APPLICATION FOR ENVIRONMENTAL ASSESSMENT

Project Name: Orange County, NC Solid Waste Transfer Station

Applicant: Board of County Commissioners Orange County, North Carolina

Address: 200 South Cameron Street
Post Office Box 8181
Hillsborough, North Carolina 27278

Phone: (919) 732-8181

Owner: West 54 LLC (Dennis and Lynda Howell)

Address: 1098 Burning Tree Drive
Chapel Hill, NC 27517

Phone:

Location of Property: Located in Southwest Orange County off of NC-54

Acreage: ~149 Township: 6.26..5, 6.26..27

Tax Map Reference: 600884, 619051 PIN(s): 9739673056, 9739645698

Zoning District: Orange Co. Land Use Plan Category: Agricultural/Residential

FOR DEPARTMENT USE ONLY

Date received: Reviewed by:

Date accepted/rejected:

Summary Comments:

I. GENERAL SITE INFORMATION

TO BE COMPLETED BY APPLICANT, WITH ASSISTANCE FROM PLANNING DEPARTMENT AS NEEDED

A. Zoning and use of adjacent property.

North Agricultural/Residential South Commercial and Agricultural/Residential

East Agricultural/Residential West Agricultural/Residential

B. Topography:

highest elevation ~562

lowest elevation ~540

general direction of slope varies

Estimate % of property with

0 - 5% slope	~95%
5 - 15% slope	~5%
15 - 25% slope	
more than 25% slope	

(Required only for the portion of the site associated with or impacted by the proposed activity)

C. Drainage

Are there any streams or drainage easements located on the property? Yes

Is any of the site located within a:

Watersupply Watershed	No
Water Quality Critical Area	No
Floodplain	No

Describe A SWID report has been completed by the County Planning and Inspections Department. Five features were identified as subject to stream buffer regulations.

D. **Does the property contain any of the following Inventory Natural or Cultural Resources?** (As identified in the "Inventory of Sites of Cultural, Historical, Recreational, Biological, and Geological Significance in the Unincorporated Portions of Orange County" or the "Inventory of Natural Areas and Wildlife Habitats of Orange County, North Carolina".)

		yes	no
a.	cemeteries	____	X
b.	archaeological sites	____	X
c.	historic sites	____	X
d.	areas of geological significance	____	X
e.	designated natural areas	____	X
f.	designated habitat	____	X
g.	other	____	X

For each "yes" answer above, please indicate location on site plan and complete the following, with the assistance of the Orange County Environmental Planner. Also complete Attachment A.

(1) Type of resource _____

Inventory reference no. or page _____

Description of Resource _____

_____

_____

_____

(2) Type of resource _____

Inventory reference no. or page _____

Description of resource _____

_____

_____

_____

(Attach additional sheets if needed)

II. TO BE COMPLETED BY APPLICANT

A. PROJECT DESCRIPTION

1. Describe proposed use of property
   The property would include a 250 ton per day solid waste transfer station.

2. Number of lots 2

3. Number of structures 2

4. Estimated square footage of area to be graded for development of attached residential units (excluding roads, but including parking areas)
   N/A

5. Estimated square footage of area to be graded for non-residential use (excluding roads) ~0.5 acres

6. Estimated area to be graded for roads ~4 acres

7. Road Type: Public _____ Private
   Class A _____
   Class B ~4,000 ft.
   Class C _____

   Total road length ~4,000 ft.

8. Hours of operation for commercial or industrial use
   Approximately 7AM-4 PM Monday through Friday; 7:30 AM to 12 PM Saturday

B. STATE PERMITS REQUIRED

1. **Does the project involve the mining of earth products?** No

   If so, how many cubic feet of material are expected to be excavated? _____

   Has an application for a Mining Permit been submitted to NCDRCD? _____

   Please attach map indicating expected extent of proposed activity.

