.927	728864.05	696.252	689.956	6.296	691.763	4.489
L3-14	19	310	1777109.911	728874.902	695.924	688.127	7.797	690.435	5.489
L3-14	20	320	1777112.905	728878.52	695.595	684.551	11.044	688.951	6.644
L3-14	21	330	1777118.922	728889.394	695.267	683.250	12.017	686.685	8.582
L3-14	22	340	1777124.911	728896.629	694.939	683.535	11.404	686.294	8.645
L3-14	23	350	1777133.923	728911.121	694.489	686.176	8.313	687.623	6.866
L3-14	24	360	1777139.912	728918.355	694.039	686.339	7.700	687.310	6.729
L3-76	1	750	1777338.077	729226.257	670.887	625.990	44.897	652.931	17.956
L3-76	2	760	1777344.066	729233.492	670.236	621.170	49.066	651.700	18.536
L3-76	3	770	1777353.022	729240.704	669.448	620.620	48.828	649.192	20.256
L3-76	4	780	1777356.044	729247.961	668.661	626.551	42.110	649.618	19.043
L3-76	5	790	1777365.028	729258.814	667.873	649.246	18.627	652.458	15.415
L3-76	6	800	1777368.05	729266.071	667.085	644.676	22.409	650.281	16.804
L3-76	7	810	1777377.033	729276.923	666.298	641.864	24.434	648.672	17.626
L3-76	8	820	1777383.05	729287.797	665.51	639.246	26.264	646.779	18.731
L3-76	9	830	1777386.099	729298.694	664.722	630.067	34.655	644.744	19.978
L3-76	10	840	1777392.061	729302.289	663.734	611.356	52.378	643.466	20.268
L3-76	11	850	1777398.05	729309.524	662.745	588.480	74.265	642.709	20.036
L3-76	12	860	1777401.072	729316.781	661.756	579.050	82.706	640.910	20.846
L3-76	13	870	1777407.061	729324.016	660.767	577.050	83.717	600.068	60.699
L3-76	14	880	1777413.078	729334.891	659.779	581.090	78.689	609.107	50.672
L3-76	15	890	1777419.067	729342.125	658.79	603.661	55.129	612.799	45.991
L3-76	16	900	1777425.111	729356.64	657.801	608.504	49.297	619.992	37.809
L3-76	17	910	1777431.1	729363.874	657.023	613.739	43.284	627.564	29.459
L3-76	18	920	1777437.089	729371.109	656.245	623.348	32.897	631.918	24.327
L3-76	19	930	1777443.105	729381.984	655.468	626.004	29.464	636.793	18.675
L3-76	20	940	1777449.094	729389.219	654.69	622.606	32.084	641.336	13.354
L3-76	21	950	1777458.05	729396.431	653.912	605.028	48.884	643.229	10.683
L3-76	22	960	1777461.072	729403.688	653.134	605.223	47.911	645.028	8.106
L3-76	23	970	1777467.062	729410.923	652.356	605.887	46.469	647.015	5.341
L3-76	24	980	1777473.078	729421.797	651.358	639.418	11.940	650.659	0.699
L4-14	1	130	1775606.858	728660.634	737.392	657.280	80.112	699.439	37.953
L4-14	2	140	1775612.764	728656.949	737.05	657.373	79.677	702.252	34.798
L4-14	3	150	1775624.605	728653.219	736.708	656.087	80.621	702.929	33.779
L4-14	4	160	1775630.511	728649.534	736.366	666.425	69.941	703.345	33.021
L4-14	5	170	1775642.352	728645.804	736.024	673.191	62.833	703.710	32.314
L4-14	6	180	1775648.231	728638.479	735.682	672.285	63.397	703.866	31.816
L4-14	7	190	1775660.071	728634.749	735.34	665.091	70.249	703.814	31.526
L4-14	8	200	1775665.978	728631.064	734.998	663.424	71.574	704.335	30.663

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L4-14	9	210	1775677.79	728623.694	734.918	665.568	69.350	706.158	28.760
L4-14	10	220	1775686.664	728619.986	734.838	670.380	64.458	709.856	24.982
L4-14	11	230	1775692.571	728616.301	734.759	671.285	63.474	709.543	25.216
L4-14	12	240	1775701.444	728612.594	734.679	670.046	64.633	701.679	33.000
L4-14	13	250	1775710.318	728608.886	734.599	668.903	65.696	695.689	38.910
L4-14	14	260	1775722.158	728605.156	734.52	674.239	60.281	691.210	43.310
L4-14	15	270	1775731.004	728597.809	734.44	673.286	61.154	688.502	45.938
L4-14	16	280	1775739.905	728597.741	734.833	680.385	54.448	689.595	45.238
L4-14	17	290	1775745.784	728590.416	735.227	667.759	67.468	683.866	51.361
L4-14	18	300	1775754.658	728586.709	735.621	666.378	69.243	679.335	56.286
L4-14	19	310	1775763.531	728583.001	736.014	666.378	69.636	677.616	58.398
L4-14	20	320	1775772.405	728579.294	736.408	667.330	69.078	677.304	59.104
L4-14	21	330	1775781.251	728571.946	736.802	668.760	68.042	678.345	58.457
L4-14	22	340	1775790.097	728564.599	737.196	670.808	66.388	680.741	56.455
L4-14	23	350	1775801.91	728557.229	737.979	674.763	63.216	686.418	51.561
L4-14	24	360	1775810.783	728553.521	738.761	681.052	57.709	692.981	45.780
L4-58	1	570	1775979.271	728468.519	751.205	712.367	38.838	733.687	17.518
L4-58	2	580	1775988.117	728461.172	751.533	716.707	34.826	735.071	16.462
L4-58	3	590	1775993.996	728453.847	751.861	714.589	37.272	734.625	17.236
L4-58	4	600	1776002.842	728446.5	752.189	715.665	36.524	734.267	17.922
L4-58	5	610	1776011.715	728442.793	752.517	730.353	22.164	734.580	17.937
L4-58	6	620	1776023.528	728435.423	752.845	732.297	20.548	737.482	15.363
L4-58	7	630	1776029.435	728431.738	752.157	733.304	18.853	739.223	12.934
L4-58	8	640	1776035.314	728424.413	751.468	721.360	30.108	735.384	16.084
L4-58	9	650	1776044.16	728417.066	750.779	725.075	25.704	732.437	18.342
L4-58	10	660	1776050.039	728409.741	750.09	717.228	32.862	730.026	20.064
L4-58	11	670	1776058.912	728406.034	749.401	712.401	37.000	716.991	32.410
L4-58	12	680	1776067.758	728398.686	748.712	706.533	42.179	712.303	36.409
L4-58	13	690	1776076.604	728391.339	748.022	703.617	44.405	712.259	35.763
L4-58	14	700	1776082.483	728384.014	747.231	703.096	44.135	720.473	26.758
L4-58	15	710	1776088.39	728380.329	746.439	689.790	56.649	722.973	23.466
L4-58	16	720	1776094.296	728376.645	745.647	686.350	59.297	722.839	22.808
L4-58	17	730	1776100.175	728369.32	744.855	677.730	67.125	721.053	23.802
L4-58	18	740	1776106.054	728361.995	744.063	675.850	68.213	718.598	25.465
L4-58	19	750	1776114.9	728354.648	743.271	708.790	34.481	718.598	24.673
L4-58	20	760	1776120.779	728347.323	742.479	712.193	30.286	721.634	20.845
L4-58	21	770	1776129.625	728339.976	742.061	712.749	29.312	724.892	17.169
L4-58	22	780	1776138.471	728332.629	741.644	710.353	31.291	725.785	15.859
L4-58	23	790	1776144.35	728325.304	741.227	678.790	62.437	725.741	15.486
L4-58	24	800	1776156.163	728317.934	740.809	675.790	65.019	724.803	16.006
L5-14	1	130	1776313.319	727912.7	717.805	703.405	14.400	712.057	5.748
L5-14	2	140	1776325.188	727912.61	716.418	701.658	14.760	711.438	4.980
L5-14	3	150	1776334.062	727908.902	715.031	698.285	16.746	708.711	6.320
L5-14	4	160	1776345.931	727908.812	713.644	695.562	18.082	703.918	9.726
L5-14	5	170	1776357.744	727901.442	712.256	692.758	19.498	700.902	11.354

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L5-14	6	180	1776369.613	727901.352	710.869	676.503	34.366	699.043	11.826
L5-14	7	190	1776381.454	727897.622	709.482	682.924	26.558	699.043	10.439
L5-14	8	200	1776390.355	727897.555	708.095	684.956	23.139	698.051	10.044
L5-14	9	210	1776402.224	727897.465	706.483	684.671	21.812	693.589	12.894
L5-14	10	220	1776411.098	727893.757	704.871	685.443	19.428	692.267	12.604
L5-14	11	230	1776419.971	727890.05	703.26	685.850	17.410	691.482	11.778
L5-14	12	240	1776428.873	727889.982	701.648	683.290	18.358	689.664	11.984
L5-14	13	250	1776437.747	727886.275	700.036	681.786	18.250	688.672	11.364
L5-14	14	260	1776446.593	727878.928	698.424	686.378	12.046	690.656	7.768
L5-14	15	270	1776458.434	727875.198	696.812	688.125	8.687	689.995	6.817
L5-14	16	280	1776467.308	727871.491	695.307	686.175	9.132	688.342	6.965
L5-14	17	290	1776476.182	727867.783	693.802	673.902	19.900	680.079	13.723
L5-14	18	300	1776487.995	727860.414	692.297	671.911	20.386	677.434	14.863
L5-14	19	310	1776496.869	727856.706	690.792	671.058	19.734	677.558	13.234
L5-14	20	320	1776508.71	727852.977	689.287	668.416	20.871	674.832	14.455
L5-14	21	330	1776517.584	727849.269	687.782	666.628	21.154	672.435	15.347
L5-14	22	340	1776529.453	727849.179	686.277	665.612	20.665	671.278	14.999
L5-14	23	350	1776538.327	727845.472	685.551	666.669	18.882	669.915	15.636
L5-14	24	360	1776550.14	727838.102	684.825	665.694	19.131	668.056	16.769
L5-70	1	690	1776812.922	727665.03	677.977	631.643	46.334	648.071	29.906
L5-70	2	700	1776818.829	727661.345	678.558	644.091	34.467	653.175	25.383
L5-70	3	710	1776827.703	727657.638	679.139	653.049	26.090	657.862	21.277
L5-70	4	720	1776836.577	727653.931	679.72	654.299	25.421	659.946	19.774
L5-70	5	730	1776845.451	727650.223	680.302	653.257	27.045	660.206	20.096
L5-70	6	740	1776854.297	727642.876	680.883	652.268	28.615	660.571	20.312
L5-70	7	750	1776863.171	727639.169	681.464	651.955	29.509	660.779	20.685
L5-70	8	760	1776869.05	727631.845	682.045	651.955	30.090	661.196	20.849
L5-70	9	770	1776877.924	727628.137	682.158	652.788	29.370	662.289	19.869
L5-70	10	780	1776889.738	727620.768	682.27	654.768	27.502	664.998	17.272
L5-70	11	790	1776895.617	727613.443	682.383	657.216	25.167	669.373	13.010
L5-70	12	800	1776904.463	727606.096	682.495	660.809	21.686	678.175	4.320
L5-70	13	810	1776910.343	727598.772	682.608	661.747	20.861	676.300	6.308
L5-70	14	820	1776919.217	727595.065	682.721	660.288	22.433	673.800	8.921
L5-70	15	830	1776925.096	727587.74	682.833	657.372	25.461	672.393	10.440
L5-70	16	840	1776933.942	727580.393	682.444	653.934	28.510	669.946	12.498
L5-70	17	850	1776942.761	727569.406	682.055	652.684	29.371	668.279	13.776
L5-70	18	860	1776951.608	727562.059	681.666	654.351	27.315	669.477	12.189
L5-70	19	870	1776954.52	727554.757	681.277	659.299	21.978	672.133	9.144
L5-70	20	880	1776963.394	727551.05	680.888	662.945	17.943	672.914	7.974
L5-70	21	890	1776966.278	727540.108	680.499	665.028	15.471	674.060	6.439
L5-70	22	900	1776975.152	727536.401	680.11	666.278	13.832	680.11	0.000
L5-70	23	910	1776983.999	727529.054	679.586	666.122	13.464	673.748	5.838
L5-70	24	920	1776998.752	727518.022	679.061	665.080	13.981	672.810	6.251
L6-26	1	250	1774886.357	728731.652	746.362	746.362	0.000	746.362	0.000
L6-26	2	260	1774892.319	728735.247	747.388	745.759	1.629	747.388	0.000

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L6-26	3	270	1774898.308	728742.481	748.415	741.484	6.931	748.415	0.000
L6-26	4	280	1774907.265	728749.693	748.964	740.508	8.456	748.964	0.000
L6-26	5	290	1774913.255	728756.927	749.512	734.235	15.277	749.512	0.000
L6-26	6	300	1774922.212	728764.138	750.061	729.820	20.241	738.135	11.926
L6-26	7	310	1774931.169	728771.35	750.609	728.983	21.626	736.933	13.676
L6-26	8	320	1774937.159	728778.584	751.158	729.448	21.710	738.020	13.138
L6-26	9	330	1774946.115	728785.796	751.706	730.192	21.514	739.852	11.854
L6-26	10	340	1774955.044	728789.368	752.255	729.727	22.528	741.283	10.972
L6-26	11	350	1774961.034	728796.602	752.63	728.937	23.693	742.141	10.489
L6-26	12	360	1774969.991	728803.813	753.004	728.333	24.671	743.229	9.775
L6-26	13	370	1774975.953	728807.408	753.379	726.195	27.184	741.569	11.810
L6-26	14	380	1774981.943	728814.642	753.754	723.593	30.161	738.650	15.104
L6-26	15	390	1774990.927	728825.494	754.129	722.245	31.884	736.990	17.139
L6-26	16	400	1774996.889	728829.088	754.504	723.453	31.051	736.647	17.857
L6-26	17	410	1775005.846	728836.3	754.879	728.426	26.453	737.563	17.316
L6-26	18	420	1775011.836	728843.534	755.479	731.772	23.707	738.249	17.230
L6-26	19	430	1775017.826	728850.768	756.079	732.701	23.378	738.936	17.143
L6-26	20	440	1775026.782	728857.98	756.679	733.212	23.467	739.966	16.713
L6-26	21	450	1775032.8	728868.854	757.279	734.188	23.091	742.141	15.138
L6-26	22	460	1775038.79	728876.088	757.879	735.536	22.343	744.889	12.990
L6-26	23	470	1775044.779	728883.322	758.479	736.883	21.596	748.323	10.156
L6-26	24	480	1775053.736	728890.534	759.079	738.928	20.151	759.079	0.000
L6-132	1	1310	1775527.608	729553.04	829.689	794.775	34.914	813.052	16.637
L6-132	2	1320	1775533.626	729563.915	830.336	796.754	33.582	812.156	18.180
L6-132	3	1330	1775548.572	729578.361	830.604	796.859	33.745	813.172	17.432
L6-132	4	1340	1775551.594	729585.618	830.871	798.994	31.877	819.922	10.949
L6-132	5	1350	1775554.617	729592.875	831.139	804.827	26.312	822.551	8.588
L6-132	6	1360	1775557.611	729596.492	831.406	806.338	25.068	819.384	12.022
L6-132	7	1370	1775557.667	729603.771	831.673	804.202	27.471	819.683	11.990
L6-132	8	1380	1775563.628	729607.366	831.94	802.588	29.352	823.327	8.613
L6-132	9	1390	1775569.673	729621.88	832.208	801.807	30.401	817.712	14.496
L6-132	10	1400	1775575.663	729629.114	832.236	801.025	31.211	814.546	17.690
L6-132	11	1410	1775581.652	729636.349	832.264	800.609	31.655	813.590	18.674
L6-132	12	1420	1775587.642	729643.583	832.292	800.609	31.683	814.904	17.388
L6-132	13	1430	1775593.603	729647.178	832.32	795.609	36.711	806.839	25.481
L6-132	14	1440	1775602.588	729658.029	832.348	795.869	36.479	801.523	30.825
L6-132	15	1450	1775608.577	729665.264	832.376	803.682	28.694	819.623	12.753
L6-132	16	1460	1775614.566	729672.498	832.405	779.619	52.786	815.442	16.963
L6-132	17	1470	1775623.523	729679.71	831.661	781.182	50.479	816.218	15.443
L6-132	18	1480	1775629.54	729690.584	830.915	787.484	43.431	819.205	11.710
L6-132	19	1490	1775632.562	729697.841	830.17	796.182	33.988	813.948	16.222
L6-132	20	1500	1775638.552	729705.075	829.425	799.411	30.014	812.037	17.388
L6-132	21	1510	1775644.541	729712.31	828.679	802.848	25.831	812.873	15.806
L6-132	22	1520	1775650.531	729719.544	827.934	803.890	24.044	814.187	13.747
L6-132	23	1530	1775653.581	729730.441	827.188	802.536	24.652	813.530	13.658

Line	Ph	Dist (ft)	East (ft)	North (ft)	Elev. Ground Surface (ft)	Elev. Rip Surf (ft)	Depth Rip Surf (ft)	Elev. TOR Surface (ft)	Depth TOR (ft)
L6-132	24	1540	1775662.537	729737.653	826.19	800.713	25.477	809.408	16.782

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solutions@golder.com
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Golder Associates NC, Inc.
5B Oak Branch Drive
Greensboro, NC 27407 USA
Tel: (336) 852-4903
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Appendix SA-5

Phase I and II Cultural Resources Survey for the Proposed Randolph County MSW Landfill

In accordance with North Carolina General Statutes Chapter 70-18 the Phase I and Phase II Cultural Resources Survey have been omitted from this Report.

Appendix SA-6

Limited Systematic Survey for Amorpha Schwerinii

November 29, 2011 1039684602

Mr. David Townsend
Public Works Director
Randolph County Public Works
P.O. Box 1008
Asheboro, NC 27204

RE: LIMITED SYSTEMATIC SURVEY FOR AMORPHA SCHWERINII PROPOSED LANDFILL, ASHEBORO, RANDOLPH COUNTY, NORTH CAROLINA

Dear Mr. Townsend:

Golder Associates NC, Inc. (Golder) is pleased to provide Randolph County Public Works (Randolph County) this letter report with the results of a survey conducted for Piedmont indigo bush *(Amorpha schwerinii),* at the proposed landfill site in Asheboro, Randolph County, North Carolina. *A. schwerinii* is a plant listed by the State of North Carolina as Significantly Rare, a designation that indicates concern about the perpetuation of a species due to its existence in small numbers such that monitoring is necessary, but with no specific legal protection status.

BACKGROUND

In September 2010, Golder received a response from the North Carolina DENR Office of Conservation, Planning, and Community Affairs, Natural Heritage Program (NC NHP), to Golder's request for natural heritage information in the vicinity of Randolph County's proposed landfill, including the presence of rare species and significant natural communities. NC NHP's response indicated the presence of the Central Falls Slope, a Significant Natural Heritage Area of County significance, containing four natural communities and a large area of aquatic habitat. A Significant Natural Heritage Area (SNHA) of County significance is considered to be a significant biological resource within the county consisting of an area of land or water identified by the NC NHP as being important for conservation of the State's biodiversity. SHNAs contain one or more Natural Heritage elements, such as high-quality or rare natural communities, rare species, and special animal habitats. County significance, as defined by NC NHP, is fourth on a scale of significance, following National, State, and Regional, which are considered to be of greater significance.

The response letter from the NC NHP indicated the presence of the significant natural community, Piedmont Monadnock Forest, within the Central Falls Slope, as well as the presence of the rare vascular plant *A. schwerinii*. *A. schwerinii* is typically found in the Piedmont Monadnock Forest community, but depends on disturbance regimes to create habitat openings to remain viable, such as fire or storm winds that may kill hardwood trees on the thin soils of this forest type.

A. schwerinii is a rhizomatous, erect, perennial shrub that is a member of the Fabaceae, the Legume family. It is typically approximately three to eight feet tall, with appressed short-pubescent stems. The leaves are alternate, petiolate, compound and odd pinnate. The leaves are glandular punctuate, and are hairy on one or both surfaces. Leaflets are oblong to elliptic, and are alternate or subopposite with entire margins. Racemes are terminal and solitary, or but few together. The zygomorphic flowers are densely pilose. Flower petals are blue, lavender to purple or violet. The fruit is hairy, unilocular, elongate and straight, containing a single seed. *A. schwerinii* is known to occur on monadnocks weathered to a condition creating circumneutral soils, a condition less common than acidic soils that typically occurs over mafic rocks.

In October 2010, in response to the letter from NC NHP, a Golder ecologist conducted a brief survey of the proposed landfill site and identified occurrences of *A. schwerinii*. Golder identified and mapped four occurrences of *A. schwerinii*, totaling approximately 16 plants in an estimated area of 225 square feet,

along the north and northwestern slopes of the survey area. Golder returned to the site in June 2011 to conduct a more detailed survey of the site, during the time when the plants may contain seed and flowers, the best seasonal period within which to easily view the plant. The results of the June 2011 survey are presented here.

LIMITED SYSTEMATIC SURVEY METHODOLOGY

In June 2011, Golder ecologists performed a limited systematic botanical survey in the 665.9-acre area of the proposed landfill site (Figure 1) in areas containing the Piedmont Monadnock forest type, as mapped by the North Carolina Natural Heritage Program (NC NHP) (Appendix A). The majority of the survey area had been timbered in the winter of 2009, compromising observations of the natural conditions of the vegetative community due to the presence of debris and resprouting vegetation. Since the Piedmont Monadnock Forest is dominated by chestnut oak (*Quercus montana*), Golder determined the limits of the forest type during the course of the field survey based on the presence of chestnut oak saplings ranging from 1 to 3 feet in height.

The systematic survey was performed by three Golder ecologist/scientists, who walked parallel to the contours of the slope through the proposed landfill project area, approximately 50 feet abreast, and who walked more closely to one another where *A. schwerinii* was sighted. Where *A. schwerinii* was sighted they performed more detailed observations and counts of the numbers of plants at those specific locations. Occurrences of *A. schwerinii* were recorded and mapped using a sub-meter accuracy Trimble Geo XH Global Positioning System (GPS). Observations of estimated density, height, canopy and the presence and absence of flowers were recorded for each of the occurrences of *A. schwerinii*.

Golder used the following references for keys and descriptions of *A. schwerinii*:

- Radford, Albert E.; Harry E. Ahles; C. Ritchie Bell. 1964. Manual of the Vascular Flora of the Carolinas. Chapel Hill: University of North Carolina Press.
- University of Georgia. Online University of Georgia Herbarium (website) (http://www.plantbio.uga.edu/herbarium/seshrubs/Keys/Amorphakey.htm), accessed June 2011.

LIMITED SYSTEMATIC SURVEY RESULTS

Golder identified four areas during its survey that contained *A. schwerinii*, and assigned each area a location number within the overall plant community for mapping purposes (Figure 1). At each location, Golder estimated the number of plants, the size of the area containing the plants in square feet, the average height of the plants, the area of canopy created by each of the plants at each site, and whether flowers were present (Table 1). Plant Communities 1, 3, and 4 were found along north and northwestern slopes at approximate elevations of 730 to 830 feet above mean sea level (msl). Plant Community 2 was found on a southwestern slope at approximately elevation 820 feet msl.

TABLE 1: PROPOSED LANDFILL SITE SURVEY RESULTS

Map Location of *A. schwerinni*	Estimated Number of Plants	Estimated Area (square feet)	Estimated Average Height per Plant (feet)	Estimated Average Canopy per Plant (feet)	Observed Number of Plants with Flowers Present
Plant Comm. 1	12	653	2.5	2.5	11
Plant Comm. 2	1	16	0.5	0.5	0
Plant Comm. 3	681	2,047	1.5	1.5	3
Plant Comm. 4	6	348	1	1	2

CONCLUSIONS

The Piedmont Monadnock forest type at the location of the proposed landfill has been timbered, and contains an estimated 700 *A. schwerinii* individuals located by Golder. Golder's observations during its survey indicate that, though a mature example of the Piedmont Monadnock Forest is not currently in existence at the site, the forest type will regenerate since saplings and soil containing seed and rootstock are resprouting at the site. Golder observed that the herbaceous components of the plant community covering the site and containing *A. schwerinii* are intact. Plant Community 3 contained the majority of the specimens observed and was located on a north-facing slope, near Plant Community 4. Plant Community 1 was located near the peak of the monadnock, also on the north side, and while having a lower estimated number of specimens than Plant Community 3, was the second largest plant community in area of the four areas found to contain *A. schwerinii*.

The recent timbering of the Piedmont Monadnock Forest portion of the Central Falls Slope natural heritage area has diminished its value as an intact example of a significant natural community, therefore resulting in NC NHP no longer considering the forest type a high protection priority at this site (NC NHP. November 23, 2012. Personal communication [phone conversation]). NC NHP nonetheless encourages protection of *A. schwerinii* in its natural habitat at the site. Populations of *A. schwerinii* occur nearby at the North Carolina Zoological Park and on the Uwharrie National Forest, where park managers have first-hand experience with the management of the plant species and may be able to offer management recommendations to Randolph County.

CLOSING

Should you have any questions or require clarification on the information presented here, please do not hesitate to contact us.

Sincerely,

GOLDER ASSOCIATES INC.

Christopher Brookshire, PWS
Senior Project Ecologist

William M. Griffin
Senior Ecologist

cc: Rachel P. Kirkman, PG, Golder Associates NC, Inc.

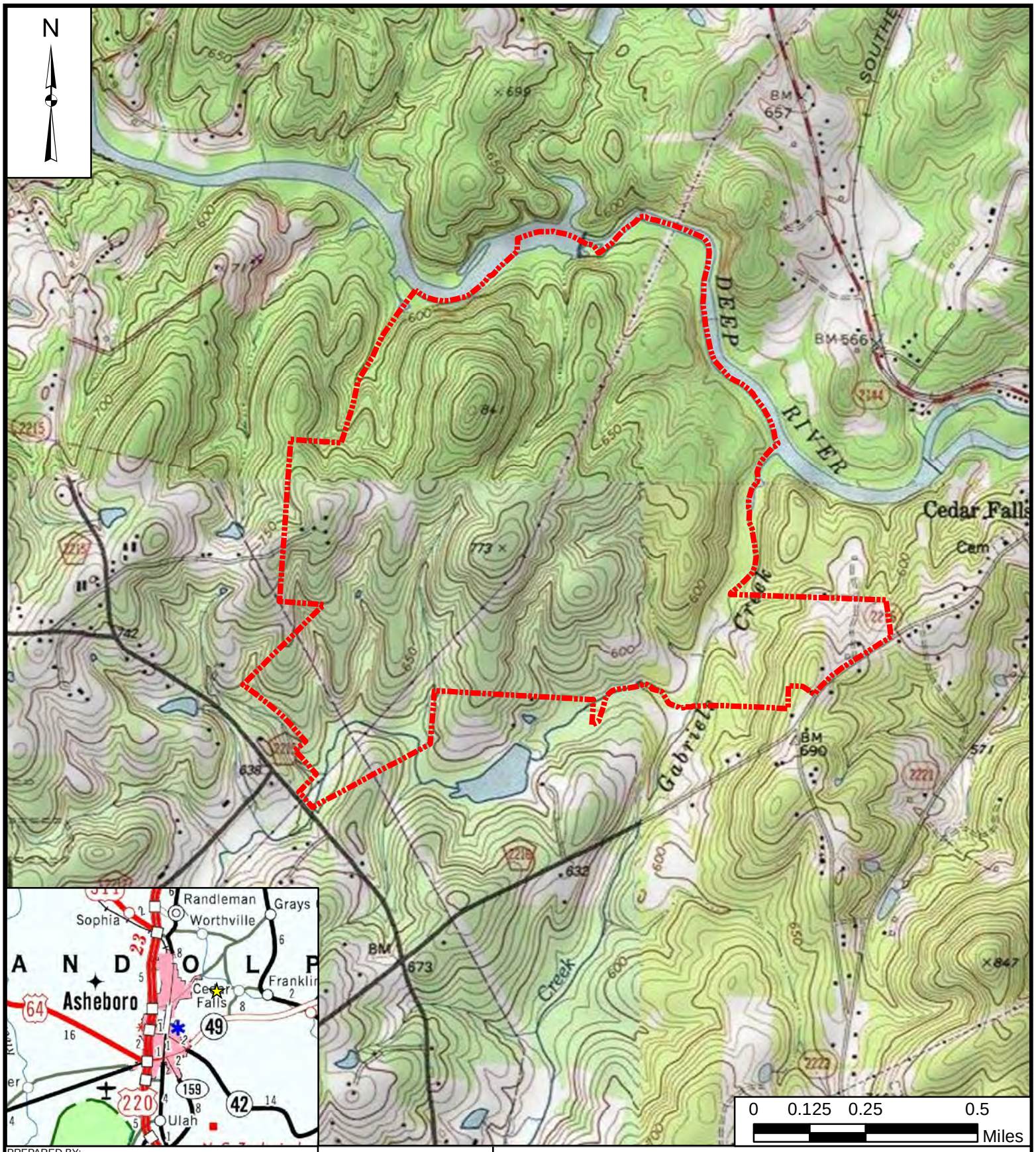
Attachments: FIGURES
Figure 1: Site Location Map
Figure 2: Limited Systematic Survey for A. schwerinii

APPENDICES
Appendix A: NC NHP Letter: September 22, 2010
Appendix B: Photographs

CCB/WMG/sdp

\\ATL1-S-FS1-VM.golder.gds\GOLDERATLANTA\Clients\Randolph County NC\1039684602_Greenfield MSW Wetland & Amorpha\Final Report\111129_Limited Systematic Survey for Amorpha schwerinii.docx

FIGURES



PREPARED BY:

Golder Associates

Golder Associates NC, Inc.

FACILITY: **RANDOLPH CO.**

PROJECT #: **1039684602.100**

SCALE: **1:18,000**

CHECKED BY \ DATE: **BSD \ 9-7-11**

REVIEWED BY \ DATE: **WMG \ 9-7-11**

PREPARED FOR:

RANDOLPH COUNTY, NC

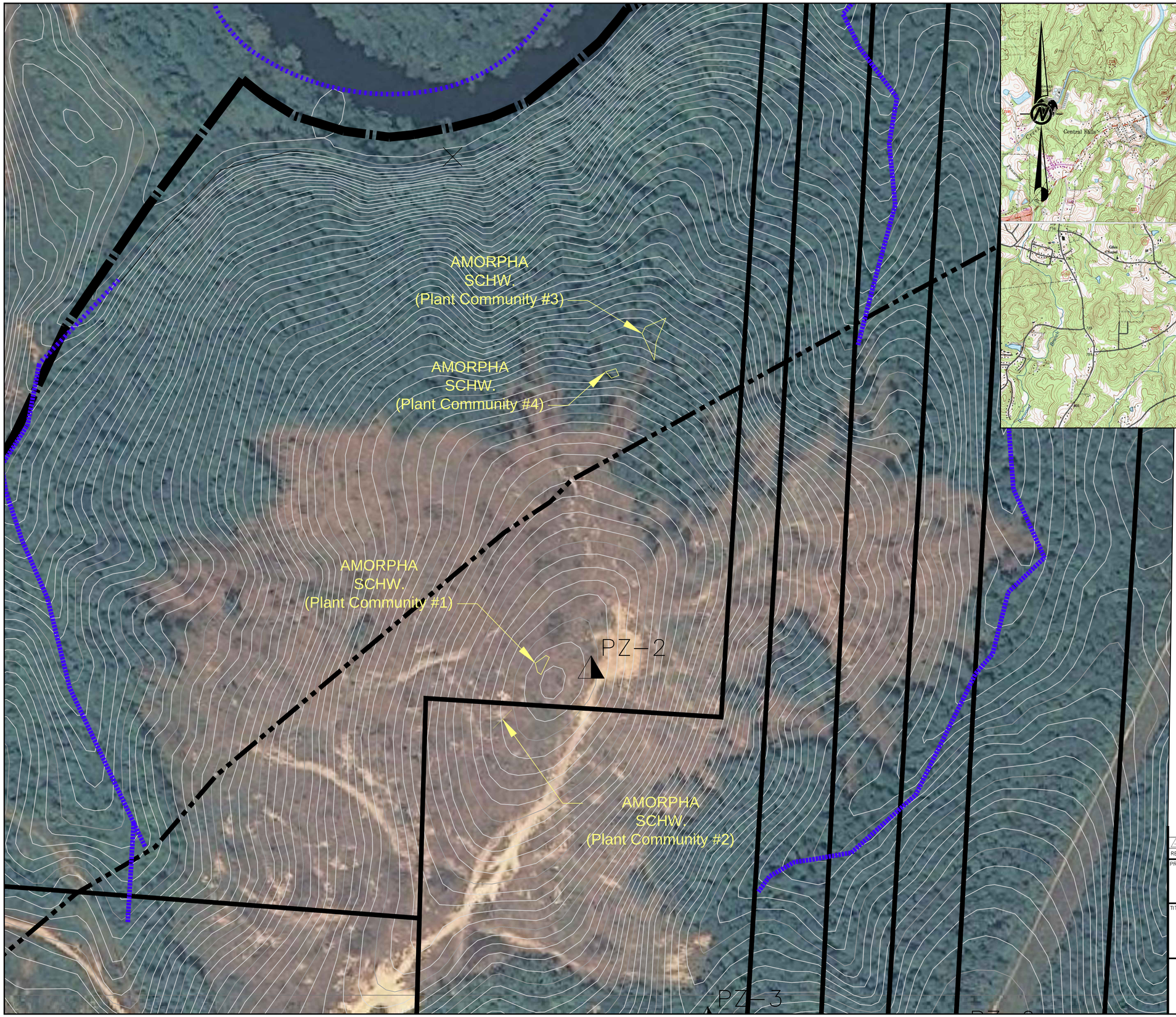
TITLE:

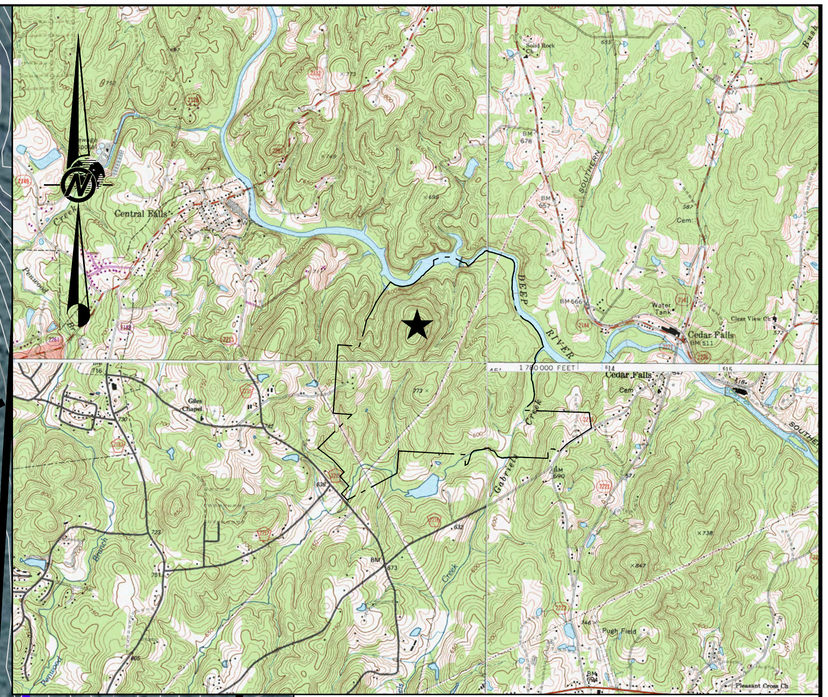
SITE LOCATION MAP

THIS MAP WAS CREATED USING DIGITAL RASTER GRAPHICS (DRG(s)) OF THE RANDLEMAN, GRAYS CHAPEL, ASHEBORO, AND RAMSEUR USGS 7.5 MINUTE TOPOGRAPHIC MAPS. THE MAP IS PROJECTED USING THE NORTH AMERICAN 1983 DATUM GEOGRAPHIC COORDINATE SYSTEM.

THIS FIGURE IS PROPERTY OF RANDOLPH COUNTY, NC AND IS NOT TO BE REPRODUCED OR USED FOR ANY PURPOSE EXCEPTED AS SPECIFIED BY RANDOLPH COUNTY, NC

FIGURE 1





ICINITY MA

2000 0 2000 4000
SCALE FEET

LEGEND

- PROPERTY PARCEL BOUNDARY
- EXISTING 4-FOOT GROUND SURFACE CONTOUR
- APPROXIMATE POTENTIAL LIMITS OF WASTE
- INTERMITTENT STREAM
- PERENNIAL STREAM
- UNABLE TO ASSESS DUE TO POLICE FIRING FIRING RANGE
- AMORPHA SCHWERINII

NOTES

1. TOPOGRAPHIC CONTOUR INTERVAL = 4 FEET
2. TOTAL ACREAGE: 665.9 ACRES
3. LIMITS OF WASTE ACREAGE: 324 ACRES
4. PHASE 1 ACREAGE : 38.5 ACRES
5. A. SCHWERINII SURVEY CONDUCTED BY GOLDER ASSOCIATES INC. ECOLOGIST ON JUNE 26 THROUGH JULY 1, 2011.

REFERENCES

1. TOPOGRAPHIC CONTOURS PROVIDED AS LIDAR DATA FROM NCDOT GIS WEBSITE.

100 0 100 200
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
△	–	–	– –	–	–	–

PROJECT

RANDOLPH COUNTY

TITLE

LIMITED SYSTEMATIC SUR□EY FOR A□SC□□ ERINII

Golder Associates
GOLDER ASSOCIATES NC, INC.

PROJECT No.		10396846	FILE No.	
DESIGN	CB	7–19–11	SCALE AS SHOWN	REV. 0
CADD	BD	7–19–11		
CHECK	–	–	FIGURE □	
REVIEW	–	–		

APPENDIX A

NC NHP RESPONSE LETTER
SEPTEMBER 22, 2011

NCDENR
North Carolina Department of Environment and Natural Resources
Office of Conservation, Planning, & Community Affairs
Beverly Eaves Perdue, Governor **Linda Pearsall, Director** Dee Freeman, Secretary

September 22, 2010

Mr. Benjamin S. Draper
Golder Associates NC, Inc.
5B Oak Branch Drive
Greensboro, NC 27407

Subject: Randolph County Municipal Solid Waste Landfill – Proposed Expansion; Randolph County

Dear Mr. Draper:

The Natural Heritage Program has several records of rare species, significant natural communities, and a significant natural heritage areas within the project area. I have enclosed a map and some materials.

Our Program has identified a natural area named the Central Falls Slope, of County significance, located in the north-central portion of the project site. This site is 149 acres in size, and lies mainly south of the Deep River. It appears to be currently unprotected. The State Significantly Rare piedmont indigo-bush (*Amorpha schwerinii*) and an example of a Piedmont Monadnock Forest are included within this site, which was identified in the Randolph County Natural Heritage Inventory (Bates and Coomans 1999). A copy of the site report, along with a map of the project area, are enclosed.

The proposed expansion could entirely destroy the Randolph County site of the natural area, which is essentially 80% of the site. The natural area would cease to exist under such a scenario. We suggest that your company conduct a biological inventory of the undeveloped portions of the project area, to determine which areas should be avoided for landfill expansion. It is greatly hoped that this area can be spared from destruction, and I am sending copies of this letter, the project proposal, and the enclosures to the land trusts that operate in Randolph County. Our Program hopes that, because the natural area already exists on County-owned land, that it can be set aside as a nature preserve or other protected area.

You may wish to check the Natural Heritage Program database website at www.ncnhp.org for a listing of rare plants and animals and significant natural communities in the county and on the quad map. Our Program also has a new website that allows users to obtain information on element occurrences and significant natural heritage areas within two miles of a given location: <http://nhpweb.enr.state.nc.us/nhis/public/gmap75_main.phtml>. The user name is "public" and the password is "heritage". You may want to click "Help" for more information.

NC OneMap now provides digital Natural Heritage data online for free. This service provides site specific information on GIS layers with Natural Heritage Program rare species occurrences and Significant Natural Heritage Areas. The NC OneMap website provides Element Occurrence (EO) ID numbers (instead of species name), and the data user is then encouraged to contact the Natural Heritage Program for detailed information. This service allows the user to quickly and efficiently get site specific NHP data without visiting the NHP workroom or waiting for the Information Request to be answered by NHP staff. For more information about data formats and access, visit <www.nconemap.com>, then click on "FTP Data Download", and then "nheo.zip" [to the right of "Natural Heritage Element Occurrences"]. You may also e-mail NC OneMap at <dataq@ncmail.net> for more information.

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Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.

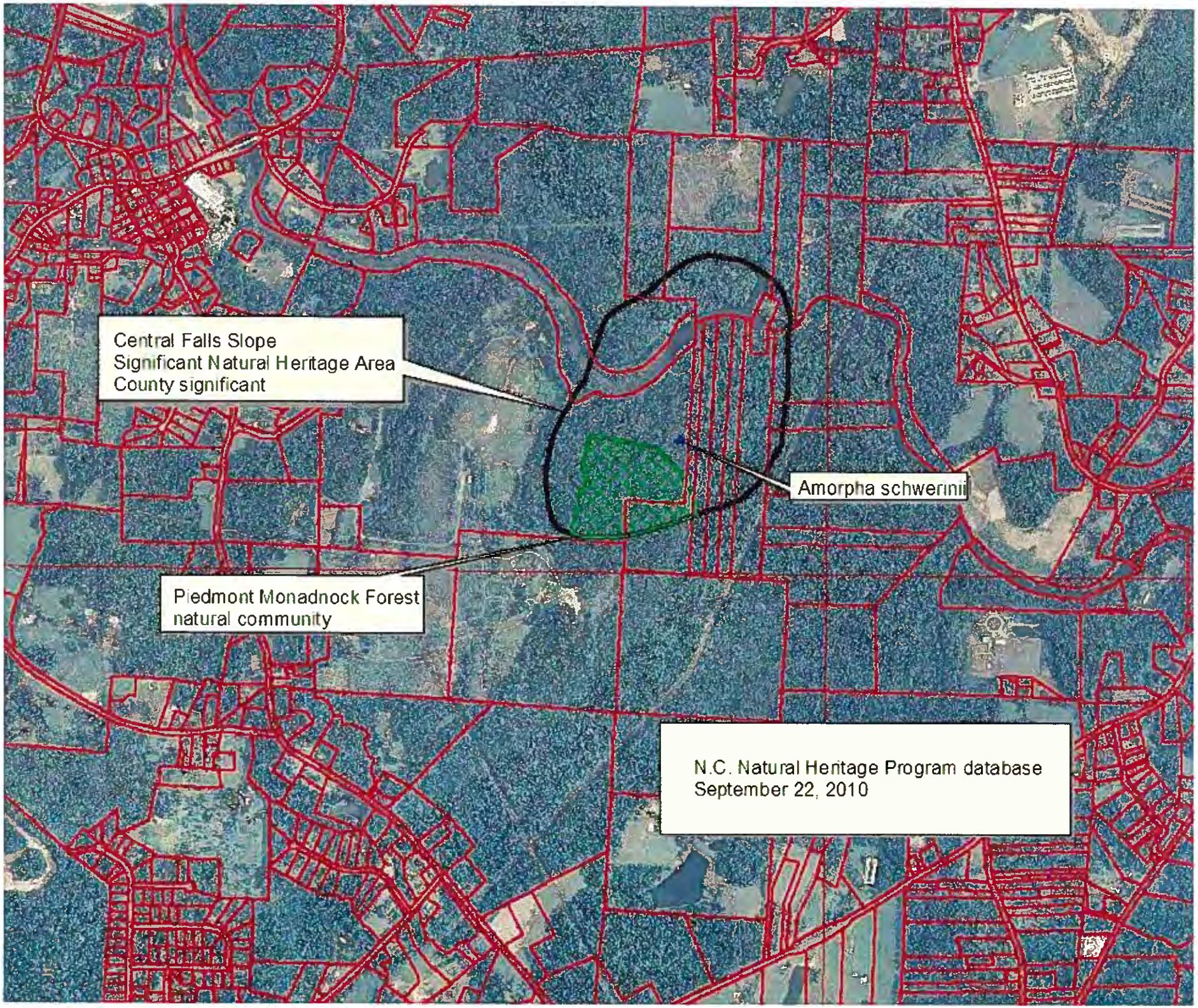
Sincerely,

Harry E. LeGrand, Jr.

Harry E. LeGrand, Jr., Zoologist
Natural Heritage Program

cc: Piedmont Land Conservancy
Land Trust for Central North Carolina

Enclosures


Central Falls Slope
Significant Natural Heritage Area
County significant
Amorpha schwerinii
Piedmont Monadnock Forest
natural community
N.C. Natural Heritage Program database
September 22, 2010

Randolph County Natural Heritage Inventory

Central Falls Slopes

Site Code: D3
Site Significance: County
Size: 260 acres
Quadrangle: Randleman
Ownership: Public & private
Protection Status: None; part of the site is owned by the county but is not protected in any way.

Significant Factors:

1. Though of moderate size Central Falls Slopes includes a wide range of habitats and associated
   plant and animal communities, from xeric uplands to the aquatic habitat of the reservoir.

2. A small population of Amorpha schwerinii (Piedmont indigo-bush; North Carolina status: Significantly Rare) is present.

3. There are several small wetlands, here classified as Floodplain Pools. Floodplain Pools are uncommon in the Piedmont and are an important source of breeding sites for amphibians.

General Description/Landscape Relationships:

Central Falls Slopes is approximately 2 mi south of Worthville Woods; Lake Ramseur Woods is about 4 miles to the east. The Deep River serves as a corridor to connect the three. The site includes a small reservoir resulting from a 20 foot dam, known as Cox Dam, that formerly powered a small hydroelectric plant. Wetlands are present along the margin of the reservoir in several places. Elsewhere wooded slopes come to the edge of the water. Pool level is about 550'. The surrounding slopes support undisturbed forest, with few exceptions. A rounded hill south of the reservoir that contains mature forest crests at 841'.

Description of Natural Communities and Rare Plant Populations:

Central Falls Slopes contains four natural communities and a large area of aquatic habitat. Cox Dam, a twenty foot dam associated with an abandoned hydroelectric plant has created a small reservoir on the Deep River. Like most impoundments in the Piedmont, the resulting pool is narrow, long and relatively shallow. At at least three points along the margin of the reservoir small marshy wetlands are present. It appears that these developed where small creeks flow into the reservoir through sedimentation of the small cove or inlet that would have existed when the dam was first built and subsequent formation of a small levee at the margin of the reservoir

through sediment deposition from the river itself. Though this is not the normal mechanism by which Floodplain Pools develop, these occurrences best fit that community in structure and composition. When visited in September, at the end of an extended dry period, two of the three lacked standing water. It is likely they flood for variable lengths of time in the winter and spring. The Floodplain Pools lack a canopy but scattered individuals and snags of flood tolerant species such as Salix nigra (Black willow) and Fraxinus sp. (Ash) are present in their interior. Wetland shrubs such as Alnus serrulata (tag alder), Cephalanthus occidentalis (Buttonbush) and Cornus amomum (Silky dogwood) are present on the margins. Herbaceous vegetation dominates. Aneilema keisak forms extensive mats and a variety of other herbs are present including Peltandra virginica (Green arrow-arum), Commelina virginica (A dayflower), Impatiens capensis (Orange jewelweed), Leersia oryzoides (Rice cutgrass) and Boehmeria cylindrica (False nettle). Where there is standing water aquatics such as Wolffia papulifera (Water-meal), Lemna perpusilla (Small duckweed) and Myriophyllum brasiliense (Parrot-feather) are present.

At several points the base of the slope supports Piedmont Heath Bluff. The canopy contains trees from the surrounding communities including Fagus grandifolia (Beech), Liriodendron tulipifera (Tuliptree), Nyssa sylvatica (Black gum) and Quercus spp. (Oaks). The subcanopy includes canopy species as well as Ostrya virginiana (Hop-hornbeam), Carpinus caroliniana (Ironwood), Ilex opaca (American holly) and Magnolia acuminata (Cucumber-tree). Areas of Piedmont Heath Bluff are dominated by a dense shrub layer of Kalmia latifolia (Mountain laurel); a variety of other shrubs occur intermittently including Symplocos tinctoria (Horsesugar), Viburnum acerifolium (Mapleleaf arrowwood) and Calycanthus floridus (Eastern sweetshrub). Herbs are sparse. Among those present in summer were Chimaphila maculata (Pipsissewa), Mitchella repens (Partridge berry), Iris cristata (Dwarf crested iris), Galax aphylla (Galax) and Hexastylis virginica (Virginia heartleaf).

Other areas along the shore of the reservoir support a strip of alluvial vegetation variable in width. Woody vegetation dominates including species such as Salix nigra (Black willow), Fraxinus sp. (An ash), Betula nigra (River birch), Platanus occidentalis (Sycamore), Acer negundo (Box elder), Asimina triloba (Common pawpaw) and Ligustrum sinense (Chinese privet). Herbs and vines present include Humulus japonicus (Japanese hops), Mikania scandens (Climbing hempvine), Carex spp. (Sedges) and grasses.

The hill south of the reservoir has a small Piedmont Monadnock Forest at the summit. This area is dry and rocky and dominated by Quercus montana (Chestnut oak). Quercus alba (White oak) and Carya sp. (Hickory) are also present in the canopy. The shrub and herb layers are sparse, and it is here that a small population of Amorpha schwerinii (Piedmont indigo-bush) occurs. Most of the upland portions of the site contain Dry Oak-Hickory Forest. The canopy contains a variety of oaks (Quercus montana, Chestnut oak; Quercus alba, White oak; Quercus stellata, Post oak; Quercus falcata, Spanish oak), Acer rubrum (Red maple) and Oxydendrum arboreum (Sourwood). Included in the subcanopy are Cornus florida (Flowering dogwood), Acer rubrum (Red maple) and Nyssa sylvatica (Black gum). A variety of shrubs are present including Vaccinium arboreum (Sparkleberry), Viburnum acerifolium (Mapleleaf arrowwood), Kalmia

latifolia (Mountain laurel), Symplocos tinctoria (Horsesugar) and Aesculus sylvatica (Painted buckeye). Vitis rotundifolia (Muscadine) is the most common vine. Herbs are sparse. Included here are common Piedmont species such as Chimaphila maculata (Pipsissewa), Tipularia discolor (Cranefly orchid), Desmodium nudiflorum (Woodland tick-trefoil) and Polystichum acrostichoides (Christmas fern). The lower slopes are more mesic and support Dry-Mesic Oak--Hickory Forest. Liriodendron tulipifera (Tuliptree), Fagus grandifolia (Beech) and Tilia sp. (Basswood) appear in the canopy in addition to those present further up slope. Both the subcanopy and shrub layer become more diverse and include Ostrya virginiana (Hop-hornbeam), Amelanchier arborea (Downy serviceberry), Ilex opaca (American holly), Viburnum dentatum (Arrowwood) and Hamamelis virginiana (Witch-hazel).

Description of Faunal Communities and Rare Animal Populations:

Central Falls Slopes includes a range of animal habitats. The forested slopes and uplands are large enough to provide cover and forage for birds and mammals. Most significant is the aquatic and wetland habitat created by the damming of the Deep River. Large numbers of waterfowl are present, as are many turtles and fish. Though no sign was noted it is likely that otter may be present, as their presence has been verified elsewhere in the Deep River Corridor. Beaver and muskrat are also likely inhabitants. The wetlands along the margin of the reservoir provide food and cover for birds and mammals and may be valuable as breeding sites for amphibians.

Management/Protection Recommendations:

The forested margins of the reservoir are generally undisturbed and contain mature or maturing forest. In some places the north shore contains significant numbers of pines, a sign of past disturbance. These slopes should remain undisturbed. A few residences closely border the water on the north; purchase of conservation easements may be a means of preventing additional development, ensuring preservation of a riparian buffer that will allow the site to continue to provide valuable wildlife habitat and breeding sites. The county should be encouraged to limit their activities, as much as possible, to areas already cleared. The landfill is already extremely close to the water. The associated noise is a disturbance and sedimentation, leaching or runoff are potential threats to the aquatic habitat.

Natural Heritage Inventory - Randolph County 1998

Central Falls Slope - (D3)
Deep River Corridor
USGS Randleman Quadrangle

APPENDIX B

PHOTOGRAPHS

PHOTO 1 *Amorpha schwerinii* with flowers located within the proposed Randolph County landfill site.	
PHOTO 2 *Amorpha schwerinii* located within the proposed Randolph County landfill site.	

PHOTO 3 *Amorpha schwerinii* located within the proposed Randolph County landfill site.	
PHOTO 4 *Amorpha schwerinii* located within the proposed Randolph County landfill site.	

Appendix SA-7

Local Government Approval

RANDOLPH COUNTY
DEPARTMENT OF PLANNING & DEVELOPMENT
204 East Academy Street • Post Office Box 771
Asheboro, North Carolina 27204-0771
Telephone: (336) 318-6555 • Fax: (336) 318-6550

June 10, 2013

Paxton Authors, Director
Randolph County Public Works
725 McDowell Road
Asheboro, NC 27203

Reference: Local Zoning Approval/Landfill Site Suitability Application

Dear Mr. Authors:

As required by the Landfill Site Suitability Application, this is to formally advise you, Randolph County has zoning jurisdiction over the proposed site of the Regional Landfill. The proposal meets all the requirements of the Randolph County Zoning Ordinance.

As part of the local zoning approval process, the Randolph County Planning Board conducted a public hearing beginning on Thursday, March 7, 2013, and continuing to Friday, March 8, 2013, to consider the required issuance of a Special Use Permit. The County Planning Board officially approved the Special Use Permit on April 9, 2013. A copy of the Order Approval the Special Use Permit is attached.

Sincerely,

Hal Johnson

Hal Johnson
Randolph County Planning Director
336-318-6556

RANDOLPH COUNTY PLANNING BOARD
Application 2013 – 00000216

ORDER GRANTING A SPECIAL USE PERMIT

The Randolph County Planning Board conducted a Public Hearing at the Old County Courthouse at 145 Worth Street in Asheboro beginning on Thursday, March 7, and continuing to Friday, March 8, 2013, to consider the following Special Use Permit application:

> Applicant Randolph County, 725 McDowell Rd., Asheboro, N.C. requested a Special Use Permit, as required by County Ordinance, to construct a Sanitary Landfill per the site plan submitted, on approximately 667 acres, Franklinville Township, and more specifically identified on the Special Use Permit Application Number 2013-00000216 filed on February 5, 2013.

And

Having heard sworn testimony presented over eleven total hours, and having received into evidence such exhibits as presented by the applicant and opponents, and after affording all who wished to be heard the opportunity to testify, examine, and cross-examine witnesses and to make arguments, the Randolph County Planning Board makes the following Findings of Fact and Conclusions of Law based upon competent, material and substantial evidence appearing in the record.

I.
FINDINGS OF FACT

A. General findings

1. The applicant applied for a Special Use Permit as required by the zoning regulations contained within the Randolph County Unified Development Ordinance that would allow the construction of a Regional Landfill in an RA Zoning District on approximately 667 acres, Franklinville Township, in Randolph County.

2. The applicant is owner of approximately 800 acres, a substantial portion purchased by Randolph County in 1972 for use as a local county landfill, and it has options to purchase an additional 133 acres which would be included within the Special Use Permit.

3. Prior to the hearing, and in legal notices provided to all citizens residing within ½ mile of the county properties, which exceeded the mandatory adjoining property owner notification standards, the County Planning Director gave notice that the Planning Board sits as a quasi-judicial administrative body in its Special Use Permit review role, and that it is in the applicants' and citizens' interest to provide specific testimony to support or oppose each of the four (4) findings upon which the Planning Board is required to make.

4. Approximately 117 citizens attended this public hearing and 23 citizens spoke in opposition to the request.

5. Based upon the evidence summarized below on each finding (which evidence is found to be sufficient for the Board to adopt conclusions of law but which does not include the total evidence the Planning Board found to be probative), the Planning Board finds that applicant Randolph County presented competent, material and substantial evidence and established a prima facie case on each of the Special Use Permit standards.

B. The use will not materially endanger the public health if located where proposed and developed according to the plan as submitted and approved;

1. Mr. Charles Hiner, P.E., Ms. Rachel Kirkman, P.G. and Mr. Ron DiFrancesco with Golder & Associates, a nationally prominent environmental engineering firm, appeared on behalf of Randolph County to present evidence that modern landfills are safe for the environment and to the health of citizens in the area. They expressed the opinion that the proposed landfill, if located where proposed and developed according to the plan as submitted and approved, would not materially endanger public health. Their presentation included the following evidence.

2. Modern landfills must be constructed according to strict standards established by the Environmental Protection Agency in 1991 under Subtitle D of the Resource Conservation and Recovery Act (called "Subtitle D Landfills"). The standards are administered in North Carolina by the Department of Environment and Natural Resources (DENR) under authority from the EPA. The North Carolina rules are even stricter than in some other states as a result of legislation adopted by the state in 2007.

3. In addition to numerous siting requirements, Subtitle D landfills must have composite bottom liners comprised of layers of materials which prevent landfill "leachate" from escaping the facility. Although standard composite liners user one layer of a 60 mil HDPE (High Density Polyethelyne) geomembrane, the County offered the binding condition that it would use what is called a "double composite liner" which utilizes three 60 mil HDPE geomembranes whose half-lives are estimated to be 450 years. The engineered containment system is designed to meet strict performance standards for liquids collection and removal. There was also evidence that the engineered systems are designed, constructed, tested, inspected, protected, and maintained over the course of construction, facility operation, closure, and post-closure.

4. Using EPA approved computer modeling called the HELP model, the amount of leachate estimated to seep from the first geomembrane over a ten acre site would be equivalent to 2 cups in an Olympic-sized swimming pool that holds 660,000 gallons, and this two cups of leachate would be expected to be captured by the second geomembrane.

5. The entire liner system is conservatively predicted by the HELP model to capture 99.96% of the leachate, which is equivalent to approximately one fluid ounce of leachate that might potentially seep through the entire liner system per 30 acres per year. Due to strict federal and state requirements, the amount of leachate that can be kept on the liner system at any given time

(< 12 inches) will help minimize these impacts even further. Leachate generation is anticipated to cease approximately 30 years after the landfill is capped and closed.

6. Leachate will be removed using a leachate removal system, stored on site, and pumped from an on-site pump station via sanitary sewer connection to a Wastewater Treatment Plant for treatment.

7. Methane gas generated by the landfill will be safely captured for beneficial re-use by the County.

8. Waste brought to the site will be deposited onto what is called a "working face" that is two acres in size or less and which will be covered every night with six inches of soil or other approved cover to prevent odor and eliminate food for rodents or other animals.

9. Fire suppression is typically handled by extinguishers located on landfill equipment, water from sediment basins, or by use of dirt at the site.

10. All workers are trained to recognize and remove materials not allowed in MSW facilities. Waste loads will be inspected for any unapproved wastes at the scalehouse and at the "working face" per an NCDENR-approved operations plan.

11. As required by NC Solid Waste Management Rule .1622(1)(a), there are no airports within the 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.

12. Surface waters, including the adjoining Deep River, will be protected by sediment basins designed to handle 100 year storms, and surface water testing will be done on a regular basis.

13. Groundwater quality will be protected and monitored through the use of a leak detection system within the liner. Groundwater monitoring wells will surround the facility and will be designed to provide secondary detection of an unlikely release, and will be designed, based on site-specific data, to monitor likely flow paths, as required by NCDENR regulations, to allow adequate response time to address any concerns. The relatively slow groundwater flow rates at this facility should allow for detection of any potential constituents of concern within the facility buffers.

14. When the landfill has reached its final grades, a final cover system similar to the bottom liner will be constructed and placed on top of the facility to limit infiltration of precipitation into the waste mass to minimize creation of leachate and provide a means to collect, contain, and properly treat landfill gas generation. Portions of the facility will also have intermediate closures during the life of the facility, which will include soil and vegetative covers.

15. Some citizens brought research materials to the hearing, most of which was objected to by the applicant as inadmissible hearsay or found upon cross-examination to be inapplicable to MSW facilities under modern regulations in North Carolina.

C. The use will not materially endanger the public safety if located where proposed and developed according to the plan as submitted and approved

1. Terry Snow, P.E. and William Letchworth, P.E., transportation engineers with CDMSmith, conducted a Transportation Impact Analysis of the proposed use, including current traffic counts, analyses of traffic capacities of adjoining and access roads, line of sight analyses for ingress/egress, school bus traffic, roadway geometrics, farming equipment on the roadways, bridge infrastructure, analysis of accident history along area roadways, and the amount of additional traffic to be generated by the landfill.

2. Mr. Letchworth testified that Henley Country Road currently operates at 10% capacity and the addition of approximately 100 trucks would increase its capacity to only 11%. Old Cedar Falls Road currently operates at 26% capacity and the additional trucks would increase capacity only to 28%.

3. The line of sight approaching the proposed entrance is acceptable and meets minimum design standards for the traffic that would be utilizing the facility, although the County should consider constructing a left turn lane into the facility entrance from Old Cedar Falls Road.

4. While the adjacent roads are rolling with horizontal and vertical curves, there are no roadway geometrics which pose material dangers or create unsafe conditions because the horizontal curves have appropriate advance warning signage and appropriate advisory speed limits.

5. According to Randolph County School officials, morning school buses are on the adjoining roads before the facility opens and afternoon bus routes do not use the roads used to access the facility. Regarding buses serving Asheboro City Schools, Mr. Letchworth testified that trucks and buses use the same roads in every county throughout the state and that these trucks posed no danger to the City Schools buses on the road.

6. The two bridges in the area had NCDOT sufficiency ratings of 95.6% and 98%. These ratings indicate that the bridges pose no danger when crossed by additional truck traffic.

7. The County offered binding conditions that it would adopt every recommendation listed in the Transportation Impact Study, including construction of a left turn lane at the entrance with geometrics sufficient to safely handle truck traffic. The County also offered at its expense to move the mailbox from the opposite side of the road to the resident's side of the road for any citizen living on landfill access roads.

8. It was the professional opinion of the CDMSmith traffic engineers that, based upon the facts and their study which used the latest traffic analysis software and methodology, the proposed landfill would not materially endanger public safety if located where proposed and developed according to the conditions and plans as submitted and approved.

9. Some citizens claimed that the roadways were unsafe for themselves and others now and would be more unsafe with the addition of 100 new trucks. However, no citizen opposing the landfill presented a Traffic Impact Analysis or other information to corroborate their claims.

D. The use meets all required conditions and specifications

1. Mr. Hal C. Johnson, Randolph County Planning Director, testified that the application was properly completed and filed with the Randolph County Planning Department with sufficient time to meet the public notice legal requirements.

2. Mr. Johnson further testified that supplemental information has been filed with the application that when followed by the applicant will enable the construction of the landfill to meet all required conditions and specifications of the ordinance. He further stated that no permits to operate a landfill can ever be issued if the project does not comply with all State and Federal laws governing landfill facilities if it moves forward with the North Carolina permitting processes.

3. No citizen presented evidence that the proposed use violated the Unified Development Ordinance or would violate state or federal regulations.

E. The use will not substantially injure the value of adjoining or abutting properties.

1. The Planning Board heard testimony from two certified appraisers, Mr. Jim Wright and Mr. John Daniel. Both of them had conducted market analyses or comparative sales research on property and land values at or near other modern landfills in North Carolina and compared it to the broader area. Both of them testified that, using standard methods of research accepted and taught by their professions, they were able to conclude that the proposed use will not injure the value of adjoining properties.

2. Mr. Daniel studied the residential properties adjoining and near the landfill facilities in three North Carolina locations, including the landfill adjoining the Charlotte Motor Speedway in Cabarrus County, the Hanes Mill Road landfill in Forsyth County and the North Wake Landfill, using data from Multiple Listing Service, tax departments, registers of deeds, and interviews with residents. In each case he concluded that the landfill did not create an external obsolescence.

3. At the Cabarrus County landfill he studied three residential subdivisions that adjoined the landfill and that were constructed after the landfill was already in operation. His data reflected that the average annual appreciation in property value was 2.49% and the average number of days on the market was 42. Using market and census data from a broader area he concluded that the appreciation rate and sales were similar to homes farther away.

4. The average annual appreciation rate of homes near the Forsyth County landfill was 1.59% during the height of recessionary years 2009 – 2011. Using market and census data for the broader area he concluded that these appreciation rates were similar to homes farther away.

5. Homes in the subdivision immediately adjoining the North Wake County landfill appreciated at an annual average of 3.49%, which market and census reflected to be consistent with homes farther away. All of the homes he studied adjoined the perimeter boundary of this landfill. He also interviewed one neighbor at random who told him that the landfill, when in active operation, was not a deterrent for him and his decision to live there.

6. Mr. Wright visited six North Carolina landfills, including facilities in Anson, Cabarrus, Davidson, Montgomery, Sampson and Wake County (South Wake facility). He used data from Multiple Listing Service, tax departments, registers of deeds, and interviewed local brokers and neighbors.

7. Mr. Wright found numerous homes surrounding the Cabarrus County landfill that sold for 90% to 100% of listing price within a reasonable time and during a recessionary economy.

8. The Davidson County landfill had a home adjacent to the facility entrance that recently sold for a higher price per square foot than sales of homes much farther away. A neighbor of the facility and a broker who sold homes in the area both told Mr. Wright that the landfill was not a factor in home sales.

9. Mr. Wright found land near the Sampson County facility that sold at comparable prices to land much farther away when adjusted for the value of existing wells and septic tanks.

10. Mr. Wright interviewed a broker for the Forest Springs subdivision that is immediately adjacent to the landfill. Recent sales were closed within 60 days at 100% of asking price. The broker informed Mr. Wright that brokers in competing subdivisions often use the landfill's presence to discourage their buyers from looking at Forest Springs, but when buyers come to visit, Forest Springs is their choice a majority of the time.

11. The applicant and both appraisers provided photographs of high quality homes adjoining each of the studied landfills. The applicant provided photographs showing that Cabarrus County chose to construct its newest high school immediately adjacent to the active landfill and a new elementary school approximately one-half mile away. The Charlotte Motor Speedway sits on a portion of that landfill and trucks carrying waste use the same entrance as race attendees.

12. The applicant also provided photographs of closed landfills that have been converted into children's playgrounds and other recreational use.

13. No citizen opposing the special use permit provided an appraisal study or market analysis, nor did any citizen opposing the special use permit demonstrate with competent or substantial data or other evidence that a modern landfill would harm the values of adjoining or abutting properties.

F. The use is a public necessity

1. Richard T. Wells, Randolph county manager, testified that the sanitary collection and disposal of waste was a public necessity. If waste was not adequately and safely disposed, the

amount of waste generated by Randolph County's 145,000 citizens would very quickly become a hazard to public health.

2. Under North Carolina law G.S. 130A-309.09A, located governments are responsible for and required to provide for solid waste management. The County currently operates a transfer station that receives waste, packs it into trucks, and ships it out of the County to a modern lined landfill.

3. Citizens pay for solid waste disposal through tipping fees, not County property taxes. This is an expensive solution for citizens, and the County is proposing an alternative that will lower citizens' out-of-pocket costs. In addition, by accepting out-of-county waste, host fees will provide additional revenues for the General Fund. County savings from not operating a transfer station and hauling waste out-of-county, couple with anticipated income from host fees, would reasonably generate $3 million per year, which could be directed towards provisions of other services which are public necessities, such as law enforcement and public schools.

4. No citizens presented competent or material evidence that the collection and disposal of solid waste was not a public necessity.

G. The location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located

1. Mr. Hal C. Johnson, planning director, testified that among professional land use planners the concept of "harmony" was different from the concept of "similarity." Harmony addresses function and whether one land use would impair an adjoining or nearby land use from reasonably performing its function. Land uses frequently occur that are dissimilar in appearance and use, but these land uses can function harmoniously with each other.

2. In Randolph County, residential and agricultural areas commonly host schools, churches, and other land uses that are completely dissimilar from single family homes and farms. There are numerous other examples, such as small and large subdivisions which have developed adjacent to farms where tractors and other equipment are loud.

3. Randolph County routinely accommodates transition points where the nature of the land use moves from lower to higher intensity, such as farm to residential, rural business/ industry, or residential. In these situations, "transition" areas necessarily have dissimilar uses adjoining each other while functioning harmoniously as part of one community or area.

4. Using guidelines adopted as Randolph County public policy, the County Planning Department considers three concepts to determine if uses are harmonious: function, underlying characteristics, and the Unified Development Ordinance's Table of Permitted Uses.

5. The underlying characteristic of modern landfills is that the vast majority of landfill area is covered with grass, quite similar to a farm. The "working face" area where waste is actively

being disposed is no more than approximately 2 acres. Since the entire facility perimeter encloses 667 acres, the average size working face would represent only three tenths (3/10) of one percent of the total area. Consequently, the predominant characteristics of a modern landfill are similar to a large farm with grassed areas and wooded boundaries and scattered buildings dedicated to farm use.

6. Regarding functionality, there are no characteristics of the proposed land use that would prevent other uses from flourishing. According to decibel level comparisons provided by landfill engineers, a next door neighbor's lawnmower or garden tractor would sound louder than the equipment used by the proposed landfill which would be located several hundreds of feet away. A tractor plowing or disking a field next door would generate more dust. And poultry farms, common in Residential Agricultural zoning areas would produce more odors. Randolph County's policy has always been to consider rural residential uses and farms to be harmonious and compatible with each other and a major part of the fabric of the county throughout its history to the present.

7. Under North Carolina law, when the Randolph County Board of Commissioners adopted the current zoning ordinance and decided that a landfill could be located in a Residential/Agricultural zoning district, that decision by the County Commissioners amounted to a legislative finding that a landfill, if developed according to the plan and findings of the Special Use Permit, is compatible and harmonious with other land uses allowed in the zoning district.

8. Tax Department records show that there are 281 single-family residences located within ½ mile of the proposed landfill. That number is comprised of 190 single family site built residences and 91 manufactured residences.

9. Randolph County Planning Department staff conducted an automobile field survey and identified additional land uses within the ½ mile survey area. They found 14 commercial uses, 8 industrial uses, 4 cultural uses, 8 governmental uses (including the adjacent closed landfill and Law Enforcement Training Center referred to by some as the "shooting range)," 13 institutional uses, and one recreational use. From this information they concluded that the surrounding area was not homogenous but rather a diverse mixture of land uses

10. Tax Department records also reflect forty-two individual parcels adjoining or abutting the total 900 acre Randolph County property, including that portion of the property used as a local county landfill beginning in 1972 and closed in 1997. Tax Department records also indicate that there are 35 different property owners of the 42 parcels and that eleven (11) of the property owners purchased their properties from 1974 to 1997 when the old landfill was in active use.

11. Eighteen residences adjoin or abut Randolph County property boundaries of the proposed 667 acre landfill operation area. The average distance of these homes from county property lines is 274 feet, with the greatest distance being 695 feet and the shortage distance 8 feet. Each of these distances will be supplemented by an additional 300 to 400 foot buffer inside the facility.

12. Several citizens expressed strong opinions that the proposed landfill would be inharmonious with their way of life because of noise, traffic, odors, and threats to groundwater. Most of these statements fell into the category of a "generalized fear." No citizen addressed the fact that the county's MSW transfer station is located on property adjoining the proposed site.

H. The location and character of the use, if developed according to the plan as submitted and approved, will be in general conformity with the Growth Management Plan for Randolph County.

1. Planning Director Hal C. Johnson testified that the proposed use conformed with the County's Growth Management Plan in numerous ways. He provided both written and verbal summaries of the policy conformities:

> **Policy 1.1**: Sustainable economic development, environmental protection, and quality of life, shall be pursued together as mutually supporting public policy goals.
>
> Consistency Summary: Financial benefit to county is mutually supported by strict environmental standards of Federal and State agencies. Quality of life is supported by buffers imposed beyond the minimum required by state.
>
> **Policy 1.3:** The benefits of economic development should be balanced against the possible detrimental effects such development may have on the quality of life enjoyed by area residents.
>
> Consistency Summary: Job creation and economic development anticipated as a result of the Regional Landfill is balanced with environmental standards and buffers to maintain quality of life.
>
> **Policy 1.6:** Randolph County will support coordination of economic development resources with various local agencies and seek regional coordination and interaction between areas with a shared economic interest.
>
> Consistency Summary: By its very nature, a Regional Landfill requires economic coordination between local agencies and supports the interaction of communities because of the shared economic interest of solid waste disposal.
>
> **Policy 3.1**: Industrial development should be on land that is physically suitable and has unique locational advantages for industry. Advanced planning for the identification of such land should be encouraged.
>
> Consistency Summary: Randolph County is located in the geographic center of North Carolina and the Regional Landfill will be located on land owned by the county since 1972 as a landfill.

Policy 3.10: Site specific development plans shall be required that reduce stormwater impact by designing new development in a manner that minimizes concentrated stormwater flow using vegetated buffer areas or retention ponds.

Consistency Summary: Engineered site plans and stormwater buffers are part of the proposed development and are designed to minimize stormwater flow through facility citing and natural buffers.

Policy 3.11: New rural industrial development should provide site specific development plans along with vegetated buffers or other landscaping designed to reduce substantial impacts to adjoining land uses.

Consistency Summary: Engineered site specific development plans have been submitted and are a critical component of the proposed Regional Landfill application. Natural buffers in excess of minimum requirements have been proposed. Facility locations have been selected at distance from adjoining property lines in efforts to reduce substantial impacts to adjoining land uses.

Policy 8.2: Public involvement is encouraged in decisions on land use and development by making the public aware of proposed developments at the earliest opportunity, and fostering communication between landowners, the development industry, the public, and Randolph County government.

Consistency Summary: The County invited all residents living within 2000 feet of the landfill boundary to attend a special Neighborhood Information Meeting with staff on September 24, 2012. This was in addition to a Public Information Session held before the Board of County Commissioners on October 1, 2012. Background information and offers to transport any citizen to view a comparable landfill have been made available on the county website.

Page 10, 2009 Randolph County Growth Management Plan: "Randolph County Zoning and Public Policy recognizes that individual zoning decisions are dependent upon the scale of the proposed development as it relates to the specific site and location. Sustainable rural economic growth, environmental protection, and rural quality of life, shall be pursued together as mutually supporting, growth management goals. With appropriate site conditions, one goal does not necessarily exclude the other".

Consistency Summary: The anticipated positive economic impacts for all county citizens, along with the stringent state environmental regulations that must be maintained, support this policy.

Page 14, 2009 Randolph County Growth Management Plan: "A key principle in the Growth Management Plan for Randolph County is to approach development decisions not as isolated individual issues, but as a part of a larger interconnecting framework of building sustainable growth within the county".

Consistency Summary: Sustainable growth in 21st Century economic climates requires that all development decisions be viewed as interconnecting with other social and economic conditions within the community. A Regional Landfill not only allows the county to economically treat solid waste, but also may generate other support businesses that might insure long term sustainable jobs and growth.

Page 42, 2009 Randolph County Growth Management Plan: Board of County Commissioner Adoption Resolution, Intent #2: Recognize that growth management policies should afford flexibility to County boards and agencies that will enable them to adapt to the practical requirements often necessary for rural development.

Consistency Summary: This land was originally purchased by the Randolph County Board of Commissioners in 1972 for the purpose of a landfill and is in excess of the land currently needed for a Regional Landfill. The county has used this availability of land to provide buffers in excess of that required by state environmental regulations. The county has also used the land availability to locate sites and buildings in locations designed to minimize substantial impacts to adjoining properties.

I. Testimony presented by landfill opponents

In addition to questions and cross-examination of each witness for the applicant, numerous citizens spoke in opposition. The Planning Board does not find that the information as reflected in the official minutes of the hearing constitutes competent, material and substantial evidence on any standard sufficient to support a finding that the applicant failed to meet its burden of proof on each standard.

J. Added Conditions

Pursuant to its authority as established in the Unified Development Ordinance Section 5.2 and N.C.G.S. § 153A-345, the Planning Board finds that the following requirements, if added as conditions to the Special Use Permit, will enable the Board to further find that the applicant's proposed use will meet the standards required to be found in order to issue a Special Use Permit.

As a condition to issuance of this Special Use Permit, applicant Randolph County shall do the following:

1. Install litter fencing at the working face of a sufficient height that it catches wind blown trash.

2. Require, as part of its Operating Agreement, that the operating company shall implement animal control measures to provide control of birds, pigs, and other vector the facility might attract.

3. Require, as part of its Operating Agreement, that soil shall be banked to direct noise of the "working face" away from residences at such times when the natural 300 to 400 foot wooded buffer is insufficient as a noise buffer.

4. Make all convenience sites free to Randolph County residents.

5. Require, as part of the Operating Agreement, that the methane collection system and methane gas shall be County owned and that the County, rather than the private partner, shall determine how the gas is used and/or sold.

6. Require, as part of the Operating Agreement, that the partner and operator shall pick up litter at the entry and along perimeter roadways on a daily basis.

7. Require, as part of the Operating Agreement, that the partner and operator shall provide a washing station for exiting vehicles and wash the facility entrance and any portion of Old Cedar Falls Road as frequently as necessary to keep it clean.

8. Move any mailbox on Henley Country Road and Old Cedar Falls Road at county expense to the same side of the road as the residence, if requested by property owners.

9. Require, as part of the Operating Agreement, that the landfill liner system shall include three (3) HDPE geomembranes and be an NCDENR-approved double liner system consisting of a primary and secondary liner system separated by a leak detection/"witness zone." The primary liner shall be a synthetic liner on top of a drainage collection layer. The secondary liner shall consist of two overlying synthetic liners in direct contact with underlying soil. The"witness zone," which is between the liner systems, will monitor and collect any seepage from the primary liner and will serve as part of the monitoring system for the engineered containment system.

10. Accept MSW (municipal solid waste) waste only, as MSW is defined by NCDENR, and require, as part of the Operating Agreement, that the operator shall monitor all incoming waste for unapproved materials at a minimum of two points of inspection, including its arrival and upon disposal at the working face.

11. Require, as a condition of the Operating Agreement, that any additional soil required to operate and close the landfill that is not available on the site or adjacent county-owned property shall be acquired at the expense of the operator.

12. Construct and/or maintain a pump station so that leachate can and will be transported by pipe rather than truck to the City of Asheboro sanitary sewer.

13. Construct a left turn lane at the facility entrance on Old Cedar Falls Road with sufficient depth to accommodate the estimated truck traffic.

14. Erect "cautionary" signage with flashing lights in each direction approaching the landfill entrance on Old Cedar Falls Road.

15. Work with NCDOT to reduce the speed limit on Henley Country Road to 45 mph.

16. Widen the shoulders of Old Cedar Falls Road in appropriate areas to facilitate safety additional traffic.

17. Strengthen the pavement at the intersection of Old Cedar Falls Road and Henley Country Road to accommodate the heavy truck traffic.

18. Require, as a condition of the Operating Agreement, that hours of operation shall be Monday through Friday 7:30 a.m. to 5:00 p.m., Saturday 7:30 a.m. to noon, and closed on Sunday.

19. Establish an enforceable prescribed route for all landfill truck traffic and establish a "hotline" for traffic issues and concerns.

20. Conduct a sight line distance study to determine if other road improvements are needed.

21. Require, as a condition of the Operating Agreement, that the operator establish, to the fullest extent possible, enhanced recycling opportunities for County residents as a landfill component, such as recycling opportunities for the drop off of electronic wastes, household hazardous wastes, tires, metals, used petroleum products, batteries, white goods, and yard waste debris.

22. Require, as a condition of the Operating Agreement, that the operator shall work with the Board of Education to use the facility as a learning tool. Establish outreach educational programs and possibly a "green fill" learning center with interactive and other types of educational materials.

II.
CONCLUSIONS OF LAW

BASED ON THE COMPETENT, MATERIAL AND SUBSTANTIAL EVIDENCE APPEARING IN THE WHOLE RECORD AND THE FOREGOING FINDINGS OF FACT, THE RANDOLPH COUNTY PLANNING BOARD MAKES THE FOLLOWING CONCLUSIONS OF LAW:

1. The proposed use will not materially endanger the public health or safety if located where proposed and developed according to the plan submitted and approved.

2. The proposed use meets all required conditions and specifications as outlined in the county zoning regulations.

3. The proposed use will not substantially injure the value of adjoining or abutting properties and the use is a public necessity.

4. The location and character of the use, if developed according to the plan submitted and approved, will be in harmony with the area in which it is to be located and in general conformity with the Growth Management Plan for Randolph County.

5. Applicant Randolph County has met all requirements precedent to receiving a Special Use Permit for the operation of a sanitary landfill.

BASED ON THE FOREGOING FINDINGS OF FACT AND CONCLUSIONS, the application is approved by a vote of five to one.

This Special Use Permit is issued this 9 day of April, 2013, and will be entered upon the official minutes of the Randolph County Planning Board.

NORTH CAROLINA
RANDOLPH COUNTY

T. Reid Pell
Chairman

4/9/13
Date

Jill M. Wood
Clerk/Secretary

RANDOLPH COUNTY, NORTH CAROLINA 1779

THE COURIER-TRIBUNE

Affidavit of Publication

State of North Carolina,
Randolph County

To Whom It May Concern:

This is to certify the advertisement attached hereto has been published in ***The Courier Tribune*** on the following dates:

3-22-13

Sworn to on this 22nd day of March, 2013

Shirlette Cornett
Courier-Tribune Representative

Sworn to and Subscribed Before me this 22 day of March, 2013

Notary Public

My Commission Expires 08/02/16

Alaina C. Mabe
Notary Public North Carolina
Randolph County
My Commission Expires
08/02/2016

Notice of Public Meeting and Comment Period Regional Landfill Permit

Application County of Randolph, N.C.

The Randolph County Board of Commissioners will hold a public meeting on Monday, May 6, 2013, at 7:00 p.m., 2nd Floor Commissioners Meeting Room, Historic County Courthouse, 145 Worth Street, Asheboro, N.C., to consider the approval of proceeding with preparing and submitting a permit application to NCDENR for a regional solid waste landfill in Randolph County. The 667-acre facility is proposed to be located on Old Cedar Falls Road in Franklinville Township.

The meeting will include a description of the proposed waste management activities as described in the application for a Special Use Permit. Copies of the application and additional information including preliminary Facility Plan drawings and engineering details can be inspected by any citizen in the office of the Randolph County Public Works Department, 725 McDowell Rd., Asheboro, NC or by visiting the Randolph County website at www.co.randolph.nc.us.

Interested citizens will be given the opportunity to comment at the meeting during the public comment period. Citizens who wish to offer comments will be required to sign-in prior to the meeting with their name and address. Public comments will be limited to one appearance per person. Each commenter will be limited to 3 minutes of speaking time in order for all interested citizens to have the opportunity to speak. Written comments may also be submitted with supporting materials to Randolph County Manager's Office at 725 McDowell Rd.; Asheboro, NC 27205.

For more information, contact Randolph County Manager's Office at 336-318-6300 or the Proposed Regional Landfill Information Line at 336-318-6606.

Cheryl A. Ivey, Clerk to the Board

Randolph County Board of Commissioners

1t 3/22/13

Varner, Amanda W.

From: Varner, Amanda W.
Sent: Thursday, March 21, 2013 9:56 AM
To: 'jdwalker@courier-tribune.com'; 'Larry Penkava'; 'cdavis@hpe.com'; Robyn Hankins (rhankins@hpe.com); G'boro news and record; Geof Brooks (rlfreebee@gmail.com); 'news@wfmy.com'; 'news@wghp.com'; 'media@news14.com'; 'wkxr@atomic.net'
Subject: Press release for public meeting and comment period
Importance: High
Attachments: Landfill May 6 press release final.doc

Please see attached.

Amanda W. Varner
Administrative Services Assistant
Deputy Clerk to the Board
Randolph County Board of Commissioners
725 McDowell Rd.
Asheboro, NC 27205
(336) 318-6300
(336) 318-6853 fax
awvarner@co.randolph.nc.us

Sent to:
6 newspapers
3 TV stations
1 radio station

RANDOLPH COUNTY BOARD OF COMMISSIONERS
Randolph County Office Building ■ 725 McDowell Road
Asheboro, North Carolina 27205 ■ Telephone: (336)318-6300

FOR IMMEDIATE RELEASE

Contact: Paxton Arthurs
336-318-6605

March 18, 2013

Notice of Public Meeting and Comment Period
Regional Landfill Permit Application
County of Randolph, N.C.

ASHEBORO, NC: -The Randolph County Board of Commissioners will hold a public meeting on Monday, May 6, 2013, at 7:00 p.m., 2nd Floor Commissioners Meeting Room, Historic County Courthouse, 145 Worth Street, Asheboro, N.C., to consider the approval of proceeding with preparing and submitting a permit application to NCDENR for a regional solid waste landfill in Randolph County. The 667-acre facility is proposed to be located on Old Cedar Falls Road in Franklinville Township.

The meeting will include a description of the proposed waste management activities as described in the application for a Special Use Permit. Copies of the application and additional information including preliminary Facility Plan drawings and engineering details can be inspected by any citizen in the office of the Randolph County Planning Department, 204 East Academy Street, Asheboro, NC or by visiting the Randolph County website at www.co.randolph.nc.us.

Interested citizens will be given the opportunity to comment at the meeting during the public comment period. Citizens who wish to offer comments will be required to sign-in prior to the meeting with their name and address. Public comments will be limited to one appearance per person. Each commenter will be limited to 3 minutes of speaking time in order for all interested citizens to have the opportunity to speak. Written comments may also be submitted with supporting materials to Randolph County Manager's Office at 725 McDowell Rd.; Asheboro, NC 27205.

For more information, contact Randolph County Manager's Office at 336-318-6300 or the Proposed Regional Landfill Information Line at 336-318-6606.

Varner, Amanda W.

From: Mail Delivery Subsystem [MAILER-DAEMON@rcmailsec.co.randolph.nc.us]
Sent: Thursday, March 21, 2013 9:56 AM
To: Varner, Amanda W.
Subject: Return receipt

Attachments: ATT1785807.txt; ATT1785808.txt

ATT1785807.txt (646 B) ATT1785808.txt (2 KB)

The original message was received at Thu, 21 Mar 2013 09:56:21 -0400 from silverado.co.randolph.nc.us [192.168.200.170]

----- The following addresses had successful delivery notifications -----
<media@news14.com> (relayed to non-DSN-aware mailer)

----- Transcript of session follows ----- <media@news14.com>... relayed; expect no further notifications

Varner, Amanda W.

From: Mail Delivery Subsystem [MAILER-DAEMON@rcmailsec.co.randolph.nc.us]
Sent: Thursday, March 21, 2013 9:56 AM
To: Varner, Amanda W.
Subject: Return receipt

Attachments: ATT1785802.txt; ATT1785803.txt

ATT1785802.txt (647 B) ATT1785803.txt (2 KB)

The original message was received at Thu, 21 Mar 2013 09:56:21 -0400 from silverado.co.randolph.nc.us [192.168.200.170]

----- The following addresses had successful delivery notifications -----
<wkxr@atomic.net> (relayed to non-DSN-aware mailer)

----- Transcript of session follows ----- <wkxr@atomic.net>... relayed; expect no further notifications

Varner, Amanda W.

From: Mail Delivery Subsystem [MAILER-DAEMON@rcmailsec.co.randolph.nc.us]
Sent: Thursday, March 21, 2013 9:56 AM
To: Varner, Amanda W.
Subject: Return receipt

Attachments: ATT1785797.txt; ATT1785798.txt

ATT1785797.txt (659 B) ATT1785798.txt (2 KB)

The original message was received at Thu, 21 Mar 2013 09:56:21 -0400 from silverado.co.randolph.nc.us [192.168.200.170]

----- The following addresses had successful delivery notifications -----
<rlfreebee@gmail.com> (relayed to non-DSN-aware mailer)

----- Transcript of session follows ----- <rlfreebee@gmail.com>... relayed; expect no further notifications

Varner, Amanda W.

From: Mail Delivery Subsystem [MAILER-DAEMON@rcmailsec.co.randolph.nc.us]
Sent: Thursday, March 21, 2013 9:56 AM
To: Varner, Amanda W.
Subject: Return receipt

Attachments: ATT1785792.txt; ATT1785793.txt

ATT1785792.txt (619 B) ATT1785793.txt (2 KB)

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The original message was received at Thu, 21 Mar 2013 09:56:21
-0400 from silverado.co.randolph.nc.us [192.168.200.170]

   ----- The following addresses had successful delivery notifications -----
<lpenkava@randolphguide.com>  (relayed to non-DSN-aware mailer)

   ----- Transcript of session follows ----- <lpenkava@randolphguide.com>... relayed;
expect no further notifications
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Varner, Amanda W.

From: Mail Delivery Subsystem [MAILER-DAEMON@rcmailsec.co.randolph.nc.us]
Sent: Thursday, March 21, 2013 9:56 AM
To: Varner, Amanda W.
Subject: Return receipt

Attachments: ATT1785822.txt; ATT1785823.txt

ATT1785822.txt (662 B) ATT1785823.txt (2 KB)

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The original message was received at Thu, 21 Mar 2013 09:56:21
-0400 from silverado.co.randolph.nc.us [192.168.200.170]

   ----- The following addresses had successful delivery notifications ----- <tapple@news-
record.com>  (relayed to non-DSN-aware mailer)

   ----- Transcript of session follows ----- <tapple@news-record.com>... relayed; expect
no further notifications
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Varner, Amanda W.

From: Mail Delivery Subsystem [MAILER-DAEMON@rcmailsec.co.randolph.nc.us]
Sent: Thursday, March 21, 2013 9:56 AM
To: Varner, Amanda W.
Subject: Return receipt

Attachments: ATT1785817.txt; ATT1785818.txt

ATT1785817.txt (636 B) ATT1785818.txt (2 KB)

The original message was received at Thu, 21 Mar 2013 09:56:21 -0400 from silverado.co.randolph.nc.us [192.168.200.170]

----- The following addresses had successful delivery notifications -----
<news@wghp.com> (relayed to non-DSN-aware mailer)

----- Transcript of session follows ----- <news@wghp.com>... relayed; expect no further notifications

Varner, Amanda W.

From: Mail Delivery Subsystem [MAILER-DAEMON@rcmailsec.co.randolph.nc.us]
Sent: Thursday, March 21, 2013 9:56 AM
To: Varner, Amanda W.
Subject: Return receipt

Attachments: ATT1785812.txt; ATT1785813.txt

ATT1785812.txt (616 B) ATT1785813.txt (2 KB)

The original message was received at Thu, 21 Mar 2013 09:56:21 -0400 from silverado.co.randolph.nc.us [192.168.200.170]

----- The following addresses had successful delivery notifications -----
<news@wfmy.com> (relayed to non-DSN-aware mailer)

----- Transcript of session follows ----- <news@wfmy.com>... relayed; expect no further notifications

Varner, Amanda W.

From: Mail Delivery Subsystem [MAILER-DAEMON@rcmailsec.co.randolph.nc.us]
Sent: Thursday, March 21, 2013 9:56 AM
To: Varner, Amanda W.
Subject: Return receipt

Attachments: ATT1785827.txt; ATT1785828.txt

ATT1785827.txt (823 B) ATT1785828.txt (2 KB)

The original message was received at Thu, 21 Mar 2013 09:56:21 -0400 from silverado.co.randolph.nc.us [192.168.200.170]

----- The following addresses had successful delivery notifications -----
<cdavis@hpe.com> (relayed to non-DSN-aware mailer) <rhankins@hpe.com> (relayed to non-DSN-aware mailer)

----- Transcript of session follows ----- <rhankins@hpe.com>... relayed; expect no further notifications <cdavis@hpe.com>... relayed; expect no further notifications

Varner, Amanda W.

From: Chanel Davis [cdavis@hpe.com]
To: Varner, Amanda W.
Sent: Thursday, March 21, 2013 9:59 AM
Subject: Return Receipt (displayed) - Press release for public meeting and comment period

Your message

To: jdwalker@courier-tribune.com; Larry Penkava; cdavis@hpe.com; rhankins@hpe.com; G'boro news and record; rlfreebee@gmail.com; news@wfmy.com; news@wghp.com; media@news14.com; wkxr@atomic.net
Subject: Press release for public meeting and comment period
Sent: 3/21/2013 9:56 AM

was read on 3/21/2013 9:59 AM.

Varner, Amanda W.

From: Mail Delivery Subsystem [MAILER-DAEMON@rcmailsec.co.randolph.nc.us]
Sent: Thursday, March 21, 2013 9:56 AM
To: Varner, Amanda W.
Subject: Return receipt

Attachments: ATT1785832.txt; ATT1785833.txt

ATT1785832.txt (658 B) ATT1785833.txt (2 KB)

The original message was received at Thu, 21 Mar 2013 09:56:21 -0400 from silverado.co.randolph.nc.us [192.168.200.170]

----- The following addresses had successful delivery notifications -----
<jdwalker@courier-tribune.com> (relayed to non-DSN-aware mailer)

----- Transcript of session follows ----- <jdwalker@courier-tribune.com>... relayed; expect no further notifications

RANDOLPH COUNTY BOARD OF COMMISSIONERS

Randolph County Office Building ■ 725 McDowell Road ■ P. O. Box 4728
Asheboro, North Carolina 27204-4728 ■ Telephone: (336) 318-6300

RESOLUTION APPROVING A MUNICIPAL SOLID WASTE LANDFILL

WHEREAS the Randolph County Board of Commissioners has authorized site studies to determine the suitability of a 667-acre site for a Subtitle D Municipal Solid Waste Landfill; and

WHEREAS, Randolph County staff has conducted numerous well-publicized and well-attended information sessions in 2011 and 2012, where members of the surrounding neighborhood, the county, the Board of Commissioners and the Randolph County Board of Health could ask questions of engineers regarding landfill construction, landfill safety and a modern landfill's effects on the surrounding areas; and

WHEREAS, the Board of Commissioners heard a presentation from Golder Associates NC, Inc. on February 7, 2011, presenting an Alternate Site Evaluation report, which was done in accordance with North Carolina General Statute 153A-136(c), showing the County property adjacent to the closed landfill to be the most suitable for landfill development based on several criteria and a county-wide search; and

WHEREAS, the Alternate Site Evaluation included a demographic review, which did not indicate that operation of a landfill at the existing landfill property would disparately impact any minority population or disadvantaged socio-economic group; and

WHEREAS, the Board of Commissioners heard the results of a Fatal Flaw Study prepared by Golder Associates NC, Inc. on February 7, 2011, which revealed that no significant technical issues related to airports; faults/seismic impact zones; state nature and historic preserve, national wildlife refuge, state game lands, and state parks; or water supply watersheds existed for the subject property, and that additional investigation was warranted for wetlands/streams/100-year floodplains; cultural resources and threatened/endangered species; and vertical separation from bedrock and groundwater; and

WHEREAS, the Board of Commissioners was presented a Market Study and Financial Analysis prepared by Golder Associates NC, Inc. in November 2011 for the proposed regional landfill, which presented that up to 1,500 tons per day of waste may be available from surrounding counties and that the capital investment may be recovered after a period of approximately 6 to 10 years; and

WHEREAS a Neighborhood Information Meeting was held on September 24th, 2012 in the Historic County Courthouse Meeting Room at 145 Worth Street, and approximately 60 citizens who owned property in the vicinity attended and/or made comments and asked questions; and

WHEREAS a well-publicized public information session was conducted on October 1, 2012 at the Historic County Courthouse where citizens from across the county could hear

presentations from engineers and others and approximately 75 citizens attended and 15 citizens made comments and asked questions; and

WHEREAS, two local newspapers, the Courier Tribune and the Randolph Guide, have published numerous articles over the past two years in an attempt to keep the public informed on the proposed facility; and

WHEREAS, County staff have made presentations on the proposed landfill to approximately twenty (20) civic groups and municipal councils in 2011 and 2012, providing the public opportunity at each meeting to ask questions; and

WHEREAS, at the request of a member of the Board of Commissioners, the Randolph County Board of Health advertised and conducted a public meeting on February 11, 2013, to hear presentations from engineers regarding the health effects related to landfill activities; and

WHEREAS, on March 7 and 8, 2013, the Randolph County Planning Board heard and decided applicant Randolph County's application for a Special Use Permit for a regional landfill which was attended by 117 citizens over a ten-hour period, and the Board found by a vote of five to one (5-1) that Randolph County had provided competent, material and substantial evidence that it met the requirements for the issuance of a special use permit; and

WHEREAS, Golder Associates NC, Inc. submitted an Environmental Impact Study for the subject property to the North Carolina Department of Environment and Natural Resources (NCDENR) on the County's behalf on April 12, 2013, which evaluates potential environmental impacts from landfill development at the subject property and associated mitigation measures, as well as socioeconomic factors; and

WHEREAS, Golder Associates NC, Inc. is in the process of preparing a Site Suitability Report and a Design Hydrogeologic Report based on field investigations that have been in progress since 2011 for submittal to the NCDENR upon approval of the Commissioners of this resolution; and

WHEREAS, in order to determine if the County wished to grant local approval and proceed with a landfill application through the processes dictated by N.C. Administrative Code, Subchapter 13B, Sec. 1618(5), the County issued press releases to radio, TV and newspaper media outlets and published notices in local newspapers that citizens could attend a public meeting at the Historic County Courthouse on May 6, 2013 to become better informed of the proposed waste management activities as described in the proposed Facility Plan and to offer information and comments to the Board of Commissioners on such activities; and

WHEREAS, the aforementioned public notices for the May 6, 2013 public meeting notified citizens where they could obtain or review copies of the preliminary Facility Plan drawings and other engineering details and where they could find information on a county website or by calling the county manager's office or calling a "Proposed Regional Landfill Information Line"; and

WHEREAS, the County also notified citizens that written comments could be sent to the County Manager, which written comments have been shared with the all members of the Board of Commissioners; and

WHEREAS, the Board of Commissioners opened the public meeting at the appointed time on May 6, 2013, and heard comments and questions from ___ citizens; and

WHEREAS, engineers from Golder Associates NC, Inc. were present to answer questions posed by members of the public and the Board of Commissioners; and

WHEREAS, after having heard and considered all comments at this public meeting and previous public meetings where many of the same citizens presented comments to the Board, and having received and considered written comments provided by members of the public, the Board of Commissioners, after due and proper consideration of all available information, determines that it is in the best interests of the County to grant local approval for the proposed municipal solid waste landfill;

NOW, THEREFORE, BE IT RESOLVED that the Randolph County Board of Commissioners hereby establishes and grants local approval for the proposed Subtitle D Municipal Solid Waste Landfill; and

BE IT FURTHER RESOLVED that the Randolph County Board of Commissioners approves the submission of all necessary materials to NCDENR as required by N.C. Admin. Code 13B .1600 et. seq. for NCDENR's consideration and review of Randolph County's application for a Subtitle D Municipal Solid Waste Landfill in Randolph County; and

BE IT FURTHER RESOLVED that the County shall take initial and necessary steps to select a design-build operating partner.

This the 6th day of May, 2013.

J. Harold Holmes, Chairman
Randolph County Board of Commissioners

CERTIFICATE

This is to certify that the foregoing resolution was duly adopted at a meeting held by the Randolph County Board of Commissioners on May 6, 2013.

Cheryl A. Ivey
Clerk to the Board

CERTIFICATION

This is to certify that attached herein is a true and accurate copy of the May 6, 2013 meeting minutes of the Randolph County Board of Commissioners. These minutes were approved by the Board on June 3, 2013.