2. **Does the project involve generation or storage of hazardous or toxic wastes, as identified by the Environmental Protection Agency?** (A listing of all hazardous materials is available from the Planning Department) No

   Describe the wastes to be generated. _____

   _____

   _____

   How much material is expected to be generated per month?

   _____

   Will any material be treated onsite? _____

   Volume? _____

   Will any material be stored onsite? _____

   Volume? _____

   Where will disposal of the material take place?

   _____

   _____

   How will materials be transported to the disposal site?

   _____

   _____

   What measures are proposed to protect water quality and air quality in case of spills?

   _____

   _____

3. **Will the project involve a land application system for treatment of wastewater?** No

If yes, describe _____

_____

Has an application for a non-discharge permit been submitted to the NC Department of Environmental Management or Orange County Department of Environmental Health? _____

4. **Is a septic tank system proposed which has a design capacity of more than 3000 gallons per day?** No

If yes, describe _____

_____

Has an application for a non-discharge permit been submitted to the NC Department of Environmental Management or Orange County Department of Environmental Health? _____

5. **Does the activity involve sludge disposal?** No

If yes, where is the source of the sludge? _____

_____

Describe where and how the sludge is being disposed.

_____

_____

Has a NPDES permit from the NC Division of Environmental Management been issued? _____

6. **Water Usage**

a. Estimated no. of employees ~8 x 25 gpd = ~400 gpd
Separate septic system and drainfield to treat this sanitary waste.

b. Estimated water use for climate control ____ gpd

c. Process water 500-1,000 gpd
This is the estimated water for the wash down system.

___ % consumed
___ % discharged to septic system
___ % discharged to surface (including storm sewers)
(describe: _____)
___ % evaporated
100 % reclaimed/reused Recycling of this water to be evaluated during design phase.
___ % other
100 %

0 gpd

d. Water used for cooling, heating, etc., in association with production or manufacturing

___ % reused
___ % consumed
___ % discharged
(describe: _____)
___ % other
100 %

900 - 1,500 gpd
Total Water Usage

e. Describe source of water
A well will be drilled on-site and groundwater used.

ATTACHMENT A

TO BE COMPLETED ONLY IF INVENTORY SITE(S) IS/ARE IDENTIFIED IN I.E.

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

(1) a. Impact on Resource from Proposed Development

b. Proposed Mitigation

(2) a. Impact on Resource from Proposed Development

b. Proposed Mitigation

ORANGE COUNTY
TRANSFER STATION

ENVIRONMENTAL ASSESSMENT

SITE 056
(WEST 54 LLC)

Prepared for:

Orange County, North Carolina
Chapel Hill, North Carolina

FEBRUARY 2009

Prepared by:

OLVER
INCORPORATED

www.olver.com
Project Number 20151

COVER SHEET

Date:	February 2, 2009
Title of Activity:	Orange County, NC Solid Waste Transfer Station
Submitted By:	Board of County Commissioners Orange County, North Carolina 200 South Cameron Street Post Office Box 8181 Hillsborough, North Carolina 27278
Responsible State:	Orange County Planning Department
Agency and Contact:	Robert Davis 306-F Revere Road Hillsborough, North Carolina 27278
Type of Document:	Environmental Assessment
Applicable Rule:	**Chapter 40 Orange County Environmental Impact Ordinance**
Background:	In the case of the proposed Orange County waste transfer station, the DENR's Division of Water Quality and Division of Waste Management have indicated that an EA and SEPA approval will not be required because the proposed transfer station operation (250 tpd) is less than 350 tpd required for such analyses. SEPA coordinators have also confirmed that an EA would not be required in this particular case. Despite the fact that an EA is not required by state regulations, it is required by the Orange County Environmental Impact Ordinance and was completed as part of the due diligence for this siting. The attached Environmental Assessment (EA) document reviews the environmental impacts of the construction and operation of a 250 ton per day solid waste transfer station located in the western part of Orange County, North Carolina, off of NC Highway 54. The EA contains a project description, review of the existing environment, the need for and alternatives to the project, environmental impacts associated with the project and mitigation measures for those impacts.