6/4/13
Date

Cheryl A. Ivey
Cheryl A. Ivey, Clerk to the Board
Randolph County Board of Commissioners

Certified Copy
Cheryl A. Frey
Clerk to the Board

May 6, 2013

The Randolph County Board of Commissioners met in regular session at 6:00 p.m. in the 1909 Randolph County Historic Courthouse Meeting Room, 145 Worth Street, Asheboro, NC. Commissioners Holmes, Frye, Haywood, Kemp and Lanier were present. Dr. Bob Shackleford, RCC President, gave the invocation and everyone recited the Pledge of Allegiance.

Special Presentation

Chairman Holmes recognized Carol Harris, who is retiring with 36 years of service to the Sheriff's Department. Chairman Holmes presented Ms. Harris with an engraved clock on behalf of the Board. Sheriff Maynard Reid, Jr. presented Ms. Harris the Order of the Longleaf Pine on behalf of Governor Pat McCrory.

Public Comment Period

Pursuant to N.C.G.S. § 153A-52.1, Chairman Holmes opened the floor for public comment. County Attorney Ben Morgan read aloud the Rules for the Public Comment Period.

Alan Ferguson, 4794 Troy Smith Rd., Liberty, spoke on behalf of his neighbors and himself, regarding the Greensboro/Liberty mega site. He asked that the County not support this project because it is not in the best interests of the residents or of Randolph County. He said that he knows this is the best place he has ever lived, especially after seeing all the horrible stories from around the world in the news. He said that he doesn't want to see his county involved in an expenditure of $53 million he's been hearing that it is going to take to buy and fit up this site. He has also heard a different figure of $400 million for a possible incentive to bring the type of business that is being discussed. If this is true, according to Mr. Ferguson, and the new company should employ, say, 2000 people, that would equate to about $226,000 per job. He said that he would feel bad about his county getting involved in tax abatements or direct payments for that kind of return. He suggested a different site on Hwy 64 that would be accessible to many more people from Randolph County than the Greensboro/Liberty site. Mr. Ferguson asked that the board repeal the site development ordinance that was adopted in January.

Jon Nance, New Hope Church Rd., Asheboro, spoke about a proposal he had presented to the Board about two months ago concerning a 2nd Amendment preservation ordinance, also known as a nullification act. He said he understood that this would be discussed at the May 24th retreat so he assumed the Board would have a response to this matter. He gave a brief history of the nullification, which is an act that has been around for a long time from the beginning of this country to nullify unjust laws. Examples are taxation without representation, or during the Civil Rights Movement, Rosa Parks, who refused to give up a seat on the bus (nullifying segregation). Also taking place now in regards to 2nd Amendment at the state level, Kansas and Missouri have passed nullification acts infringing against the 2nd Amendment. Davidson County has passed similar legislation. Sometimes it gets a bad rap, the idea of protecting guns. There is a lot of misconceptions with that but this is about a defense of constitutional liberty that we've been given as Americans from our Constitution. While this may be specifically targeting the 2nd Amendment and preserving it from any infractions at the Federal level, the best defense of liberty comes not from being heavily armed with weaponry, but from being heavily armed with the knowledge and courage to stand against unjust laws.

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Cheryl A. Inez
Clerk to the Board

Wesley Martin, 984 Mountain View Rd., Asheboro, said that he is 33 years old and has lived here his entire life. Last month he supported the proposal by Jon Nance for the 2nd Amendment preservation ordinance or a nullification ordinance. Many things from the federal level are an assault on his personal freedoms and of every American. They seem to have an idea that they have a right to legislate what his freedoms are. While he fully supports the 2nd Amendment, the 2nd Amendment doesn't necessarily give him those rights. His Creator bestowed those rights upon him. And, no man, no law, no agency, no authority can take those away from him but the Lord God Almighty, Himself. The federal government claims a lot of jurisdiction, but in the western states, nullification is becoming more of a reality and he would like to see something like that here in Randolph County and North Carolina. He said that the NC General Assembly has actually put out an anti-gun bill, HB 976, which would restrict the rights of law abiding gun owners all over North Carolina. He finds it very offensive that his state would try to restrict his rights to own a firearm in any way, shape or form, based on poor information and uninformed individuals. This has to be stopped on a local level as well; luckily none of the sponsors on this bill are any of our local representatives. They seem to be from all toward the center of the state, which doesn't surprise him. He fully supports the 2nd Amendment Preservation Ordinance because the 2nd Amendment is not just something written on a piece of paper. It's a right that goes beyond that and he doesn't think any of us wants to give that up.

Change to Consent Agenda

Chairman Holmes announced that *Item D Adopt Revised Memorandum of Understanding for Transportation Planning and Membership in the High Point Metropolitan Planning Organization (MPO)* needs to be approved via a resolution rather than with only a motion.

Approval of Consent Agenda

On motion of Frye, seconded by Lanier, the Board voted unanimously to approve the Consent Agenda, as amended, and as follows:

- *approve Board of Commissioners minutes of regular meeting and two sets of closed session minutes of 4/8/13 meeting;*
- *approve Lottery Applications for Randolph County Schools at $1,500,000 (Providence Grove HS--06 COPS) and Asheboro City Schools at $400,000 (Teachey School--06 COPS);*
- *approve renewal of Southern Health Partners Contract for Health Services at the Jail ($26,609.83/mo.);*
- *adopt the following resolution adopting revised memorandum of understanding for transportation planning and membership in the High Point Metropolitan Planning Organization (MPO), which reflects the addition of two new municipalities (Denton and Lexington) and recognizes that the General Assembly applied the State Ethics Act to the MPOs and reflects the changes necessary to insure compliance with the ethics statutes. The current voting structure of one vote per jurisdiction is maintained while a voting transportation transit representative is added to the Technical Advisory Committee of the MPO:*

Resolution Approving Revised Memorandum of Understanding for Transportation Planning and Membership in the High Point Metropolitan Planning Organization

***WHEREAS**, Chapter 136, Article 3A, Section 136.66.2 (a) of the General Statutes of North Carolina require that comprehensive transportation planning be coordinated among local governments located within federally designated urban areas; and*

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Clerk to the Board

***WHEREAS**, the High Point Metropolitan Planning Organization is responsible for carrying out a transportation planning process in accordance with federally mandated policies outlined U.S.C. 134; and*

***WHEREAS**, a transportation planning process includes the operational procedures and working arrangements by which planning is soundly conceived by the participating local governments as reflected in a Memorandum of Understanding adopted by the governing bodies of each local government; and*

***WHEREAS**, the new Memorandum of Understanding, dated May 6, 2013, reflects the addition of two new municipalities (Denton and Lexington) and also reflects changes made necessary by the N.C. General Assembly relating to new ethics statutes; and*

***WHEREAS**, the updated Memorandum of Understanding has been reviewed and approved by elected officials of member governments comprising the Technical Advisory Committee of the High Point Metropolitan Planning Organization.*

***NOW, THEREFORE, BE IT RESOLVED**, that the updated Memorandum of Understanding for the High Point Metropolitan Planning Organization, as submitted this 6th day of May, 2013, be approved.*

- *approve Budget Amendment #32 for Library (Partnership for Children Book Grant--$25,000); as follows:*

2012-2013 Budget Ordinance-General Fund- Amendment #32		
Revenues	**Increase**	**Decrease**
Restricted Intergovernmental	$25,000	
Appropriations	**Increase**	**Decrease**
Public Library	$25,000	

- *reappoint Mazie Fleetwood to the Sandhills Board of Directors;*
- *reappoint Mazie Fleetwood to the Nursing Home Community Advisory Committee;*
- *reappoint Fran Andrews, Lynne Qualls, Bill Ivey to the Historic Landmark Preservation Commission;*
- *reappoint Robert Ware and Anne Hockett to the Regional Partnership Workforce Development Board;*
- *approve Budget Amendment #33 for Emergency Services (Emergency Management Performance Grant - $14,878); as follows:*

2012-2013 Budget Ordinance-General Fund- Amendment #33		
Revenues	**Increase**	**Decrease**
Restricted Intergovernmental	$14,878	
Appropriations	**Increase**	**Decrease**
Emergency Services	$14,878	

- *adopt Resolution abandoning 0.3-miles of SR 3128 (Osborn St.) from the State Roads System; as follows:*

***WHEREAS**, the Department of Transportation has investigated the 0.3 miles of SR 3128 (Osborn St.) off of SR 1854 (Kimberly Lane) and SR 1703 (Trinity Blvd.) in Randolph County for purposes of abandonment per City of Trinity's request; and*

***WHEREAS**, the Department of Transportation has investigated and determined that this road should be abandoned from the Division of Highways' Secondary Road System from the centerline intersection of SR 1854 (Kimberly Lane) to beginning of SR 1703 (Trinity Blvd.).*

***NOW, THEREFORE, BE IT RESOLVED** by the Randolph County Board of Commissioners that the 0.3 mile SR 3128 (Osborn St.) in Randolph County be abandoned from the Division of Highways' Secondary Road System.*

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Cheryl A. Inez
Clerk to the Board

- *approve Budget Amendment #34 for Economic Development Contract (Technimark); as follows:*

2012-2013 Budget Ordinance-General Fund- Amendment #34		
Revenues	***Increase***	***Decrease***
Transfer from ED Reserve	*$7,500*	
Appropriations	***Increase***	***Decrease***
Other Economic & Physical Development Appropriations	*$7,500*	

- *approve Resolution of Support of the Sale of the Assets of Townsend/Omtron to a Bidder Interested in Operating the Facility; as follows:*

RESOLUTION IN SUPPORT OF THE SALE OF THE ASSETS OF TOWNSEND/OMTRON TO A BIDDER INTERESTED IN OPERATING THE FACILITY

WHEREAS, at the time that Omtron purchased Townsend assets out of bankruptcy in February 2011, the company had processing plants in Siler City and Pittsboro, two feed mills and a hatchery, with a labor force of over 1,300; and

WHEREAS, many of these employees reside in Randolph County; and

WHEREAS, many of the over 125 contract growers' farms were in Randolph County as well; and

WHEREAS, all of the 1,300 jobs have been lost after Omtron ceased operations in September 2011 and the contract growers have lost their income stream; and

WHEREAS, bankruptcy proceedings in the United States District Court for the Middle District of North Carolina appear to be moving toward an auction;

NOW, THEREFORE, be it resolved by the Board of Commissioners of Randolph County that the bankruptcy court be encouraged to look favorably on any reasonable bid from an entity proposing to restart the poultry operation.

Note: Chairman Holmes read aloud the Resolution of Support of the Sale of the Assets of Townsend/Omtron to a Bidder Interested in Operating the Facility.

Addition to New Business Agenda

Chairman Holmes announced that *Item G. Approve Budget Amendment for 2013C Refunding Limited Obligation Bonds* had been added to the agenda.

Approval of Budget Amendment for 2013C Refunding Limited Obligation Bonds

Will Massie, Assistant County Manager/Finance Officer, said that in March, the County refinanced a portion of existing debt, and postponed two other issuances due to market conditions. Those conditions improved, and the County refinanced the 2006 COPS on April 10. The third and final refunding was scheduled for May 9, when the County will refinance the 2007 COPS. This should save the County a substantial amount in interest costs over the remaining terms. The new debt proceeds will be invested in U.S. guaranteed securities and held by U.S. Bank as trustee until the outstanding certificates will be retired. A budget amendment is necessary to record the issuance of the 2013C refunding debt and to budget the estimated costs associated with the refunding.

On motion of Haywood, seconded by Lanier, the Board voted unanimously to approve Budget Amendment #35, as follows:

2012-2013 Budget Ordinance-General Fund—Budget Amendment #35	
Revenues	***Increase***
Other Financing Sources – Proceeds from 2013 Debt	*$26,000,000*

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Clerk to the Board

Appropriations	*Increase*
Other Financing Uses – Payment to Escrow Agent	*$25,600,000*
Debt Service	*$ 400,000*

Approval of Cooperative Extension Request for Additional County Funding for Full-time Horticulture Position

Will Massie reminded the Board that Carolyn Langley had informed them at the April retreat that the State Extension budget is being cut by 5.4%, which means a reduction in staff of 30 people at the county and state levels and 15 people at the university level. The state has recommended the combination of the Randolph and Chatham horticulture agent positions. This is unacceptable. Randolph is a large agricultural county with one of the top agricultural incomes in North Carolina. Our horticulture agent supervises and has responsibility for many programs. The Randolph office receives, on average, 30 calls a day asking for assistance and information on horticulture issues, and we also provide grower certificates for local farmers' markets and organize and teach horticultural classes to the general public. This position is a key agent position in Randolph County. Without a full position, we would not be able to meet the needs of Randolph County residents and businesses.

Mr. Massie said that Randolph County Extension is requesting that the Commissioners provide a 65% match instead of the current 51% match to State funds for the Horticulture Extension Agent position, effective immediately. If approved, there is no additional money needed this fiscal year, as lapsed salary will cover the costs. However, an additional $6,300 in salary and $2,275 in benefits is needed in the upcoming budget year.

On motion of Lanier, seconded by Frye, the Board voted unanimously to provide a 65% match to State funds for a full-time Horticulture Extension Agent position, effective immediately.

Approval of Grant-funded Position at Health Department & Related Budget Amendment

Susan Hayes, Assistant Public Health Director, said that the Randolph County Health Department is participating with counties to our south in a project called Community Transformation, funded through the Centers for Disease Control. This is a five-year time-limited project, beginning its third year in June. Cumberland County Health Department is the lead county in the project. The purpose of the project is to assist communities in making systematic change that improves health. Examples are organizing and supporting local farmers' markets and working to make healthy activities more accessible and safe. Cumberland County has asked Randolph to house the CTG employee who will take the lead for Randolph and Montgomery County. This employee will also be the specialist in the active living projects for all counties. The grant funds are adequate for covering the cost of this position. The Health Department would provide space and local supervision for the three-year period.

Ms. Hayes asked the Board to approve: 1) the creation of a Public Health Educator II position at a salary grade of 16, effective date 6/1/2013; and 2) a budget amendment accepting funds in the amount of $4,568 for this project for the remainder of 2012-2013 (we will include this money in the 2013-2014 budget).

On motion of Haywood, seconded by Kemp, the Board voted unanimously to approve the addition of a Public Health Educator II (Grade 16) position, effective 6/1/13 and Budget Amendment #36 in the amount of $4,568, as follows:

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Cheryl A. Frey
Clerk to the Board

2012-2013 Budget Ordinance-General Fund- Amendment #36		
Revenues	**Increase**	**Decrease**
Restricted Intergovernmental	*$4,568*	
Appropriations	**Increase**	**Decrease**
Public Health	*$4,568*	

Approval of Resolution Authorizing Sale of County Property (near DSS) to High Bidder

Associate County Attorney Aimee Scotton said that the County received an offer to purchase two small portions of property located on either side of a 75-foot-wide strip located at the southern end of the Department of Social Services property. This offer was for $3,000 and was made by Sydney and Donna Lowe. She reminded the Commissioners that they had proposed to accept this offer at their March meeting to begin the upset bid process. On April 19, 2013, the offer was advertised and the statutorily-required 10-day period for upset bids passed without the submission of an upset bid.

On motion of Frye, seconded by Haywood, the Board voted unanimously to adopt the following resolution accepting the offer and authorizing the sale of property to the Lowes, as follows:

Resolution Authorizing The Sale Of Property To High-Bidders Sydney W. And Donna G. Lowe

***WHEREAS**, the County of Randolph owns a parcel of real property obtained by Randolph County in deeds recorded in Deed Book 1370, Page 1288 and Deed Book 1418, Page 1306 of the Randolph County Registry and identified by parcel identification number 7762034825; and*

***WHEREAS**, North Carolina General Statute §160A-269 permits the County to sell property by upset bid, after receipt of an offer for the property; and*

***WHEREAS**, the County received an initial offer to purchase two small sections of the property described above for the amount of $3,000, said offer submitted by Sydney W. and Donna G. Lowe; and*

***WHEREAS**, the two small sections of the above-referenced property that are the subject of the offer are more particularly described as follows:*

Tract One

BEGINNING at a set rebar, the southeast corner of property owned by Sydney W. and Donna G. Lowe (Deed Book 2024, Page 903) and continuing the following courses and distances: North 02 degrees 27 minutes 00 seconds West 79.32 feet to a rebar; North 13 degrees 57 minutes 17 seconds East 74.85 feet to a pinchtop iron pipe, a corner with Randolph County; then South 83 degrees 01 minutes 33 seconds East 25.00 feet to a point; then South 05 degrees 49 minutes 00 seconds West 152.59 feet to a point; then North 82 degrees 59 minutes 00 seconds West 25.00 feet to the point and place of BEGINNING and being 0.11 acres more or less.

Tract Two

BEGINNING at a point, the southwest corner of property owned by Sydney W. and Donna G. Lowe (Deed Book 1154, Page 913) and continuing the following courses and distances: North 82 degrees 59 minutes 00 seconds West 25.00 feet to a point; thence North 05 degrees 49 minutes 00 seconds East 152.59 feet to a point; thence South 83 degrees 01 minutes 33 seconds East 25.00 feet to a rebar; thence South 05 degrees 49 minutes 00 seconds West 152.59 feet to the point and place of BEGINNING and being 0.09 acres more or less.

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***WHEREAS**, the Randolph County Board of Commissioners, at its March 11, 2013 meeting, proposed to accept said offer and to begin the upset bid process set out in N.C.G.S. §160A-269; and*

***WHEREAS**, the initial bid was duly published in accordance with N.C.G.S. §160A-269 on April 19, 2013 and the prescribed 10-day period passed with no submission of an upset bid;*

***NOW, THEREFORE, BE IT RESOLVED** by the Board of Commissioners of Randolph County, this 6th day of May, 2013, that, pursuant to N.C.G.S. §160A-269, the Board hereby awards the sale of the two above-described tracts to Sydney W. and Donna G. Lowe as the highest responsible bidders; and*

***BE IT FURTHER RESOLVED** that the Board of Commissioners hereby authorizes County legal staff and management to prepare and the Chairman of the Board of Commissioners to execute such documents as may be necessary to effectuate the sale of the two tracts described above to Sydney W. and Donna G. Lowe.*

Approval of Aging Services Requests

Candie Rudzinski, Aging Services Planning Committee (ASPC) Chair, reported that the ASPC met on April 9, 2013 and approved a recommendation for the HCCBG agency allocations for FY 13-14 totaling $758,391. The ASPC recommends that the Randolph County Board of Commissioners approve the HCCBG Funding Plan, requesting a total of $758,391 for fiscal year 2013-2014 for Randolph County aging services providers. Ms. Rudzinski also asked that the Board accept additional/supplemental funding, should it become available, and to allow the Aging Services Planning Committee to decide how to allocate these funds, as appropriate, according to the existing "Policy for Distribution of Aging Services Funding."

On motion of Kemp, seconded by Frye, the Board unanimously 1) approved the HCCBG Funding Plan, as indicated on Form DOA-731, requesting a total of $758,391 for fiscal year 2013-2014; and 2) agreed to accept additional/supplemental funding, should it become available, and to allow the Aging Services Planning Committee to decide how to allocate these funds, as appropriate, according to the existing "Policy for Distribution of Aging Services Funding."

Recess

At 6:35 p.m., the Board recessed.

Meeting Resumed

At 7 p.m., the Board returned to regular session.

Proposed Regional Landfill Matters

Rachel Kirkman, geologist with Golder Associates, presented the Preliminary Facility Plan, including proposed waste management activities. She said that questions have arisen in the community regarding other disposal options, including waste to energy. She presented a schematic related to costs per ton for land filling versus potential waste to energy. She pointed out that the tipping fees were quite a bit higher than those for the proposed landfill. However, she emphasized that waste to energy is a viable technology, but the capital outlay costs are much higher than those for building a landfill and it's difficult to obtain competitive tipping fees and to sustain that type of technology in this area. Also, with waste to energy, approximately 10% of the waste turns to ash, which has to be disposed of, and sometimes the ash is hazardous, requiring very stringent regulation. But, if the Board wants to consider the waste to energy option, it could be included as part of the RFQ process.

Next, Ms. Kirkman, reviewed the alternate site evaluation (displays were on hand), which was presented at the February 2011 Commissioners meeting and has been publically available

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for review since November 2011. Completed in accordance with the NC General Statutes, approximately 16 sites were evaluated, regarding size, topography, streams, and proximity to infrastructure.

Commissioner Frye asked about whether the landfill would adversely affect a minority population near the proposed site. Ms. Kirkman said that she planned to address that issue later in her presentation.

Ms. Kirkman showed a map of the current closed landfill and transfer facility and the proposed adjacent facility, with reference points to highways. Initial screening pared it down to 16 sites, largely based on size. Secondary screening delved into surface water, flood plains, ownership, and infrastructure. Then, it was pared down to three sites, including the proposed site. Based on additional criteria, namely proximity of the site to the airport, which is a federal and state requirement, the existing landfill property deemed most suitable for landfill development.

Regarding minority populations, Ms. Kirkman presented a slide showing the proposed facility with a radius within 1 mile, and showed the larger percentages of minority populations. None were adjacent to the proposed facility or along the proposed traffic route. Demographic data was reviewed in terms of both minority population and socioeconomic conditions. Based on that data, the minority population within the vicinity of the landfill was not noted to be any higher than the county average nor was the median value of the homes in that area; it was right at or above the county average. Therefore, based on those findings, it was determined that the proposed landfill would not be an impact on those groups.

Ms. Kirkman showed a slide on the proposed landfill and proposed liner system, and pointed out areas such as leachate collection, gas collection, and beneficial reuse, storm water collection and treatment and monitoring, and groundwater monitoring. She said that there are many state agencies involved in the approval process for landfills. The proposed bottom liner system (double liner system with a leak detection zone) exceeds the state's requirement. Ms. Kirkman said that there are several agencies beyond the Division of Waste Management that are involved in regulatory oversight. As for landfill operations, under NCDENR, new landfills are designed to protect human health and the environment, under the approved program with the state. Operators are required to have certifications, and health and safety training. She noted some of the typical concerns related to litter, noise, odor, dust and animal control, which are heavily regulated by state agencies and said that inspectors come out to make sure the facility is operated as it should be and records are kept. There are daily cover requirements for the working waste area, which is kept small to minimize these impacts. She listed things that are not allowed in a household municipal solid waste facility: household cleaners, Roundup, and medical waste, which are banned because of their chemical nature. Other things are banned to encourage recycling. Ms. Kirkman said that there are strict requirements for the unauthorized waste program, which details the screening that's involved with the incoming loads and working base of the landfill. There is training for employees and penalties for improper disposal activities, as well as, contingency plans for any unauthorized disposal so it can be properly disposed of at an approved facility.

Ms. Kirkman referred to some concerns raised due to a public presentation at a Board of Health meeting related to several human health criteria, such as airborne pathogens (fungi, bacteria). She said that waste handling is very comparable to other types of activities already occurring in the county (textiles, moldy hay, agriculture-related activities). These pathogens

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decrease very rapidly with distance from the source and having vegetative buffers helps to minimize these and keep them on the property. She also referred to a presentation to the Commissioners in April related to diesel exhaust particulates. This was not a landfill or waste specific presentation. She said that the proposed route was chosen for several criteria including the density of homes and distance from the road to help minimize these impacts. Ms. Kirkman also referred to some questions related to landfill gas composition, and said that the gas will be collected for beneficial reuse for a potential energy project. Regarding questions about mercury, she showed a graph of the Mercury concentration, which are in trace amounts and below applicable standards.

Golder Associates engineer Ron DiFrancesco reviewed some information that was presented previously to the Planning Board. He said that newly built landfills are lined with a high density polyethylene geomembrane, which is a high density plastic, similar in production to plastic bottles, corrosion resistant piping, and plastic lumber. He showed a graphic on relative thickness to some common things such as aluminum cans, plastic sheeting or even HTPE milk jugs. But, he emphasized that geomembrane liners are on a magnitude of 4-5 times thicker than those materials. According to the Geosynthetic Research Institute, the half-life of these liners is about 450 years. That means after 450 years, the properties have been reduced by about one-half. He said that the liner's purpose is to protect the ground and the groundwater from leachate from getting into the ground. He showed a graph that displayed a half-life decay out to about 450 years of liner. He also showed the leachate generation of a landfill to where it peaks at the end of the life of the landfill and then diminishes after that. In the scenario of where the landfill was 40-50 years of life and then diminishes at 100 years, it is well within the half-life of the geomembrane liner. Seepage is predicted using an EPA model called the Help Model, which is a hydrogeologic evaluation of landfill performance, that basically looks at different stages of landfills, water balance, how much water transpirates and how much goes down to the liner system. It also looks at the quality of liner construction and predicts seepage rates. Numbers that Golder ran on this facility predicted the seepage rate at about 2/100,000 of one percent of what is produced in terms of liquid in the landfill. That equates to about two cups of water in an Olympic size swimming pool. Since this proposed landfill has a leak detection layer, and a secondary containment layer, that seepage is expected to be captured by that secondary layer.

Mr. DiFrancesco presented information on geomembrane liner testing. The proposed landfill bottom liner system not only has one geomembrane, but it has three geomembranes in its construction. The material goes through stringent testing requirements at the manufacturer, which certifies over 20 physical qualities of the material before it's delivered to the job site. Once at the job site, the construction quality assurance firm takes samples of material and confirms what the manufacturer says those properties are and then upon installation, it's tested again for water tightness—all the welded seams are checked for air and water tightness. The geomembrane system is tested three times in the construction of a landfill. Mr. DiFrancesco also presented information on landfill gas to energy, and said it is a viable project. Landfill gas is used in different ways to generate energy: to heat buildings on-site (medium BTU fuel), put into diesel engines to generate electricity, and can also be refined on-site to be made available to a third party industry that may use natural gas to fuel boilers or something of that nature. This site is probably a very good candidate for electrical generation. The methane gas would be collected through a vacuum system, a series of vertical and horizontal wells that are placed in the waste mass. A vacuum is applied and gas is drawn out and then taken to a building that runs diesel

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retrofitted engines that turn turbines which generate power that is sold back to their grid. He said that there are hundreds of landfill gas to energy partners available.

Mr. DiFrancesco said that since their presentation to the Planning Board, they refined the master site plan for the proposed landfill, which is now about 198 acres (down from 200 acres) for the landfill footprint. It still is approximately the same height and would contain approximately 45 million cubic yards of gross airspace capacity. Onsite, more than eight acres were retained for storm water management ponds. To put it into perspective, the typical disposal area is about one acre in size compared to the 198 other acres. He said that the landfill would have well over 30 years of life at 1500 tons per day.

Mr. DiFrancesco said that a traffic study was performed by CDM Smith and was based on an upper limit of 100 trucks per day. This represented only a 1% increase of the existing road capacity. The road geometries were suitable for the type of vehicles that are proposed and it was recommended that a left-turn lane be designed and built to turn into the facility. Also, a voluntary relocation of mailboxes by the County and reduction of speed limit and other special use permit conditions would be put into the permit at approval. Mr. DiFrancesco provided an update on the buffers: 300-ft buffer, specifically on the eastern side, is now well within the 300 feet after moving the setback. The closest disposal area is about 395 feet to the east and on the southern portion, where there was a 400-ft. buffer, the actual waste footprint is about 460. Some small revisions on distances and size resulted as they took the site plan to the next level to make sure everything graded in properly. He showed a diagram of the proposed entrance off Old Cedar Falls Rd. He said that the distance is approximately ¼-mile from the facility entrance to the scalehouse area where trucks are inspected and weighed. This would allow some 17 trucks to queue. Also, there is very hilly terrain as soon as you turn the first corner after entering the facility, putting the elevation of trucks at about 10 feet lower than Old Cedar Falls Road, so it effectively mitigates the noise impacts since they are at a much lower road grade. He showed a diagram of the proposed facility, which included the scale house, office/maintenance buildings, active disposal area (about 1-acre) at any given time, storm water ponds, and the area to manage leachate prior to it being pumped offsite. He noted that power lines would be re-located to the western portion of property and pointed out some potential areas for soil borrow for operations. He also pointed out an area that has been identified as a good area for landfill gas management where a gas to energy facility plant might be located. Mr. DiFrancesco noted an access back to the old closed landfill site/transfer station/sanitary sewer pump station, where leachate would be handled by pumping offsite through a pump station to minimize the number of trucks coming into the site. A location for a forced main has been identified.

Ms. Kirkman said that the Environmental Impact Study has been submitted to the state clearinghouse. She displayed a double sided copy of the document, which is quite significant in terms of the data and the analysis that are required by the state clearinghouse to go through this process. Pending tonight's outcome, there would be a submittal of a geotechnical hydrogeologic report, and some finalization of the conceptual site plan, which will help the County obtain better cost estimates while going through the RFQ process for selecting an operating partner. She said that all this data can be used to the County's benefit to help narrow in these costs. These data are also required as part of the site suitability plan. The site suitability report would be submitted, then the facility plan and design hydrogeoloic report, then the next steps would be the RFQ, followed by the application for permit to construct the landfill. She reminded everyone that there

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will be many more opportunities for public comment: a hearing for the state agencies, including NCDENR, and a public hearing for the franchise agreement with the operating partner.

Commissioner Haywood asked where the leachate would be pumped to (offsite).

Mr. DiFrancesco said that it would be pumped to a sanitary sewer pump station and eventually discharged to the City of Asheboro's water treatment plant.

Commissioner Haywood asked if we had an agreement with the City to take that leachate.

Ms. Kirkman said that there had been some preliminary discussions with the City and that data had been provided to give them an idea of the composition of leachate.

County Manager Richard Wells confirmed that the City is willing to take the leachate, even if it has to be pre-treated. He added that many mills and plants still have to pre-treat waste before the municipality will take it into their sewage system. Mr. Wells said that all the buffers are no-cut buffers and most of them are trees.

Ms. Kirkman said that there is a lot of existing natural vegetation including some mature hardwood, and it's quite common to supplement vegetation of areas for visual and noise screening between any potential resident and the landfill activity.

At 7:30 pm, County Attorney Ben Morgan read aloud the rules of procedure and conduct for the public hearing on the proposed regional landfill, as follows:

"This public hearing is being conducted to comply with two state law requirements. First, pursuant to G.S. 153A-136(c), the board of commissioners seeks input from any citizen on the alternative site analysis conducted by Golder Associates. This study was presented in detail at a public meeting on February 7, 2011, and the materials have been available through the county manager's office and public works department since then. The same materials presented in 2011 are here tonight and the presentation you will hear in a moment will address it again.

Second, pursuant to NC Administrative Code 15A NCAC .1618, the board of commissioners must decide whether to approve a landfill at the proposed location. Although a special use permit was issued by the planning board, the final decision whether to approve the landfill and to submit an application to NCDENR belongs to the Board of Commissioners.

If you have submitted written comments, your comments have been forwarded to each member of the board of commissioners.

Anyone who wishes to speak will need to sign-in with the clerk and provide your name and address. If you have written materials for the board, you should also give a copy to Ms. Ivey, Clerk to the Board, for the record.

When you step to the podium to speak, you must repeat your name and address clearly.

Public comments will be limited to one appearance per person.

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Each commenter will be limited to three minutes of speaking time in order for all interested citizens to have the opportunity to speak."

Chairman Holmes opened the public hearing and invited citizens to speak.

Ronald Hudson, 1018 Hudson Lane, Asheboro, said that he lives near the proposed site. He went to Troy to see that landfill that is said to be similar to what will be constructed here, if approved. He said he met 10 trucks on the road to the landfill before 7 a.m. He also observed 21 more trucks going in and out of the landfill, before 8 a.m. Mr. Hudson said that in one of the meetings, one of the experts said that there would probably be no trucks before 8 a.m., but he observed 31 trucks before 8 a.m. at the Troy landfill. He was told most of the noise would be during the construction of the landfill. But, when he sat outside the Troy landfill, he heard trucks hauling dirt and saw the dust from the trucks. He also said he could smell a little methane in the air, but mentioned that he doesn't know if that's harmful to a person's breathing. He also said that his cousin's wife said that she saw them burning it (the methane) at night. Mr. Hudson said he heard noise from Jake brakes inside the site, even without his hearing aids. He said he remembered at the first meeting, the expert commented that the trucks would be in a cage-like area to keep the birds from scratching the material, which wouldn't be too practical. When the special use permit request was presented to the Planning Board, it had been changed to a 50-ft high fence. He didn't see any birds at the landfill. Mr. Hudson said that the County Finance Officer mentioned this landfill would bring in $1 million to the County; the lawyer said $3 million. Mr. Hudson also mentioned that the liner has been changed.

Robert Morrison, 1735 Viewmont Ct., Asheboro, said that he had listened to the same presentation that the Board did and heard a lot of technical statements indicating that this landfill is going to be safe. A question he urges to ask is, "Who guarantees those statements? Twenty years from now, if there is a leak or damage to land or water or air, who stands behind it?" If the answer is nobody, he hopes the County buys insurance to protect those landowners nearby. The threats of serious and environmental damage and risk of public heath and the certainty of aesthetic damage begins as the landfill is constructed and continues for generations after it's full. A full landfill produces only risk, not revenue. Mr. Morrison said he understands the need for jobs, for economic development and tax revenue and expense reduction, but he thinks there are better ways to get there than a landfill. He said he would like to see county government very active in economic development and strategic planning with a vision statement and goals for what we need to achieve and a plan for how to do it and how we can work together for those goals. He said that the County has participated with RCC, YMCA, the hospital, downtown Asheboro, senior adults, and other places. He said that our county is full of good people who work hard. We need leadership and realistic optimism from our elected officials. He said there are many people in attendance tonight, and others throughout the county who would work to back a sound plan for economic development. He said he hopes the Board will drop the landfill idea before spending any more money or any more time and engage the people of the county in a planning and goal setting process to determine how we can grow and thrive in the future. If we develop that vision and if we believe in ourselves, according to Mr. Morrison, Randolph County can be a leader in growth, development and quality of life. But, who wants to locate their new business to a county whose best economic idea is a landfill? He encouraged the Board to share the faith in a bright future. Instead of trying to win a race to the bottom by dedicating our land as a cemetery for other people's trash.

Jim Meredith, 5326 Ramseur Julian Rd., Liberty, said that he and others oppose the landfill and think it's a bad idea for Randolph County. He said they are convinced it will cause serious long lasting

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harm to our image, to our people, and to our environment. It's not our job to say where the landfill should be located, but it's our job and our responsibility to say that it should not be located here. There may be better sites elsewhere and that's someone else's job to find them. He said we're home to the zoo; we have our beautiful mountains, rivers, streams, countryside, and our farms. People come to visit this area and enjoy it, and they bring in tourist dollars. People retire here and enjoy living here. Mr. Meredith said he thinks that the landfill is going to damage our image, our reputation and will bring financial hardship to businesses and individuals who depend on tourism. Real estate values will be reduced. There are also traffic and health hazards. Large truck traffic will make driving more hazardous on 64 and 220, and they're not particularly safe now, as we've all seen accidents there. Adding scores more large trucks will not be helpful. Also, in the vicinity of the landfill, diesel fumes, dust, air pollution contributed by the traffic and air pollution from the landfill itself will harm the health of people nearby and will damage pedestrians and wildlife. Also, there is the potential for water pollution. With all respect, there are no 100-year-old or 400-year-old liners. None of us are going to be around to prove that they didn't leak. Finally, he said that they do applaud the commissioners' effort to find ways to reduce fees and avoid tax increases. But, they don't think the landfill is the way to do it.

Rashidi Everette, 427 S. Main St. Asheboro, said that he is a Vietnam vet, and has lived here in Asheboro except for the time he was in the service. He said his question is, do any of the Commissioners live within the 3- or 4-mile radius of a dump or would intentionally move to within a 3- or 4-mile radius of a dump? He said he personally believes that the Board has not gotten enough negative information concerning the bad fallout of this dump. What about the wildlife? How will they be affected? Will they become vicious animals, running into the city? Will they multiply more rapidly than we can handle? He thinks that we should consider the health risk of each citizen in Asheboro. He said that if you can smell it, it's harmful. He thinks that everyone will have a better life without this dump and hopes the Board will honor the citizens' requests.

Janet Pate, 3901 Hillsdale Park Dr., Sophia, said that the High Point Enterprise, Greensboro News and Record, and Asheboro City Council talk about WHEN the landfill opens and the Randolph County Commissioners and local news talk about IF, not when. Ms. Pate said that government is supremely unqualified to engage in business and we need look no further than the 51 cities who entered the utility business back in the 70s to see this. Their citizens have paid 15% more for power in the past four years. She said that *My Connection* is a cable company created in Davidson County seven years ago under similar circumstances as the proposed landfill. The end result is about a $90 million liability to the taxpayers and their best quarter was a negative $1 million profit. *My Connection* has never made a profit, has poor customer service and costs more than cable service elsewhere. When elected officials asked about the poor performance of *My Connection*, they blamed business consultants. They claimed the consultants led them down a primrose path. Ms. Pate next talked about the Welcome Centers in the southern part of county. She said they started out as a contract-operated enterprise like the proposed landfill, lost tens of thousands of dollars, and now government runs the Welcome Centers at a large price to taxpayers. She reminded the Board that the Welcome Centers were supposed to be self-supporting. Ms. Pate said that government does a handful of things well, but running a business is not one of them. According to Ms. Pate, government never needs to be in business for itself or compete with private enterprise. She said that if we ever derive any revenue from this proposed landfill, the Board intends for it to be the County's cookie jar, but plans don't include any provisions for technological advances. She said if the landfill opens, it will be only 15 years before consumer technology renders it obsolete, and taxpayers will be responsible for the maintenance bill from then on. It's apparent that our Commissioners want to make a decision that will only affect the budget 2%, but it could go the other way much more.

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Nick Davis, 240 Shady Grove Rd., Pittsboro, spoke on behalf of the *Orange County Voice*, of which he is a Board of Directors member, and *Preserve Chatham County*, a group that was formed in 2010 when a regional landfill was proposed in Chatham. He said that at that time, there were many groups who opposed the landfill for the same reason as in Randolph County now. The proposal from the Richardson Smith Garnder study suggested that Randolph County would be Chatham County's partner in filling the regional landfill. Now he said he was here with Chatham subject to be a partner with Randolph County for a regional landfill, which is Whac-A-Mole. He said every time he turns around, there is another regional landfill popping up, and it's environmentally insensitive due to social justice issues. It's not a good idea. He argued that you've got 30 years of landfill life and then 60 more years of monitoring and then only have to monitor 30 years. He asked the presenters about their cost comparison of tipping fees to a landfill for waste to energy, which they dismissed because tipping fees are more for a waste to energy plant. But, according to Mr. Davis, what they didn't tell say was that a waste to energy plant brings capital investment to the county and pays taxes, and they produce electricity. He did hear them say that they do produce 10% ash and ash has to be disposed of. But it's an odd comparison when they compare only tipping fees and don't allow you to hear the other benefits. Mr. Davis said that leachate going to the wastewater treatment plant is another question. According to Mr. Davis, wastewater treatment plants are not able to treat chemicals. This leachate is all chemicals. We don't know what it consists of.

Pam Cooper, 618 Libra Place, Randleman, said that she is one of people who can't walk across the street in 5.5 seconds on a cold rainy day with a brace on her knee. Numerous people told her that this is a done deal, and we're too late. It's already been bought and paid for. She said that several risks have been mentioned. What kind of liability insurance is the County planning to have in the case of a large truck that can't stop before it gets to a stopped school bus, or in case fugitive methanes from the landfill catch fire or in the case of a huge smoke disaster that forces people out of their homes for weeks. The other thing about the waste to energy comparison that was overlooked is that those are used in areas that have very expensive land. They are used in coastal Florida, Orlando and Miami, and northeastern states where everything is more expensive. How does that difference in the waste shipping and tipping fees compare to the difference in the cost of land and income in those areas? She said that $15 more for garbage to someone who is used to living in a $5 million house is nothing; it's not an apples to oranges comparison. They don't use landfills. They build industrial areas that already have an electrical grid that has heavy highways for trucks and rails. They would not consider this landfill property. It's a whole different thing. But they could build it at no cost to the county. Ms. Cooper said that we've already spent $1.4 million and we're still going. It would be about five years before we get any income from it. The sound of the diesels was really dismissed as being like a garbage disposal. Not many have 10 in their kitchen and turn them on at 7:30 am and run them all day.

Therese Vick, 4617 Pearl Rd., Raleigh, spoke on behalf of the Blue Ridge Environmental Defense League and said that she joins others in Randolph County in opposition to the regional landfill. There are too many questions left unanswered and the presentation tonight didn't answer them. She told the Board that they can say no right now and can stop throwing good money after bad and listen to their people. They're the ones who have to live with this. But at the very least, she asked the Board to enact a one-year moratorium on this process to look at the questions that the community has raised at the Planning Board meeting, in the media and privately. She asked the Board not to depend on a consulting firm who are only doing what the County wants them to do. She also asked what impact will the landfill have on local control? Empty space in a publicly owned and operated single county landfill is an asset. Empty space in a regional landfill is a hole waiting to be filled. What

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true impact will there be on public health? What will be the impact of siting a new landfill at the same site as an old landfill, which is currently contaminating groundwater? How much is that already costing the County to monitor that? What will the County's ultimate liability be forever? How does the siting of another landfill in same area impact people's quality of life and environmental justice? She suggested going to the EPA website site to use the EGA mapper to look at the vicinity around the landfill. Also there should be a thorough investigation of the track record of companies who are being considered to operate the landfill. Listen to your people.

Virginia York Halverson, 1908 Leonard York Dr., Randleman, urged the Commisioners to abandon plans for a regional landfill in Randolph County. Abandoning this plan will help salvage Randolph's reputation for leadership, which is now in shambles. This plan, if implemented, will go down as the rape of Randolph County, its land and natural resources, animal habitat and birds and most especially, its people. It will be an assault forced upon the people and character of Randolph County. Taking this plan off the table should help remove some of the cynicism surrounding Randolph's government and the firm belief that this has been a done deal all along. Especially when we have heard that NCDENR was in on the original proposal with Randolph officials. How can there be any objectivity from a state department that must issue a permit for a landfill when its purpose all along has been to get the landfill into operation. Of course, the Randolph Planning Board made it easy for the NCDENR by approving the necessary zoning permit. I doubt seriously that any persons in leadership positions who have been swayed in the landfill plan have done any private research to gather information and compare studies with paid consultants hired by the County. Ms. Halverson said that one of the most disturbing stipulations from the Planning Board concerns onsite education at the landfill for students. How could any responsible group of adults knowingly approve exposing young people to the chemicals and germs at a landfill, much less one that will generate 1500 tons of garbage a day? Ms. Halverson commended Wayne Joyce of the Planning Board for voting to deny the special use permit. She said that we study ethics and we learn what is good and right. The landfill is not good and not right. No community should have to be taken advantage of by something of this magnitude, adding that one might say that it is unethical to force something that is harmful and unsafe on people who pay taxes hoping for informed representation that doesn't buckle to the political pressure from the big boys from the state. She also commended Commissioner Stan Haywood for his stand against the landfill.

William Henley, 3213 Old Cedar Falls Rd., Asheboro, said that he is probably the closest resident to the landfill, adding that the entrance road is within the buffer behind his house. He is concerned with the safety of his family who live on the property with him. He has two adult children who have children. He said that there are flaws in the traffic study that said that there were no school buses on this route. His grandchildren got on the bus that morning and got off that afternoon. It's over a blind hill that you can't see over. No one has done a study on it. The Planning Board required a study on site distances on this road, but it hasn't been done. He asked if a moratorium should be put into place to figure out if the road will be safe. He also said that he found out at the Planning Board meeting that there isn't enough soil onsite to cover the trash; it will have to be imported. That wasn't included in the 100-truck estimate. He asked how many loads of dirt would it take to cover one load of trash? He has lived 47 years at his and his children's home. This will ruin his life.

Kim Markham, 963 Edge Ct., Asheboro, said that if the Board moves forward with this, he challenged them to go to the highest level possible, utilizing as many Randolph County companies as possible, although he realizes there are limitations based on experience levels. He said that he supports the landfill based on the economic side, which is in creating jobs. He is a small business owner with

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28 employees, down from 30. Every day he tries to come up with a way to create more jobs. It's hard to find jobs and create jobs in this county. He said that he supports it either way and admires the Commissioners for having to make the decision and for giving the time they're giving. He stressed that we've got to provide jobs and put people back to work in this county.

Dwight Ayers, 3686 Old Cedar Falls Rd., Randleman, said that he admired the Commissioners and considered them as men of honesty and integrity and character. This is a matter of morality, and asked which is most important: health and welfare of citizens, or a few cents on the tax evaluation? He said that he remembers that Judas Iscariot had to make a decision years ago and hopes the Board's decision is much wiser than the one he made.

Reynolds Lisk, 1763 Old Lexington Rd., Asheboro, spoke in support of the landfill, although there have been many good points against the landfill. However, he said that if the Board votes to move forward with this, he hopes they will consider all the safety aspects. He commended the Board for taking this on, primarily from an economic standpoint. He's a small business owner in the insurance business, and he sees a lot of commercial clients who are having a hard time. There have been a lot of lost jobs in Randolph County. Real estate values are down. He said that about five years ago, 44% of the revenues in the County's budget came from property tax. But now, we're looking at 54% and it appears to be increasing. Anything that we can do safely to alleviate the increase in our property taxes, he supports. He said that his FICA tax has gone up this year, along with income taxes. The Affordable Care Act is going to create more taxes in 2014 going forward. The City of Asheboro has already announced that they will be increasing property taxes next year. He's not sure how much more citizens can take from that standpoint when every penny of taxation takes thousands of dollars from our economy. If the landfill can be done safely, he supports it, and from what he has read, it appears that it can be. He knows the Board will consider that.

Michael Trogdon, 3463 Old NC Hwy 13, Asheboro, said that any county that's worth its weight would certainly hire those to come and share all the technical aspects of what they want to do. Studies that he's done and read said that the things that were not supposed to happen, happen. He said that it's never smart to promise anything. He said that this liner is expected to do this, but the reality is that you can't guarantee anything. If the landfill does come here, and it does not hold up to what it's supposed to do, the most we can say is, oops, or I'm sorry. And then it becomes the responsibility of the taxpayers to insure the welfare of our community. So simply based on the fact that you cannot insure the reliability of this landfill, he prays that the Board will think twice before accepting a license.

William Dula, 1320 Randolph Tabernacle Rd., Asheboro, said that all the commissioners were good men, but they just have some bad information. He thanked Terry Brindall, Gary Grant (NC Environment Justice) David Caldwell, Denise Spurlocker (UNC Chapel Hill) City and Regional Planning Commissioner Mark Dornan, NC Chapel Hill School of Law, Rev. Trogdon and Christopher Henney, from Johns Hopkins University. He presented a map from the E. J. Hugh Environmental Justice Office at NC State showing one mile, 36 percent minority; three miles, 36 percent minority; two miles, 35 percent minority. He said he didn't know where the consultants got their figures. He said a slide was displayed that said that hay was worse than landfill gas. According to Mr. Dula, that study was done in the 70's in England. At the Planning Board meeting, they were told that presenters couldn't use anything that was done in South Carolina, but now they're being allowed to use a study from England. He referred to a study done by Dr. Christopher Henney from National Institute of Health in 2012 in Chapel Hill, that states that if you can smell it, it will make you sick. It's the stuff that's underneath the smell that makes you sick. He then referred to the traffic study that the

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County paid $58,000 for, but Mr. Dula said that the traffic study folks weren't smart enough to figure out that we have the city schools system; they only used the county. They did their math, but they missed it. They estimated 90 trucks coming one way and 20 the other and they came up with a total of 200 trucks, which doesn't add up correctly. Mr. Dula recalled someone saying two trucks turned over on Henley Country Road, but they didn't say they were landfill trucks. He said that NC State HB 1492 says what a landfill can and cannot do. It says a landfill cannot be built within five miles of a national wildlife refuge or two miles of a state park. But, it can be built 3.5 miles from a hospital and two miles from a school. He asked the Commissioners if they were going to disregard Dr. Koslow and his recommendation. Mr. Dula introduced 11 exhibits into the record.

Dean Brooks, 2777 Old Cedar Falls Rd., Asheboro, said that he lives within 1¼-mile of the proposed site. He appreciates the Board's objective attention to his statements. He moved to the county from the city for better water and air quality. He's had radiation resulting from asthma, bronchitis, allergies, emphysema, and COPD. This will only contribute to further poor air quality and toxins in the area's drinking water. He said his immune system has been compromised as it is. He asked the Board to consider this proposed landfill site as if it was in their immediate neighborhood and if it was their families' health in jeopardy. He's seen in that area old broken batteries in water pools. There are wildlife that drink from area streams and pools, which are possibly contaminated with the broken batteries. These game animals are also wildlife that are harvested and consumed by humans. He referred to a water analysis dated 4/25/13 from the NC State Laboratory of Public Health and said it would be interesting to see this same analysis two or five years in the future, to compare what the levels are then and who would be liable and responsible for that? There are better ways to bring money into Randolph County. Is real estate value going to go up because of the proposed landfill?

Addie Luther, 828 MLK, Jr. Drive, Asheboro, said she lives on the east side of Asheboro. She spoke against the regional landfill coming in her front door. She said that on the east side they already have the odor from the NC State Zoo because of the sewage line running through her neighborhood. She said that they gave them a telephone number to call when the odor gets unbearable. They have had to call, especially in the summertime. She asked the Board to please not dump another odor that close to Eastside Asheboro.

Duffy Johnson, 1184 Cedar Creek Dr., Asheboro, said that he knows what a difficult decision the Board faces and that there are many factors involved. He said he knows that the Board will do what's best for the citizens of this county. He said that after reviewing much of the available information on the project, he has reached several conclusions. By law, local governments are required to have a solid waste solution: a plan for dealing with solid waste. Randolph County does not have sufficient solid waste to operate a modern facility solely for the benefit of Randolph County citizens. Establishing a regional landfill will create a new revenue source for the County. The County would be re-using an underutilized asset in property that is currently available. Revenues generated by the regional landfill would reduce the pressure on our property tax rate by expanding the revenue base available to fund local public service projects. The county would hire an outside company, experienced in the operation of a regulated landfill. The facility would create much-needed jobs here. The landfill operator would spend millions of dollars here that would result in additional indirect jobs. The County would have a cost savings by eliminating the need to transport our solid waste to an outside facility. Local residents would see savings for their own solid waste disposal needs. The county would retain ownership of the land and control of the facility. NCDENR would mandate strict enforcement of all rules established by the NC Solid Waste management division. There are many economic benefits to establishing a regional landfill here to include new jobs, growth and development, and cost savings for the citizens,

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and a broader revenue base for the county. He said that he believes that the controls and the guidelines that have been proposed are sufficient to protect our citizens. Based on these factors, he supports consideration of a new regional solid waste facility in Randolph County.

Jeff Marotto, 1200 Skyline Dr., Asheboro, said that the County has got a great site to build a defensible fort, but as far as a landfill, there is running water on three sides; you would be building a landfill on a peninsula. If something should go wrong, all that pollution is going downstream. He asked the Board if they were prepared for the suits of all of the counties downstream that will come this way if it does fail. Remember, the Titanic was unsinkable, and the Trade towers should never have crumbled. He said he could probably think of 100 other technological things that should never have failed, but have. He said that we're taking the word that something is going to last 450 years. "How do they figure that out? Have you had it for 450 years and it hasn't failed? Or, are you just making a guesstimate? Folks, I grew up in North Jersey. You want to talk about landfills? They smell. They're 300 feet high piled with garbage that you see every day. We have just gotten Asheboro the certification to be a destination for retirees. And you're turning it in to Trasheboro, the place nobody wants to move to. The Deep River has a wild hog population running on it. And you're putting 1500 tons per day of garbage for them to feed on? Folks, common sense says trash has to go somewhere and I'm not against you guys thinking of a better place for it. Why don't you just dump it in the ocean because you're going to get it in that body of water one way or the other." He said he's not an environmentalist, but he is a conservative and understands the need for these things. Somebody has to put it in their back yard. Someone has to live with it. But to put it right on the edge of a town that's making some moves to increase its economy, there's got to be a better place to put this.

Melvin Marley, 890 Lansdown Rd., Asheboro, said that there is already a mess in his neighborhood off of Presnell St. He said they hear trucks all day long, and some heavy earth moving equipment. He strongly suggests not putting it in his neighborhood, because his wife is bothered with asthma. Also Old Cedar Falls Rd. is not capable of handling big trucks. There have been four people killed because it's too narrow and because folks speed. He said, "We have petitioned to cut the speed limit in low rent areas to 25 mph, 45 and 55 mph off of Cedar Falls Road from Presnell Street all the way to Cedar Falls. That's not fair. We deserve to pull onto the highway without speeding cars." He said that they are taxpayers just like everyone else and deserve better than what they're getting. He moved to Asheboro in 1982 because he found a good job and he was a good worker. He asked the Board not to do this to them again. They've been through it already. "It's time for someone else to bear it. Does Asheboro really need this? No. This is not good. It's going to cause a lot of sickness and the health costs won't be worth the money because people have breathing problems. Why not work on something to make health better in this city rather than trash dump. It's a graveyard. We don't deserve that. Randolph County has prime land; we can do better and attract good jobs to this community. This isn't one of them. You're going to get some outsider to run it who doesn't give a hoot about Randolph County citizens."

Angela Moore, 1707 Berry Lane, Pleasant Garden, moved to Randolph County approximately 19 years ago and found it was a county she loved after living in Guilford County. It seemed Randolph County was more peaceful and cared more for its citizens. She asked the board to, instead of listening to a panel that the Board has paid, listen to the people who've elected the Commissioners in good faith.

Ronnie Pugh, 411 Hillview St., Asheboro, said that when dealing with a situation, it's good to ask oneself if it is a crisis or an opportunity. In most cases, we determine that by how we approach the

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solution. He said he owns property in this area and some will see this as a crisis. For those folks, the Board has the responsibility and expectations as a board to minimize any impact the project could have on property and lives. As to the opportunity side of this question, this project should impact the citizens in the county in an overall positive way. It should allow us to control our future and place us in an advantageous position with our neighboring counties. It should create jobs and help us maintain a lower tax rate. He said that we have the asset in place and he encouraged the Board to use it.

Josh LeRoy, 921 Sequoia Ave, Asheboro, said that he has lived in Asheboro for six years; his wife is from here and they love living here. He was raised in Chapel Hill where there is a road there called Rogers Rd., which is 90% African American. That's where their dump was. As a child, he said he remembered getting up on Saturdays and loading his daddy's truck with trash and going there and dumping their trash in someone else's neighborhood. Like everyone else in Chapel Hill, Carboro and Hillsboro, they took their trash to the black side of town and dumped it there and they didn't think about it. His family were good people, just as everyone else who took their trash to Rogers Rd. But he said that the problem is, bad things happen when good people don't think. He said that you can say all you want to about the demographics of that area, but if you're from here, you know where that dump is going. When he drives there, his eyes tell him a different story than 12% minority. That is not the case. He feels very strongly that the Board members are good people. He believes that the people who spoke in favor of the landfill are good people. But, bad things happen when good people don't let themselves think or feel clearly. Financial gain cannot be the only basis for this decision. He implores the Board to think and to feel.

Hope Moody, 3368 Carl Allred Rd., Franklinville, said that her question is for Reynolds and Mr. Pugh and Kim, who had already left and "the other gentleman, "Which one of these men asked you to come and speak tonight?"

Approximately 70 people stood in opposition to the landfill. Three people stood in favor of the landfill.

Chairman Holmes closed the public hearing.

Paxton Arthurs, Public Works Director, asked that the Board consider the resolution, which gives the history of the project to date and authorizes the project to move forward.

Commissioner Kemp made a motion to adopt the proposed resolution, which authorizes the submission of a permit application to NCDENR for a municipal solid waste landfill in Randolph County. Commissioner Lanier seconded the motion.

Commissioner Stan Haywood said that he is against the proposed landfill. He listened to the voice of the people, which is what elected officials are obligated to do, not necessarily to be swayed, but to hear. But one of the voices that we had already heard spoke the loudest to him, when Dr. Koslow presented science that told us that people who live within a mile of the site, long-term, would probably develop more allergies, and the older folks would probably have more asthma and COPD. He took an oath to protect the health of people when he graduated in 1968 from pharmacy school. The voice of the people and Dr. Koslow are loud in his ears. Perhaps the emotion of seeing his father die of COPD causes him to take the stand he's taking. But he thoroughly hopes that this Board will reconsider this and just say no.

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Vice Chair Frye said that when this process started, he stated at every meeting that dealt with this issue, he wanted to be informed and to know everything about the process and about this facility. He still has some questions that would need to be answered. He asked the County Attorney, "Is this the final vote? Where do we go from here?"

County Attorney Ben Morgan said that if you vote no, it's a final vote. If you approve the resolution, you're approving the application to NCDENR for a permit.

Vice Chair Frye said, "If NCDENR approves the permit, where does this board stand?"

Mr. Morgan said that if you have a permit, but you're not required to go forward until you sign a contract with a landfill operator.

Vice Chair Frye said that he still has some questions.

Following discussion, the Board voted, 3-2, with Haywood and Frye opposing, to approve the following resolution:

RESOLUTION APPROVING A MUNICIPAL SOLID WASTE LANDFILL

WHEREAS the Randolph County Board of Commissioners has authorized site studies to determine the suitability of a 667-acre site for a Subtitle D Municipal Solid Waste Landfill; and

WHEREAS, Randolph County staff has conducted numerous well-publicized and well-attended information sessions in 2011 and 2012, where members of the surrounding neighborhood, the county, the Board of Commissioners and the Randolph County Board of Health could ask questions of engineers regarding landfill construction, landfill safety and a modern landfill's effects on the surrounding areas; and

WHEREAS, the Board of Commissioners heard a presentation from Golder Associates NC, Inc. on February 7, 2011, presenting an Alternate Site Evaluation report, which was done in accordance with North Carolina General Statute 153A-136(c), showing the County property adjacent to the closed landfill to be the most suitable for landfill development based on several criteria and a county-wide search; and

WHEREAS, the Alternate Site Evaluation included a demographic review, which did not indicate that operation of a landfill at the existing landfill property would disparately impact any minority population or disadvantaged socio-economic group; and

WHEREAS, the Board of Commissioners heard the results of a Fatal Flaw Study prepared by Golder Associates NC, Inc. on February 7, 2011, which revealed that no significant technical issues related to airports; faults/seismic impact zones; state nature and historic preserve, national wildlife refuge, state game lands, and state parks; or water supply watersheds existed for the subject property, and that additional investigation was warranted for wetlands/streams/100-year floodplains; cultural resources and threatened/endangered species; and vertical separation from bedrock and groundwater; and

WHEREAS, the Board of Commissioners was presented a Market Study and Financial Analysis prepared by Golder Associates NC, Inc. in November 2011 for the proposed regional landfill, which presented that up to 1,500 tons per day of waste may be available from surrounding counties and that the capital investment may be recovered after a period of approximately 6 to 10 years; and

WHEREAS a Neighborhood Information Meeting was held on September 24th, 2012 in the Historic County Courthouse Meeting Room at 145 Worth Street, and approximately 60 citizens who owned property in the vicinity attended and/or made comments and asked questions; and

WHEREAS a well-publicized public information session was conducted on October 1, 2012 at the Historic County Courthouse where citizens from across the county could hear presentations from engineers and others and approximately 75 citizens attended and 15 citizens made comments and asked questions; and

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WHEREAS, two local newspapers, the Courier Tribune and the Randolph Guide, have published numerous articles over the past two years in an attempt to keep the public informed on the proposed facility; and

WHEREAS, County staff have made presentations on the proposed landfill to approximately twenty (20) civic groups and municipal councils in 2011 and 2012, providing the public opportunity at each meeting to ask questions; and

WHEREAS, at the request of a member of the Board of Commissioners, the Randolph County Board of Health advertised and conducted a public meeting on February 11, 2013, to hear presentations from engineers regarding the health effects related to landfill activities; and

WHEREAS, on March 7 and 8, 2013, the Randolph County Planning Board heard and decided applicant Randolph County's application for a Special Use Permit for a regional landfill which was attended by 117 citizens over a ten-hour period, and the Board found by a vote of five to one (5-1) that Randolph County had provided competent, material and substantial evidence that it met the requirements for the issuance of a special use permit; and

WHEREAS, Golder Associates NC, Inc. submitted an Environmental Impact Study for the subject property to the North Carolina Department of Environment and Natural Resources (NCDENR) on the County's behalf on April 12, 2013, which evaluates potential environmental impacts from landfill development at the subject property and associated mitigation measures, as well as socioeconomic factors; and

WHEREAS, Golder Associates NC, Inc. is in the process of preparing a Site Suitability Report and a Design Hydrogeologic Report based on field investigations that have been in progress since 2011 for submittal to the NCDENR upon approval of the Commissioners of this resolution; and

WHEREAS, in order to determine if the County wished to grant local approval and proceed with a landfill application through the processes dictated by N.C. Administrative Code, Subchapter 13B, Sec. 1618(5), the County issued press releases to radio, TV and newspaper media outlets and published notices in local newspapers that citizens could attend a public meeting at the Historic County Courthouse on May 6, 2013 to become better informed of the proposed waste management activities as described in the proposed Facility Plan and to offer information and comments to the Board of Commissioners on such activities; and

WHEREAS, the aforementioned public notices for the May 6, 2013 public meeting notified citizens where they could obtain or review copies of the preliminary Facility Plan drawings and other engineering details and where they could find information on a county website or by calling the county manager's office or calling a "Proposed Regional Landfill Information Line"; and

WHEREAS, the County also notified citizens that written comments could be sent to the County Manager, which written comments have been shared with the all members of the Board of Commissioners; and

WHEREAS, the Board of Commissioners opened the public meeting at the appointed time on May 6, 2013, and heard comments and questions from 24 citizens; and

WHEREAS, engineers from Golder Associates NC, Inc. were present to answer questions posed by members of the public and the Board of Commissioners; and

WHEREAS, after having heard and considered all comments at this public meeting and previous public meetings where many of the same citizens presented comments to the Board, and having received and considered written comments provided by members of the public, the Board of Commissioners, after due and proper consideration of all available information, determines that it is in the best interests of the County to grant local approval for the proposed municipal solid waste landfill;

NOW, THEREFORE, BE IT RESOLVED that the Randolph County Board of Commissioners hereby establishes and grants local approval for the proposed Subtitle D Municipal Solid Waste Landfill; and

BE IT FURTHER RESOLVED that the Randolph County Board of Commissioners approves the submission of all necessary materials to NCDENR as required by N.C. Admin. Code 13B .1600 et. seq. for NCDENR's consideration and review of Randolph County's application for a Subtitle D Municipal Solid Waste Landfill in Randolph County; and

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BE IT FURTHER RESOLVED that the County shall take initial and necessary steps to select a design-build operating partner.

Paxton Arthurs, Public Works Director, asked the Board to approve a contract with Golder Associates for additional engineering and assistance with the RFQ process to choose an operating partner (once we have received the Site Suitability approval from NCDENR) at a cost not to exceed $150,000 and to approve the purchase of the remaining property that is needed for this project, which includes: 42 acres from Eastside Baptist Church at a price of $252,000, and 90 acres from Judith & Darrell Bailey at a price of $629,400.

On motion of Kemp, seconded by Lanier, the Board voted 3-2, with Haywood and Frye opposing, to award a contract to Golder Associates and Budget amendment #37, as follows:

2012-2013 Budget Ordinance General Fund- Landfill Closure Fund- Amendment #37		
Revenues	***Increase***	***Decrease***
Appropriated Fund Balance	*$150,000*	
Appropriations	***Increase***	***Decrease***
Solid Waste Management	*$150,000*	

and to approve the purchase of the remaining property that is needed for this project, which includes 42 acres from Eastside Baptist Church at a price of $252,000, and 90 acres from Judith & Darrell Bailey at a price of $629,400, and Budget Amendment #38, as follows:

2012-2013 Budget Ordinance General Fund - Amendment #38		
Revenues	***Increase***	***Decrease***
Appropriated Fund Balance	*$881,400*	
Appropriations	***Increase***	***Decrease***
Public Works	*$881,400*	

Adjournment

At 8:55 p.m., on motion of Kemp, seconded by Lanier, the Board voted unanimously to adjourn.

J. Harold Holmes, Chairman

Darrell L. Frye

Phil Kemp

Arnold Lanier

Stan Haywood

Cheryl A. Ivey, Clerk to the Board

1 STATE OF NORTH CAROLINA
COUNTY OF RANDOLPH
2
3)
IN THE MATTER OF:)
4)
RANDOLPH COUNTY APPLICATION)
5 FOR A SPECIAL USE PERMIT VOTE)
_____)
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7
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10
11 PUBLIC HEARING HELD AT:
12 Randolph County Historic Courthouse
13 145-C Worth Street
14 Asheboro, North Carolina
15
16 Monday, May 6, 2013
17 7:00 p.m.
18
19
20
21
22 Reported in Stenotype by:
23 Regina Toppins, Court Reporter
Transcript produced by computer-aided transcription
24
25

1 RANDOLPH COUNTY BOARD MEMBERS
2 WILL MASSIE, Finance Officer
3 ARNOLD LANIER
4 DARRELL FRYE, Vice Chairman
5 RICHARD WELLS, County Manager
6 HAROLD HOLMES, Chairman
7 BEN MORGAN, County Attorney
8 PHIL KEMP
9 STAN HAYWOOD
10 CHERYL IVEY, Clerk
11
12 APPEARANCES:
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25

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1 CHAIRMAN HOLMES: The time is now 7 o'clock,
2 okay, 7 o'clock. We'll reconvene, and thank you for
3 your patience.
4 At this time we will have a discussion on
5 the regional landfill matters and the presentation by
6 Rachel Kirkman.
7 MS. KIRKMAN: Good evening, and thank you
8 for the opportunity to come and speak with you
9 tonight. I'm accompanied by Ron DiFrancesco, who's
10 going to help relay some of the engineering details a
11 little later in the presentation.
12 We'll try to keep our remarks brief tonight
13 and focus on some of the aspects that have come to our
14 attention, or have more detail brought about since our
15 last presentation in February to the Board, including
16 some information that was presented at the Special Use
17 Permit hearing and some other meetings that followed
18 that. We'd like to highlight some information, again,
19 just on general landfills, but focus a little later on
20 in the presentation about specifics to this facility.
21 And some of these have been revised a bit since more
22 recent public meetings. And just review quickly some
23 of the activities that are completed and remain for
24 the project.
25 And there's -- some questions have risen in

1 the community regarding other disposal options,
2 including waste to energy. And this is just a quick
3 schematic just to show you relative cost per ton for
4 landfills versus potential waste to energy.
5 Just for your benefit, this green column
6 here at the low end of the national average for waste
7 to energy facilities, and you can see the tip fees are
8 quite a bit higher than the blue, which is the
9 proposed regional landfill, and then for comparison
10 the current existing transfer station costs which show
11 in middle.
12 The reason I bring this to your attention in
13 specific is to emphasize waste to energy is a viable
14 technology, but the cost, again, the capital outlay
15 costs are in order to magnitude higher than building a
16 landfill, and it would be difficult to obtain a
17 competitive tipping fees and sustain that type of
18 technology in this part of the state and this part of
19 the country.
20 Also, there is approximately 10 percent of
21 the waste actually turned to ash, and then you have to
22 dispose of the ash, which can at times be hazardous;
23 with very stringent regulations. If the Board wishes
24 to consider this or other options, that could be
25 included as part of the RQF/RFP process, but this is

1 just to highlight the costs.
2 We'll spend a little bit of time just
3 reviewing the alternate site evaluations. There are
4 copies up front if anyone would like to see a detailed
5 copy. Just to remind the Board, this was presented in
6 February 2011 at the Commissioners Meeting, and this
7 information has been available for public review since
8 approximately November, of 2011.
9 This was completed in accordance with the
10 General Statute shown here. About 16 sites were
11 evaluated based on the criteria shown here, it shows
12 the size, topography, streams, and proximity to
13 infrastructure.
14 VICE CHAIRMAN FRYE: Ms. Kirkman, you didn't
15 include it on this screen, but in our handout, part of
16 your demographic review involved the idea that the
17 landfill would not disproportionally affect a ratio or
18 minority population. Is that part of your study, and
19 is that your findings that it does or does not?
20 MS. KIRKMAN: That's correct. I have a
21 slide in just a moment with that information, but that
22 is correct.
23 This is just a map of the yellow site here
24 is the current closed landfill of the transfer
25 facility as well as the proposed regional facility.

1 And this just gives you an idea of some of those sites
2 that was chosen during the study. That initial
3 screen, again, pared it down to approximately 16
4 sites, largely based on size. The secondary screening
5 then delves into some of the more specifics surface
6 water, floodplains, ownership, infrastructure. And
7 from that we pared it down to three sites, including
8 the proposed site, and based on some additional
9 criteria shown here, namely, proximity to the airport,
10 which is a Federal and State requirement. The
11 existing County landfill property was identified as
12 the most suitable for a landfill development.
13 To answer Commissioner Frye's question
14 regarding minority population, this is the green area
15 shown in here is the proposed facility. And then the
16 radius is approximately one mile with the more bright
17 orange colors representing the larger percentages of
18 minority populations. And you can see that there are
19 none adjacent to the proposed facility or along the
20 proposed traffic route.
21 And here's some of the information I
22 promised to present related to the demographic data
23 review. As part of the alternate site evaluation and
24 the environmental impact study, the demographic data
25 was reviewed in terms of minority populations and

1 socioeconomic conditions, and based on that, minority
2 population was not noted to be any higher than the
3 county average, nor was the median value of the homes
4 in that area. It was right at or above the county
5 average. So, based on these findings, our, again, our
6 assessment was that there was not an impact on these
7 groups.
8 You've seen this before, so I'll go over it
9 briefly. We have larger versions here if anyone wants
10 to take a look, but this is the proposed landfill. My
11 counterpart will describe a little bit more on that
12 about the liner system. Again, red is the leachate
13 collection, the gas collection. The blue representing
14 the storm water collection, and treatment, and
15 monitoring, and the green representing ground water
16 monitoring.
17 Again, there are many state and agencies
18 involved in the approval process for landfills. This
19 is to remind the Board that the proposed bottom liner
20 system exceeds the State requirement with the double
21 liner system with a leak detection zone. There are
22 notebooks with liner samples here up front if anyone
23 wants to take a look. And several agencies beyond the
24 Division of Waste Management are involved in the
25 regulatory oversight for landfills, including some of

1 those listed here.
2 As per landfill operations, again, under
3 DENR, for the Department of Environmental and Natural
4 Resources, was designed to help and protect the
5 environment under the approved program for the state.
6 Operators are required to have certifications, health
7 and safety training. And I'll note here some of the
8 typical concerns related to litter, noise, odor, dust
9 and animal control are heavily regulated by the state
10 agencies, and inspectors come out to ensure that the
11 facility is operating as it should be. And then
12 records are being kept for those inspections.
13 There's daily cover requirements to cover
14 the waste, and the waste area of actual exposed
15 materials is kept small to minimize these impacts.
16 This is a list of things that are not
17 allowed in landfills of this nature (household,
18 municipal solid waste). All of these things are not
19 allowed by State regulation and law. Some of these
20 are banned because of their chemical nature. They
21 could include some of the cleaners that you would keep
22 under your kitchen cabinet, Roundup that you would
23 keep in your garage, all the way up to regulated
24 things that are not allowed in landfills. Other
25 things are banned to encourage recycling, some of

1 those items on your right.
2 There are requirements for unauthorized
3 waste program which details the screening that's
4 involved with the incoming loads and the working phase
5 to landfill. That's what you see here, the person
6 here is helping inspect the load. You could see them
7 placing the daily cover over the waste. Again, this
8 is a DENR or a State approved program, training for
9 employees and penalties for improper disposal
10 activities, as well as contingency plans if things are
11 to make their way in there so they can be properly
12 disposed of at an approved facility.
13 There were some concerns raised at the
14 previous meeting, and we did a public presentation to
15 the Board of Health related to several human health
16 criteria, and a few of these are listed here for your
17 benefit. Again, we spoke at length with the Board of
18 Health and these are just some of the ones that were
19 highlighted based on some public comments. Related
20 things include fungi and bacteria, land filling or
21 waste handling even is very comparable to many of the
22 other types of activities that is already accruing in
23 the County. Textiles, the highest is actually
24 molding, handling molding hay, some
25 agricultural-related activities. I will note that

1 these pathogens decrease very rapidly with this
2 source, and having vegetated buffers also helps
3 minimize these to keep them on the property.
4 There was a presentation last month related
5 to the diesel exhaust. This was not a landfill
6 specific or even a waste specific presentation, but I
7 will note that the route that was chosen was chosen
8 for several criteria, including the distance of home
9 and the distance from the road to help minimize these
10 impacts. There were also some questions related to
11 gas composition again the gas is collected for
12 beneficial use for an energy project potentially.
13 There were some questions about mercury and this is a
14 graph showing that the mercury concentrations were
15 below the applicable standards.
16 I'm going to turn the presentation over to
17 Ron.
18 MR. DiFRANCESCO: Mr. Chairman, Members of
19 the Board, I want to review some information that was
20 presented to the Planning Board. In summary, one of
21 the questions that had come up was what are these
22 landfill, modern landfills, lined with. Well, they're
23 lined with a high-density polyethylene geo membrane,
24 okay. It's a high-density plastic similar to that
25 used in production of plastic bottles, corrosion

1 resistant piping, and plastic lumber. This graphic
2 shows the relative thickness to some of the common
3 things that you may be familiar with, such as, cans,
4 plastic sheeting, or even HDPE milk jugs. Geo
5 membranes are generally four to five times thicker
6 than those materials.
7 A previous question has also come up about
8 what is the life of these geo membrane liners in
9 landfills. Well, the half-life, according to the Geo
10 Synthetic Research Institute, the half-life is about
11 450 years. That means after 450 years the properties
12 have been reduced by about one-half. Well, let's put
13 that in perspective in terms of the liner's purpose.
14 The purpose is to protect the ground and the ground
15 water from leachate which is generated from the
16 moisture in landfills to getting into the ground. The
17 top graph, the top line on this chart basically shows
18 the half-life decay out to about 450 years of liner.
19 The blue line basically showed the leachate generation
20 of the landfill to where it peeks right to the end of
21 the life of the landfill and then diminishes after
22 that. So, in the scenario where the landfill has 40
23 to 50 years of life and diminishes at 100 years, it's
24 well within even the half-life of that geo membrane
25 liner.

1 There was a lot of discussion on seepage.
2 There was a lot of published information on seepage
3 through liner systems of landfills, and you'll
4 probably hear some of that tonight. Seepage is
5 predicted using an EPA model called a help model.
6 It's a hundred yard evaluation and performance model,
7 and it basically looks at the different stages of the
8 landfill, and it's water balance, how much water does
9 that transfer rate and how much actually goes down
10 through the liner system. And it also looks at liner,
11 quality of liner construction seepage rates.
12 Well, the numbers that we ran on this
13 facility predicted the seepage rate at about two one
14 hundred thousandths of a percent of what is produced
15 in terms of liquid in the landfill, okay. That
16 equates to about two cups of water in an Olympic-sized
17 swimming pool. And since this proposed landfill has a
18 leak detection layer, secondary containment layer,
19 that seepage is expected to be captured by that
20 secondary layer.
21 We also presented information to the
22 Planning Board on geo membrane liner testing, okay.
23 The proposed landfill bottom liner system not only has
24 one geo membrane, but it has three geo membranes in
25 its construction. The material, that geo membrane

1 material goes through stringent testing. The
2 requirements at the manufacturer, they basically
3 certify over 20 physical properties of that material
4 before it is even delivered to a job site.
5 Once it is delivered to the job site, the
6 construction quality assurance firm takes samples of
7 that material and it confirms what the manufacturer
8 says those properties are. And then upon installation
9 it's tested again for watertightness; all the seams,
10 all the welded seams are checked for airtightness and
11 watertightness. So, the geo membrane liner is tested
12 three times in the construction of a landfill.
13 We also presented some information on
14 landfill gas energy. This site is a viable project.
15 Landfill gas is used in a couple of different ways to
16 generate energy. Sometimes it can be used on site to
17 heat buildings that is a medium Btu type fuel. It can
18 be used to put into legal engines to generate
19 electricity, and it can also be refined on site to be
20 made available to a third party industry that may use
21 natural gas to fuel boilers or something of that
22 nature.
23 This site is probably a very good candidate
24 and is a good candidate for electrical generation.
25 The methane gas is collected through a vacuum system,

1 a series of vertical and horizontal wells that are
2 placed in the waste mast and a vacuum is applied.
3 That landfill gas is drawn out and then it is taken to
4 a building, which basically runs diesel, retrofitted
5 diesel engines to turn turbines which generate power,
6 and that's sold back into the grid.
7 There's a lot of landfill gas energy
8 partners out there. If you look at the EPA's methane
9 outreach program web site there's literally hundreds
10 of these partners out there. These are just a few
11 that are in the midland region that do landfill gas
12 and energy type projects.
13 Since we last met, since our presentation to
14 the Planning Board we went back and we refined the
15 master site plan for the landfill. There are boards
16 on the easels on either side, and we're going to look
17 at a few blowups in this presentation, but basically
18 last time we met we were at a little over 200 acres of
19 a landfill footprint. We have refined that some. It
20 has been reduced to about 198. It still is
21 approximately the same height, and it is approximately
22 45 million cubic yards of gross air space capacity.
23 Well, what does that mean? That is the
24 space between the bottom and the top, okay. You have
25 to account for your bottom liner system. You have to

1 account for your top capping system, and what's left
2 is available air space, which is about 43 million
3 yards to place waste in the daily cover. This is the
4 revenue generating ability of a modern landfill.
5 On site you reserve more than 8 acres or
6 store and water management ponds. And to put it in
7 perspective the typical disposal area is about one
8 acre in size compared to the 198 other acres.
9 So, you're not looking at a vast open
10 landfill, you're looking at a very small percentage of
11 the area as being operated at one given time. The
12 landfill has well over 30 years of life, 1500 tons a
13 day.
14 A traffic study was performed by CDM Smith.
15 Based on an upper limit of 100 trucks per day, this
16 represented only 1 percent increase to the road, the
17 existing road design capacity, it was a 1 percent
18 increase to that capacity. The road geometries were
19 suitable for the type of vehicles that are proposed,
20 and it was recommended that a left turn lane could be
21 put -- be designed to be put into the plans to turn
22 into the facility.
23 Also, there was a voluntary relocation of
24 mailboxes, reduction of speed limit, special use
25 permit conditions that were put into the permit at the

1 time the Planning Board approved this.
2 An update on the buffers we had spoken
3 before about the 300-foot buffer around the perimeter
4 of the property specifically on the eastern side. We
5 have moved that set back well within that 300 feet.
6 The closest disposal area is about 395 feet to the
7 east, and on the southern portion where there was a
8 400 foot, there is a 400-foot buffer and the footprint
9 is about 460.
10 So many small revisions in distances and
11 size came about as we took the site plan to the next
12 level to make sure everything graded in properly. And
13 I'm going to walk around this facility plan a little
14 bit. This is a blowup of where the entrance would be
15 off Old Cedar Falls Road. And put this in
16 perspective, this road comes in, turns to the right
17 and approaches the scale house area where the trucks
18 are inspected and weighed. This distance is
19 approximately a quarter mile, okay, so it's fairly
20 long.
21 There may be some questions about queing
22 capacity and be able to stack trucks up as they come
23 in. Well, you could literally fit 17 trucks along
24 this route, which is 17 percent of daily intake of the
25 trucks. They're not going to back up to that

1 magnitude, and you have plenty queing capacity on this
2 road. Also, when we laid this road out, this was the
3 most cost effective route to come in. It's very hilly
4 terrain through there. As soon as you turn this first
5 corner, the trucks, the elevation of the trucks is
6 about 10 feet lower than Old Cedar Falls Road, so it
7 kind of mitigates the visual and noise impacts because
8 as soon as those trucks wind out of that scale house,
9 they're at a much lower road grade than the
10 surrounding road area.
11 As it winds around, this is the narrowest
12 part of the floodplain where a bridge could be
13 constructed to cross to the creek in the floodplain
14 and then would come up into the landfill proper area.
15 Immediately into this area there would be
16 room for maintenance and office buildings. And here
17 you can see this is a one-acre square out of the total
18 footprint. This is about the size of the active
19 disposal area at any given time. So that kind of puts
20 it in perspective.
21 Moving a little bit further to the east, as
22 you can see some of these sediment ponds have been
23 located. There's an area to manage leachate prior to
24 it being pumped off site. The power lines would be
25 relocated to the western portion of the property, and

1 there are some -- borrowing for operation. Also this
2 area has been identified as good area for a landfill
3 gas management, which would be the gas energy facility
4 plant would be located there.
5 Moving to the north a little bit more and
6 working around the perimeter of the landfill, there is
7 access back over to the old closed county landfill
8 site as well as the transfer station. There is an
9 existing transfer and sewer through a pump station as
10 part of one of the SUP permit conditions. Leachate
11 would be handled via pumping off site through that
12 pump station to minimize the amount of trucks coming
13 in and out of the site. So we had laid out a force
14 main over to that station. That station would be
15 upgraded.
16 Moving back around to the north, as you can
17 see we stayed on the grading station within the
18 300-foot buffer. There's two more ponds to the north,
19 and there would be an access road that would slowly
20 wind up to the top of the facility.
21 MS. KIRKMAN: Just to conclude our
22 presentation, again, most of this information you've
23 seen before so I'll go over it quickly. Since we last
24 met, the environmental impact study has been submitted
25 to the State, and this notebook represents a

1 double-sided copy of the document. It's quite
2 significant in terms of the data and the analysis that
3 are required by the State clearinghouse to go through
4 that process to give you some perspective.
5 And pending tonight's outcome there would be
6 a submittal of a geo technical hydrologic report plan
7 and finalization of a conceptual site plan. And,
8 again, these numbers will help you better obtain more
9 precise and better cost estimates once you go through
10 the RFP/RFQ process of selecting an operating partner.
11 So all this data can be used to your benefit to help
12 narrowing those costs.
13 These data are also required as part of your
14 site suitability. So the site suitability report
15 would go in, the facility plan and hydro geological
16 report, and then the next steps would be the RFP/RFQ
17 which would be followed by the application for the
18 permit to construct the landfill.
19 And just to remind the Board as well as some
20 of the folks here tonight, lots more opportunity for
21 public comment, including multiple hearings for the
22 state agencies, including DENR, as well as hearings
23 that would be required from the franchise if we went
24 with our operating partner.
25 That concludes our presentation. Thank you.

1 COMMISSIONER HAYWOOD: Can I ask a question?
2 CHAIRMAN HOLMES: Sure.
3 COMMISSION HAYWOOD: You said leachate was
4 going to be pulled off site?
5 MR. DiFRANCESCO: It would be pumped over to
6 the sanitary super pump station by the transfer
7 station that eventually discharges to the City's waste
8 water plant.
9 COMMISSIONER HAYWOOD: And have we got an
10 agreement with the City to take that?
11 MS. KIRKMAN: There's some preliminary
12 discussions that the County has had with the City
13 folks, and we provided data to give them an idea of
14 what kind of composition to expect from a leachate of
15 this kind.
16 COMMISSIONER WELLS: Yes, sir, we have.
17 COMMISSIONER HAYWOOD: Okay, just wondering,
18 one of the folks from the City indicated to me that we
19 didn't have, so I don't know.
20 COUNTY MANAGER WELLS: I think, Paxton, you
21 met with them, even if the leachate has to be
22 pre-treated, that can be done too. I think a lot of
23 your mills and plants still sometimes has to pretreat
24 water before their municipality will take it into the
25 sewage system. We may have to do the same thing, but

1 it's fairly standard for the City to be able to do
2 that.
3 COMMISSIONER HAYWOOD: Okay.
4 COUNTY MANAGER WELLS: To clarify something
5 for the engineer's sake, but something I found that
6 people were confused about when you say "buffer," a
7 lot of people think a buffer could be a clear-cut
8 area, and all the buffers that we're talking about no
9 cut buffers. And most of them are trees; am I right?
10 MS. KIRKMAN: There's a lot of existing
11 vegetation including some hardwood within the buffer
12 area, and it's quite common to supplement any of the
13 vegetation and areas that might be along, you know, as
14 screening visual and as a noise screening between any
15 potential residences and the landfill activities.
16 It's quite commonly done, and some of those are shown
17 on the site plan.
18 CHAIRMAN HOLMES: Any questions? Any other
19 questions? Thank you.
20 MS. KIRKMAN: Thank you.
21 MR. DiFRANCESCO: Thank you.
22 COUNTY ATTORNEY MORGAN: Now we move to the
23 public comment section. The following procedures
24 shall apply to conduct for the public hearing. This
25 public hearing is being conducted to comply with two

1 State law requirements. First, pursuant to General
2 Statute 153A through 136C. The Board of Commissioners
3 seeks input from any citizen on the alternative site
4 analysis conducted by Golder Associates. This study
5 was presented in detail at a public meeting on
6 February the 7th, 2011, and the materials have been
7 available through the County Manager's office and
8 Public Works Department since then. The same
9 materials presented in 2011 are here tonight and the
10 presentation you'll hear in a moment will address it
11 again.
12 Second, Pursuant to North Carolina
13 Administrative Code 15A Subsection 1618, the Board of
14 Commission must decide whether to approve the landfill
15 at the proposed location. Although a special use
16 permit was issued by the Planning Board, the final
17 decision whether to approve the landfill and to submit
18 an application to North Carolina Department of
19 Environment and Natural Resources belongs to this
20 Board of Commissioners.
21 If you have submitted written comments, your
22 comments have been forwarded to each member of the
23 Board of Commissioners. Anyone who wishes to speak
24 will need to sign in with the Clerk, and provide your
25 name and address. If you have written materials for

1 the Board, you should also give a copy to Ms. Ivey,
2 Clerk to the Board for the record.
3 When you step up to the podium to speak, you
4 must repeat your name and address clearly. Public
5 comments will be limited to one appearance per person.
6 Each comment will be limited to 3 minutes of speaking
7 time in order to -- in order for all interested
8 citizens to have the opportunity to speak.
9 CHAIRMAN HOLMES: Let's begin the public
10 hearing.
11 THE CLERK: Ronald Hudson.
12 MR. HUDSON: I'm Ronald Hudson. I live at
13 1018 Hudson Lane, which is near the site. I sat
14 through several of the meetings, and I decided I
15 better go down and look at the landfill closest to us
16 to see what it's all about.
17 About two weeks ago I went down to the Troy
18 landfill, which is similar to what's going to be
19 constructed if it gets approved. I met 10 trucks on
20 the road to the landfill before 7 o'clock. I met -- I
21 observed going in and out of the landfill 21 more
22 trucks before 8 o'clock. The reason I mention this is
23 in one of the meetings the gentleman, the expert said
24 there would probably be no trucks before 8 o'clock.
25 There's 31 trucks before 8 o'clock in the morning.

1 That's at another landfill.
2 We were told that most of the noise would be
3 during the construction of the landfill. I sat
4 outside the landfill on the road. I could hear the
5 trucks that were hauling the dirt to be put on the
6 landfill. I could see the dust from the trucks. I
7 could also smell a little methane in the air, and I
8 don't know if the methane is harmful to your breathing
9 or if it's a cancer causer. I don't know what it is,
10 but I do know that my wife's, I mean, my cousin's wife
11 said that she saw them burning it at night. They're
12 not capturing hers, they're disposing of it with fire.
13 I don't know if burning it causes problems in the air.
14 I also heard noise from the shakers of the
15 trucks going into the site, not out on the main road,
16 but that was inside the site where there was a down
17 bridge like they're showing here. I took my hearing
18 aids out so they wouldn't be affected by them and I
19 could even hear them without them.
20 Also, when the trucks would go over a bump,
21 they would make a loud noise like a boom where they
22 do. The first meeting that I attended when they was
23 making their presentation to the Board, they commented
24 that the trucks would be like in a cage to keep the
25 birds from scratching the material, or the birds

1 getting there, and I thought later that didn't sound
2 too practical. When he made his presentation to the
3 Planning Board, they changed it to a 50-foot high
4 fence to keep trash and birds out. The reason I'm
5 mentioning birds, I didn't see any birds at the
6 landfill.
7 COUNTY ATTORNEY MORGAN: Mr. Hudson, 30
8 seconds.
9 MR. HUDSON: Okay, the next thing I saw was
10 the big thing. The Finance Officer commented that
11 they would bring in a million dollars to the County.
12 The lawyer in his presentation to the landfill said it
13 would be 3 million; that's another big increase. I
14 don't know if I have anything else for you or not,
15 that's just my comments that I observed.
16 Also, they mentioned between one meeting and
17 the next they changed the liner. I don't know if it's
18 been changed again or not. Thank you.
19 (Applause.)
20 COUNTY MANAGER MORGAN: Thank you,
21 Mr. Hudson.
22 THE CLERK: Linda Hudson, Linda Hudson.
23 MS. HUDSON: He can have my 3 minutes,
24 Ronald Hudson can.
25 CHAIRMAN HOLMES: Next.

1 THE CLERK: Robert Morrison.
2 MR. MORRISON: Hello, I'm Robert Morrison,
3 1735 Viewmont Court, Asheboro, North Carolina.
4 I listened to the same presentation you did
5 and heard a lot of technical statements indicating
6 that this landfill is going to be safe. A question I
7 would urge you as Commissioners to ask is who
8 guarantees those statements? 20 years from now if
9 there is a leak, if there is damage to the land, to
10 water, to air, who stands behind it?
11 If the answer is nobody, I sure hope you buy
12 insurance to protect those landowners nearby the
13 threats of serious environmental damage, and risk of
14 public health. And the certainty of aesthetic damage
15 begins as the landfill is constructed and it continues
16 for generations after it's full. A full landfill
17 produces only risk, not revenue.
18 I understand the need for jobs for economic
19 development, and for tax revenue, and for expense
20 reduction, and I think there are better ways to get
21 there than a landfill. I'd like to see County
22 Government very active in economic development, and
23 strategic planning, and a vision statement goals for
24 what we need to achieve a plan for how to do that and
25 how we can work together towards those goals. When we

1 agree, we get things done and you can see examples of
2 that. You participate in examples of that: The
3 community college, the YMCA, the hospital, the
4 downtown Asheboro, senior adults, other places, and we
5 do need to continue to move forward in difficult
6 times.
7 Our County is full of good people who work
8 hard. We need leadership and realistic optimism from
9 elected officials. There are many of us here tonight,
10 myself included, many throughout the County who would
11 work to back a sound plan for economic development.
12 With that in mind, what I hope you'll do is drop the
13 landfill idea before spending any more money or any
14 more time, and engage the people of the County in a
15 planning and a goal-setting process to determine how
16 we can grow, how we can thrive in the future.
17 If we develop that vision, and if we believe
18 in ourselves, Randolph County can be a leader in
19 growth development and quality of life. But who wants
20 to locate their new business in a county whose best
21 economic idea is a landfill? Please share the faith
22 in a bright future instead of trying to win a race to
23 the bottom by dedicating our land as a cemetery for
24 other people's trash.
25 (Applause.)

1 COUNTY ATTORNEY MORGAN: Mr. Morrison,
2 that's 3 minutes, that's 3 minutes.
3 MR. MORRISON: Okay, thank you for
4 listening.
5 THE CLERK: Jim Meredith, Jim Meredith.
6 MR. MEREDITH: Mr. Chairman, Commissioners,
7 I am Jim Meredith, 5326 Ramsewer Julian Road, near
8 Liberty.
9 And I'm speaking tonight as what I think is
10 one of the majority of the citizens of the County. I
11 also oppose the landfill. We think that it's a bad
12 idea for Randolph County. We're convinced that it
13 would cause serious, long-lasting harm to our image,
14 to our people, and to our environment. We don't think
15 it's our job to say where the landfill should be
16 located. It's our job and our responsibility to say
17 that it should not be located here. There may be
18 better sites elsewhere and that's someone else's job
19 to find them.
20 Randolph County's image is we're like the
21 home to the zoo. We have our beautiful mountains, our
22 rivers, our streams, our countryside, our farms and
23 people come and visit this area. They enjoy it, they
24 bring tourists' dollars, people retire here, they
25 enjoy living here.

1 We have heard earlier testimony about that,
2 and we think that the landfill is going to damage our
3 image, our reputation, and will bring financial harm
4 to businesses and individuals who depend on tourism or
5 the sale of real estate. We believe it will reduce
6 real estate values and we think that there are also
7 traffic and health hazards. Some of those have been
8 mentioned, but I'll repeat a few. Large truck traffic
9 would make driving more hazardous on Highway 64 and
10 220. It's not particularly safe sometimes. Now,
11 we've all seen accidents as we drive on those roads
12 and we are adding more large trucks, it's not going to
13 be helpful.
14 Also, in the landfill diesel fumes, dust
15 contribute to air pollution contributed by the traffic
16 in addition to possible air pollution from the
17 landfill itself would harm the health of people living
18 nearby. And the traffic would endanger pedestrians
19 and wildlife and other drivers.
20 We think also that there is a potential for
21 water pollution. With all respect --
22 COUNTY ATTORNEY MORGAN: You have 30
23 seconds.
24 MR. MEREDITH: Thank you. With all respect,
25 there are no 100 or even 400 year old landfill liners.

1 None of us are going to be around to prove that they
2 didn't leak. They might leak and we'll never know.
3 (Applause.)
4 MR. MEREDITH: Finally, in closing, I want
5 to say that we do applaud the Commissioners' efforts
6 to reduce fees and avoid increased taxes, we all
7 approve of that, but we don't feel the landfill is the
8 way to do that. Thank you.
9 THE CLERK: Edward Little, Edward Little.
10 Rashidi.
11 MR. EVERETTE: Everette.
12 THE CLERK: Everette.
13 MR. EVERETTE: Good evening. Before I start
14 I want to say y'all are a good looking group of men
15 here, very good looking. Give me 30 seconds warning.
16 My name is Rashidi Ayubu Salika Everette. I
17 live at 427 South Main Street here at Asheboro.
18 I'm a Vietnam vet. I've lived here in
19 Asheboro except for the time I was in the service. My
20 question to you gentlemen is do any of you live within
21 a three or four-mile radius of the dump? Would you
22 move to within a three to four-mile radius of the
23 dump? If I may call it a dump.
24 UNIDENTIFIED SPEAKER: That's what it is.
25 MR. EVERETTE: I personally believe that you

1 have not gotten enough negative information concerning
2 the bad fallout of this dump.
3 What about the wildlife? How would they
4 become affected? Would they become vicious animals?
5 Would they run to the city? Can you answer those
6 questions? Would they multiply more rapidly than we
7 can handle? I just think that we should consider the
8 health risk of each and every one of us citizens here
9 in Asheboro. I think that if you can smell it, it's
10 harmful.
11 I believe that you and I will have a better
12 life without this dump. I believe that me living here
13 and speaking to you, you will honor our request.
14 Thank you.
15 THE CLERK: Janet Pate.
16 MS. PATE: My name is Janet Pate. I live at
17 3901 Hillsdale Park Drive in Sophia.
18 The Hotwood Enterprise, Greensboro News and
19 Records, Asheboro and City Council, they talk about
20 when the landfill opens, and our Randolph County
21 Commissioners, Local News, they talk about if, not
22 when.
23 Government is supremely unqualified to
24 engage in business. We need to look no farther than
25 the 51 cities that entered the utility business back

1 in the '70s. Their citizens have paid 15 percent more
2 for power in the past four years. My connection is a
3 cable company created in Davidson County seven years
4 ago under similar circumstances as the proposed
5 landfill. End result is about a $90 million liability
6 to the tax payers, and their best quarter was a
7 negative $1 million profit.
8 My connection has never made a profit, has
9 more Customer Service and costs much more than cable
10 service offered elsewhere.
11 When the elected officials were asked about
12 the poor performance of my connection, they claimed
13 business consultants. And they claimed the
14 consultants laid the primrose path.
15 Let's look at welcome centers in the
16 southern part of our county. They started out as
17 contract operating enterprise just like the proposed
18 landfills telling the contract company how to run the
19 business. The result was the contractor lost tens of
20 thousands of dollars and now government runs welcome
21 centers at a large price to the tax payers. As a
22 reminder, the welcome centers were supposed to be
23 self-supported.
24 Government does a handful of things well,
25 but running a business isn't one of them. Government

1 does not now or ever need to be in business for itself
2 or compete with private enterprise. If we ever derive
3 any revenue from this proposed landfill, you intend
4 for it to be your cookie jar. Your plans don't
5 include any provisions for technological advances.
6 If the landfill is open only 15 years before
7 consumer technology renders is obsolete --
8 COUNTY ATTORNEY MORGAN: Mrs. Pate, 30
9 seconds.
10 MS. PATE: -- tax payers will be responsible
11 for the maintenance bill from then on. It's apparent
12 to me that our County Commissioners will make a
13 decision that will only affect the budget two percent,
14 but it could go the other way much more.
15 (Applause.)
16 THE CLERK: Nick Davis, Nick Davis.
17 MR. DAVIS: Good evening. Thank you for
18 allowing me to speak. My name is Nick Davis. I'm
19 from Chatham, 240 Shady Grove Road in Chatham County
20 in Pittsboro.
21 I'm speaking for Orange County Voice on
22 which I'm on the Board of Directors, and Preserve
23 Chatham County, a group that we formed in 2010 when a
24 regional landfill was subject to Chatham County.
25 There were many groups who opposed the

1 landfill for these same reasons that it's being
2 opposed here in Randolph County. And the proposal
3 from the Richardson, Smith, Gardener study suggested
4 that Randolph County would be Chatham County's partner
5 in filling the regional landfill. And here I am,
6 Chatham County subject to be a partner with Randolph
7 County in a regional landfill, and it's Wackamo. It's
8 just, you know, every time I turn around there's
9 another regional landfill popping up and it's
10 environmentally insensitive. It's socially -- it's a
11 social justice issues, and it's not -- it's just not a
12 good idea.
13 You've got 30 years of landfill life and 60
14 more years of monitoring, and I think they only have
15 to monitor 30 years.
16 I want to speak to the presenters before
17 about the -- about their cost comparison of tipping
18 fees to a landfill to waste energy. They dismissed
19 waste energy because the tipping fees are more for the
20 waste energy plant, but they didn't tell you that a
21 waste energy plant, it brings capital investment to
22 the county, they pay taxes and they produce
23 electricity.
24 Now, I did hear them say that they produce
25 10 percent ash, and ash has to be disposed of, but

1 it's an odd comparison when they just compare tipping
2 fees. They don't get the other -- they don't allow
3 you to hear about the other benefits.
4 Leachates is another question that I have
5 about going to the water sanitation, the water,
6 municipal water.
7 CHAIRMAN HOLMES: Waste water.
8 MR. DAVIS: Waste water treatment plants
9 were not able to treat chemicals, and this leachate is
10 all chemicals. I mean, it's a chemical compound that
11 we don't even know what it is.
12 COUNTY ATTORNEY MORGAN: Mr. Davis, 30
13 seconds.
14 MR. DAVIS: Thank you very much.
15 (Applause.)
16 THE CLERK: Pam Cooper, Pam Cooper.
17 MS. COOPER: I'm Pam Cooper. 618 Libra
18 Place, in Randleman.
19 I'm also one of the people who can't walk
20 across the street in 5.5 seconds if it's a cold, rainy
21 day. I have a brace on my knee, but numerous people
22 have told me that we're all too late, this is a done
23 deal, it's bought and paid for. Whatever, I don't
24 care. I'm a baseball fan, and it ain't over till it's
25 over.