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1.0 INTRODUCTION

1.1 Project Description

The County currently disposes of solid waste from residents and businesses at the existing solid waste landfill on Eubanks Road. This landfill is expected to reach capacity and close in 2011.

A recent study completed by Gershman, Brickner & Bratton, Inc., (GB&B) concluded that there is not enough waste generated within the County to achieve the economies of scale necessary to make an alternative waste processing technology cost-effective. Based on the study, the Orange County Solid Waste Advisory Board determined that the best solution at present would be to continue with the planned transfer station; and when the County's existing municipal solid waste landfill reaches final capacity, waste will have to be transferred out of the county for disposal.

The transfer station will consist of an enclosed metal building (160 feet by 160 feet) and scale house (20 feet by 20 feet), which will sit on a 149-acre parcel of land in western Orange County (County). The construction of the facility will result in disturbance of less than 20 acres of this land. There will be eight parking spaces at the facility and an area of equipment storage. The roads, equipment storage area, parking spaces, and buildings will result in approximately 200,000 square feet of impermeable surface. The site will be graded prior to construction and designed to protect the quality of the stormwater runoff. The wastewater generated at the site will be hauled to the local wastewater treatment plant, and the sanitary wastes will be treated on site with a septic system.

After being weighed on a scale system, trucks that enter the facility will unload their wastes on a tipping floor inside the building and then exit. The building will be enclosed to minimize odor and control dust and litter. The wastes will then be pushed into enclosed and watertight trailers atop long-haul vehicles, located below the tipping floor. Approximately 190 tons of waste, on average, will be loaded daily. The transfer station will be designed with a capacity of 250 tons per day to handle surges in collection vehicle delivery. At the end of each day, the tipping floor will be emptied completely and all wastes will be stored in containers in the trailer storage area. The wastes will be transferred to an out-of-county landfill where it will be unloaded and disposed. The County plans to solicit bids on waste disposal once the site is acquisitioned. A conceptual site plan layout for this site is presented as Exhibit A.

The transfer station shall only accept solid waste that is generated by households, institutions, commercial, and some industrial establishments from within Orange County. Explosives, pathological and biological wastes, and other hazardous wastes are not acceptable wastes for

processing at the facility. The site will also have a special wastes handling area with dumpsters for tires, batteries, white goods, etc.

1.2 Purpose and Need for the Project

In the past, the siting of new landfills has been the solution to the increased need for disposal facilities. However, in recent years a number of factors have made the siting of new landfills increasingly difficult, such as decreasing amount of suitable land available, legal barriers, potential long-term environmental concerns, and mounting public opposition. The process is further restricted by new permitting regulations required by state agencies. The nationwide trend in solid waste disposal has been toward construction of larger, more remote, regional landfills.

Currently, the waste generated in Orange County is disposed in the solid waste landfill located on Eubanks Road. In Fiscal Year 2007-08 the County disposed of 55,420 tons of municipal solid waste in its landfill. Approximately 7,100 tons of waste generated in Orange County is hauled out of the County by various private disposal companies for disposal. The landfill is expected to close in 2011 at which time there will be no municipal solid waste disposal options within the County. The County is implementing an integrated solid waste management strategy to achieve a 61 percent waste reduction goal. The portion that is not recycled or composted will have to be taken to an out-of-county landfill or processed by an alternate technology to reduce volume.

In anticipation of the current landfill's closure, efforts have been made by the County to identify an alternative waste processing technology for use in the County. It was determined that the best near-term solution would be the construction of a solid waste transfer facility for the County. See Section 2.0 for more details on this determination.

The decision to build a solid waste management transfer facility to haul the County's wastes to a landfill facility outside of the County comprises just one element of the County's overall plan for managing waste. The proposed plan, along with the County's Solid Waste Management Plan adopted in 1997, is an integrated approach which includes sources reduction efforts, recycling, composting, new collection and financing strategies, and public education programs to encourage involvement in all aspects of waste management, from generation through the disposal.

2.0 ALTERNATIVES ANALYSIS

2.1 Waste to Energy Alternatives

As mentioned previously, GB&B conducted the *Alternative Waste Processing Assessment*[1] to explore reasonable alternatives to landfill disposal of municipal solid wastes in Orange County. The study concluded that at Orange County's current level of solid wastes generation (less than 250 tons per day), the cost of financing, building, owning, and operating a waste-to-energy plant would be in the range of $100 per ton of refuse processed after sale of electricity generated from the heat recovered from incineration and sale of scrap metal recovered from the residual ash. Based upon the estimated costs of constructing and operating the transfer station, transport, and landfilling at a regional private-sector disposal site, GB&B concluded that it was not economical in the short term to consider a stand-alone waste combustion facility to handle waste from only Orange County. It was also concluded that the other emerging technologies investigated in the study are at present not mature, practical, proven, or appropriate for managing large quantities of mixed solid waste. Significant permitting issues may prevent or significantly delay the implementation of any waste-to-energy process.

Based on these findings, the Orange County Solid Waste Advisory Board recommended that solid waste management efforts concentrate on getting the County's transfer station sited, permitted, designed, built, and operating, as well as continuing the County's successful and aggressive recycling efforts that are reducing the amount of waste to be landfilled.

2.2 Site Selection

Once it was determined that the best option for the County would be the construction of a solid waste transfer station, the next step was determining the site of the facility. Through the process of collaboration between the Orange County Board of County Commissioners (BOCC) and the public, three categories or sets of criteria were developed and applied in the evaluation of possible transfer station sites. These categories include exclusionary criteria, technical criteria, and community-specific criteria.

Briefly, exclusionary criteria include the stipulation of areas where development is prohibited by federal, state, or local laws or regulations. Exclusionary criteria also include consideration of land use, zoning requirements, watershed protection, and other factors that may significantly impact the environment, facility costs, or project implementation. Technical criteria include specific engineering, operation, and transportation parameters that should be considered to assure that sites

[1] http://www.olver.com/orangecounty/PDF%20files/Alternative_Technologies_Assessment,%20Orange%20County%20NC%208-15-08.pdf

are feasible from a technical design, environmental, and economic prospective. The community-specific criteria consider the impacts that the facility will have on the surrounding community. This set of criteria underscores the priority that the public placed upon environmental justice considerations; impact upon adjacent land use; proximity to schools, churches, and recreation sites; and the number of residents impacted. Using weighted scoring based on these criteria, 242 potential parcels were narrowed down to ten, which would undergo further consideration. Once these were discussed further and public comments were heard, the sites for the transfer station location were narrowed down to the Site 056 (Howell Property) or Site 759 (OWASA Property) by the BOCC. Each site is being simultaneously negotiated for purchase by the County. However, only one site will be purchased for transfer station use. Site 056 is the topic of this environmental assessment.

Site 056 was one of the two sites selected because it is undeveloped and heavily wooded, can be directly accessed from NC Highway 54, and is freely offered. The site has minimal floodplain and/or steep slope encumbrance; ample space for the construction of the transfer station facilities; and further provides excellent buffering from adjacent land uses and residents.

3.0 EXISTING ENVIRONMENTAL CHARACTERISTICS OF PROJECT AREA

3.1 Topography

The site is flat to gently sloping and elevation ranges from approximately 540 feet to 562 feet across the site with the construction of the transfer station to be at approximately 554 feet. See Exhibit B.1 for the site's location within the USGS White Cross quadrangle. There are a few small areas of the site that have a slope greater than 10 percent. This information, along with detailed elevation information regarding the site, was obtained from the 2007 North Carolina Department of Transportation LiDAR Data Release, which are both displayed on Exhibit B.2. Using Orange County's 2007 Flood Hazard Polygon information and Federal Emergency Management Agency (FEMA) maps (FIRMettes), it was determined that the site will not encroach on any floodplains. See Exhibits C.1 and C.2 for copies of these FIRMettes.