1 (Applause.)
2 I would like to know there have been several
3 risks that have been brought up and one of the things
4 is what kind of liability insurance and liability is
5 the County planning to have in case of a large truck
6 that can't stop before it gets to a stopped school bus
7 and the guy has to just decide where to aim it? In
8 case of fugitive methanes from the landfill that catch
9 fire and they just have to -- there's nothing that can
10 be done, they have to just burn out, and you're going
11 to have a huge smoke disaster that may force people
12 out of their homes for weeks. This has happened in a
13 lot of places. So, that I think will be a lot of the
14 liability for the County.
15 The other thing about the waste to energy
16 comparison that was overlooked is that those are used
17 in areas that have very expensive land. They're used
18 a lot in California, they're used like in coastal
19 Florida, like Fort Meyers, and Orlando, and Miami; a
20 lot of northeastern states where everything is more
21 expensive. How does that difference in the waste
22 shipping and tipping fee compare to the difference in
23 the cost of land and income in those areas? You know,
24 $15 more for garbage to someone who is used to living
25 in a $5 million house is nothing. So, it's not an

1 apples and oranges comparison.
2 Some of those will build, they don't use
3 landfills, they build in industrial areas that already
4 have an electrical grid that have heavy -- the highway
5 for the trucks and rails. They're not considered this
6 landfill property. It's a whole different thing, but
7 they could build it no cost to the county. And I know
8 we've already spent $1.4 million and we're still
9 going. And it would be about five years before
10 anybody's going to get any income on it.
11 COUNTY ATTORNEY MORGAN: Mrs. Cooper, 30
12 seconds.
13 MS. COOPER: I'm sorry?
14 COUNTY ATTORNEY MORGAN: 30 seconds.
15 MS. COOPER: Oh, okay. Okay, one more real
16 quick thing and I was real glad to hear him talk about
17 the sound because the sound of the diesels was being
18 dismissed as being like a garbage disposal. We are
19 all have heard garbage disposals. Not many of us have
20 10 in our kitchen and turn them on in the morning and
21 run them all day. Thank you.
22 THE CLERK: Therese Vick, Therese Vick.
23 MS. VICK: Good evening. I'm Therese Vick,
24 and I really appreciate the opportunity to be here
25 with you tonight and with the very gracious citizens

1 of Randolph County who, along with some local
2 officials --
3 COUNTY ATTORNEY MORGAN: Ma'am, can you
4 please give your address?
5 MS. VICK: Oh, I'm sorry, 4617 Pearl Road in
6 Raleigh.
7 But I just want to say thank you to the
8 citizens for being so kind to me. For the most past
9 my experience in this County has been very positive.
10 I am coming here on behalf of Blue Ridge Environmental
11 Defense League, and I join others in Randolph County
12 in the opposition to the regional landfill. There are
13 too many questions left unanswered and the
14 presentation tonight didn't answer them.
15 You can say no right now. You can stop
16 throwing good money after bad right now and listen to
17 your people. Listen to them.
18 (Applause.)
19 They are the ones that have to live with
20 this. But at the very least we are calling on you to
21 enact at least a one-year moratorium on this process
22 to look at the questions that the community has raised
23 at the Planning Board hearing and in the media and to
24 you privately I'm sure. Do not depend on a consulting
25 firm that has -- they are there doing what you want

1 them to do. They have a job to do and that's what
2 they're doing.
3 Some of the questions that do remain are
4 what impact will this landfill have on local control.
5 Empty space in a publicly owned and publically
6 operated single county landfill is an asset. Empty
7 space in a regional landfill is a hole waiting to be
8 filled. What will the impact be on public health?
9 What will the true impact be on public health? What
10 is the impact of opening a new landfill in the same
11 spot as the old one, which has currently contaminated
12 ground water? And I had to question how much is that
13 already costing the County just to monitor that? What
14 will the County's ultimate liability be forever? This
15 is forever. How does the citing of yet another
16 landfill in the same area impact people's quality of
17 life in environmental justice? And I will invite any
18 of you to go to the EPA site and use the EGA mapper
19 and look at the tendency around landfills and I think
20 you will find different numbers.
21 COUNTY ATTORNEY MORGAN: Ms. Vick, 30
22 seconds.
23 THE WITNESS: I'm just about done here.
24 There's also prior to anymore movement, there should
25 be a thorough investigation of the track record of the

1 companies that are being considered to operate the
2 landfill. There are more, many more concerns and
3 questions I do not have time to raise tonight, and I
4 do thank you for the opportunity to speak, but listen
5 to your people. Thank you.
6 (Applause.)
7 THE CLERK: Virginia Halverson.
8 MS. HALVERSON: My name is Virginia York
9 Halverson. My home is at 1908 Leonard York Drive,
10 Randleman.
11 Good evening, County Board. I urge the
12 Randolph County Board of County Commissioners to
13 abandon plans for a regional landfill in Randolph
14 County.
15 UNIDENTIFIED SPEAKERS: Yes. (Applause.)
16 MS. HALVERSON: Abandoning this plan will
17 help salvage Randolph's reputation for leadership,
18 which is now in shambles.
19 (Applause.)
20 MS. HALVERSON: This plan, if implemented,
21 will go down as the rape of Randolph County.
22 (Applause.)
23 MS. HALVERSON: Its natural resources,
24 habitats for resource, plants, birds and most
25 especially its people. It will be an assault forced

1 upon the people and character of Randolph County.
2 Taking this plan off the table should help
3 remove some of the cynicism surrounding Randolph's
4 government and confirm belief that this has been a
5 done deal all along, especially when we have heard
6 that the North Carolina Department of Environment and
7 National Resources was in on the original proposals
8 with Randolph officials. How can there be objectivity
9 from a State Department that must issue a permit for
10 the landfill when its purpose all along has to be to
11 get the landfill into operation?
12 Of course the Randolph Planning Board made
13 it easy for the Department of Environment and Natural
14 Resources by providing the necessary zoning permit. I
15 doubt seriously that any persons in leadership
16 positions who have been swayed in favor of this
17 landfill plan have done any private research to gather
18 information and compare studies with those from paid
19 consultants hired by the County.
20 I find one of the most disturbing
21 stipulations from the Randolph Planning Board
22 concerned on-site education at the landfill for
23 students. I ask you --
24 (Laughter from the audience.)
25 MS. HALVERSON: -- I ask you how could any

1 responsible group of adults knowingly approve exposing
2 young people to the chemicals and germs at a landfill
3 much less one that will generate 1500 tons of garbage
4 a day.
5 I commend Mr. Rains of the Randolph Planning
6 Board for raising --
7 COUNTY ATTORNEY MORGAN: 30 seconds.
8 MS. HALVERSON: -- Non-official usage
9 permit. I will switch down here to my next to last
10 paragraph.
11 We study ethics and we learn that it is
12 about what is good and what is right. This landfill
13 plan is not good and it is not right. No community
14 should have to be taken advantage of by something of
15 this magnitude. In fact, one might say that it is
16 unethical to force something that is harmful and
17 unsafe upon the people who pay taxes hoping for
18 informed representation that doesn't buckle to
19 political pressure from the big boys from the State.
20 COUNTY ATTORNEY MORGAN: Ms. Halverson.
21 MS. HALVERSON: I commend Commissioner Stan
22 Haywood from abstaining from the landfill. And I will
23 switch up here up.
24 (Applause.)
25 COUNTY ATTORNEY MORGAN: That's 3 minutes.

1 We have appointed 3 minutes for everyone because we
2 have approximately 20 people waiting.
3 MS. HALVERSON: Does anybody want to give me
4 their minutes?
5 No? Okay. Thank you.
6 (Applause.)
7 THE CLERK: William Henley.
8 MR. HENLEY: Good afternoon. William
9 Henley, 3213 Old Cedar Falls Road.
10 I'm probably closer than anybody to this
11 thing. In fact, the front got a pen within the buffer
12 behind my house, just abuts the backyard. I don't
13 know how that come about. But my biggest concern is
14 safety of my family. My children and grandchildren
15 live on the property with me. I have two adult
16 children and they both have children.
17 As far as traffic study, they said there
18 were no school buses on this route. My grandchildren
19 got on that bus this morning, they got off that bus
20 this afternoon.
21 (Applause.)
22 MR. HENLEY: It's over a blind hill and you
23 can't see over it. Nobody's done a study on it. The
24 Planning Board required to do a study on the site, but
25 nobody's done that yet so there's no moratorium to see

1 if this road's going to be safe.
2 Secondly, we found out at the Planning Board
3 meeting that there's not enough soil on the site to
4 cover the track. They're going to have to import
5 soil. That wasn't included in the hundred truck
6 estimate. That's in addition to the hundred truck
7 estimate. How many loads of dirt does it take to
8 cover one load of trash? Does anybody know that? I'd
9 like to know.
10 That's about all I have to say. I've got 47
11 years in my home and my children's home. This is
12 going to ruin my life. Thank you.
13 (Applause.)
14 THE CLERK: Kim Markham.
15 MR. MARKHAM: Chairman Holmes, and
16 Commissioners, my name is Kim, Kim Markham, and I live
17 at 963 Edge Court in Asheboro.
18 My comments will be a little bit different
19 than everybody else tonight. I basically just have
20 two things. I'll be brief.
21 The first is if you'll let them move forward
22 with this, I challenge you to the level that you can
23 go to to utilize as many Randolph County companies as
24 you can, and I know you're limited and based on
25 experience and folks that are in the business, but

1 Randolph County businesses and Randolph County folks
2 when it comes to hiring, and, again, I know we're
3 limited, but I challenge you with that.
4 The second thing that I have is I support
5 this. I support it based on the economic side of it.
6 And the economic side of it is and I feel in creating
7 jobs. I am a small business owner, I can tell you I
8 was at 30 employees, I'm at 28, and I will not be
9 hiring two more. And I can look at you straight in
10 the eyes, every one of you, and tell you that everyday
11 I try to come up with a way to create more jobs. And
12 I have done a few, and I have failed in some, and I've
13 been successful on some, but it's hard. It's hard to
14 find jobs and create jobs in this County.
15 So, my recommendation, I'm going to support
16 it either way if you go forward with it or you don't.
17 I admire you for having to make the decision. I
18 admire you for giving the time you've given with it,
19 but, again, I support it from an economic standpoint.
20 And I'll just say, excuse my grammar, but, folks,
21 we've got to provide jobs, we've got to put people
22 back to work in this County.
23 UNIDENTIFIED SPEAKER: Not that way.
24 (Booing.)
25 CHAIRMAN HOLMES: Order.

1 THE CLERK: Dwight Ayers.
2 MR. AYERS: Thank you for allowing me to
3 speak to you tonight.
4 COUNTY ATTORNEY MORGAN: We need your
5 address.
6 MR. AYERS: 3686 Old Cedar Falls Road,
7 Asheboro, North Carolina.
8 I want to say I've always admired you and I
9 still do, and I hope you agree with me my thoughts
10 will be short tonight. This is a matter of morality,
11 it's a matter of which is most important, the health
12 and welfare of the fellow citizens or a few cents in
13 the tax evaluation.
14 I remember years ago a commissioner that was
15 making a decision similar to what y'all are going to
16 do. I hope that y'all decision is much wiser than
17 what he made. Thank you.
18 UNIDENTIFIED SPEAKER: Amen.
19 THE CLERK: Reynolds Lisk.
20 MR. LISK: Good evening, Commissioners. My
21 name is Reynolds Lisk. I live at 1763 Old Lexington
22 Road in Asheboro.
23 And I would like to say I am here in support
24 of the landfill tonight. And I would like to say that
25 there has been a lot of good points against the

1 landfill. I think they have prepared well and they
2 have made some good points. And if you vote to move
3 forward with this, I hope you will consider all the
4 safety aspects of this.
5 And I, like Kim, commend you for taking this
6 on. I'm here primarily from an economic standpoint.
7 I'm a small business owner. I'm in the insurance
8 business, and I have seen a lot of my clients
9 commercially having a hard time. We've lost a lot of
10 jobs in Randolph County. Our real estate values are
11 down. It's been tough here from an economic
12 standpoint. I believe five years ago 44 percent of
13 the revenues that property tax revenue made up your
14 budget, and we're looking at 53 percent now and that
15 appears to be increasing.
16 Anything that we could do safely to
17 alleviate the increase in our property taxes I am for.
18 My FICA tax has gone up this year. My income taxes
19 are going to be going up. The Affordable Care Act is
20 going to create more taxes in 2014. Going forward the
21 City of Asheboro has already let us know that they're
22 going to be increasing their property taxes next year,
23 and I don't know how much more we can take from that
24 standpoint that takes every penny of taxation takes
25 thousands and thousands of dollars out of our economy.

1 So, if this thing can be done safely, I am
2 for it and I support it. From what I have read it
3 appears that it can be, but I know you will consider
4 that. And, again, thank you for letting me speak
5 tonight, and I do stand for the landfill. Thank you.
6 THE CLERK: Michael Trogdon.
7 MR. TROGDON: Good evening, Michael Trogdon,
8 3463 Old NC Highway, Asheboro.
9 I won't belabor the time. I don't know what
10 else can be said; however, any time that folks come
11 and share all the technical aspects of what they're
12 wanting to do, but the studies that I have done, study
13 after study that I have read, the things that were not
14 supposed to happen happened. So, I will --
15 (Applause.)
16 MR. TROGDON: My wife and I were watching a
17 movie about a month ago. It was about a 911 operator,
18 and the 911 operator was training some new hires and
19 she said to those operators, she said when you hear a
20 frantic call never say "I promise." No matter what
21 they say I've heard terms like insure this, this
22 procedure will insure this, this line is expected to
23 do this, but the reality is you cannot guarantee
24 anything. And once the landfill -- and I pray it's if
25 and not when, but if the landfill does come here and

1 it does not hold up to what it's supposed to do, the
2 most we can say is "oops" or "I'm sorry." And then it
3 becomes the responsibility of the tax payers to insure
4 the welfare of our community.
5 So, simply based on the fact that you cannot
6 insure the reliability of this landfill, I pray that
7 you will think twice before you accept licensing such
8 a liability. Thank you.
9 (Applause.)
10 THE CLERK: William Dula.
11 MR. DULA: William Dula, 1320 Ran Tab Road,
12 Asheboro, North Carolina.
13 I made a statement before this to the press
14 conference and I said that the Commissioners are all
15 good men, they just had some misinformation. So, I
16 want to try to alleviate some of that misinformation.
17 I would like to thank Terry Brindell, Gary Grant of
18 North Carolina Environmental Justice; David Caldwell,
19 Denise Spurlocker of UNC Chapel Hill; City and
20 Regional Planning Commissioner Mark Duran, North
21 Carolina Chapel Hill School of Law; and Reverend
22 Trogdon; and Christopher Henning, who is of Johns
23 Hopkins University formally of Chapel Hill.
24 I wasn't planning to do this, but I don't
25 have pretty maps for you people to show you what it

1 is. These are from the E. J. Hugh Environmental
2 Justice Office of NC State, one mile, 36 percent
3 minority; three miles, 36 percent minority; two miles,
4 35 percent minority. I don't know where they got
5 these figures, they got pretty maps, though.
6 (Applause.)
7 MR. DULA: We had a slide put up here. That
8 pretty slide was put up here to show that hay was
9 worse than gas from the landfill. This study was done
10 in the 1970's in England. At the Planning Board they
11 said they couldn't use anything that was done in South
12 Carolina, but they could use this in England.
13 This is a study that was done by
14 Dr. Christopher Henny. It's from the North Carolina
15 National Institute of Health. You may have heard of
16 it. They're not a fly by night organization. This
17 was done in 2012 in Chapel Hill. It says if you can
18 smell it, it will make you sick. It's not the smell
19 that makes you sick, it's the stuff that's underneath
20 the smell that makes you sick. If you smell it, it
21 makes you sick.
22 (Applause.)
23 MR. DULA: Here's a traffic study. Paid
24 $58,000 for this traffic study. They weren't smart
25 enough to figure out that we have a city school system

1 they only used the county. They did their math. They
2 missed it. They got 90 trucks coming one way, 20
3 trucks the other and when they get on the other way,
4 it turned out to be 200 trucks. They can't even do
5 their math.
6 (Applause.)
7 MR. DULA: Two trucks turned over on Old
8 Hanley Country Road. They didn't say these two trucks
9 were landfill trucks.
10 COUNTY ATTORNEY MORGAN: Mr. Dula, 30
11 seconds.
12 MR. DULA: This is the North Carolina State
13 House of 1492. It says what the landfill can and
14 cannot do. It says you cannot build one within 5
15 miles of a National -- of a National wildlife
16 facility. You've got to build one 2 miles from the
17 State Park. But you can do it three and a half miles
18 from the hospital, two miles from a store?
19 (Applause.)
20 MR. DULA: You Commissioners, you represent
21 Asheboro. All of these people in there that 36
22 percent, most of them live in your constituency. You
23 represent the ones that don't live in it. Can you be
24 honest and say you're going to disregard Dr. Coslow --
25 COUNTY ATTORNEY MORGAN: Mr. Dula, Mr. Dula,

1 that's 3 minutes.
2 MR. DULA: -- And go against the doctor's
3 recommendation?
4 I wish you would give Golder Associates 3
5 minutes to talk.
6 (Applause.)
7 COUNTY ATTORNEY MORGAN: Mr. Dula, if you
8 want to introduce any of those documents, we'd be
9 happy to take those, to introduce those into the
10 record.
11 MR. DULA: This gentleman told me -- I was
12 told that I couldn't produce anything.
13 COUNTY ATTORNEY MORGAN: I'm telling you
14 right now if you want to give those to the Clerk,
15 we'll be happy to take those.
16 THE WITNESS: I'd be glad to. You have a
17 copy of this. You should have a copy of that. You
18 should have a copy of this. Here's Dr. Henny's study.
19 You can download this for $41. He gave it to me for
20 free. That's your study.
21 Oh, here is two studies done on property
22 value that your wife probably paid for part of it. It
23 was done by the North Carolina and the National Board
24 of Realtors that says how landfills affect property
25 value.

1 COUNTY ATTORNEY MORGAN: Mr. Dula, if you'll
2 just leave those documents, we'll mark them all for
3 the record.
4 (Applause.)
5 THE CLERK: Dean Brooks.
6 MR. BROOKS: My name is Dean Brooks. I live
7 at 2777 Old Cedar Falls Road. It's within a mile,
8 mile and a quarter of the proposed site.
9 I appreciate the Board's objective attention
10 to my statements tonight. I moved from the County to
11 the City for better air and quality, water quality.
12 I've had radiation resulting in asthma, bronchitis,
13 allergies, emphysema, COPD. This will only contribute
14 to further poor air quality and additional toxins in
15 the air's drinking water. My immune system has been
16 compromised as it is.
17 I ask the Board to consider this proposed
18 landfill site as if it was in their immediate
19 neighborhood, as if it was their family's health at
20 jeopardy. I've seen in that area because I have
21 frequented that neighborhood where the site is to be.
22 I ride horses in that area. I've seen old broken
23 batteries in water pools. There are wildlife that
24 drink from these area streams and from those pools,
25 and these are possibly contaminated. Of course, with

1 broken batteries I would suspect they've got acid in
2 them.
3 These many wildlife, they are also wildlife
4 that are harvested and consumed by humans. Where does
5 that go? I have a water analysis dated 4/25/13 from
6 North Carolina City Laboratory Public Health in my
7 hand. It would be interesting to see this same
8 analysis, let's say, two years, five years down the
9 road in the future of what the levels are, and who
10 would be liable and responsible for that.
11 There are better ways to bring money into
12 Randolph County. Is real estate value going to go up
13 because of the proposed landfill? Thank you.
14 THE CLERK: Addie Luther.
15 MS. LUTHER: Good evening. Thank you. I'm
16 Addie Luther. I live at 828 Martin Luther King, Jr.
17 Drive, which is on the east side of Asheboro.
18 I am against the regional landfill coming
19 through coming in my own front door. On east side we
20 already have the odor from the North Carolina State
21 Zoo because they have the sewage line running through
22 our neighborhood.
23 UNIDENTIFIED SPEAKER: Amen.
24 MS. LUTHER: They give us a telephone number
25 to call when the odor gets unbearable, and we have had

1 to call especially in the summertime. So I'm asking
2 you please to not dump another odor that close to east
3 side Asheboro. Thank you for this.
4 THE CLERK: Duffy Johnson.
5 MR. JOHNSON: Mr. Chairman, Commissioners, I
6 thank you for the opportunity to come before you
7 tonight. And I also, having sat here and listened to
8 all of the previous speakers --
9 COUNTY ATTORNEY MORGAN: Mr. Johnson, for
10 the record can you give your address?
11 MR. JOHNSON: I'm sorry. I apologize. 1184
12 Cedar Creek Drive, Asheboro.
13 I know what a difficult decision you face,
14 and I know that there are a lot of factors involved,
15 and I know that you will do what's best for the
16 citizens of this County. I believe much of the
17 information on the project you have reached several
18 conclusions. By law local governments are required to
19 have a solid waste solution, a plan for dealing with
20 solid waste. We do not have sufficient solid waste to
21 operate a modern facility solely for the benefit of
22 Randolph County citizens.
23 Establishing a reasonable landfill will
24 create new revenue source for the County. The County
25 will be reusing an underutilized asset in property

1 that's currently available.
2 Revenues generated by the regional landfill
3 would reduce the pressure on our property tax rate by
4 expanding revenue base available to fund local public
5 service projects. The County would hire an outside
6 company experienced in the operation of a regulated
7 landfill. The facility would create much needed jobs
8 for our County. The landfill operator would spend
9 millions of dollars in our community, which may result
10 in additional indirect jobs.
11 The County would have a cost savings by
12 limiting the need to transport our solid waste to an
13 outside facility. Local residents would see savings
14 for their solid waste disposal needs. The County
15 would retain ownership of the land and maintain
16 control of the facility. The State Department of
17 Environmental and National Resources will maintain
18 enforcement from all the rules established by the N.
19 C. Solid Waste Management Division.
20 There are many economic benefits to
21 establish a regional landfill to include new jobs,
22 growth and development, cost savings for the citizens,
23 a broader revenue base for the County, and I believe
24 that the control --
25 COUNTY ATTORNEY MORGAN: Mr. Johnson, 30

1 seconds.
2 MR. JOHNSON: Okay.
3 -- and I believe that the controls and the
4 guidelines that have been proposed are sufficient to
5 protect our citizens.
6 Based on these factors, I support
7 consideration of the regional solid waste facility in
8 Randolph County. Thank you.
9 CHAIRMAN HOLMES: That's all that we have on
10 the list. Does anyone else wish to speak?
11 Please sign the register with your name and
12 address, please.
13 MR. MAROTTO: My name is Jeff Marotto. I
14 live at 1200 Skyline Drive.
15 VICE CHAIRMAN FRYE: What was your last
16 name?
17 MR. MAROTTO: Marotto, M-A-R-O-T-T-O.
18 Just using some common sense here, you've
19 got a great site there if you wanted to use a
20 defensible fort, but as far as a landfill, you've got
21 running water on three sides. You're building a
22 landfill on a peninsula. If something should go
23 wrong, all of that pollution is going downstream. Are
24 you prepared for the suits from all of the counties
25 downstream that will come this way if that thing does

1 fail?
2 Remember, the Titanic was unsinkable, the
3 Trade Towers should never have crumbled, a hundred
4 other things, technological things, that never should
5 have failed that have. We're taking your word that
6 something is going to last 450 years. How did they
7 figure that out? Have you had it for 450 years and it
8 hasn't failed, or are you just making a guesstimate?
9 (Applause.)
10 MR. MAROTTO: Folks, I grew up in North
11 Jersey. You want to talk about landfills? They
12 smell, they stink. They're 300 feet high pile of
13 garbage that you get to see everyday. 300 feet high,
14 have you thought about how high that is and how far
15 you're going to be able to see that from?
16 We have just gotten Asheboro a certification
17 to be a destination for retirees and you're turning it
18 into Trashboro, the place nobody wants to move to.
19 (Applause.)
20 MR. MAROTTO: The river has a wild hog
21 population running on it, and you're putting how many
22 counties worth of garbage? 1500 tons, was it, of
23 garbage for them to -- we have a flying pig in
24 Asheboro right now, you're going to have him running
25 all over the county.

1 (Laughter and applause.)
2 MR. MAROTTO: Folks, common sense says trash
3 has to go somewhere, and I'm not against you guys
4 thinking of a better place for it, but just look at
5 that picture. Why don't you just dump it in the ocean
6 because you're going to get in that water one way or
7 the other.
8 I'm not an environmentalist, I'm a
9 conservative. I understand the need for these things.
10 Somebody has to put it in their backyard, that's the
11 shame of it. Somebody has to live with it, but to put
12 it right on the edge of a town that is making some
13 moves to increase themselves and increase the economy
14 of this area, there's got to be a better place to put
15 these things.
16 COUNTY ATTORNEY MORGAN: Mr. Marotto, 15
17 seconds.
18 MR. MAROTTO: I'm done, thank you.
19 THE CLERK: Melvin Marley.
20 MR. MARLEY: First of all, good evening to
21 each one of you. I live at 890 Landsdown Road off of
22 Old Cedar Falls Road.
23 There's already a mess in our neighborhood.
24 The solid waste over right off of Presnell Street, we
25 hear trucks all day long; heavy, earth moving

1 equipment all day long. For a while I bothered with
2 asthma. I strongly suggest not to put it in our
3 neighborhood.
4 Also, on Cedar Falls Road it's not capable
5 of handling big trucks. Do you realize that Cedar
6 Falls Road, the area in which I live, have seen four
7 people be killed on that road because it's so narrow?
8 And the big trucks up and down that road at highway
9 speed. We have petitioned to cut the speed limit in
10 low rent areas to 25 miles an hour. 45 and 55 miles
11 an hour off of Cedar Falls Road from Presnell Street
12 all the way to Cedar Falls. That's not fair. We
13 deserve to pull onto the highway without speeding
14 cars.
15 We have lost several kids down there in
16 automobile accidents. We deserve better. We are
17 taxpayers just like everybody else. We deserve a lot
18 better than what we are getting.
19 (Applause.)
20 MR. MARLEY: I moved here in 1982 because I
21 found a job, good job here. I was real proud of the
22 two companies that I worked for, only two companies
23 that I worked for in my whole life. And I was a good
24 worker I must say myself, but don't do this to us
25 again. We have been through it already. We have had

1 enough. It's time for somebody else to bear.
2 And do tax payers really need this? No,
3 they don't. This is not good. It's going to cause a
4 lot of sickness. And the little million dollars
5 you're going to make a year, you're going to pay that
6 in health costs.
7 UNIDENTIFIED SPEAKER: That's right.
8 MR. MARLEY: People, people have breathing
9 problems. Why not work on something to make life
10 safer, health much better, things, rather than a trash
11 dump. As the man said sometime back, it's just a
12 graveyard is what it's going to be. We don't deserve
13 that. We can do better. Randolph County got prime
14 land. They can do better. They can attract good jobs
15 to this community. I don't think this is one of them.
16 And you're going to get some outsider to run
17 it who don't give a hoot for the rest of us in
18 Randolph County. They're not going to do anything.
19 Thank you, sir.
20 (Applause.)
21 THE CLERK: Angela Moore.
22 MS. MOORE: Good evening, gentlemen. My
23 name is Angela Moore. I live at 1707 Berry Lane,
24 Pleasant Garden.
25 I moved to Randolph County in approximately

1 19 years ago and found that it was a County that I
2 loved after growing up in Gilbert County. It just
3 seemed that Randolph County was so much more peaceful,
4 cared more for their citizens.
5 What I ask of you tonight instead of
6 listening to a panel that you have paid, listen to
7 those that have elected you in good faith and paid
8 you.
9 (Applause.)
10 THE CLERK: Ronnie Pugh.
11 MR. PUGH: Good evening. A friend of mine
12 once asked a question when dealing with a situation.
13 COUNTY ATTORNEY MORGAN: Mr. Pugh, I'm
14 sorry, real quick for the record could you state your
15 address?
16 MR. PUGH: I'm sorry, 411 Hillview Street,
17 Asheboro.
18 COUNTY ATTORNEY MORGAN: Thank you, sir.
19 MR. PUGH: Like I said, once a friend asked
20 a question when dealing with a situation. He looked
21 at it and said is this situation a crisis or an
22 opportunity? In most cases we determine one of the
23 other by how we approach the situation.
24 I own property in this area and some will
25 see this as a crisis. For those folks who have

1 responsibilities and expectations that the Board
2 minimize any impact the project would have on property
3 and lives. As to the opportunity side of this
4 question, this project should impact the citizens of
5 the County in an overall positive way. It should
6 allow us to control our future and put us in an
7 advantageous position within neighboring counties. It
8 should maintain jobs and help us maintain lower tax
9 rate.
10 If you so choose, we have assets in place
11 and I encourage you to use it. Thanks for your
12 service to the County.
13 THE CLERK: Josh LeRoy.
14 MR. LeROY: Joshua LeRoy, I live at 921
15 Sequoia Avenue here in Asheboro.
16 I didn't want that to be the last word
17 tonight. I've lived in Asheboro for six years. My
18 wife is from here. We moved here six years ago. I
19 love living here. I was raised in Chapel Hill. In
20 Chapel Hill there's a road called Rogers Road. Rogers
21 Road is 90 percent African American. That's where our
22 dump was.
23 I remember as a child getting up on
24 Saturdays and loading down my dad's F150 with trash
25 and riding down to Rogers Road and dumping our trash

1 in somebody else's neighborhood. We didn't think
2 about it because that's where we put our trash like
3 everybody else in Chapel Hill, Carrboro, and
4 Hillsboro. We put our trash in our daddy's truck and
5 we drove down to the Black side of town and we dropped
6 our trash there. And we didn't think about it.
7 The problem of it is my family, we were good
8 people just like everybody else who took their trash
9 to Rogers Road. Not bad people, good people. The
10 problem is this, bad things happen when good people
11 don't think.
12 UNIDENTIFIED SPEAKER: That's right.
13 MR. LeROY: You can say all you want to.
14 And the gentleman earlier spoke to as well about the
15 demographics of that area, but if you're from here,
16 you know where that dump is going. When I drive down
17 Presnell, and I drive down Old Cedar Falls Road, my
18 eyes tell me a different story, and 12 percent
19 minority, that is not the case. And I feel very
20 strongly.
21 All of you gentleman I believe, I don't know
22 you, but I believe that you're good people, and I
23 believe that the people who spoke in favor of this
24 landfill are good people, but bad things happen when
25 good people don't let themselves think clearly, or

1 feel clearly.
2 Financial gain cannot be the only basis for
3 this decision. I implore you to think and to feel.
4 Thank you.
5 (Applause.)
6 CHAIRMAN HOLMES: Anyone else wish to speak?
7 Okay, at this time we need to get a count.
8 MS. MOODY: I'd like to speak.
9 My name is Hope Moody. You've heard me
10 before, but --
11 COUNTY ATTORNEY MORGAN: Can you give your
12 address for the record, Mrs. Moody?
13 MS. MOODY: 3368 Carl Alden Road in
14 Franklinville, North Carolina.
15 COUNTY ATTORNEY MORGAN: Thank you.
16 MS. MOODY: My question would be for
17 Reynolds, and Mr. Pugh, and for Kim, who's already
18 left, and the other gentleman. Which one of these men
19 asked you to come here and speak tonight? Thank you.
20 (Applause.)
21 CHAIRMAN HOLMES: Anyone else wish to speak?
22 Okay, at this time we want to get a count of
23 those who are in favor and those who are against the
24 landfill. And we'll begin with those who are in favor
25 of the landfill, please stand.

1 If you're standing in the back, raise your
2 hand. If don't raise your hand, you won't be counted.
3 Please stand if you're in favor. Thank you.
4 (AUDIENCE COMPLYING.)
5 Those who are against the landfill, please
6 stand remain standing for us to get a count.
7 (AUDIENCE COMPLYING.)
8 FINANCE OFFICER MASSIE: 16 against, 1 for.
9 CHAIRMAN HOLMES: Thank you. You may be
10 seated.
11 UNIDENTIFIED SPEAKERS: Can you repeat?
12 Please recount again.
13 COUNTY ATTORNEY MORGAN: He's counting the
14 far right.
15 THE CLERK: 28, plus 26, plus 16. We
16 counted in sections.
17 UNIDENTIFIED SPEAKER: Can I say something?
18 CHAIRMAN HOLMES: (Waving hand.) We've
19 closed.
20 UNIDENTIFIED SPEAKER: What about petitions?
21 CHAIRMAN HOLMES: We've officially closed
22 the public hearing at this time.
23 VICE CHAIRMAN FRYE: 28, 26 and 16.
24 THE CLERK: 128 were against, and 20 in
25 favor.

1 COUNTY ATTORNEY MORGAN: Those that said
2 there were 70 opposed, and 3 in favor of the County.
3 UNIDENTIFIED SPEAKERS: How many?
4 COUNTY ATTORNEY MORGAN: 70 opposed, 3 in
5 favor.
6 CHAIRMAN HOLMES: Paxton, good evening.
7 MR. ARTHURS: We've heard the presentation
8 of Golder and we've heard the public comments from
9 everyone. At this time I'd like to ask that you
10 consider the resolution you have in your agenda
11 packet. It basically gives a history of all that's
12 happened up to date and ultimately authorized the
13 project to move forward. It's about three pages long,
14 so I didn't intend on reading it, however, I'd be
15 happy to answer any questions.
16 CHAIRMAN HOLMES: Any questions for Paxton?
17 Okay, we'll consider Paxton's request for approval of
18 the resolution, which authorizes the submission of a
19 permit request approval.
20 Any questions to Paxton?
21 COMMISSIONER KEMP: Yeah, ultimately after
22 hearing what we've heard tonight and having read the
23 company's minutes from the Planning Board and the
24 reports and everything that we have heard, I would
25 like to make a motion that we approve this request

1 from Paxton Arthurs, and be followed with the request
2 for a permit for a landfill in Randolph County.
3 COMMISSIONER LANIER: I'll second the
4 Motion.
5 THE CLERK: Motion by Kemp, Second by Lanier
6 to adopt a resolution approving the submission of a
7 permit application to NC DENR for municipal solid
8 waste landfill in Randolph County.
9 CHAIRMAN HOLMES: At this time we'll have
10 some discussion.
11 COMMISSIONER HAYWOOD: Mr. Chairman, as most
12 of you know, I have to say I'm against this. And I
13 sat here tonight and listened to the voice of the
14 people, which I think elected officials are obligated
15 to do.
16 UNIDENTIFIED SPEAKERS: Thank you.
17 COMMISSIONER HAYWOOD: Not necessarily to be
18 swayed, but to hear. And I appreciate so much the
19 people taking time to come and say what they have had
20 to say. But one of the voices that wasn't here that
21 we have already heard spoke the loudest to me, and
22 that was when Dr. Coslow, who stood here and presented
23 science, that told us that people who live within a
24 mile of this site long-term would probably -- the
25 children would probably develop more allergies, the

1 older folks would probably have more asthma and COPD.
2 And that was science, that was not an engineer's
3 study, that was a medical doctor.
4 Long time ago I took an oath to do what I
5 could to protect the health of the people. When I
6 graduated from pharmacy school in 1968, that was part
7 of graduation. That's been a long time ago, I'm
8 getting to be an old man, but I still remember the
9 oath, and I think the voice of the people is loud in
10 my ears. The voice of Dr. Coslow is loud in my ears,
11 and perhaps the emotion of seeing my father die with
12 COPD causes me to take the stand I'm taking, but I
13 thoroughly hope -- I don't know what the vote will be.
14 Paxton, I haven't asked any of them, I'm
15 just carrying my heart. I certainly hope that this
16 Board will reconsider this and just say no.
17 (Applause.)
18 CHAIRMAN HOLMES: Any other discussion?
19 VICE CHAIRMAN FRYE: Mr. Chairman, when we
20 set out on this process, I made the statement I think
21 I've asked you at every point, every agenda that we've
22 had with this issue, I want to be informed. I want to
23 know everything that I can about this process and
24 about this facility.
25 One of my -- well, my first job out of

1 college I worked for a guy who was a high school
2 dropout, but one of the things that he taught me was
3 on any issue, you should be able to take either side
4 that wins and I can't say that about this issue. And
5 this tonight does leave me with some questions that I
6 still haven't had answered. And it's my
7 understanding -- maybe this is a question for the
8 attorneys, is this a final vote? Is this? Where do
9 we go from here in this process?
10 COUNTY ATTORNEY MORGAN: Well, if you vote
11 no, it's a final vote. It's what's before you now is
12 going forward with the application to DENR for the
13 permit. Without that permit, then there is no further
14 action.
15 VICE CHAIRMAN FRYE: But I'm saying, if DENR
16 approves it, if that permit is granted, where does
17 this Board stand?
18 COUNTY ATTORNEY MORGAN: You have a permit
19 and you're not required to go forward. You're not
20 required to proceed until you sign a contract with a
21 provider.
22 VICE CHAIRMAN FRYE: And we haven't started
23 that process yet?
24 COUNTY ATTORNEY MORGAN: We've initiated the
25 process.

1 VICE CHAIRMAN FRYE: I know the answer to
2 that question.
3 COUNTY ATTORNEY MORGAN: We're not
4 obligated. It's not that we haven't done any work
5 towards that, but we're not obligated any way to any
6 provider.
7 VICE CHAIRMAN FRYE: I still have some
8 questions.
9 UNIDENTIFIED SPEAKER: Say no.
10 CHAIRMAN HOLMES: Any other comments? Okay,
11 we'll call for a vote, and attorneys advise me that we
12 should vote by a show of hands.
13 COUNTY ATTORNEY MORGAN: I think that would
14 be wise.
15 CHAIRMAN HOLMES: All in favor of the Motion
16 to go ahead with the application, please raise your
17 hands.
18 (Commissioner Lanier, Chairman Holmes, and
19 Commissioner Kemp raise their hands.)
20 CHAIRMAN HOLMES: All opposed?
21 (Vice Chairman Frye and Commissioner Haywood
22 raise their hands.)
23 UNIDENTIFIED SPEAKER: Please don't let me
24 this be your legacy. This is your last year here,
25 please don't let this be your legacy.

1 UNIDENTIFIED SPEAKER: Would you want it
2 named after you? Think about it.
3 COUNTY ATTORNEY MORGAN: This is the end of
4 the public hearing.
5 CHAIRMAN HOLMES: Thank you for your input,
6 and we're adjourned.
7 MR. ARTHURS: There's two more items. Now
8 that you have approved the resolution, I would like to
9 ask that you also approve a contract with Golder
10 Associates so that they can assist with the RFQ
11 process and engineering, and also that we purchase the
12 remaining property from the East Side Baptist Church
13 and Bailey family.
14 COMMISSIONER KEMP: Motion to approve of
15 those situations.
16 COMMISSIONER LANIER: Second.
17 THE CLERK: Motion by Kemp, Second by Lanier
18 to award contract to Golder Associates for the
19 remaining engineering RFQ assistance in Budget
20 Amendment Number 7, and to authorize the purchase of
21 the 42 acres from East Side Baptist Church for
22 $252,000, and 90 acres from the Baileys for $629,000.
23 CHAIRMAN HOLMES: Any discussion? We have a
24 Motion?
25 COMMISSIONER KEMP: Yes.

1 CHAIRMAN HOLMES: All in favor say "Aye."
2 COMMISSIONERS: "Aye."
3 CHAIRMAN HOLMES: Opposed, "No."
4 COMMISSIONER HAYWOOD: No.
5 CHAIRMAN HOLMES: Approved.
6 Anything else, Paxton?
7 MR. ARTHURS: No.
8 CHAIRMAN HOLMES: Motion to adjourn. All in
9 favor say "Aye."
10 ALL BOARD: "Aye."
11 CHAIRMAN HOLMES: We are adjourned.
12 (HEARING CONCLUDED AT 8:56 P.M.)
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1 STATE OF NORTH CAROLINA
2 COUNTY OF DURHAM
3
4 REPORTER'S CERTIFICATE
5 I, Regina Toppins, Shorthand Reporter and Notary
6 Public in and for the State of North Carolina, do hereby
7 certify that there came before me on Monday, the 6th day
8 of May, 2013, the persons hereinbefore named, concerning
9 the matters in controversy in this cause; that the
10 hearing was held, the contents of the hearing reduced to
11 typewriting under my direction, and the transcript is a
12 true record of the proceedings.
13 I further certify that I am neither attorney or
14 counsel for, nor related to or employed by, any attorney
15 or counsel employed by the parties hereto or financially
16 interested in the action.
17 IN WITNESS WHEREOF, I have hereto set my hand,
18 this the 6th day of May, 2013.
19
20
21 _____
22 Regina Toppins, Notary Public
Notary Number: 200626300019
23
24
25

Randolph County, North Carolina

Randolph County – Board of Commissioner's Presentation May 6, 2013

Golder Associates

Presentation Outline

- Modern Solid Waste (MSW) Disposal Facilities
  - Cost effective option
  - Alternate Site Evaluation
  - Regulatory Requirements
  - Landfill Operations
  - Unauthorized Waste
  - Human Health
  - HDPE Liners
  - Landfill Gas to Energy
- *New* Conceptual Site Plan
- Activities Completed
- Activities In-progress
- Next Steps

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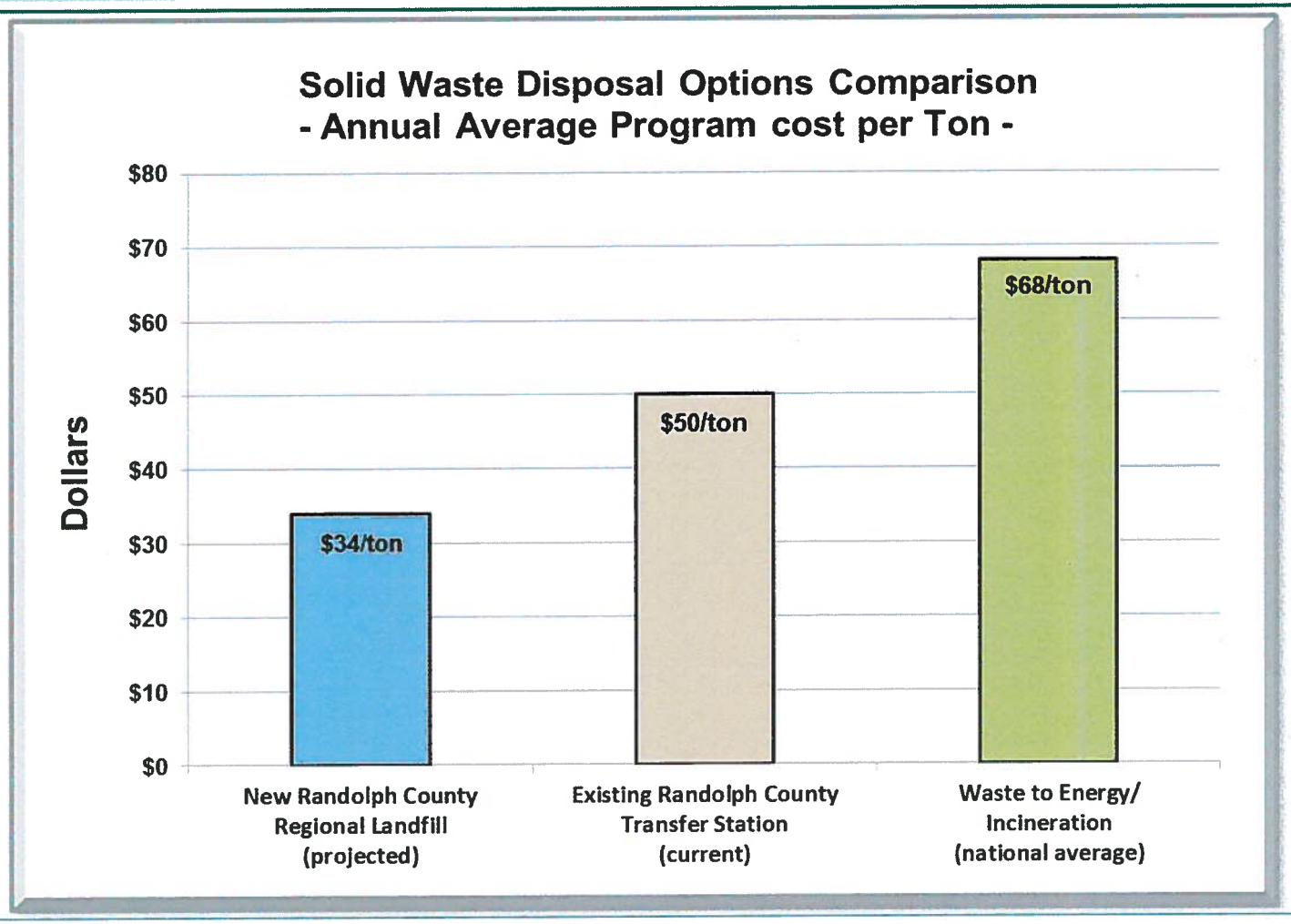
Solid Waste Disposal Options



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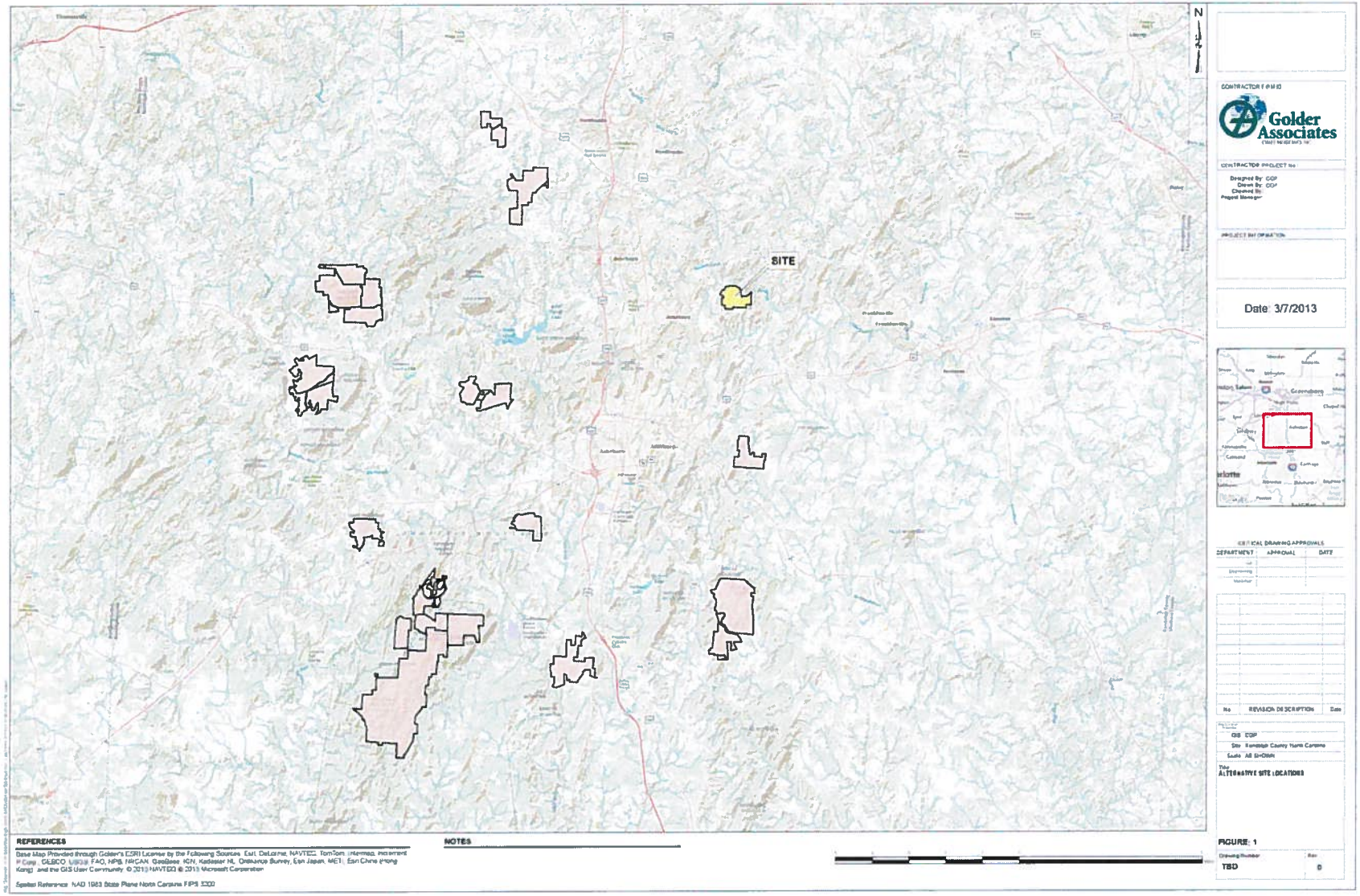
Alternate Site Evaluation

- North Carolina General Statute 153A-136(c)
- Evaluated 16 sites:
  - Size
  - Land use/zoning
  - Proximity to schools, scenic or recreational areas, and state or city parks
  - Transportation infrastructure
  - Topography
  - Environmental features such as streams, wetlands, and floodplains
  - Surrounding land use

Alternate Site Evaluation (continued)



Alternate Site Evaluation (continued)

- **Initial Screening:** Individual parcels ~200-1000 acres in size
- **Secondary Screening:** surface water bodies, 100-year floodplains, ownership, site geometry, site topography, improvements, transportation infrastructure – *Identified 16 parcels for detailed evaluation*
  - Site maps and summary table generated
  - 8 sites eliminated based on perennial streams
  - 1 site eliminated based on poor geometry and access
  - 1 site eliminated based on ownership/topography
  - 3 sites eliminated based on ownership (Boy Scouts, NC Zoo, National Forest)
- **Final Screening:** *(3 sites)* land use/zoning; proximity to schools and airports; scenic or recreational areas; and state or city parks; and surrounding land uses
  - Identified the existing County landfill property as most suitable for landfill development

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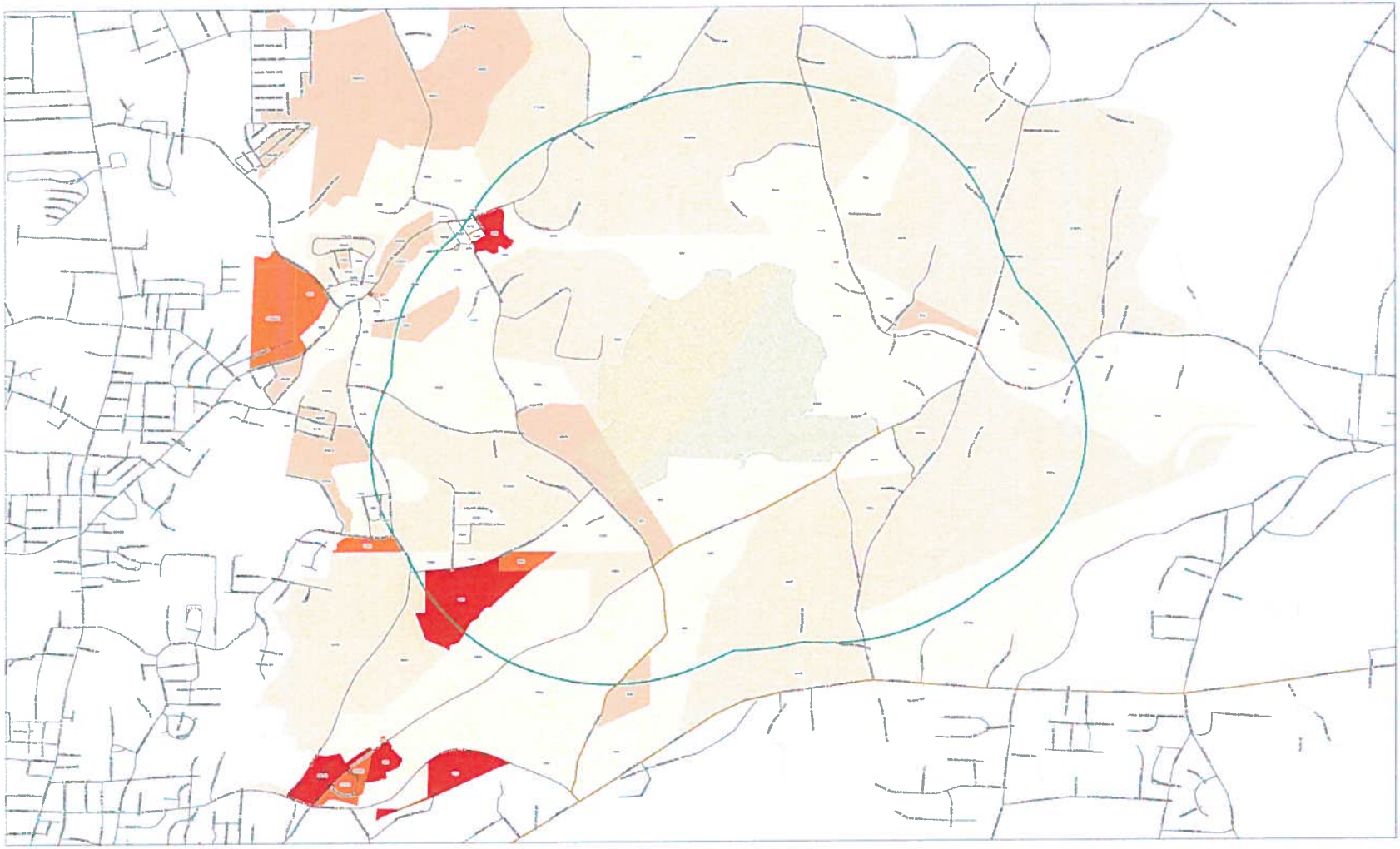
Alternate Site Evaluation (continued)



Truck Route
1 Mile Buffer
Proposed_Landfill

Minority Census Block Population
< 5%
5 - 25%
25 - 50%
50 - 75%
75 - 100%

20(7) Total Population(Minority Population)

PROPOSED LANDFILL - 1 MILE BUFFER
WITH MINORITY POPULATION

N
W E
S

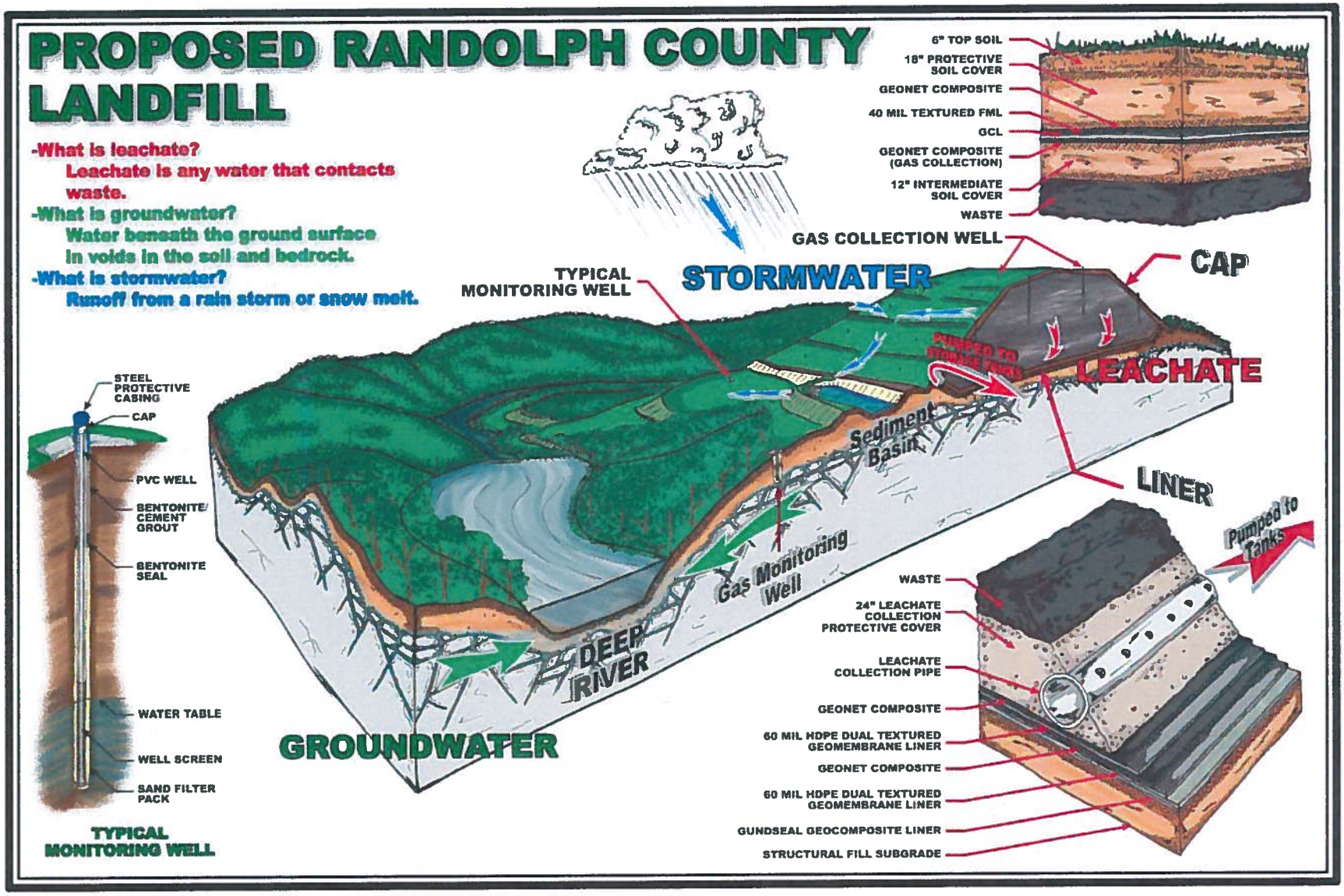
1 inch = 0.14 miles

Printed Date: April 24 2013 - landfill_pop.mxd - dplrs

Alternate Site Evaluation (continued)

- **Demographic Data Review**
  - Randolph County Population ~ 142,000 (2009 US Census data)
    - Minority population ~12,000 individuals (8.5% of the population)
    - Population distribution data reviewed and minority population near landfill is not higher than County average
  - Median value of owner-occupied homes in the County is approximately $95,000
    - Nearby residential tax valuations reviewed and residences near landfill were generally at or above the County median value
- Demographic review does not indicate that continued operation of a landfill near the existing landfill property would disparately impact any minority population or disadvantaged socio-economic group

Facility Components - Landfill Schematic



Regulatory Requirements

- State approvals required (NCDENR)
  - Engineering plans
  - Construction reports
  - Environmental controls
- Exceeds regulatory requirements
  - Double bottom liner system (leak detection)
  - Additional buffers
- Other regulatory oversight
  - NC Department of Cultural Resources
  - US Army Corps of Engineers
  - NC DOT
  - FAA

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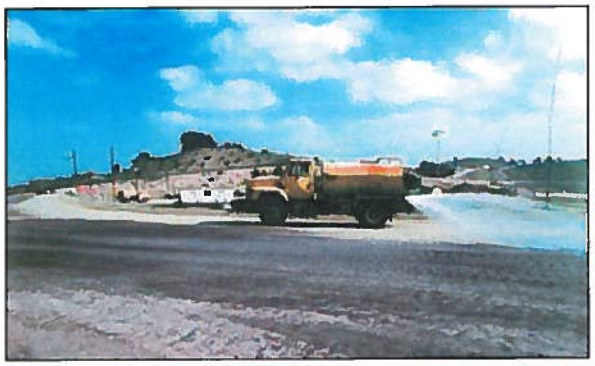
Landfill Operations

- Operations Plan
  - Protect human health and the environment
  - NCDENR-approved program
- Certified operator training
- Employee health and safety training
- Unauthorized waste screening program
- Placement, compaction, and daily cover requirements
- Litter, noise, odor, dust, and animal control
- Record keeping and reporting
- State and County inspections



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Unauthorized Waste

- Hazardous waste
- Regulated medical waste
- Industrial waste
- Lead acid batteries
- Liquid paint
- Used oil and filters
- Antifreeze
- Electronics

- Wooden pallets
- Yard waste
- White goods
- Aluminum cans
- Scrap tires
- Beverage containers
- Plastic containers
- Oyster shells

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Unauthorized Waste

- Unauthorized Waste Program
  - Protect human health and the environment
  - Pathogenic, hazardous, and other unacceptable wastes
  - NCDENR-approved program
- Inspection procedures
  - Incoming loads
  - Working face
- Removal procedures
  - Segregation and loading
  - Manifesting and proper off-site disposal
  - Regulatory reporting
- Annual training of employees
- Penalties for improper disposal activities

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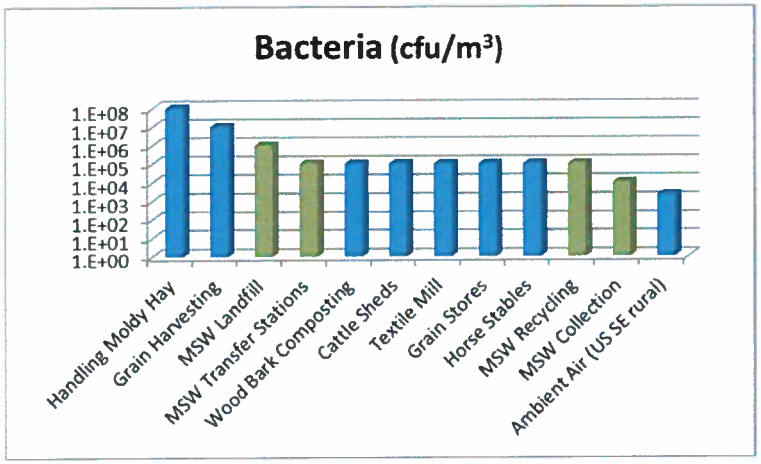
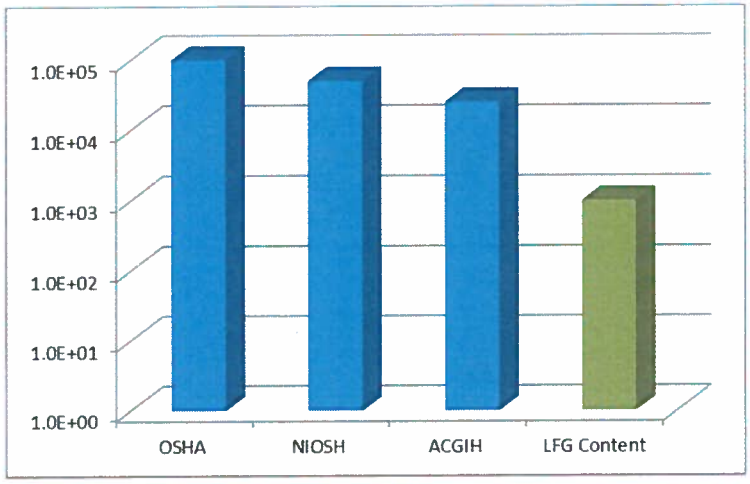
Human Health

- Airborne pathogens (e.g., fungi, bacteria)
  - Higher quantities in agricultural settings than waste disposal areas
  - Dissipate rapidly with vegetated buffers and distance from source
- Diesel exhaust particulates / noise
  - Route chosen based on fewest impacts
- Landfill gas composition
  - Mercury trace amounts in concentrations < worker exposure standards





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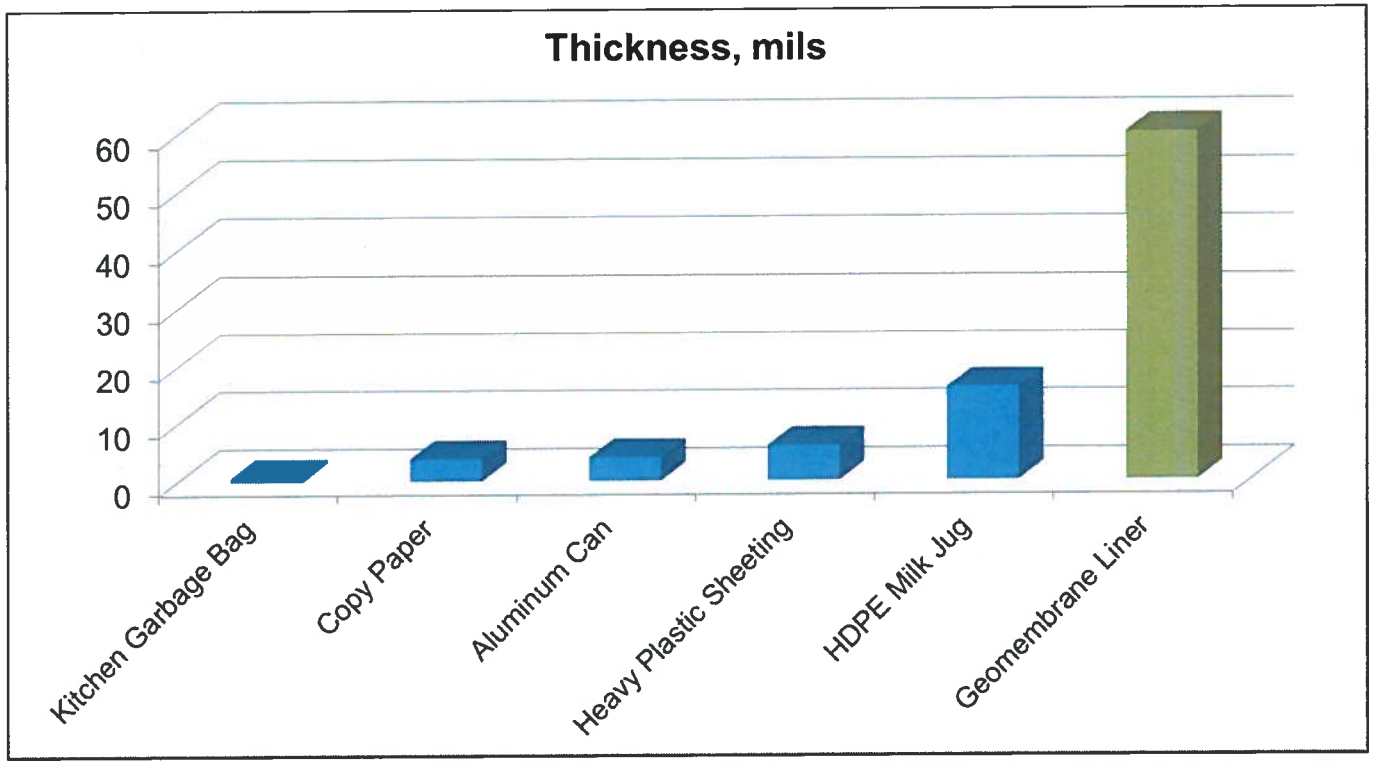
HDPE Geomembrane Liners - Thickness

High-Density Polyethylene (HDPE) - Polyethylene thermoplastic made from petroleum. HDPE is commonly used in the production of plastic bottles, corrosion-resistant piping, geomembranes, and plastic lumber.



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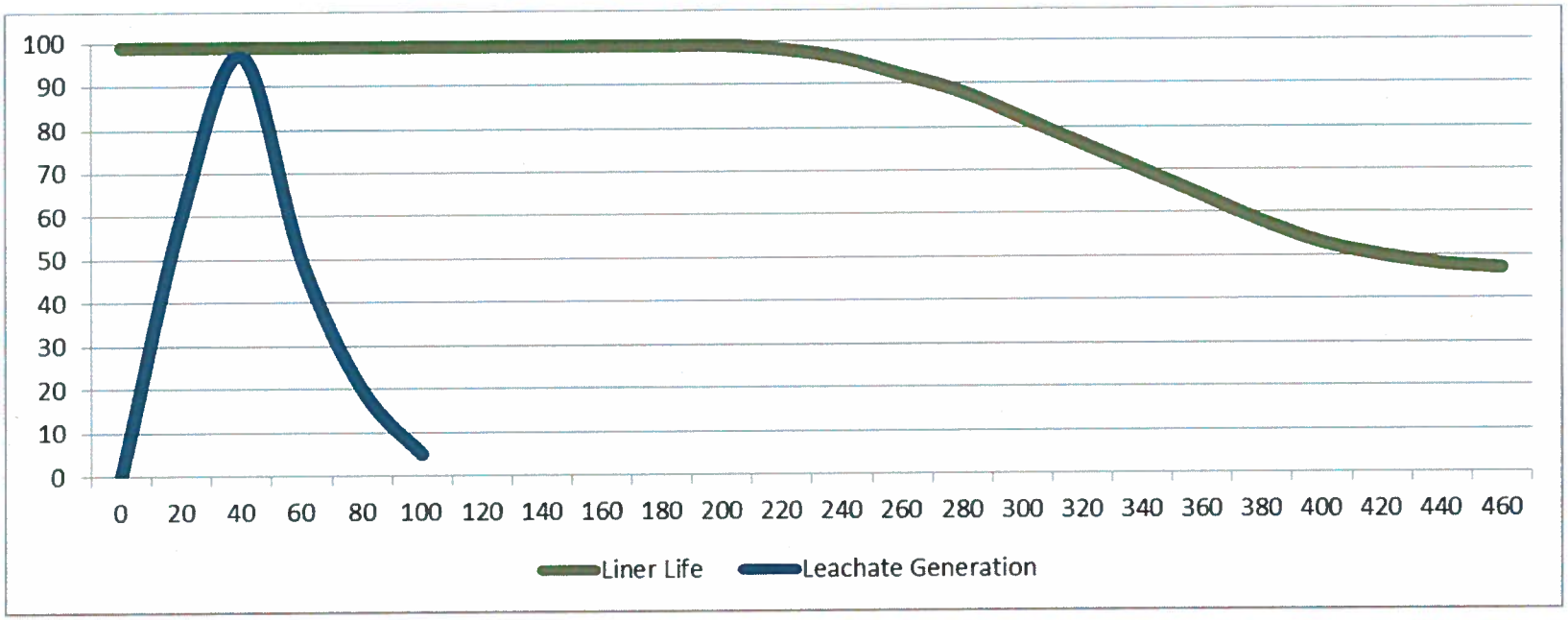
HDPE Geomembrane Liners - Leachate

Landfill leachate generation is primarily dependent on the volume of waste in place and the length of time the waste mass is exposed to precipitation prior to placement of the final cover system.



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HDPE Geomembrane Liners - Seepage

Leachate generation and seepage rates are predicted using the EPA's Hydrologic Evaluation of Landfill Performance (HELP) computer program model.

Max. generation rate = 75,000 gal/acre/day (~10 feet of waste)

Max. seepage rate = 0.015 gal/acre/day @ peak generation rate

$$= 0.00002\% = \frac{2}{100{,}000\text{th}} = \frac{2 \text{ cups}}{660{,}000 \text{ gallons}}$$

(Olympic swimming pool)

…and is expected to be captured by the secondary liner "leak detection" system

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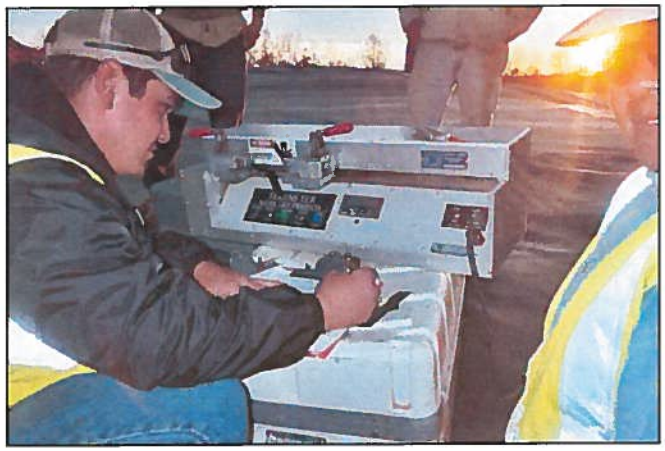
HDPE Geomembrane Liners - Testing

- Rigorous Testing Requirements for Liners
  - Manufacturer's Testing (over 20 physical properties including thickness, density, strength, UV resistance, etc.)
  - Construction Quality Assurance (CQA) *conformance* testing is completed on the HDPE geomembrane upon delivery to verify the manufacturer's *certified* material properties
  - CQA field testing is completed on the HDPE geomembrane after installation to *certify* its seam strength and *water tightness*



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Landfill Gas to Energy

Various uses of Landfill Gas (LFG)

- Medium BTU fuel (direct on-site use)
- Electricity generation
- High BTU fuel (pipeline quality)
- Renewal energy source

Collection methods (vacuum system)

- Vertical piping (extraction wells)
- Horizontal collectors (within waste mass)
- Extracted from leachate collection system

LFG to Energy Partnerships

- DTE Biomass Energy
- Ingenco
- Ameresco
- Methane Power
- Toro Energy
- Plus many others

Golder Associates

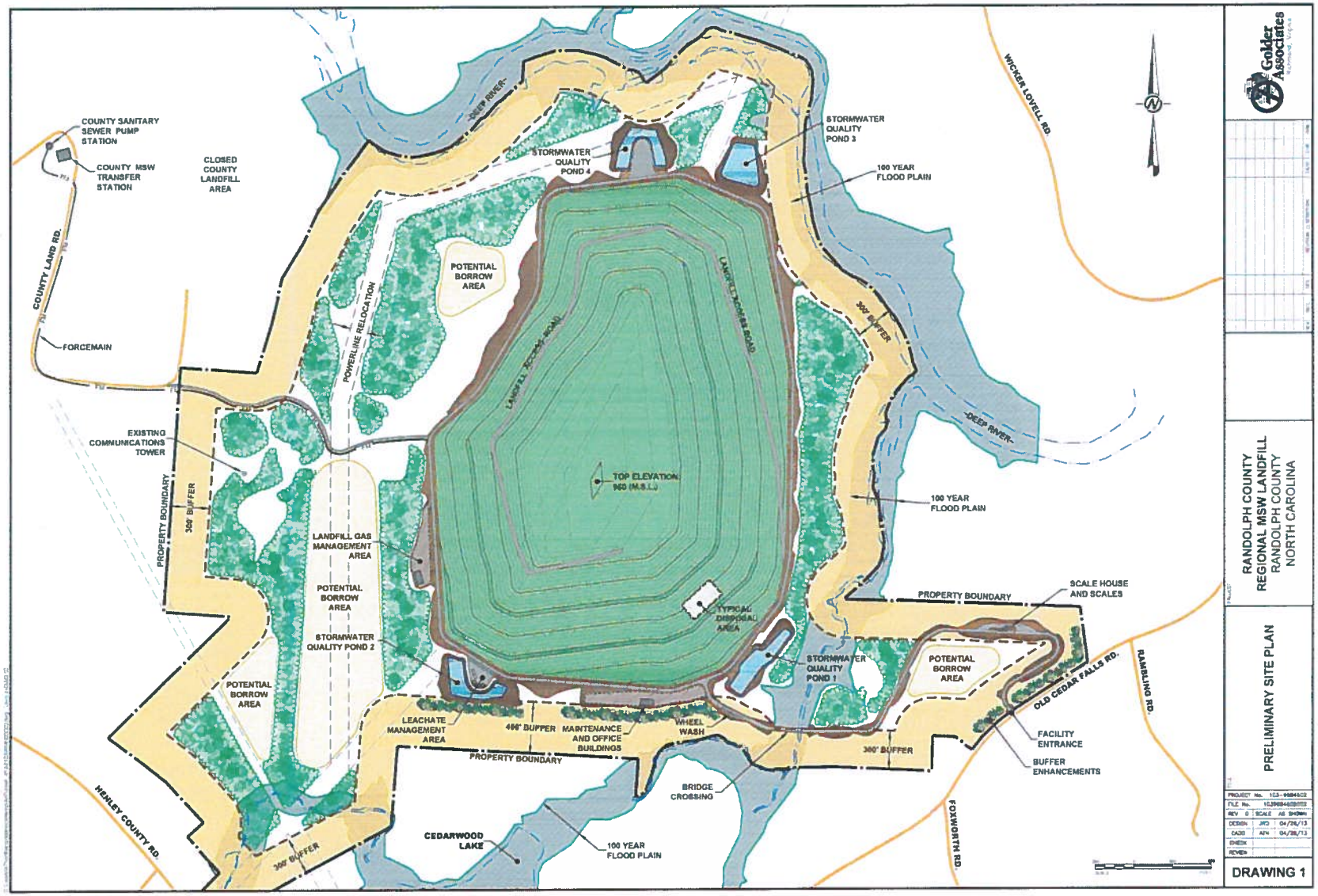
New Conceptual Site Plan

- Refined waste disposal area is 198 acres
- Proposed final grades are 110 feet above highest natural grade on site (300 foot above average existing grade)
- Gross design capacity is approximately 45 million cubic yards (cy)
  - Bottom liner system (approx. 1 million cy)
  - Final cover system (approx. 1 million cy)
  - Net design capacity (approx. 43 million cy)
- Reserved < 8 acres for stormwater management ponds
- Typical disposal area is approximately 1 acre in size
- Well over 30 years of life at an average of 1,500 tons/day

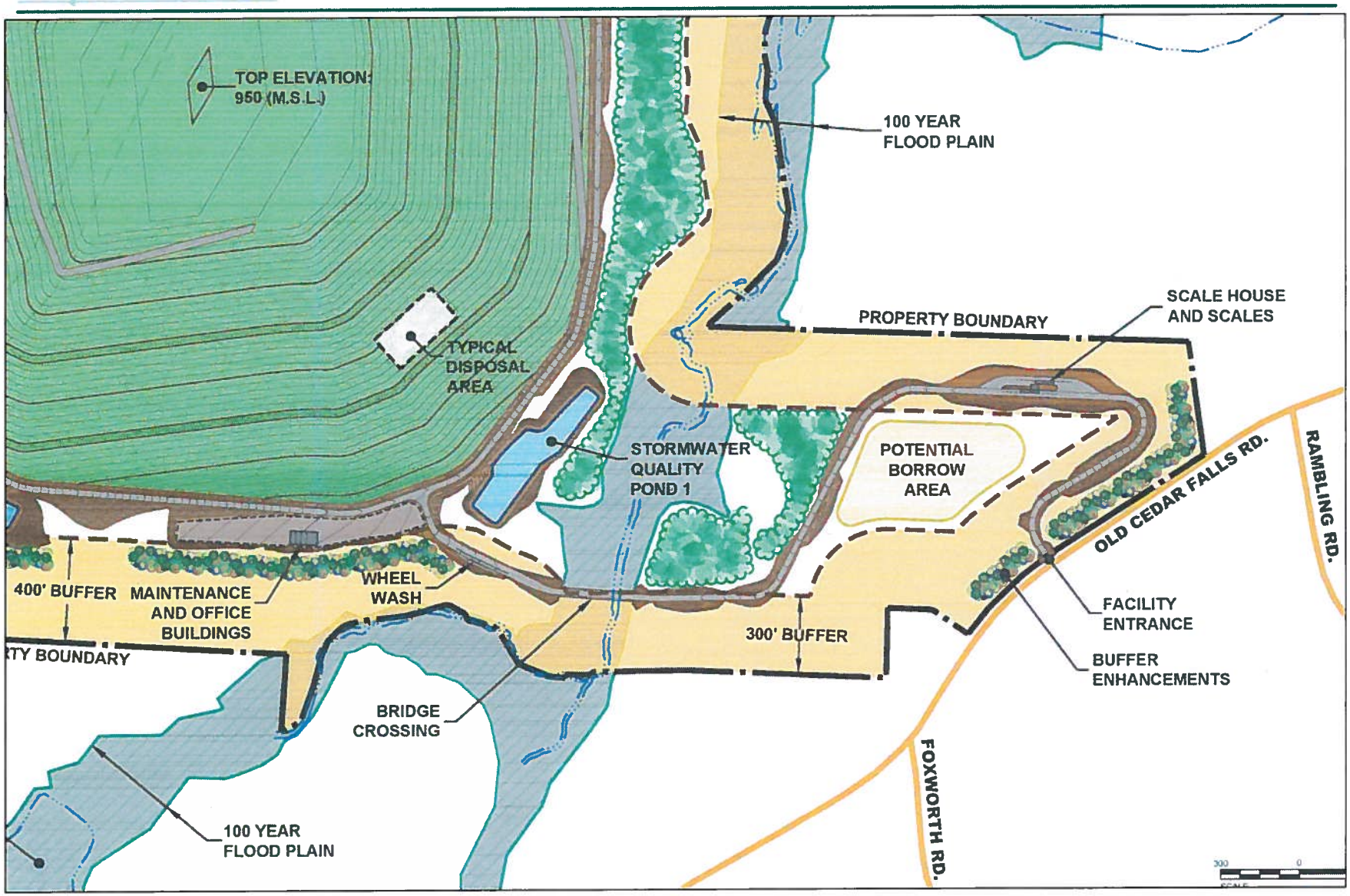
New Conceptual Site Plan

- Traffic Study by CDM-Smith
  - Upper projected limit of 100 trucks per day
  - Only a 1% increase to the road design capacity
  - Roadway geometries suitable
  - Recommended left turn lane into the facility
  - Voluntary relocation of mail boxes and reduction of speed limit
  - Other special use permit conditions
- Eastern buffer is 300 feet to property line/Deep River
  - Closest disposal area is setback 395 feet from property line
- Southern buffer is 400 feet to property line
  - Closest disposal area is setback 460 feet from property line

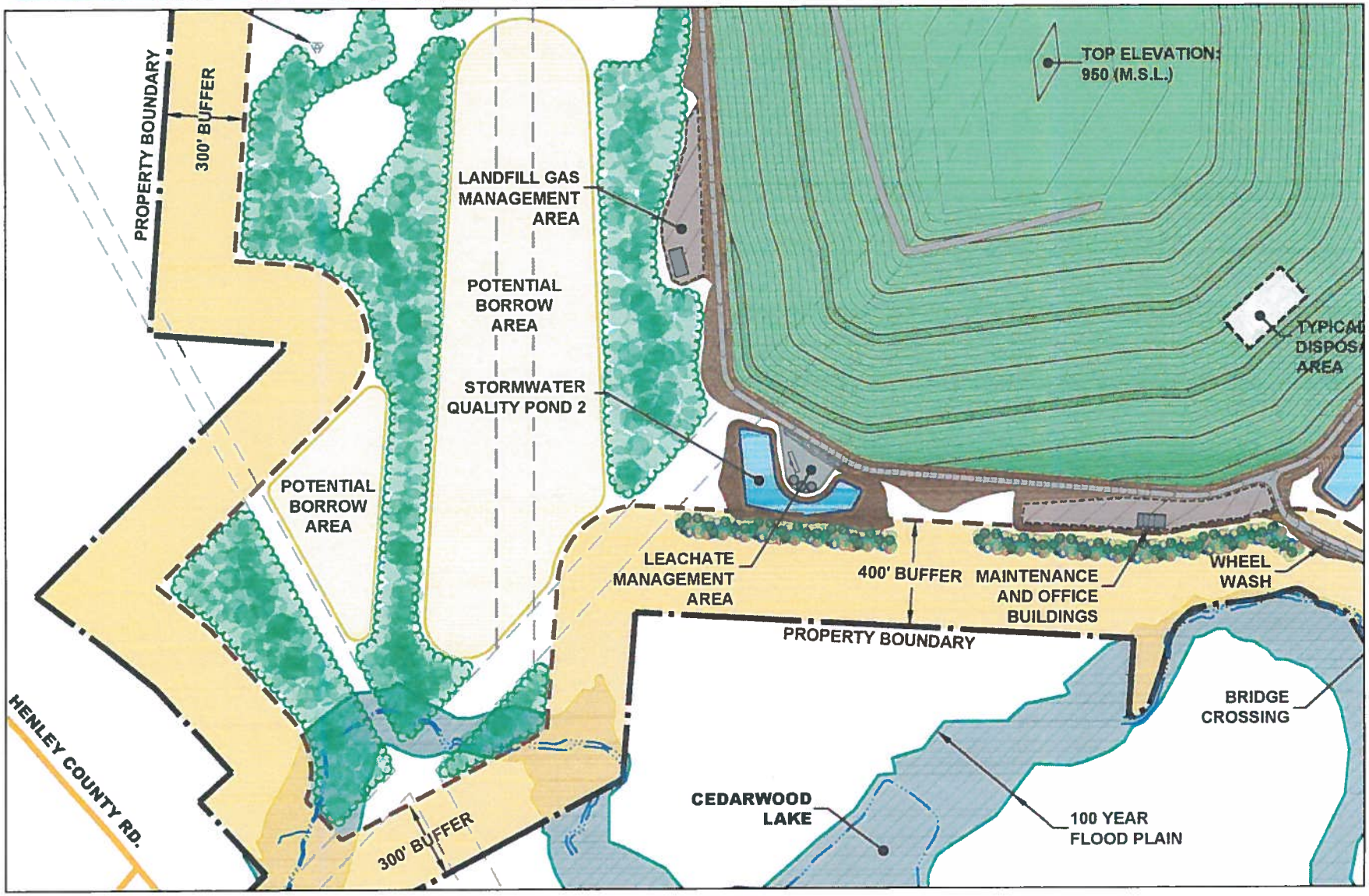
New Conceptual Site Plan



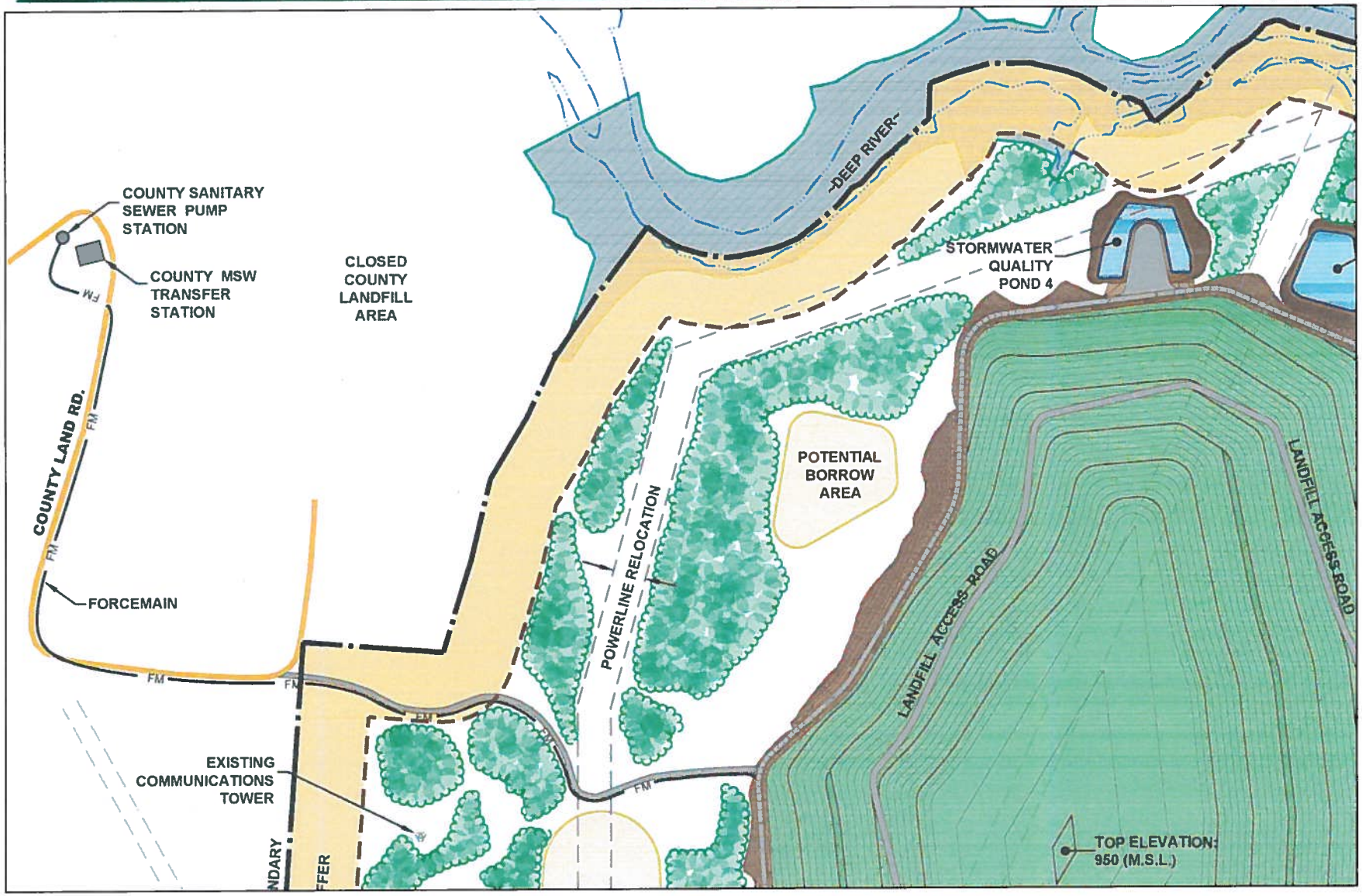
New Conceptual Site Plan



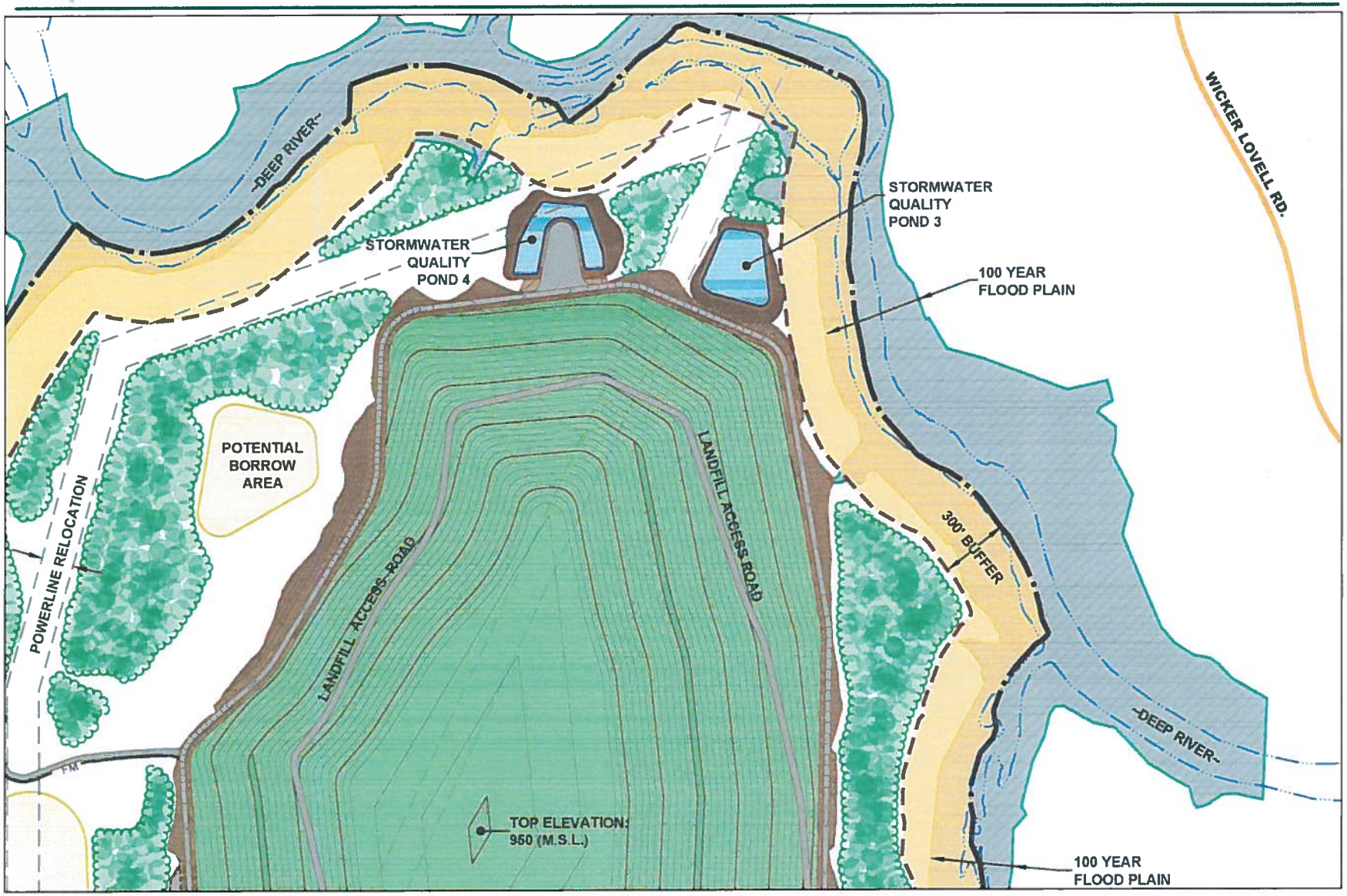
New Conceptual Site Plan



New Conceptual Site Plan



New Conceptual Site Plan



Activities Completed

- Alternate Site Evaluation
- Fatal Flaw Study
- Financial Analysis
- Market Study
- Environmental Impact Study
- Site Suitability Study
  - Geophysical Survey
  - Phase I Cultural Resources Survey
  - Phase II Cultural Resources Survey
  - Rare Plant Survey
  - Wetlands and Perennial Stream Delineation
- Hydrogeologic/Geotechnical Investigation
  - Drilling/Survey/Field Work

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Activities in Progress

- Hydrogeologic/Geotechnical Investigation
  - Report in progress
- Finalize Conceptual Site Plan
  - Refined waste disposal footprint
  - Facility entrance road layout
  - Supporting facility structures
  - Stormwater Management
  - Preliminary grading
  - Earthwork volumes

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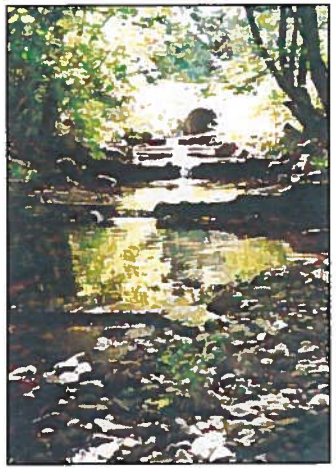
Next Steps



- Site Suitability Report
  - Submitted after resolution approval
- Facility Plan & Design Hydrogeologic Report
  - Submitted with Site Suitability Report
- RFQ/RFP for Teaming Partner based on refined Conceptual Site Plans
- Application for Permit to Construct
  - Prepared after Site Suitability approval and partner selection
- Regulatory Meetings and Public Hearings
  - 2 Hearings for EIS
  - 2 Hearings for NCDENR
  - Hearing for Franchise Agreement

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Appendix SA-8

Transportation Study
Transportation Study Addendum
Accident Data Analysis

Transportation Study

FINAL

TRANSPORTATION STUDY

PROPOSED RANDOLPH COUNTY REGIONAL LANDFILL

Prepared for

Randolph County Public Works

Prepared by

CDM Smith

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NORTH CAROLINA PROFESSIONAL SEAL 038718 ENGINEER WILLIAM E. LETCHWORTH

1/4/13

January 4, 2013

CDM Smith

TRANSPORTATION STUDY

For

PROPOSED RANDOLPH COUNTY REGIONAL LANDFILL

Randolph County, North Carolina

Prepared For:

RANDOLPH COUNTY
Randolph County Office Building
725 McDowell Road
Asheboro, North Carolina 27205

Prepared By:

CDM SMITH
421 Fayetteville Street, Suite 1303
Raleigh, North Carolina 27601
(919) 755-0583
NC Licensure No. F-1255

January 4, 2013

(CDM Smith Project No. 95589)

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I. Introduction

The proposed Randolph County Regional Landfill is planned to be located northeast of the intersection of Henley Country Road and Old Cedar Falls Road. The proposed facility is expected to serve both local residential solid waste disposal as well as regional commercial solid waste disposal. For the purposes of this study the facility is assumed to be open by 2016.

The purpose of this report is to examine transportation impacts from the increased commercial solid waste disposal in the following key areas:

- Roadway capacity
- Roadway geometrics
- Location of facility access points
- Truck frequency
- Bridge infrastructure
- Vehicle accidents
- School bus traffic
- Farming operations

II. Facility Characteristics

The proposed Randolph County Regional Landfill is generally planned to be located east of Henley Country Road and north of Old Cedar Falls Road in Randolph County south east of the closed County Landfill which operated from 1971 to 1997. Figure 1 on page 4 illustrates the Conceptual Plan (provided by Randolph County Public Works) for the Proposed Randolph County boundary relative to the First County Landfill and the existing Solid Waste Transfer Site. The proposed Regional Landfill is planned to have a useful life of in excess of 30 years. Residential solid waste customers are planned to continue to have existing access for the Solid Waste Transfer Site and Convenience Center located on County Land Road. All commercial access is planned to be provided via a new commercial access roadway located off of Training Center Drive or Old Cedar Falls Road. Based on information provided by Randolph County Public Works, the proposed Regional Landfill is expected to continue to serve approximately 150 residential customers per day and is expected to add approximately 100 commercial vehicles per day at the proposed commercial access. The proposed transportation routes are shown in Figure 2 on page 5 (provided by Randolph County Public Works). Normal operational hours are planned to be 8:00 AM to 5:00 PM, Monday through Friday for all traffic and 7:00 AM to 12:00 noon on Saturday for residential traffic only. There are no plans to be open on any major US holidays.