3.2 Soils

According to information provided by the Orange County Planning Department and the United States Department of Agriculture's Web Soil Survey of Orange County, North Carolina, the site location is comprised of the soils summarized in Table 1 below and shown in Exhibit D.

TABLE 1
Soil Survey of Proposed Project Site

Soil Name	Percent Composition of Project Site	Slope	Drainage	Depth to Water Table	Land Capability Classification
Lignum Silt Loam (Lg)	~85%	0-3%	Moderately Drained	12-30 inches	2w
Herndon Silt Loam (HrB)	~10%	2-6%	Well-drained	>80 inches	2e
Chewacla Loam (Ch)	<5%	0-2%	Poorly Drained	>80 inches	4w

3.3 Land Use

The site is referred to as "Site 056" and is composed of two parcels of land totaling approximately 149 acres. One of the parcels is approximately 142 acres and will be the location of the facility building. The second parcel is approximately 7 acres and will contain the facility's access road to NC Highway 54. The site is heavily wooded, undeveloped, and will be accessible from NC Highway 54. The site is located to the north of NC Highway 54 and west of Berry Andrews Road. The project vicinity is composed primarily of residential, open space, transportation corridors, and commercial uses.

According to the information from Orange County regarding county zoning districts, the site is located entirely within Orange County jurisdiction. Exhibit E is a map of the site's zoning within the County. The County's GIS identifies the proposed site and the surrounding areas adjacent and near the site as zoned for agricultural and residential use with small parcels located to the south of the project site along NC Highway 54 zoned for commercial use.

3.4 Wetlands

There are no mapped wetlands located directly within the project site according to the United States Fish and Wildlife National Wetlands Inventory. There are several wetlands located in the vicinity of the proposed project site. See Table 2 for a summary and Exhibit F for the location and descriptions of the wetlands in the vicinity of the proposed site.

TABLE 2
Wetlands In Project Vicinity

Cowardin Classification Code	Approximate Size (Acres)	General Direction from Proposed Facility Footprint	Distance to Proposed Facility Footprint (Miles)
PFO1A	0.22	West	0.5
PFO1A	0.61	West	0.5
PFO1A	6.9	East	0.4
PFO1A	2.3	East	0.45

TABLE 2
Wetlands In Project Vicinity

Cowardin Classification Code	Approximate Size (Acres)	General Direction from Proposed Facility Footprint	Distance to Proposed Facility Footprint (Miles)
PUBHh	1.5	East	0.6
PFO1A	0.64	North	0.75
PFO1Ch	0.21	North	0.7

Exhibit F also includes the areas with the soil type Chewacla loam. This soil is a poorly drained soil that under certain conditions may be habitats for wetland flora. However, the area of the property that contains this soil type was inspected and no wetlands were identified.

A feature was identified by the Orange County Erosion Control Division staff in the process of completing the Surface Water Identification for the property, which may or may not meet the criteria of a wetland. This feature is not located in an area of disturbance for the project and would not be expected to be impacted by project operations. Additional information is provided in the Surface Water Identification Report (see Appendix A).

3.5 Prime or Unique Agricultural Lands

The site is wooded and is not currently being used for agriculture. The areas adjacent to the site are also heavily wooded or used for commercial purposes.

According to information from the National Resources Conservation Service, the three soil types found at this site would not be considered prime or unique agricultural lands. As shown in Table 1, the site's primary soil type, Lignum Silt Loam (Lg), has a land capability classification of "2w" indicating that this area may experience excess water for agricultural purposes during the growing season that would cause crop damage or that the site may experience excess water during winter months that would adversely affect deep-rooted perennial crops. Herndon Silt Loam (HrB) has a classification of "2e" indicating the soil is slightly eroded and would require some management or soil conservation practices. The Chewacla Loam (Ch) is classified as "4w," which means it has frequent or continuous amounts of excess water during the growing season causing some moderate crop damage.