Figure 1 – Conceptual Plan for Proposed Regional Landfill

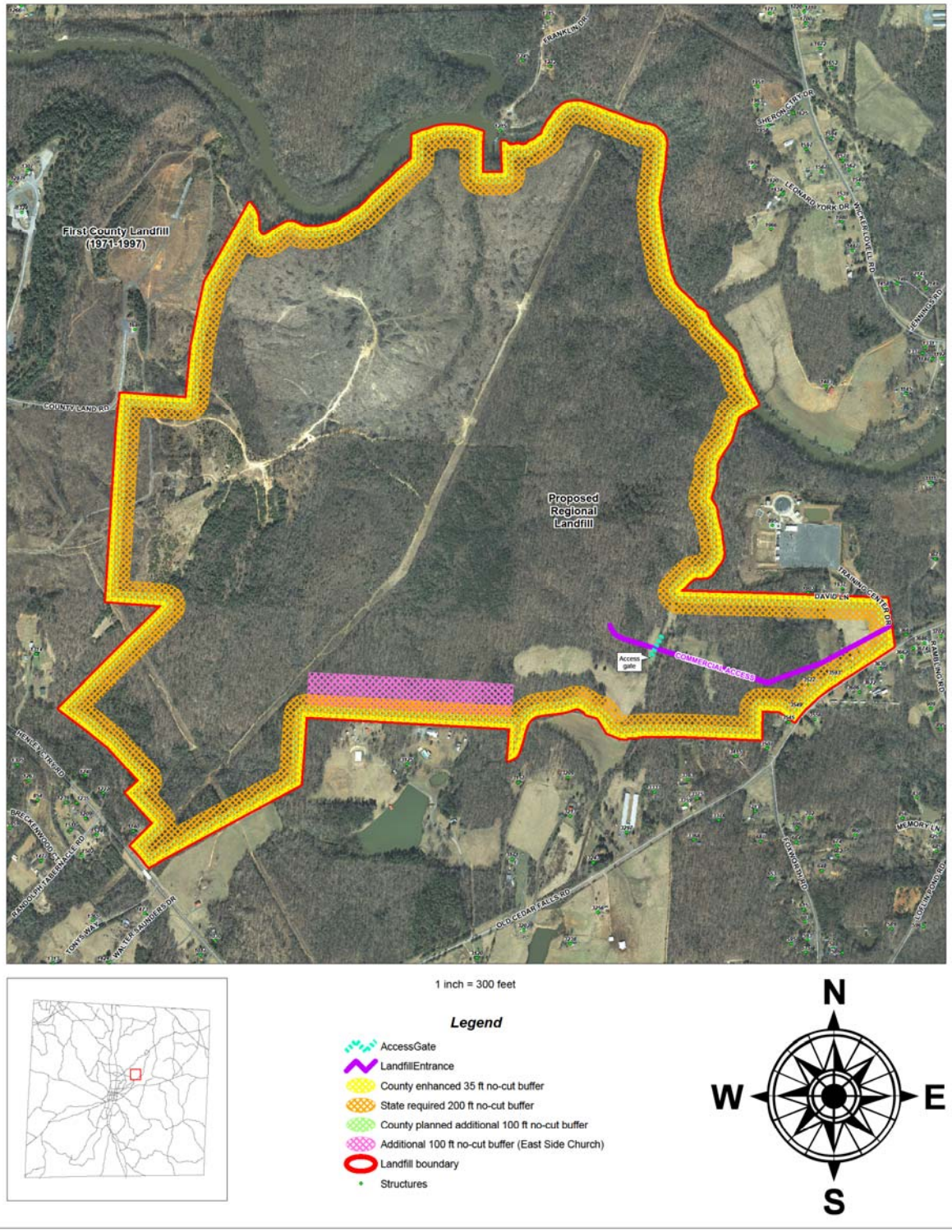
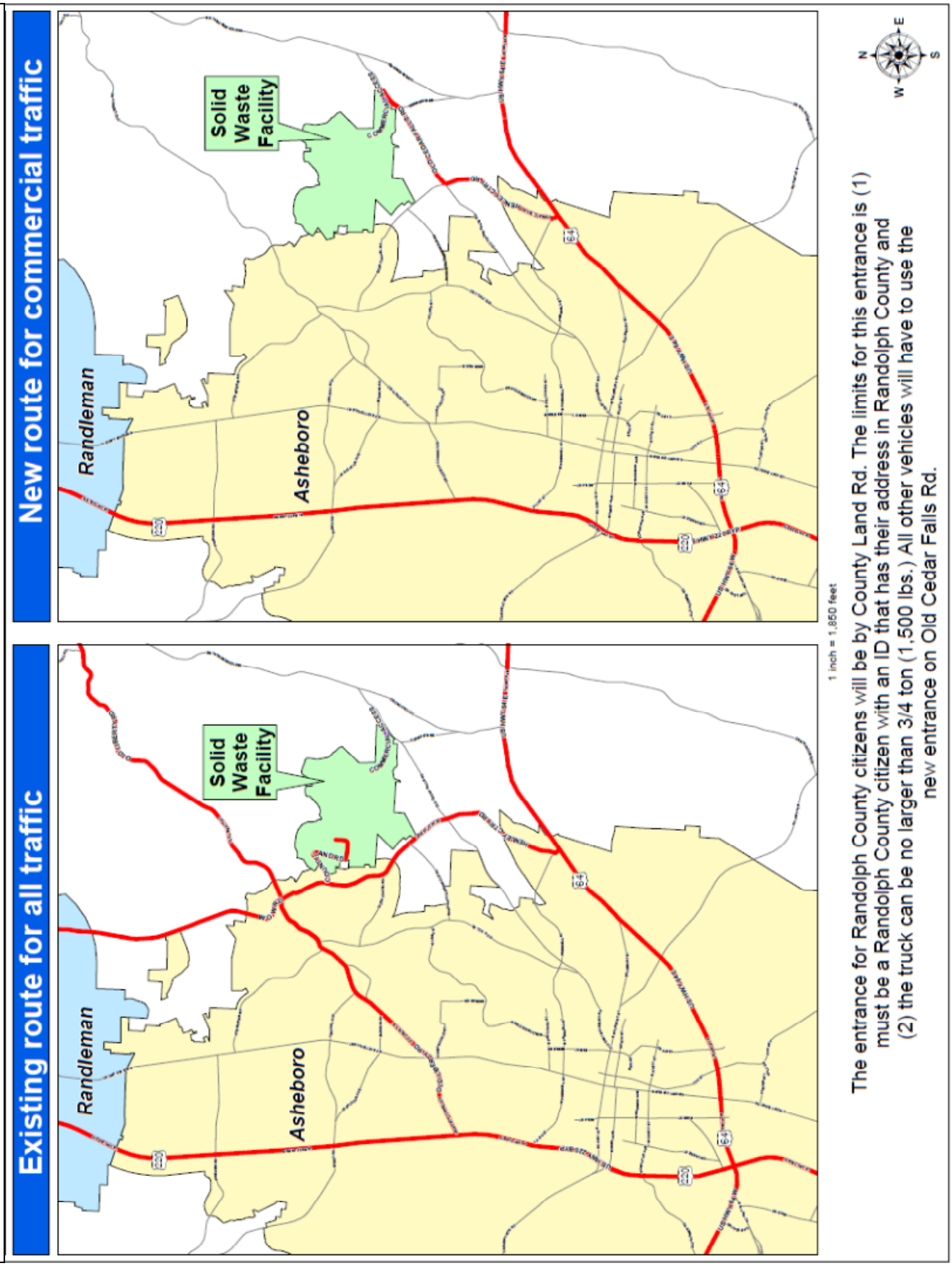


Figure 2 – Transportation Routes for Proposed Regional Landfill



III. Discussion of Impacts

The following sub-sections directly address the key areas of concern voiced by Randolph County citizens during the planning process.

A. Roadway Capacity

To address the future capacity of area roadways, CDM Smith performed mechanical 24-hour tube counts at the following locations between December 4th and 6th, 2012:

- US 64 east of Presnell Street
- US 64 west of Presnell Street
- Henley Country Road east of Presnell Street
- Old Cedar Falls Road east of Henley Country Road
- Henley Country Road south of Old Liberty Road
- Old Liberty Road east of Gant Street
- Old Liberty Road west of Gant Street

The following table shows the capacities, 2012, and 2016 traffic volumes without the proposed landfill for each roadway.

Roadway	Capacity (vehicles per day)[1]	2012 Daily Traffic Volume	2012 Percent of Capacity	2016 Daily Traffic Volume without Landfill	2016 Percent of Capacity without Landfill
US 64 east of Presnell Street	32,700	19,169	59%	24,153	74%
US 64 west of Presnell Street	32,700	18,609	57%	23,447	72%
Henley Country Road east of Presnell Street	16,400	1,253	8%	1,579	10%
Old Cedar Falls Road east of Henley Country Road	16,400	3,425	21%	4,316	26%
Henley Country Road south of Old Liberty Road	16,400	1,629	10%	2,053	13%
Old Liberty Road east of Gant Street	16,400	3,851	23%	4,852	30%
Old Liberty Road west of Gant Street	16,400	3,331	20%	4,197	26%

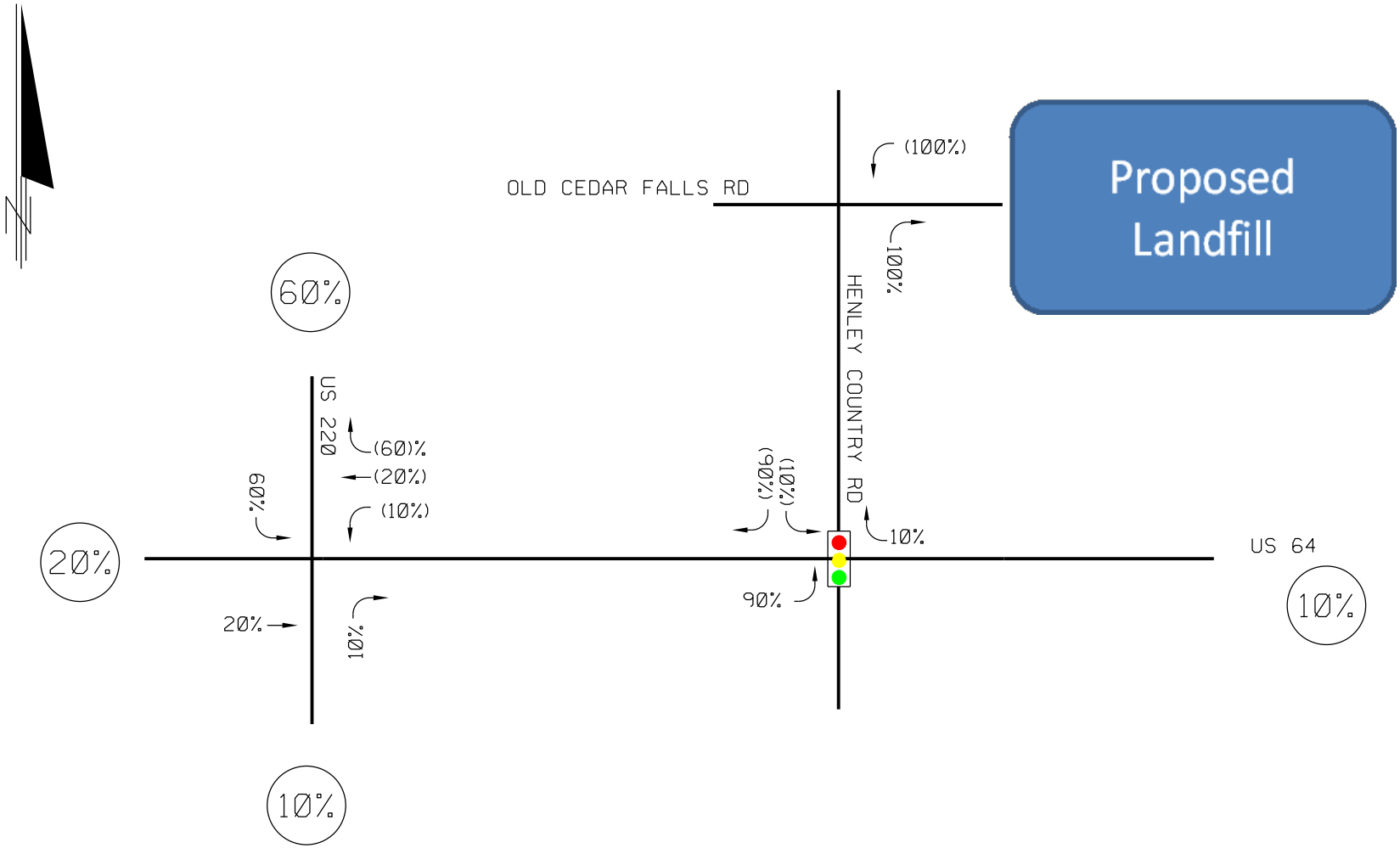
[1] http://www.dot.state.fl.us/planning/systems/sm/los/pdfs/fdot%202012%20generalized%20service%20volume%20tables.pdf

This table indicates that all of the existing roadways are operating well under capacity and are expected to continue to operate well under capacity in 2016 without the proposed landfill.

To determine the future landfill traffic, the traffic data collected by CDM Smith was analyzed and regional distributions for commercial truck traffic were developed. The amount of residential traffic, which is already included in the 2012 traffic counts, was assumed to remain constant. Figure 3 on page 8 shows the regional distribution of traffic (in terms of percent of total traffic) and how that traffic flows to the commercial access planned to be located off of Old Cedar Falls Road. Figure 4 on page 9 shows the daily commercial vehicle volume on the study area roadways.

The increase in truck traffic at each of the count locations is shown in the following table.

Roadway	2016 Daily Traffic Volume without Landfill	2016 Percent of Capacity	Truck Traffic as a result of Landfill	Total 2016 Traffic with Landfill	Percent of Capacity with Landfill
US 64 east of Presnell Street	24,153	74%	20	24,173	74%
US 64 west of Presnell Street	23,447	72%	90	23,537	72%
Henley Country Road east of Presnell Street	1,579	10%	200	1,779	11%
Old Cedar Falls Road east of Henley Country Road	4,316	26%	200	4,516	28%
Henley Country Road south of Old Liberty Road	2,053	13%	0	2,053	13%
Old Liberty Road east of Gant Street	4,852	30%	0	4,852	30%
Old Liberty Road west of Gant Street	4,197	26%	0	4,197	26%



LEGEND
← DIRECTIONAL MOVEMENT
XX ENTERING DISTRIBUTION
(XX) EXITING DISTRIBUTION

CDM Smith
421 FAYETTEVILLE ST, SUITE 1303
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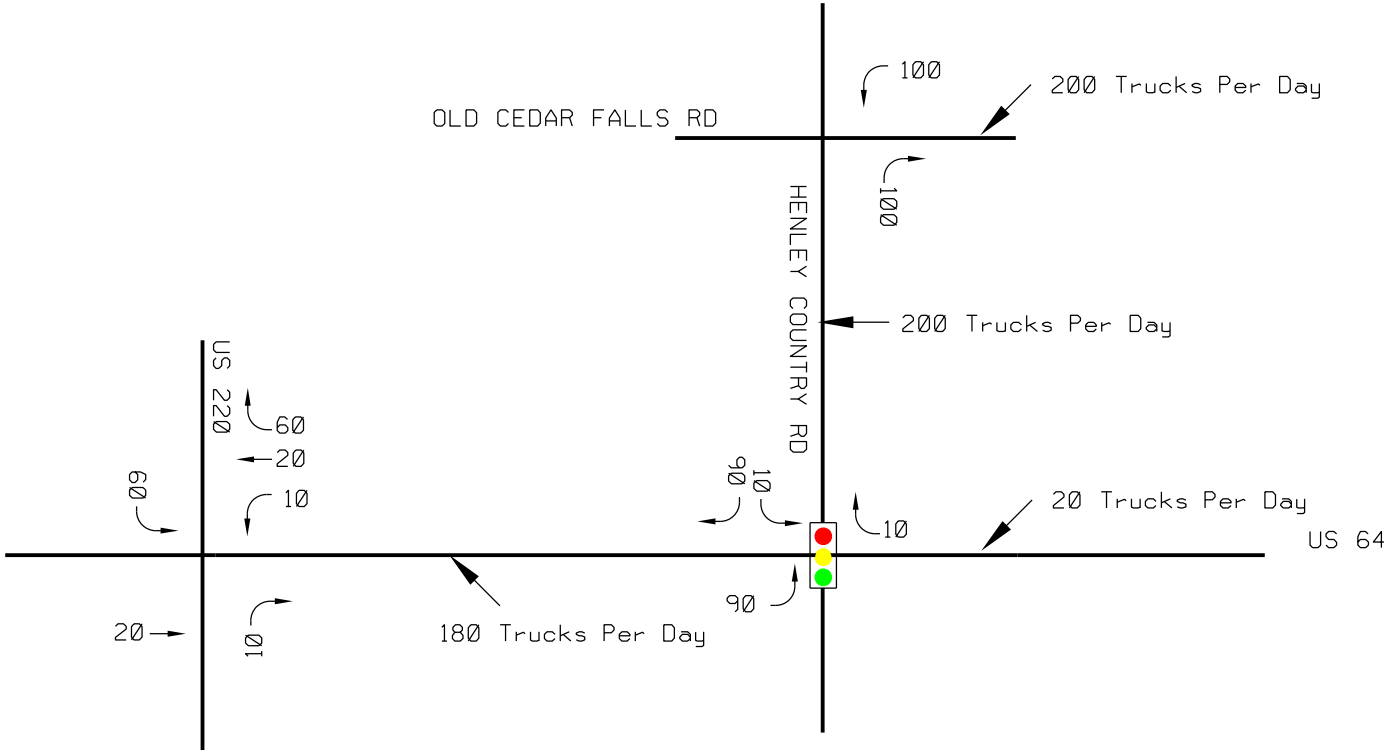
TRANSPORTATION IMPACT ANALYSIS
RANDOLPH COUNTY LANDFILL
RANDOLPH COUNTY, NORTH CAROLINA

REGIONAL COMMERCIAL TRAFFIC DISTRIBUTION

FIGURE: 3



LEGEND
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TRANSPORTATION IMPACT ANALYSIS
RANDOLPH COUNTY LANDFILL
RANDOLPH COUNTY, NORTH CAROLINA

DAILY COMMERCIAL VEHICLE TRAFFIC

FIGURE: 4

This table indicates, that while the proposed landfill will add up to 200 additional trucks per day, this traffic has a very limited overall affect on roadway capacities for the study area roadways, with all roadways remaining well under the daily capacity. This minor affect on traffic volumes and volume to capacity ratios will not pose material dangers or create unsafe conditions.

B. Roadway Geometrics

US 64 is a 4-lane median divided facility east of Presnell Street and a 5-lane undivided facility west of Presnell Street. The –T- intersection with Presnell Street is signalized with a permitted left turn for westbound left turning traffic. Dual left turn lanes are provided for southbound traffic on Presnell Street and an auxiliary right turn lane is provided for westbound right turning traffic on US 64. The speed limit on this facility is 55 miles per hour.

Henley Country Road is a 2-lane, 22 foot wide undivided facility with no posted speed limit (speed limit assumed to be 55 mph). All intersections in the study area along Henley Country Road are unsignalized. There are four sets of curves between Presnell Street and Old Cedar Falls Road marked with advisory speeds, three with 40 miles per hour and one with 30 miles per hour speed.

Old Cedar Falls Road is a 2-lane 22 foot wide undivided facility with a posted speed limit of 45 miles per hour. In the vicinity of Foxworth Road the speed limit reduces to 35 miles per hour. There are no curves between Henley Country Road and the proposed facility access marked with an advisory speed.

Old Liberty Road is a 2-lane 24 foot wide undivided facility with a 35 miles per hour speed limit in the vicinity of Henley Country Road (Gant Street).

While these facilities are rolling, with existing horizontal and vertical curves, there are no roadway geometrics which pose material dangers or which would create unsafe conditions with the addition of traffic from the proposed landfill. Trucks routinely travel these roadways on a daily basis with no visual evidence of significant problems.

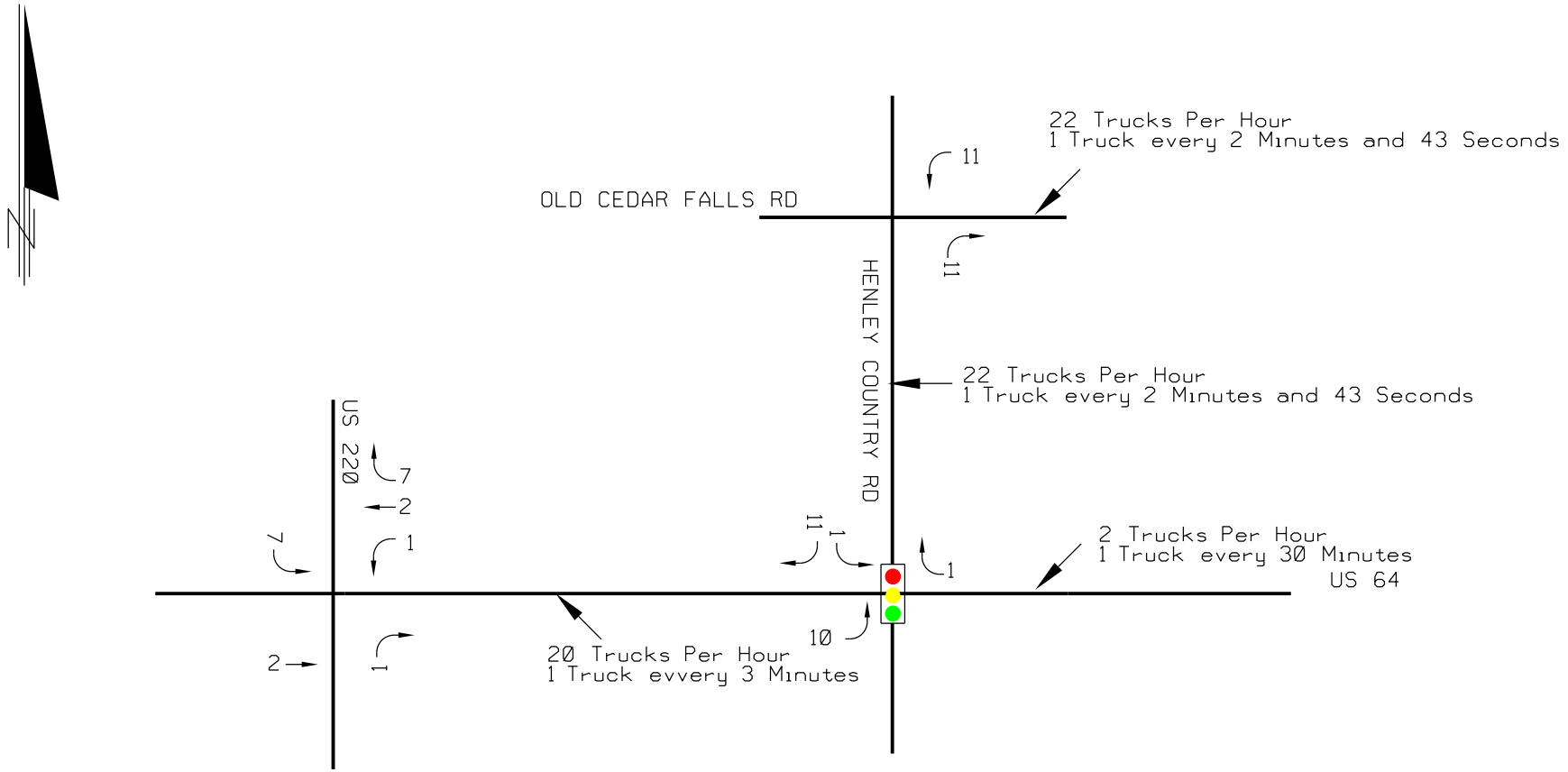
C. Location of Facility Access Points

There are currently two options for commercial access to the proposed landfill. Option 1 is to connect to Training Center Drive, which provides access to Old Cedar Falls Road. Option 2 is to connect directly to Old Cedar Falls Road. CDM Smith staff examined the site distances and grades along Old Cedar Falls Road, including in the vicinity of the intersections with Training Center Drive and Foxworth Road. Site distances and grades in this area appear to be suitable for access to the landfill considering the operational characteristics of the types of vehicles that will be accessing the landfill. Considering the low amount of traffic expected to be accessing

the facility in any one hour, no auxiliary turn lanes are needed at the access point from a capacity standpoint. However, the County may wish to consider an eastbound left turn lane at the access point, designed in a fashion to provide adequate stopping distances for trucks and constructed with a sufficient pavement depth to avoid pushing of the pavement due to heavy vehicles frequently decelerating in this lane. The County should also place the entrance gate to the facility a sufficient distance away from the intersection with Training Center Drive or Old Cedar Falls Road (depending on the final access location) to accommodate trucks queuing before the facility opens.

D. Truck and Traffic Frequency

Of particular concern to residents is the frequency of commercial truck traffic travelling to and from the landfill access on Old Cedar Falls Road. Information provided by Randolph County Public Works indicates that there will be approximately 100 commercial trucks per day accessing the facility. The images below show examples of the types of commercial trucks that will be utilizing the facility.These trucks are assumed to be spread evenly throughout the 9-hour operation period resulting in 11 trucks per hour entering the facility, or one truck every 5 minutes and 27 seconds at the access point. However, since trucks are coming from a variety of areas, as one moves farther from the main access point, the frequency of truck traffic decreases. The following Figure 5 on page 12 shows the frequency of trucks on the study area roadways assuming 200 total trips (100 trucks entering and 100 trucks exiting the facility).



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(XX) EXITING DISTRIBUTION

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TRANSPORTATION IMPACT ANALYSIS
RANDOLPH COUNTY LANDFILL
RANDOLPH COUNTY, NORTH CAROLINA

TRUCK TRAFFIC FREQUENCY

FIGURE: 5

CDM Smith also examined the overall frequency of traffic along Henley Country Road and Old Cedar Falls Road at the busiest time of the day. For Henley Country Road between Old Cedar Falls Road and US 64, the busiest hour of the day after the facility is operational will be the 4:00-5:00 peak hour with 113 vehicles (total of both directions). This equates to one vehicle every 32 seconds. The Highway Capacity Manual [2]states that the average walking speed of a pedestrian is 4.0 feet per second. Given that the roadway is an average of 22 feet wide, it will take the average individual 5.5 seconds to cross the entire roadway. With a time between vehicles of 32 seconds, this leaves ample time for an individual to cross the roadway. On Old Cedar Falls Road, the highest hourly volume is 309 vehicles per hour (total of both directions) in the 3:00 to 4:00 hour. This equates to one vehicle every 12 seconds, again ample time for an individual to cross the roadway during the peak hour. This information is summarized in the following table.

Roadway	Highest Hourly Traffic Volume (sum of both directions)	Time Between Vehicles (seconds)	Time to Cross Roadway (seconds)
Henley Country Road	113	32	5.5
Old Cedar Falls Road	309	12	5.5

It is our opinion that the frequency of truck traffic generated by the proposed facility will not materially endanger public safety.

E. Bridge Infrastructure

The North Carolina Department of Transportation (NCDOT) maintains a database of all bridges in the State of North Carolina. There is one structure located on Henley Country Road in the vicinity of the study area. This structure traverses Gabriel's Creek, was constructed in 2009, and has a sufficiency rating of 98 (out of 100). This bridge does not lie on the designated commercial truck route and therefore will see no increase in commercial truck traffic from the proposed landfill. There is also one structure located on Old Liberty Road in the vicinity of the study area. This structure traverses the Deep River, was constructed in 2004 and has a sufficiency rating of 95.6 (out of 100). This structure also does not lie on the designated commercial truck route and therefore will see no increase in commercial truck traffic from the proposed landfill.

It is our opinion that there is no danger created by the additional traffic from the proposed landfill crossing the existing bridges.

[2] Highway Capacity Manual, Transportation Research Board, Washington D.C., 2000

F. School Bus Traffic

The Randolph County School System has two buses that traverse the study area. The first bus carries high school and middle school students and the second bus carries elementary school students. In the morning the high school / middle school bus travels through the area from 6:15 AM to 6:30 AM and the elementary school bus travels through the area from 6:54 AM to 7:11 AM. Both of these busses travel through the area before the operating hours of the proposed landfill, and therefore there will be no impact from landfill operations. In the afternoon the high school / middle school bus travels through the area from 3:52 PM to 4:13 PM and the elementary school bus travels through the area between 3:09 PM and 3:20 PM. The high school / middle school bus travels from Old Liberty Road, down Henley Country Road, and then turns onto Giles Chapel Road. This route does not overlap with the proposed commercial truck route, therefore the proposed landfill will pose no danger to school busses on this route. The elementary school bus travels from Old Liberty Road, down Hopewell Street to Pennsylvania Street, then turns on to Henley Country Road and returns to Old Liberty Road using Giles Chapel Road. As with the high school / middle school bus, this route does not overlap with the proposed commercial truck route, therefore the landfill will have no impact or create any danger to bus operations.

G. Farming Operations

There is one voluntary agricultural district in the vicinity of the proposed commercial truck routes, located in the southwest quadrant of the intersection of Old Cedar Falls Road and Henley Country Road. There also appear to be several additional working farms along Old Cedar Falls Road. No tractors or other large farm equipment were observed during CDM Smith's site visits. However, it is reasonable to expect that farm equipment does utilize Henley Country Road and Old Cedar Falls Road. However, given the low frequency of transfer trucks accessing the facility, there should be minimal impact on farming operations in the vicinity of the proposed landfill and the additional traffic generated by the proposed landfill will not pose material dangers or create unsafe conditions for farming operations.

IV. Recommendations

Considering the existing transportation facilities, amount and frequency of truck traffic expected to access the proposed landfill, and the issues raised by the public, CDM Smith recommends the following:

- Post a speed limit of 45 miles per hour on Henley Country Road between Presnell Street and Old Cedar Falls Road. This speed limit should be actively enforced, particularly for heavy vehicles.

- Consider an eastbound left turn lane at the proposed facility access, or at Training Center Drive designed with sufficient stopping distance for heavy vehicles and with a pavement structure designed to avoid pushing from heavy vehicles.
- Place the entrance gate to the facility a sufficient distance away from the intersection with Training Center Drive or Old Cedar Falls Road (depending on the final access location) to accommodate trucks queuing before the facility opens.

V. Conclusion

Based upon the data compiled in this study, site visits, and nationally accepted roadway design and safety criteria, it is our professional opinion that the additional traffic generated by the proposed landfill will not materially endanger public safety.

Appendix ! – Traffic Data

64 East of Presnell Street
File Name: P:_2012 Proposals\Randolph County Landfill Traffic Report\Counts\64E Processed.tf2
Start Date: 12/4/2012
Start Time: 2:00:00 PM
Site Code: 64E
Station ID:

		EB	WB
12/4/2012	02:00 PM	552	600
12/4/2012	03:00 PM	637	620
12/4/2012	04:00 PM	659	703
12/4/2012	05:00 PM	739	770
12/4/2012	06:00 PM	693	879
12/4/2012	07:00 PM	626	766
12/4/2012	08:00 PM	473	537
12/4/2012	09:00 PM	288	455
12/4/2012	10:00 PM	217	348
12/4/2012	11:00 PM	178	211
12/5/2012	12:00 AM	114	151
12/5/2012	01:00 AM	53	86
12/5/2012	02:00 AM	37	42
12/5/2012	03:00 AM	21	36
12/5/2012	04:00 AM	30	34
12/5/2012	05:00 AM	36	42
12/5/2012	06:00 AM	106	68
12/5/2012	07:00 AM	332	214
12/5/2012	08:00 AM	611	394
12/5/2012	09:00 AM	907	424
12/5/2012	10:00 AM	665	406
12/5/2012	11:00 AM	639	478
12/5/2012	12:00 PM	606	508
12/5/2012	01:00 PM	634	528
12/5/2012	02:00 PM	588	580
12/5/2012	03:00 PM	602	597
12/5/2012	04:00 PM	646	700
12/5/2012	05:00 PM	745	797
12/5/2012	06:00 PM	713	940
12/5/2012	07:00 PM	615	779
12/5/2012	08:00 PM	448	542
12/5/2012	09:00 PM	291	408
12/5/2012	10:00 PM	220	334
12/5/2012	11:00 PM	145	210
12/6/2012	12:00 AM	109	127
12/6/2012	01:00 AM	53	108
12/6/2012	02:00 AM	29	45
12/6/2012	03:00 AM	22	34
12/6/2012	04:00 AM	23	46
12/6/2012	05:00 AM	38	26
12/6/2012	06:00 AM	116	78
12/6/2012	07:00 AM	321	215
12/6/2012	08:00 AM	582	368
12/6/2012	09:00 AM	912	430
12/6/2012	10:00 AM	678	453
12/6/2012	11:00 AM	498	329

64 West of Presnell Street Eastbound
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Start Time: 2:00:00 PM
Site Code: 64WEB
Station ID:

		EB
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12/4/2012	03:00 PM	680
12/4/2012	04:00 PM	722
12/4/2012	05:00 PM	787
12/4/2012	06:00 PM	878
12/4/2012	07:00 PM	818
12/4/2012	08:00 PM	590
12/4/2012	09:00 PM	470
12/4/2012	10:00 PM	362
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12/5/2012	07:00 AM	178
12/5/2012	08:00 AM	346
12/5/2012	09:00 AM	447
12/5/2012	10:00 AM	428
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12/5/2012	02:00 PM	577
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12/5/2012	06:00 PM	883
12/5/2012	07:00 PM	886
12/5/2012	08:00 PM	585
12/5/2012	09:00 PM	431
12/5/2012	10:00 PM	341
12/5/2012	11:00 PM	223
12/6/2012	12:00 AM	116
12/6/2012	01:00 AM	103
12/6/2012	02:00 AM	56
12/6/2012	03:00 AM	33
12/6/2012	04:00 AM	41
12/6/2012	05:00 AM	26
12/6/2012	06:00 AM	67
12/6/2012	07:00 AM	190
12/6/2012	08:00 AM	359
12/6/2012	09:00 AM	425
12/6/2012	10:00 AM	462
12/6/2012	11:00 AM	353

64 West of Presnell Street Westbound
File Name: P:_2012 Proposals\Randolph County Landfill Traffic Report\Counts\64wwb processed.tf2
Start Date: 12/4/2012
Start Time: 2:00:00 PM
Site Code: 64WWB
Station ID:

		WB
12/4/2012	02:00 PM	565
12/4/2012	03:00 PM	592
12/4/2012	04:00 PM	616
12/4/2012	05:00 PM	704
12/4/2012	06:00 PM	679
12/4/2012	07:00 PM	615
12/4/2012	08:00 PM	434
12/4/2012	09:00 PM	271
12/4/2012	10:00 PM	197
12/4/2012	11:00 PM	153
12/5/2012	12:00 AM	92
12/5/2012	01:00 AM	48
12/5/2012	02:00 AM	33
12/5/2012	03:00 AM	23
12/5/2012	04:00 AM	21
12/5/2012	05:00 AM	36
12/5/2012	06:00 AM	94
12/5/2012	07:00 AM	272
12/5/2012	08:00 AM	493
12/5/2012	09:00 AM	784
12/5/2012	10:00 AM	636
12/5/2012	11:00 AM	581
12/5/2012	12:00 PM	569
12/5/2012	01:00 PM	612
12/5/2012	02:00 PM	574
12/5/2012	03:00 PM	541
12/5/2012	04:00 PM	631
12/5/2012	05:00 PM	719
12/5/2012	06:00 PM	710
12/5/2012	07:00 PM	606
12/5/2012	08:00 PM	401
12/5/2012	09:00 PM	269
12/5/2012	10:00 PM	193
12/5/2012	11:00 PM	130
12/6/2012	12:00 AM	101
12/6/2012	01:00 AM	45
12/6/2012	02:00 AM	31
12/6/2012	03:00 AM	20
12/6/2012	04:00 AM	19
12/6/2012	05:00 AM	38
12/6/2012	06:00 AM	96
12/6/2012	07:00 AM	274
12/6/2012	08:00 AM	481
12/6/2012	09:00 AM	744
12/6/2012	10:00 AM	622
12/6/2012	11:00 AM	218

Henley Country Roud South of Old Liberty Road
File Name: P:_2012 Proposals\Randolph County Landfill Traffic Report\Counts\SOOLR Processed.tf2
Start Date: 12/4/2012
Start Time: 3:00:00 PM
Site Code: SOOLR
Station ID:

		SB	NB
12/4/2012	03:00 PM	55	57
12/4/2012	04:00 PM	56	68
12/4/2012	05:00 PM	58	75
12/4/2012	06:00 PM	81	86
12/4/2012	07:00 PM	62	65
12/4/2012	08:00 PM	46	33
12/4/2012	09:00 PM	30	27
12/4/2012	10:00 PM	32	21
12/4/2012	11:00 PM	29	14
12/5/2012	12:00 AM	9	9
12/5/2012	01:00 AM	6	9
12/5/2012	02:00 AM	2	7
12/5/2012	03:00 AM	1	1
12/5/2012	04:00 AM	5	4
12/5/2012	05:00 AM	3	3
12/5/2012	06:00 AM	7	6
12/5/2012	07:00 AM	25	19
12/5/2012	08:00 AM	64	33
12/5/2012	09:00 AM	62	56
12/5/2012	10:00 AM	29	45
12/5/2012	11:00 AM	34	41
12/5/2012	12:00 PM	34	36
12/5/2012	01:00 PM	40	51
12/5/2012	02:00 PM	53	51
12/5/2012	03:00 PM	51	50
12/5/2012	04:00 PM	64	72
12/5/2012	05:00 PM	61	79
12/5/2012	06:00 PM	59	54
12/5/2012	07:00 PM	72	71
12/5/2012	08:00 PM	56	42
12/5/2012	09:00 PM	41	27
12/5/2012	10:00 PM	26	21
12/5/2012	11:00 PM	21	16
12/6/2012	12:00 AM	13	8
12/6/2012	01:00 AM	4	6
12/6/2012	02:00 AM	2	3
12/6/2012	03:00 AM	1	1
12/6/2012	04:00 AM	4	1
12/6/2012	05:00 AM	2	3
12/6/2012	06:00 AM	6	6
12/6/2012	07:00 AM	28	14
12/6/2012	08:00 AM	68	38
12/6/2012	09:00 AM	57	61
12/6/2012	10:00 AM	40	41

Henley Country Road East of Presnell Street
File Name: P:_2012 Proposals\Randolph County Landfill Traffic Report\Counts\HCRS Processed.tf2
Start Date: 12/4/2012
Start Time: 2:00:00 PM
Site Code: HCRS
Station ID:

		EB	WB
12/4/2012	02:00 PM	41	34
12/4/2012	03:00 PM	46	46
12/4/2012	04:00 PM	42	59
12/4/2012	05:00 PM	61	40
12/4/2012	06:00 PM	63	46
12/4/2012	07:00 PM	55	30
12/4/2012	08:00 PM	35	17
12/4/2012	09:00 PM	26	12
12/4/2012	10:00 PM	24	10
12/4/2012	11:00 PM	14	10
12/5/2012	12:00 AM	5	7
12/5/2012	01:00 AM	3	4
12/5/2012	02:00 AM	3	2
12/5/2012	03:00 AM	2	0
12/5/2012	04:00 AM	4	4
12/5/2012	05:00 AM	6	12
12/5/2012	06:00 AM	8	10
12/5/2012	07:00 AM	18	24
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12/5/2012	10:00 AM	38	37
12/5/2012	11:00 AM	33	30
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12/5/2012	01:00 PM	44	43
12/5/2012	02:00 PM	45	31
12/5/2012	03:00 PM	51	24
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12/5/2012	06:00 PM	64	37
12/5/2012	07:00 PM	37	35
12/5/2012	08:00 PM	29	9
12/5/2012	09:00 PM	35	9
12/5/2012	10:00 PM	22	10
12/5/2012	11:00 PM	12	10
12/6/2012	12:00 AM	7	8
12/6/2012	01:00 AM	4	1
12/6/2012	02:00 AM	4	2
12/6/2012	03:00 AM	8	8
12/6/2012	04:00 AM	4	4
12/6/2012	05:00 AM	4	3
12/6/2012	06:00 AM	6	8
12/6/2012	07:00 AM	14	24
12/6/2012	08:00 AM	26	33
12/6/2012	09:00 AM	34	39
12/6/2012	10:00 AM	20	18

Old Cedar Falls Road
File Name: P:_2012 Proposals\Randolph County Landfill Traffic Report\Counts\OCR Processed.tf2
Start Date: 12/4/2012
Start Time: 1:00:00 PM
Site Code: OCR
Station ID:

		EB	WB
12/4/2012	01:00 PM	82	75
12/4/2012	02:00 PM	113	104
12/4/2012	03:00 PM	146	135
12/4/2012	04:00 PM	184	108
12/4/2012	05:00 PM	210	118
12/4/2012	06:00 PM	110	86
12/4/2012	07:00 PM	80	64
12/4/2012	08:00 PM	49	32
12/4/2012	09:00 PM	30	48
12/4/2012	10:00 PM	34	32
12/4/2012	11:00 PM	36	18
12/5/2012	12:00 AM	18	6
12/5/2012	01:00 AM	8	2
12/5/2012	02:00 AM	4	4
12/5/2012	03:00 AM	5	7
12/5/2012	04:00 AM	10	25
12/5/2012	05:00 AM	34	83
12/5/2012	06:00 AM	96	227
12/5/2012	07:00 AM	142	177
12/5/2012	08:00 AM	86	98
12/5/2012	09:00 AM	50	65
12/5/2012	10:00 AM	64	68
12/5/2012	11:00 AM	68	69
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12/5/2012	02:00 PM	104	110
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12/5/2012	04:00 PM	165	94
12/5/2012	05:00 PM	180	132
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12/5/2012	07:00 PM	84	62
12/5/2012	08:00 PM	72	42
12/5/2012	09:00 PM	50	29
12/5/2012	10:00 PM	40	37
12/5/2012	11:00 PM	47	19
12/6/2012	12:00 AM	20	8
12/6/2012	01:00 AM	20	4
12/6/2012	02:00 AM	6	6
12/6/2012	03:00 AM	6	11
12/6/2012	04:00 AM	6	21
12/6/2012	05:00 AM	42	85
12/6/2012	06:00 AM	135	226
12/6/2012	07:00 AM	172	194
12/6/2012	08:00 AM	104	98
12/6/2012	09:00 AM	24	25

Old Liberty Road East of Henly Country Road
File Name: P:_2012 Proposals\Randolph County Landfill Traffic Report\Counts\OLRE Processed.tf2
Start Date: 12/4/2012
Start Time: 2:00:00 PM
Site Code: OLRE
Station ID:

		EB	WB
12/4/2012	02:00 PM	118	113
12/4/2012	03:00 PM	143	148
12/4/2012	04:00 PM	172	182
12/4/2012	05:00 PM	154	180
12/4/2012	06:00 PM	156	166
12/4/2012	07:00 PM	107	106
12/4/2012	08:00 PM	70	88
12/4/2012	09:00 PM	54	68
12/4/2012	10:00 PM	32	40
12/4/2012	11:00 PM	29	29
12/5/2012	12:00 AM	24	30
12/5/2012	01:00 AM	8	8
12/5/2012	02:00 AM	6	5
12/5/2012	03:00 AM	4	4
12/5/2012	04:00 AM	8	7
12/5/2012	05:00 AM	24	20
12/5/2012	06:00 AM	48	33
12/5/2012	07:00 AM	123	100
12/5/2012	08:00 AM	176	138
12/5/2012	09:00 AM	134	114
12/5/2012	10:00 AM	86	72
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12/5/2012	12:00 PM	111	94
12/5/2012	01:00 PM	76	78
12/5/2012	02:00 PM	105	113
12/5/2012	03:00 PM	134	130
12/5/2012	04:00 PM	146	158
12/5/2012	05:00 PM	134	144
12/5/2012	06:00 PM	150	188
12/5/2012	07:00 PM	113	122
12/5/2012	08:00 PM	83	88
12/5/2012	09:00 PM	72	78
12/5/2012	10:00 PM	33	40
12/5/2012	11:00 PM	23	30
12/6/2012	12:00 AM	20	20
12/6/2012	01:00 AM	6	6
12/6/2012	02:00 AM	8	10
12/6/2012	03:00 AM	7	4
12/6/2012	04:00 AM	8	6
12/6/2012	05:00 AM	22	16
12/6/2012	06:00 AM	42	34
12/6/2012	07:00 AM	130	105
12/6/2012	08:00 AM	178	142
12/6/2012	09:00 AM	114	98

Old Liberty Road West of Henley Country Road
File Name: P:_2012 Proposals\Randolph County Landfill Traffic Report\Counts\OLR Processed.tf2
Start Date: 12/4/2012
Start Time: 1:00:00 PM
Site Code: OLR
Station ID:

		EB	WB
12/4/2012	01:00 PM	98	120
12/4/2012	02:00 PM	112	128
12/4/2012	03:00 PM	126	156
12/4/2012	04:00 PM	142	186
12/4/2012	05:00 PM	117	140
12/4/2012	06:00 PM	100	102
12/4/2012	07:00 PM	45	83
12/4/2012	08:00 PM	23	70
12/4/2012	09:00 PM	24	36
12/4/2012	10:00 PM	19	28
12/4/2012	11:00 PM	12	26
12/5/2012	12:00 AM	10	7
12/5/2012	01:00 AM	8	7
12/5/2012	02:00 AM	6	6
12/5/2012	03:00 AM	10	7
12/5/2012	04:00 AM	22	10
12/5/2012	05:00 AM	47	11
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12/5/2012	07:00 AM	175	87
12/5/2012	08:00 AM	144	72
12/5/2012	09:00 AM	76	66
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12/5/2012	01:00 PM	100	111
12/5/2012	02:00 PM	112	94
12/5/2012	03:00 PM	113	157
12/5/2012	04:00 PM	117	152
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12/5/2012	06:00 PM	102	104
12/5/2012	07:00 PM	66	67
12/5/2012	08:00 PM	47	66
12/5/2012	09:00 PM	15	39
12/5/2012	10:00 PM	13	30
12/5/2012	11:00 PM	12	21
12/6/2012	12:00 AM	6	8
12/6/2012	01:00 AM	4	8
12/6/2012	02:00 AM	6	4
12/6/2012	03:00 AM	8	5
12/6/2012	04:00 AM	26	7
12/6/2012	05:00 AM	44	18
12/6/2012	06:00 AM	118	63
12/6/2012	07:00 AM	168	86
12/6/2012	08:00 AM	119	65
12/6/2012	09:00 AM	12	13

CDM Smith

cdmsmith.com

Transportation Study Addendum

TRANSPORTATION STUDY ADDENDUM

For

PROPOSED RANDOLPH COUNTY REGIONAL LANDFILL

Randolph County, North Carolina

Prepared For:

RANDOLPH COUNTY
Randolph County Office Building
725 McDowell Road
Asheboro, North Carolina 27205

Prepared By:

VOLKERT

5540 Centerview Drive, Suite 403
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NC Licensure No. F-0765

July 19, 2013

(Volkert Project No. 1312005)

NORTH CAROLINA PROFESSIONAL SEAL 19838 ENGINEER TERRY M. SNOW

7/19/13

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II. Existing Land Use Map 2
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IV. School Bus Traffic 5
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Intersection Sight Distance 7
Stopping Sight Distance 9
Horizontal Curves 9
Vertical Curves 11
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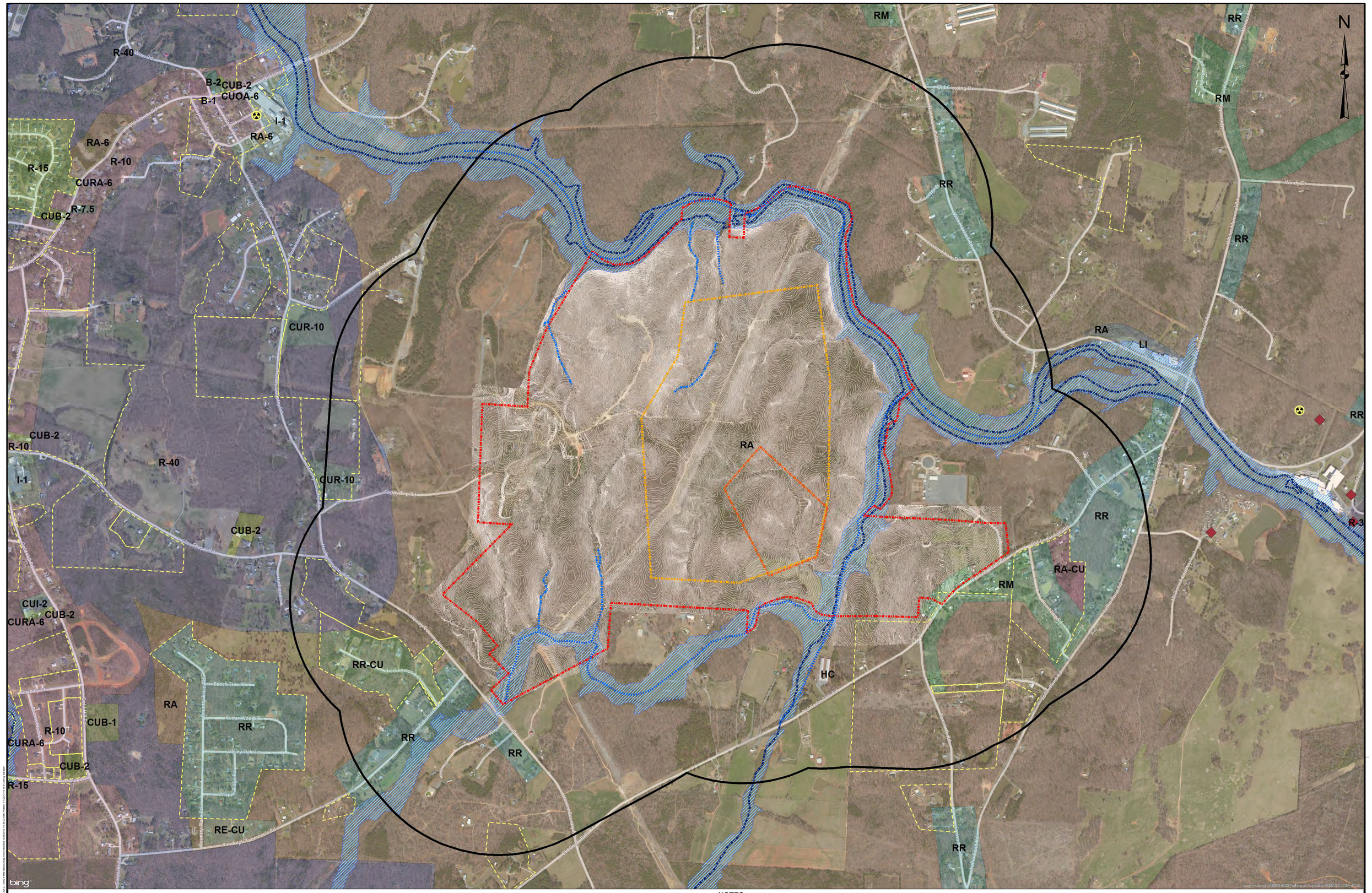
I. Introduction

Pursuant to the requirements for the *Site Suitability Report* for compliance with 1492 and to address the *Special Use Permit Condition* relative to a sight distance study, the purpose of this addendum is to provide additional information and to update the *Randolph County Proposed Regional Landfill Transportation Study*, dated January 4, 2013 (prepared by CDM Smith). Specifically, this addendum contains the following:

1. An existing land use map with the proposed regional landfill and existing land uses surrounding the project study denoted.
2. A narrative and exhibit referencing the proposed Northeast Boulevard project and how this long range State transportation improvement project will impact on the proposed regional landfill.
3. School bus traffic narrative which reflects the existing City of Asheboro and Randolph County school bus routes on roadways in the project study area.
4. Sight distance study to address areas where horizontal and vertical issues existing which affects the stopping sight distance for school bus stops and general driveway accesses. This study will be conducted using visual observations while traveling through the study area.

II. Existing Land Use Map

The following maps, prepared by Golder and Associates, shows the existing land uses along the identified approach routes. In general, the proposed regional landfill is surrounded by low density residential and agricultural land uses.