Therefore, it is determined that there are not prime or unique agricultural soils at the site or in the immediate surrounding area of the site.

3.6 Public Lands and Scenic, Recreational, and State Natural Areas

The information provided by the Orange County Planning Department on park locations indicates that there are no designated park lands, recreational areas, or state natural areas located within the project area. To the northwest of the proposed site, approximately 1.5 miles away, is the Cane Creek Reservoir, which is considered a natural and wildlife area. Approximately 4 miles to the east is another natural area — Pickards Mountain. The closest park is the Hank Anderson Community Park located 6 miles to the east, and the Springhill Park is located about 8 miles to the southeast (see Exhibit G).

3.7 Areas of Archaeological or Historical Value

According to the Orange County Planning Department, there are not any known archaeological or historical resources located within the proposed project site. There are several historic sites located in the areas surrounding the proposed site (see Exhibit H and see Table 3 for a summary). The site will undergo a Historical Value Survey prior to acquisition to determine if any archaeological or historical properties in the vicinity will undergo any significant effects due to the transfer station.

TABLE 3
Historic Sites in Project Vicinity

Site Name	Distance to Proposed Facility Footprint
Ernest Crawford House	0.1 miles
Crawford Service Station	0.1 miles
Degnim House	0.9 miles
Andrew House	1.0 miles
Joel Crawford House	1.5 miles

3.8 Air Quality

The project site is located on an undeveloped, wooded lot. Air quality at the site is considered good as no nearby industries emit air pollutants. Farmland adjacent to the site is currently used for the land application of biosolids from the Orange Water and Sewer Authority (OWASA). Sludge basins owned by OWASA are located to the east of Site 056.

3.9 Noise Levels

The proposed project site is located off of NC Highway 54 where there is some traffic noise. There is a feed supply store located to the south of the proposed site and OWASA's sludge basins located east of the proposed site. A stone quarry is located approximately 3.5 miles east on NC

Highway 54. Both the OWASA and the stone quarry use trucks to haul materials along NC Highway 54. The site itself is undeveloped and heavily wooded.

3.10 Water Resources

3.10.1 Groundwater Resources

According to the Water Resources Investigation Report 00-4286, the primary aquifer in the vicinity of the project area is located in the metavolcanic bedrock. A shallower aquifer exists within the soil zones above the bedrock (e.g., regolith) but is unreliable in quality and quantity. Wells are typically cased at least 50 feet, and the average well yield and depth are approximately 17 gpm and 200 feet, respectively. Wells located in fracture zones generally yield higher than average. Groundwater recharge in the vicinity of the project area (the Haw River Watershed) is 6.4 inches/year or 477 gallons/day/acre. Currently, there is not any potable well on the property. Neighboring residences and farms rely on groundwater for their water source.

3.10.2 Surface Water Resources

The project area is located in the Cape Fear River Basin. The headwaters of the basin are the Deep and Haw Rivers. Approximately 1.5 miles on the west of the proposed project site, Cane Creek is located, and located approximately 0.5 miles to the east of the project site is Collins Creek. To the northwest of the proposed site, surrounding the area around the Cane Creek Reservoir, is a tract of land that has been identified by the Orange County Planning Department as being a critical and protected watershed.

A Surface Water Identification (SWID) request was filed with the County to determine if the surface waters located near the proposed project site are subject to the stream buffer ordinance as described in the County Zoning Ordinance. At this site, five features were identified as subject to the buffer regulations. This will require a 65- to 80-foot undisturbed buffer along both sides of the water feature, which will be calculated per the referenced zoning regulations. For the features that originate within the parcel, the beginning point was flagged for reference. All of the features were identified on a map by the County Planning and Inspections Department. There were several isolated pools located in the parcel identified as a sixth feature. Although this feature did not meet the criteria for the stream buffer regulations, it may meet wetland criteria and will require follow up with the United States Army Corps of Engineers (USACOE) (see Section 3.4). The correspondence from the County's Planning and Inspections Department is located in Appendix A.