LEGEND

- Listed National Historic Site (as listed by the NRHP)
- Non-Public Schools
- Public Schools
- Large and Small Quantity Generator Hazardous Waste Facilities
- Groundwater Supply Wells
- Surface Water Intake Systems
- Proposed Phase I Area
- Site Topographic Contours
- Delineated Intermittent Streams
- Delineated Perennial Streams
- NC Classified (named) Water
- 2000 Ft Buffer
- Proposed Preliminary Limits of Waste
- Property Boundary
- Subdivisions
- 100-yr. Flood Plain (as mapped by NC Floodplain mapping system)

REFERENCES

Spatial Data Consultants, Inc.. 2012. Orthographic Projection – Aerial Randolph County Landfill (taken: 04-11-2012). Obtained from: CD provided by Spatial Data Consultants, Inc.. www.spatialdc.com

Bing Maps, © Microsoft Corporation and its data suppliers. 2010. Aerial Imagery w/ Labels web mapping service (licensed through ESRI). Obtained from: As a base map available through our ArcMap GIS license.

NC Department of Public Instruction. 2012. Public Schools in North Carolina (Shapefile: schlpl.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NC Department of Administration, Division of Non-Public Education. 2007. Non-Public Schools in North Carolina (Shapefile: schlnp.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NCDENR, Division of Waste Management, Hazardous Waste Section. 2012. Hazardous Waste Sites (Shapefile: HW_Sites.shp). Obtaine.d from: http://data.nconemap.com/geoportal/catalog/main/home.page

NCFMIS, North Carolina Floodplain Mapping Information System. 2012. FEMA and NC Flood Insurance Study No. 37151CV001A (Geodatabase: Randolph_Effective_PGDB_Final.mdb /MAPFLDHAZARD). Obtained from: http://floodmaps.nc.gov/fmis/Download.aspx

NCDENR, Division of Water Quality, Water Quality Data Assessment. 2010. 303(d) and Integrated Report Files (2010) and NC DWQ Classified Waters (Shapefiles: nc_2010_IR_Asmnt_20100928.shp and DWQ_classifications_20110208.shp). Obtained from: http://portal.ncdenr.org/web/wq/ps/mtu/assessment

NPS, National Park Service, National Register of Historic Places. 2007. National Register of Listed Historic Places (GoogleEarth file: doc.kml). Obtained from: http://nrhp.focus.nps.gov/natreg/docs/Download.html

Golder Associates NC, Inc., 2012. Request for Jurisdictional Determination. Stream Delineation locations obtained from Trimble GPS during field delineation. Lines converted from AutoCAD.

NOTES

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet

Zoning Districts: (Unified Development Ordinance, Randolph County, NC 2012)

CUB = Conditional Use Buisness District
CUI = Conditional Use Industrial District
CUOA = Conditional Use Overlay Agricultural District
CUR = Conditional Use Residential District
CURA = Conditional Use Rural Agricultural District
I = Industrial District
LI = Light Industrial District
R = Residential
RA = Rural Agricultural District
RA-CU = Rural Agricultural Conditional Use District
RE-CU = Residential Exclusive Commercial Use District
RM = Residential Mixed District
RR = Residential Restricted District
RR-CU = Residential Restricted Commercial Use District

400 0 400 800 1,200
SCALE 1" = 400' FEET

DRAFT

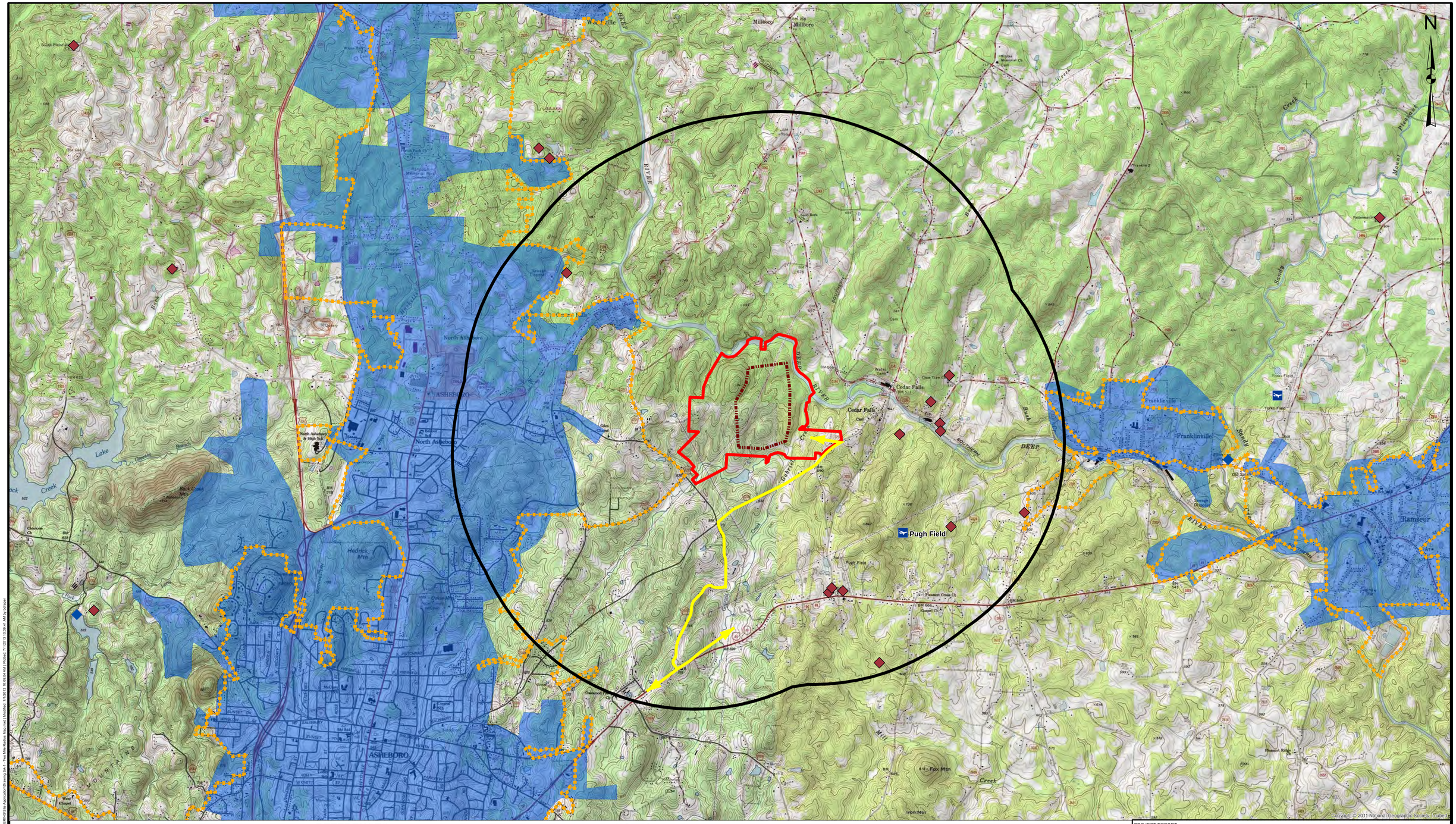
PROJECT
RANDOLPH COUNTY
PROPOSED MSW LANDFILL
RANDLEMAN, RANDOLPH COUNTY, NC

TITLE
DRAWING SA-2
2000-FT. RADIUS MAP

Golder Associates
Golder Associates NC, Inc.
Greensboro, NC

PROJECT No.
1039684602

DWG SA-2



LEGEND

- Private Airports/Runways
- Public Airports/Runways
- Public Water Supply Wells
- Surface Water Intake Systems
- Proposed Waste Transportation Route
- Property_Boundary_(06-28-13)
- 2 Mile Radius
- Limits of Waste
- Urban/Suburban Areas (Census 2010)
- Type A Future Public Water Systems

REFERENCES

NGS (National Geographic Society). 2011. USA Topographic Maps – seamless, scanned images of USGS Topographic Maps. Obtained: As a base map available through our ArcMap GIS license.

NCDENR, Division of Environmental Health (DEH), Public Water Supply Section (PWSS). 2009. Public Water Supply Water Sources, Including Groundwater and Surface Water Sources (Shapefile: pwsws.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

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US Department of Commerce, US Census Bureau, Geography Division. 2011. 2010 Census Urban Areas (Shapefile: urbnarea.shp). Obtained from: http://data.nconemap.com/geoportal/catalog/main/home.page

NOTES

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet

2,000 0 2,000 4,000 6,000

SCALE 1 " = 2,000 ' FEET

DRAFT

PROJECT/REPORT

RANDOLPH COUNTY
PROPOSED MSW LANDFILL
RANDLEMAN, RANDOLPH COUNTY, NC

TITLE

DRAWING SA-1
TWO MILE RADIUS MAP

Golder Associates
Golder Associates NC, Inc.
Greensboro, NC

PROJECT No. 1039684602

DWG SA-1

Map: X:\Projects\1039684 - Randolph County, Engineering\1039684602 - Site Suitability\ENGINEERING\Site Application\Drawing SA-1 Two Mile Radius Map.mxd | Modified: 7/1/2013 10:09:04 AM | Printed: 7/1/2013 10:09:47 AM by dcheper

III. Northeast Boulevard

The Northeast Boulevard is proposed as a Major Thoroughfare in the Randolph County Comprehensive Transportation Plan[1] (CTP) dated January 2012. From this report:

> ***Proposed Northeast Boulevard (Part on new Location): Widen the existing two lane facilities to five lane major thoroughfares with center turn lanes.***
>
> - *Hub Morris Road (SR 2149), from US 220 Business to Old Liberty Road (SR 2261)*
> - *On new location construct a five lane facility with center left turn lanes, from the intersection of Old Liberty Road (SR 2261) and Hub Morris Road (SR 2149) to the intersection of Giles Chapel Road (SR 2218) and Henley Country Road (SR 2215)*
> - *Henley Country Road (SR 2215), from Giles Chapel Road (SR 2218) to south of Old Cedar Falls Road (SR 2216)*
> - *On new location from south of the intersection of Henley Country Road (SR 2215) and Old Cedar Falls Road (SR 2216) to US 64/NC49, construct a five lane facility with a center turn lane.*

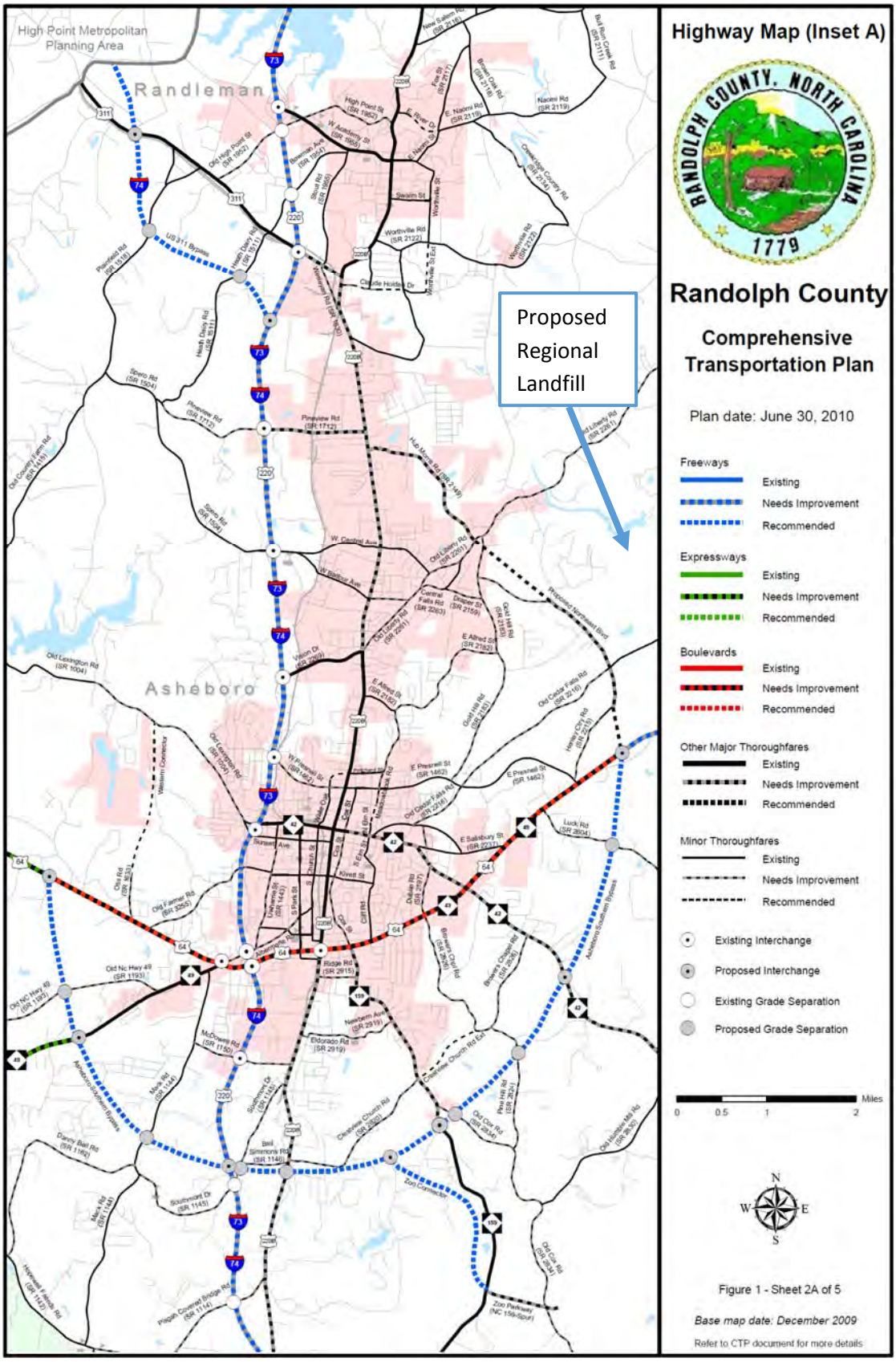
The CTP map showing the proposed facility is shown below.

This project is currently not assigned a Transportation Improvement Project (TIP) number and is therefore considered to be unfunded with an undetermined date for completion. In the event that this project is completed within the operating lifespan of the proposed landfill, the project will have a positive impact on travel within the study area by providing a five lane facility from US 64 to Old Cedar Falls Road and by eliminating the intersection of Presnell Street and Henley Country Road from the proposed truck route.

IV. School Bus Traffic

The original *Randolph County Proposed Regional Landfill Transportation Study*, dated January 4, 2013 stated that that there are no Randolph County School System busses that overlap with the proposed truck routes and that commercial truck traffic will have no impact on bus operations. Several residents indicated that Asheboro City School busses also travel through the area. Volkert staff contacted Asheboro City School System transportation staff who indicated that Asheboro City School System bus routes do not currently overlap with the proposed truck routes along Henley Country Road or Old Cedar Falls Road for summer school or the regular school year, but that as students move, these bus routes may change. It is important to note that the traffic counted and discussed in the transportation study included all vehicles that traveled along the study area roadways during the time the traffic data was being collected, including school busses. Therefore if busses were indeed on the study area roadways during this time period, they were considered in the transportation study. Volkert staff recommends that if any bus stops are added along Henley Country Road or Old Cedar Falls road that overlap with the proposed truck routes that School Bus Stop Ahead signs (sign S3-1 shown above)

[1] https://connect.ncdot.gov/projects/planning/TPBCTP/Randolph%20County/RANDOLPH_CTP_report.pdf


High Point Metropolitan Planning Area
Randleman
Asheboro
Proposed Regional Landfill
Highway Map (Inset A)
RANDOLPH COUNTY, NORTH CAROLINA
1779
Randolph County
Comprehensive Transportation Plan
Plan date: June 30, 2010
Freeways
Existing
Needs Improvement
Recommended
Expressways
Existing
Needs Improvement
Recommended
Boulevards
Existing
Needs Improvement
Recommended
Other Major Thoroughfares
Existing
Needs Improvement
Recommended
Minor Thoroughfares
Existing
Needs Improvement
Recommended
Existing Interchange
Proposed Interchange
Existing Grade Separation
Proposed Grade Separation
Miles
0
0.5
1
2
N
W
E
S
Figure 1 - Sheet 2A of 5
Base map date: December 2009
Refer to CTP document for more details

consistent with Chapter 7 of the *Manual of Uniform Traffic Control Devices*[2] be added in advance of any bus stop.

V. Sight Distance

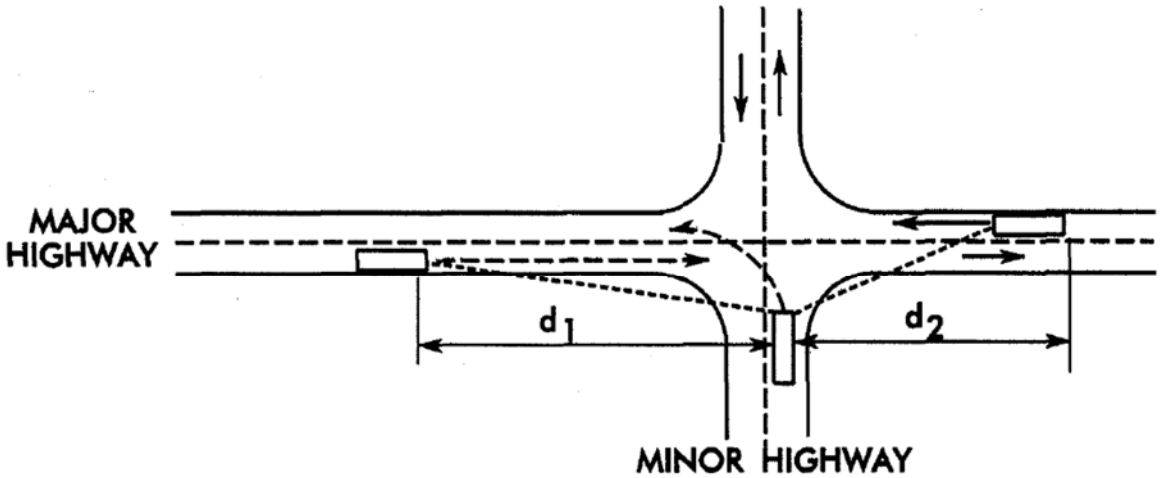
One of the conditions included in the Special Use Permit authorized by the Randolph County Planning Board was to "Conduct a sight line distance study to determine if other road improvements are needed." For the purposes of this report, the site line distance study was assumed to be limited to the commercial truck routes along Henley Country Road and Old Cedar Falls Road as these are the areas where the proposed landfill facility will have an impact on travel conditions. The sight distance requirements used for this study are based on the NCDOT Roadway Design Manual.[3]

Volkert staff travelled through the study area on June 10, 2013 to visually identify any possible vertical or horizontal sight distance issues that would affect stopping or turning vehicles.

Intersection Sight Distance

There are 2 main intersections (other than the site access) where commercial trucks will have to stop and turn, Henley Country Road/Presnell Street and Henley Country Road/Old Cedar Falls Road.

At Henley Country Road/Presnell Street, trucks will have to stop on Henley Country Road and turn left onto Presnell Street. This condition is illustrated by the following graphic



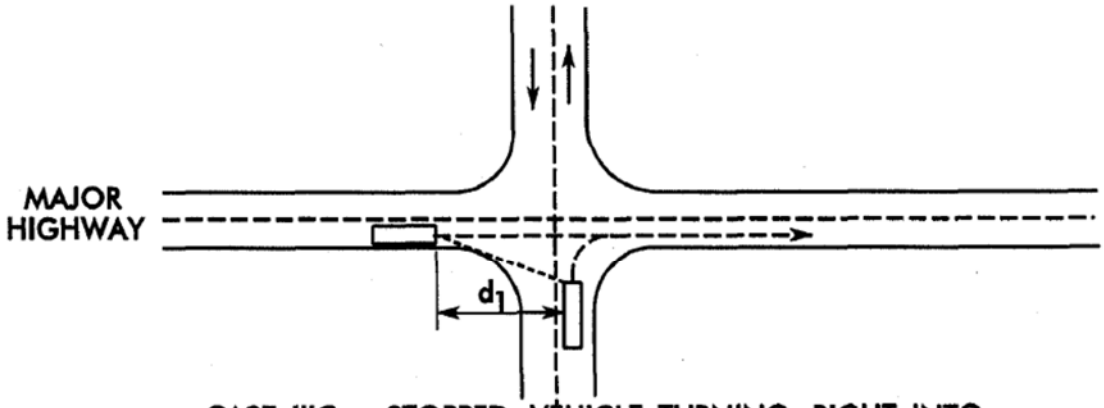
CASE IIIB – STOPPED VEHICLE TURNING LEFT INTO TWO-LANE MAJOR HIGHWAY

[2] http://mutcd.fhwa.dot.gov/htm/2009r1r2/html_index.htm
[3] https://connect.ncdot.gov/projects/Roadway/Roadway%20Design%20Manual/09.%20At%20Grade%20Intersections.pdf

The distances d1 and d2 are provided by NCDOT via a lookup table and are based on the speed limit of the major highway (roadway) and vehicle performance curves. In the event that the stopping sight distance (also provided by NCDOT based on the design speed and vehicle performance curves), the stopping sight distance governs The speed limit on Presnell Street is 45 miles per hour, indicating a design speed of 50 miles per hour. Based on the data provided by NCDOT, at the Henley Country Road / Presnell Street intersection d1 = 500 feet and d2 = 825 feet. The stopping sight distance for a passenger car on a 2-lane roadway is approximately 500 feet. Based on field observations and measurements from aerial photos the subject intersection is approximately 310 feet from the Presnell Street / US 64 intersection. Given that vehicles will be turning from US 64 and will not be travelling at free-flow speed this distance should not pose a safety hazard for trucks turning left from Henley Country Road. The sight distance in the northern direction (d2) is approximately 550 feet, which is greater than the stopping sight distance, indicating that this intersection should be safe for left turning vehicles from Henley Country Road.

The intersection of Henley Country Road and Presnell Street as seen from US 64

At the Henley Country Road / Old Cedar Falls truck traffic will be stopping on Henley Country Road and turning right onto Old Cedar Falls road. This condition is indicated by the following graphic:



CASE IIIC – STOPPED VEHICLE TURNING RIGHT INTO TWO– LANE MAJOR HIGHWAY OR RIGHT TURN ON RED SIGNAL

The distance d1 for this condition provided by NCDOT is 825 feet. Similar to the previous discussion however, the stopping sight distance of approximately 500 feet. The distance d1 observed in the field and measured via aerial photos at the Henley Country Road / Old Cedar Falls Road is in excess of 1,000 feet.

Based on this information there are no significant intersection sight distance issues at two main STOP controlled intersections that will be affected by heavy vehicle traffic accessing the proposed landfill.

Stopping Sight Distance

Stopping sight distance is a consideration in two areas, horizontal curves and vertical curves. Volkert staff visually examined the proposed truck routes and calculated stopping distances based on aerial photos of the study area. The stopping sight distance of 500 feet, based on a posted speed limit of 45 miles per hour, was used as the minimum threshold for safe stopping distance.

Horizontal Curves

There are several horizontal curves along the proposed truck routes that do not meet the minimum 500 feet stopping sight distance. On Henley Country Road there are two sets of horizontal curves that do not have adequate stopping sight distance for a 50 mile per hour design speed. They are shown in the figure below:

Although these curves do not meet the minimum horizontal stopping distance for a 50 mile per hour design speed, both sets of curves is posted with a 30 miles per hour advisory speed, which corresponds to a 200 foot stopping sight distance. Both sets of curves meet this minimum stopping sight distance.

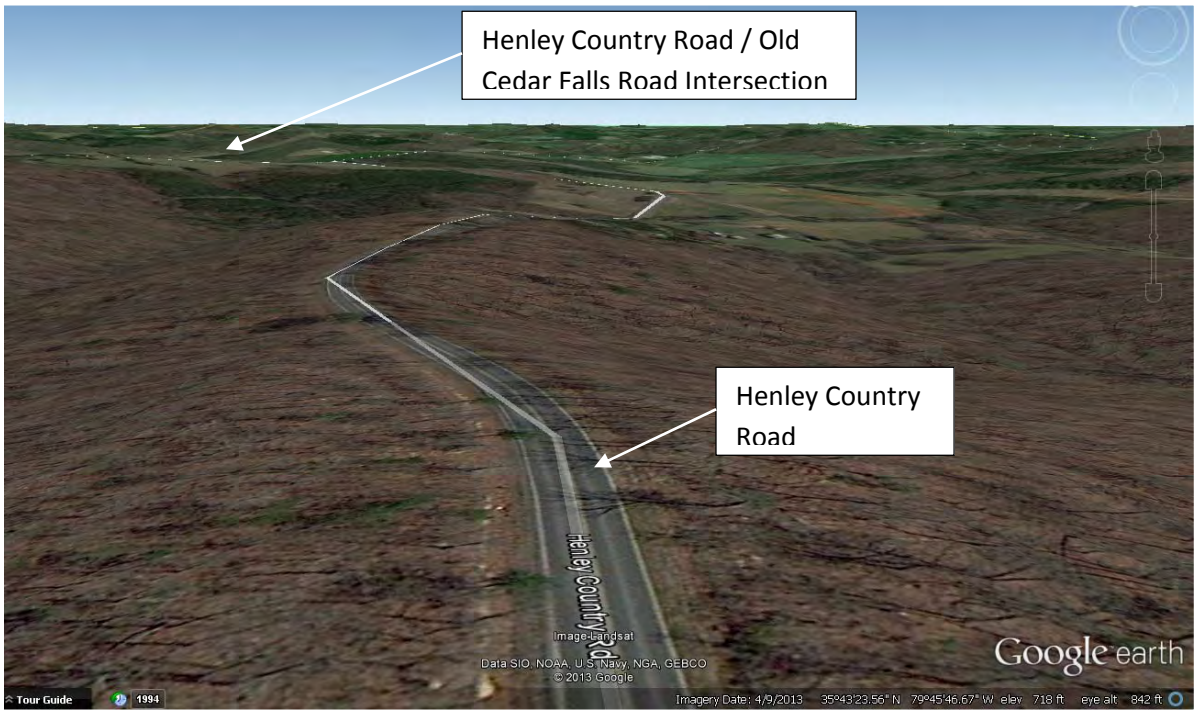
Advisory speed limit on Henley Country Road

On Old Cedar Falls Road, all curves meet the stopping sight distance for the posted speed limit, which is 45 just east of Henley Country Road transitioning to 35 in the vicinity of the proposed landfill entrance.

Vertical Curves

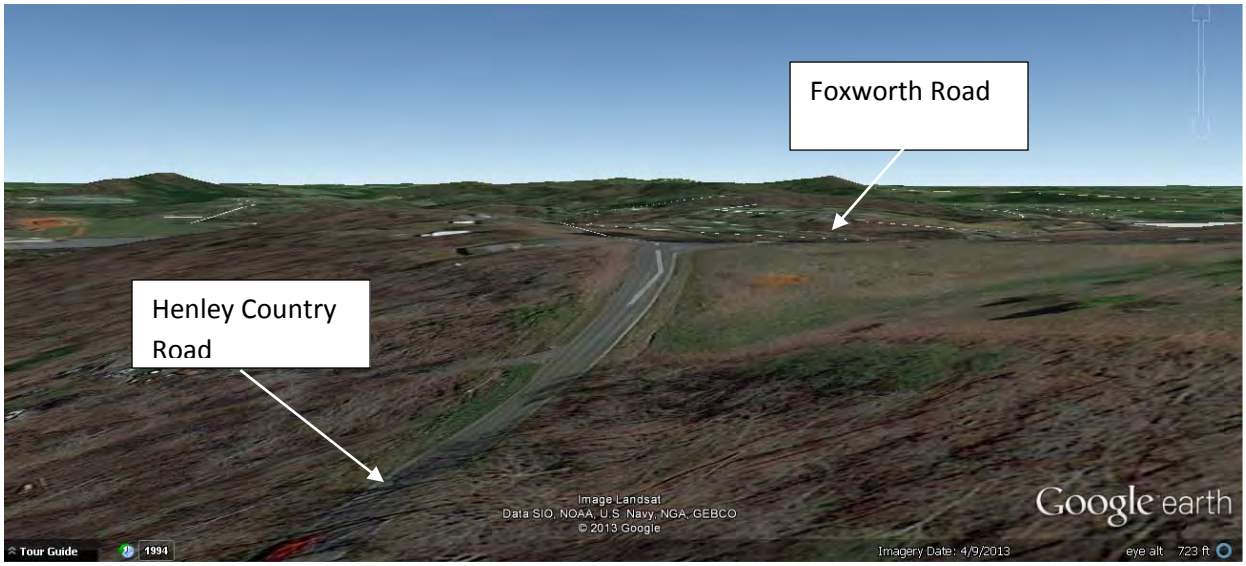
Stopping sight distance also applies in locations where crest or sag curves limit sight distances. The terrain along the proposed truck routes is typical of the piedmont area of North Carolina, with rolling hills that sometimes limit sight distances.

On Henley Country Road the area that presents a concern is the same area just south of Old Cedar Falls Road where there are several horizontal curves. This area is shown in the figure below.



Given that this area is signed with a 30 miles per hour advisory speed, the sight distance limitations posed by the rolling terrain do not create an undue safety hazard in this area.

A similar situation exists along Old Cedar Falls Road near the intersection with Foxworth Road, particularly near the crest of the hill at Foxworth Road. However, as this section of Old Cedar Falls Road is posted with a speed limit of 35 miles per hour, this area meets minimum sight distance requirements and does not create an undue safety hazard. This area is shown in the figure below



Vertical curves along Henley Country Road

Given the multitude of curves along the proposed truck routes and the concern expressed by the public regarding sharing the roadways with commercial vehicles, it is prudent to consider expansion of the shoulders along the commercial vehicle routes when Henley Country Road and Old Cedar Falls Road are resurfaced.

VI. Recommendations

Based on this additional analysis, no additional recommendations are required beyond those presented in the *Randolph County Proposed Regional Landfill Transportation Study*, dated January 4, 2013 (prepared by CDM Smith). However, it is recommended that if any Randolph County Schools or Asheboro City Schools bus stops are added along the proposed truck routes, that "Bus Stop Ahead" signs be constructed to provide an additional layer of safety. Also, given the multitude of curves along the proposed truck routes and the concern expressed by the public regarding sharing the roadways with commercial vehicles, it is prudent to consider expansion of the shoulders along the commercial vehicle routes when Henley Country Road and Old Cedar Falls Road are resurfaced. As was stated in the original the *Randolph County Proposed Regional Landfill Transportation Study*, dated January 4, 2013 (prepared by CDM Smith), it is out professional opinion that the traffic generated by the proposed regional landfill will not materially endanger public safety.

Accident Data Analysis

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NORTH CAROLINA PROFESSIONAL SEAL 039718 ENGINEER WILLIAM E. LETCHWORTH
2/1/13

2/1/13

Mr. Paxton Arthurs
Randolph County Public Works
725 McDowell Road
Asheboro, NC 27205

Subject: Randolph County Landfill Accident Data Analysis

Dear Mr. Arthurs

CDM Smith obtained accident data from the North Carolina Department of transportation for the 3 year period beginning in 12/1/2007 and ending on 11/30/2012 for the following locations

Intersections

- Presnell Street and US 64/NC29
- Henley Country Road and Old Liberty Road
- Henley Country Road and Presnell Street
- Old Cedar Falls Road and Foxworth Road
- Henley Country Road and Old Cedar Falls Road

Segments

- Old Cedar Falls Road from Henley Country Road to Rambling Road
- Henley Country Road from Presnell Street to Old Cedar Falls Road
- Henley Country Road from Old Cedar Falls Road to Old Liberty Road

The following chart displays the number of accidents at the study area intersections

	Total	Angle	Fixed Object	Left turn different roadways	Left turn same roadway	Movable object	Parked motor vehicle	Rear end	Sideswipe same direction	Sideswipe opposite direction	Ran off road
Presnell Street and US 64/NC29	20	1	2	4	4	1	1	5	2		
Henley Country Road and Old Liberty Road	2			1						1	
Henley Country Road and Presnell Street	2	1			1						
Old Cedar Falls Road and Foxworth Road	3			2							1
Henley Country Road and Old Cedar Falls Road	7	6		1							

The following chart displays the number of accidents at the study area intersections by injury classification

	Total Injuries	Fatal	Class A	Class B	Class C	Property Damage Only
Presnell Street and US 64/NC29	20	1		2	8	9
Henley Country Road and Old Liberty Road	2				1	1
Henley Country Road and Presnell Street	2					2
Old Cedar Falls Road and Foxworth Road	3					3
Henley Country Road and Old Cedar Falls Road	7				4	3

The following chart shows the total number of accidents on the roadway segments, not including the accidents at the key intersections

	Total	Angle	Fixed Object	Left turn different roadways	Left turn same roadway	Movable object	Parked motor vehicle	Rear end	Sideswipe same direction	Sideswipe opposite direction	Ran off road	Animal	Overturn/Rollover	Unclassified	Backing Up
Old Cedar Falls Road from Henley Country Road to Rambling Road	10	1	3								1	5			
Henley Country Road from Presnell Street to Old Cedar Falls Road	13	1	6									3	2	1	
Henley Country Road from Old Cedar Falls Road to Old Liberty Road	42	1	12	1	1	1	3	3	1	4	2	10	1	1	1

The following table shows the number of accidents on the roadway segments, not including the accidents at key intersections.

	Total Accidents	Fatal	Class A	Class B	Class C	Property Damage Only
Old Cedar Falls Road from Henley Country Road to Rambling Road	10				3	7
Henley Country Road from Presnell Street to Old Cedar Falls Road	12			1	3	8
Henley Country Road from Old Cedar Falls Road to Old Liberty Road	42			3	3	36

The average accident rate for rural two lane secondary routes is 335.34 accidents per 100 million Vehicle Miles Travelled. The accident rates for each intersection and roadway segment (including the key intersections) are:

Intersections

Presnell Street and US 64 – NC 49 – 43.27

Henley Country Road and Old Liberty Road – 19.90

Henley Country Road at Presnell Street – 15.00

Old Cedar Falls Road at Foxworth Road – 54.73

Henley Country Road at Old Cedar Falls Road – 98.24

Segments

Old Cedar Falls Road from Henley Country Road to Rambling Road – 553.86

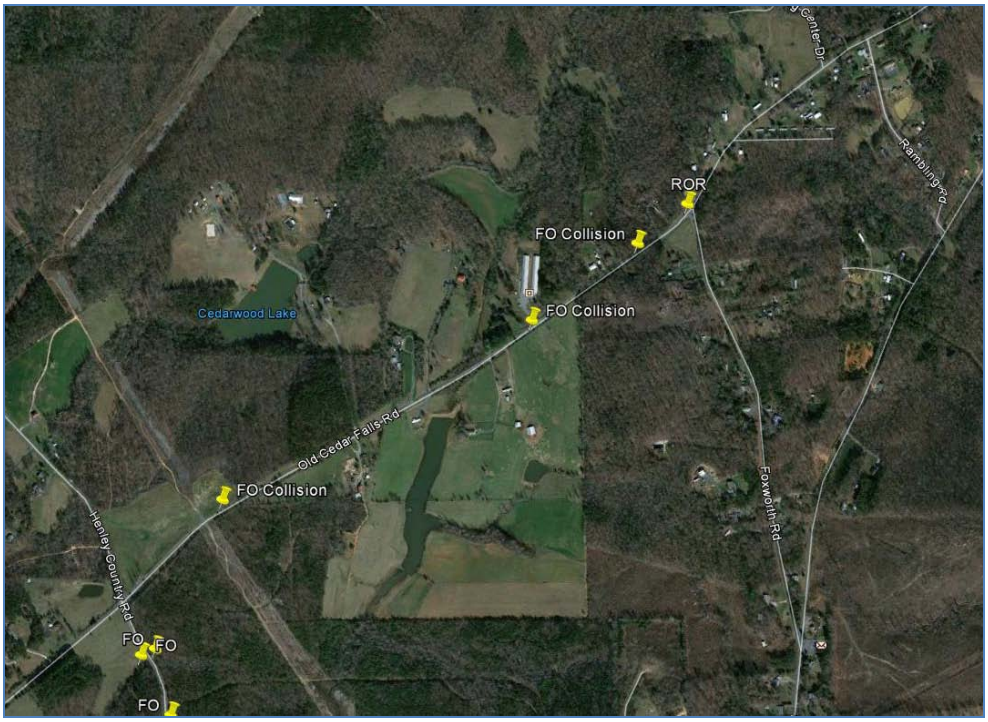
Henley Country Road from Presnell Street to Old Cedar Falls Road – 776.38

Henley Country Road from Old Cedar Falls Road to Old Liberty Road – 440.50

This data indicates that the roadway segments included in this study are above the statewide average accident rate for a 2-lane rural road, therefore further analysis is warranted to determine if the additional truck traffic from the proposed landfill will negatively impact safety along the proposed roadway segments.

Old Cedar Falls Road from Henley Country Road to Rambling Road

Old Cedar Falls Road experienced 10 accidents in the 3 year time period of this study. Of these 5 were animal collisions, which would not be affected by the increase in truck traffic. Of the remaining 5, 1 was an angle collision that occurred at the intersection of Old Cedar Falls Road and Foxworth Road. The remaining accidents were a result of running off of the roadway (3 striking a fixed object and one not striking an object). One of these accidents involved alcohol. The following image shows the location of each of these accidents:



As seen in this image the accidents along this roadway are not concentrated in one location, which would indicate a site-specific issue. A further analysis of the data shows that these four accidents occurred at the following times:

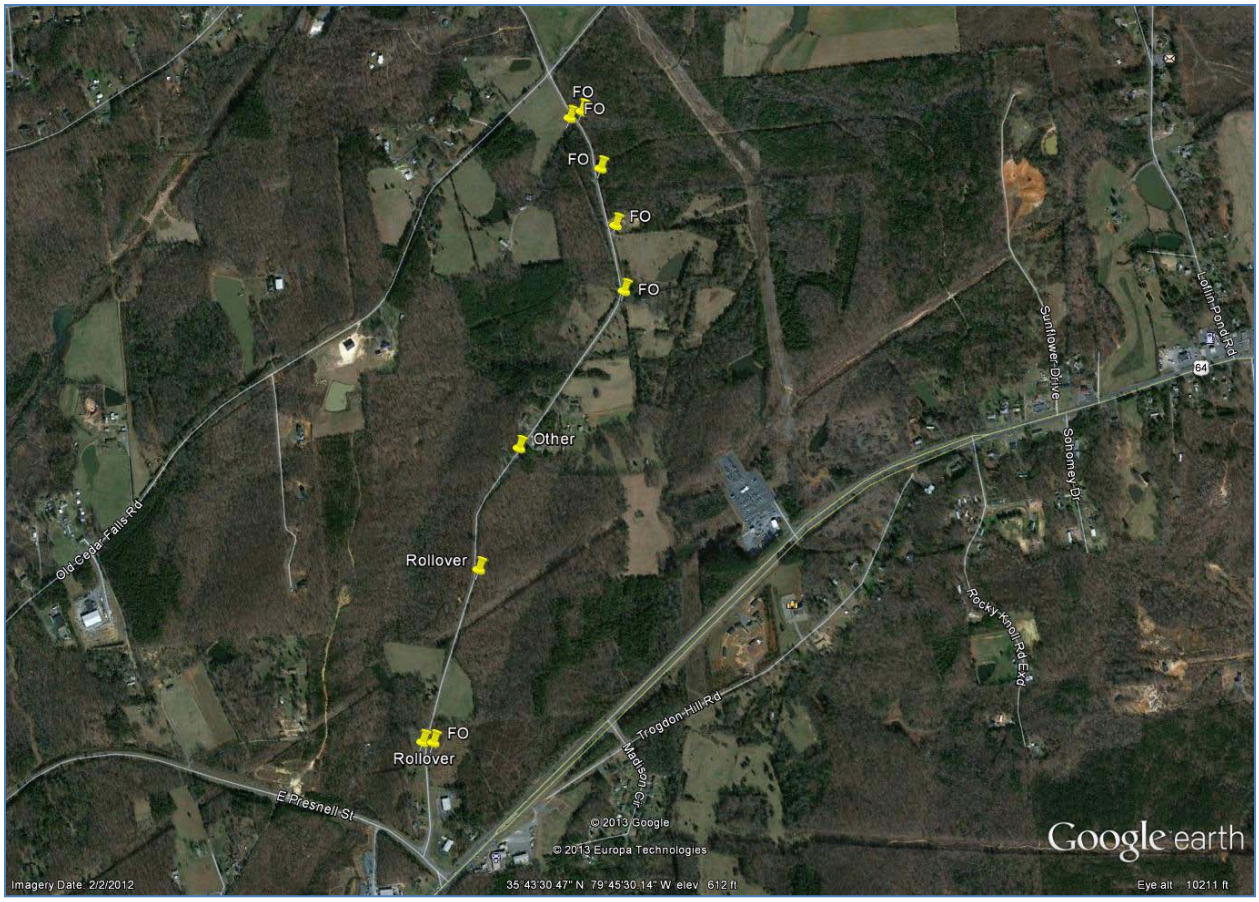
- 9:30 AM
- 5:05 PM (alcohol)
- 6:45 AM
- 5:24 AM.

Only the 9:30 AM collision occurred during the operating hours of the proposed facility.

It is my professional opinion that the increase in truck traffic on this roadway will not cause a decrease in safety and an appreciable increase in accidents along this section of roadway.

Henley Country Road from Presnell Street to Old Cedar Falls Road

Henley Country Road from Presnell Street to Old Cedar Falls Road experienced 13 accidents in the 3 year time period of this study. Of these 3 were animal collisions, which would not be affected by the increase in truck traffic. Of the remaining 10, 1 was an angle collision at the intersection of Henley Country Road and Presnell Street, 8 were the result of running off of the road (6 striking a fixed object and 2 resulting in a rollover) and 1 unclassified accident. The following image shows the location of these accidents



There are two areas of concentration, one just north of Presnell Street and another north of the 30 mile per hour curve just south of Old Cedar Falls Road. The 8 run off the road accidents occurred at the following times and estimated speeds:

- 3:59 PM 55 mph
- 2:52 PM 55 mph
- 11:28 PM 55 mph
- 11:22 PM 55 mph
- 9:50 PM 50 mph
- 9:20 PM 60 mph
- 7:45 AM (no estimated speed given)
- 4:31 PM 45 mph

Three of the 8 accidents occurred during the operating hours of the proposed landfill.

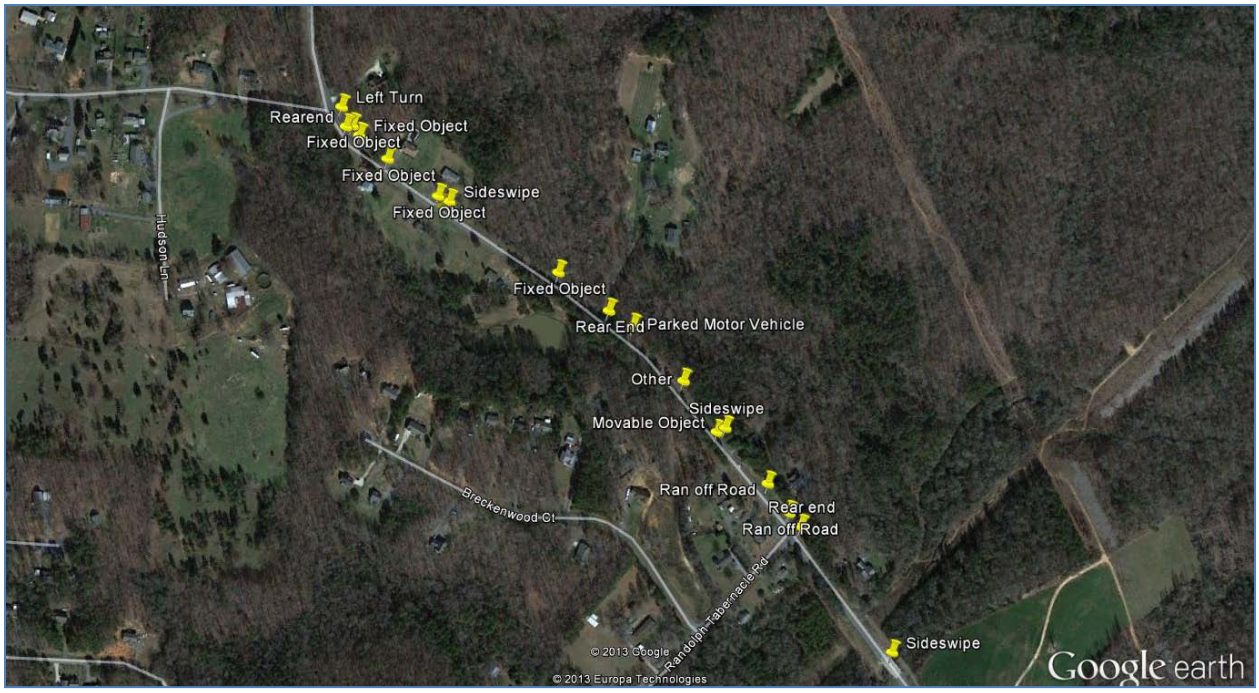
The *Proposed Randolph County Regional Landfill Transportation Study* recommended that a speed limit of 45 miles per hour be posted on Henley Country Road between Presenell Street and Old Cedar Falls Road and that this speed limit be actively enforced, particularly for heavy vehicles. Given that speed seems to be a factor in at least 6 of the 8 run off the road accidents and that this roadway has several curves marked with advisory speeds, a reduction in speed limit appears to be warranted.

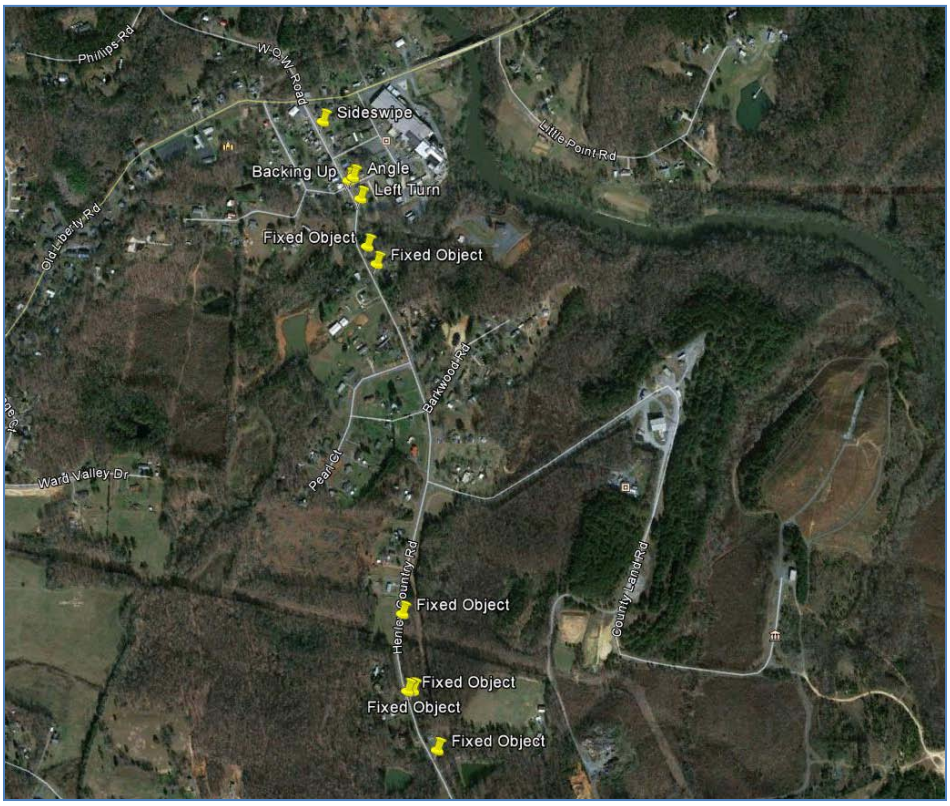
It is my professional opinion that with a decrease in speed limit the increase in truck traffic on this roadway will not cause a decrease in safety and an appreciable increase in accidents along this section of roadway.

Henley Country Road from Old Cedar Falls Road to Old Liberty Road

Henley Country Road from Old Cedar Falls Road to Old Liberty Road will not be affected by the increase in truck traffic from the proposed facility. However, given that the roadway has a accident rate higher than the statewide average rate, the accident statistics are discussed here in detail. This roadway experienced 42 accidents in the 3 year time period of this study. Of these 10 were animal collisions. Of the remaining 32, 15 were the result of running off the road (12 striking a fixed object and 1 rollover), 5 were sideswipes, 3 involved a vehicle striking a parked car, 3, were rear end collisions, 2 involved left turns, and one each of an angle collision, a collision with a movable object, a backing up collision, and an unclassified collision.

The following images show the locations of the accidents along this segment.





The 15 run off the road collisions occurred at the following times and speeds

- 5:41 AM 45 mph
- 8:09 AM 55 mph
- 5:23 PM 55 mph
- 8:00 AM 25 mph
- 6:45 AM 55 mph
- 1:26 PM 60 mph
- 9:12 PM 60 mph
- 1:29 AM 55 mph
- 3:40 AM 45 mph
- 7:07 PM 55 mph
- 8:55 AM 55 mph
- 7:52 PM 75 mph
- 7:53 PM 55 mph
- 11:52 AM 10 mph
- 4:21 AM 35 mph (alcohol involved)

As with Henley Country Road south of Old Cedar Falls Road, high speeds appear to the predominant cause for the majority of the run off the road collisions, a reduction in speed limit on this roadway may could also be considered.

Conclusions

Of the 5 intersections included in this analysis, all fell well below the statewide average for secondary rural routes. However, all of the roadway segments fell above the statewide average. A detailed analysis of the individual accident data indicates that accidentes along Old Cedar Falls Road are limited in number and that an increase in truck traffic will not cause a decrease in safety and an appreciable increase in accidents along this section of roadway. Along Henley Country Road the majority of accidents involved run off the road collisions that could be aided by a decrease in speed limit along this roadway. With this decrease in speed limit the increase in truck traffic on this roadway will not cause a decrease in safety and an appreciable increase in accidents along Henley Country Road between Presnell Street and Old Cedar Falls Road

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