3.11 Forest Resources

A site-specific flora and fauna survey will be conducted on the site prior to acquisition and will help the County determine in part, which, if any, forest resources may be significantly affected by utilizing this site for the solid waste transfer station.

Generally, using information from the North Carolina Natural Heritage Programs (NHP) inventory, the White Cross 7.5-minute USGS quadrangle contains the following forest communities:

- Basic oak-hickory forest
- Dry-mesic oak-hickory forest
- Mesic mixed hardwood forest
- Piedmont monadnock forest

3.12 Shellfish or Fish and Their Habitats

As stated above, there will be a flora and fauna survey conducted prior to site acquisition that can help determine the location of any shellfish or fish habitats that may be affected by site development.

Using the NHP inventory for this White Cross quadrangle, there indicates the presence of three freshwater mussels:

- *Alasmidonta varicosa* (Brook Floater)
- *Lampsilis cariosa* (Yellow Lampmussel)
- *Strophitus undulates* (Creeper)

The Brook Floater and Yellow Lampmussel are considered endangered in the state and are a federal species of concern. Both of these species have a distribution in Orange County in the Eno River Subbasin that is located over ten miles from the proposed project site. The Creeper is state-threatened and is located within the Eno and Little River subbasins within Orange County as well as the Cane Creek subbasin, which includes the proposed project site. There is also one species of fish listed as inhabiting this quadrangle according to this inventory, the Carolina Darter (*Etheostoma collis*). This is considered a species of special concern in the state. However, according to the County's Comprehensive Plan, the Carolina Darter has been moved from the *current* list of threatened and endangered species to the *historic* list of species as it has not been observed in the County for over 20 years. Please see the attached species descriptions in Appendix B.

3.13 Wildlife and Natural Vegetation

The flora and faunal survey mentioned above will also allow the County to determine whether impacts from the construction and operation of a solid waste transfer station at this site will significantly affect the wildlife and natural vegetation of the site.

As indicated previously, the site is wooded and the quadrangle that the site is located within contains the types of trees as indicated in Section 3.11 (oaks, hickories, and mixed hardwoods). In addition to this vegetation, the NHP inventory also indicated two species of vascular plants within the quadrangle that are considered rare within the state. The first species is *Phacelia covillei* (Buttercup Phacelia) and is also listed as a federal species of concern. According to an inventory by the NHP and Triangle Land Conservancy, this plant has been documented as recently as 2008 in the Lower Haw River State Natural Area located approximately 16 miles southeast of the proposed project site. The second species is *Enemion biternatum* (Eastern Isopyrum), which, according to the County's comprehensive plan, has been moved from the *current* list of rare plant species within the County to the *historic* list as it has not been observed for more than 20 years within Orange County. The NHP inventory also indicates the presence of a bird – *Vireo gilvus* (Warbling Vireo) – in the quadrangle, which is considered a rare species within the state. See the species descriptions in Appendix B.

3.14 Environmental Justice

Prior to narrowing the candidate sites down to the final two, the sites were ranked with respect to a variety of criteria including environmental justice, which was most heavily weighted. In this case, 2000 census data were used to rank the sites regarding potentially vulnerable population groups including: minority populations, age (<18 years and >65 years old), education (≥25 years old without a high school diploma or its equivalent), and low income populations (living below the poverty level). This was done by calculating the number of people per acre for each population group located within a 1000-foot radius of the site. For each candidate site, the population densities for each of these population groups were added together, and the total value ranked from highest density (1 ranking) to lowest density (10 ranking) for the ten sites. This site was determined to have a low density of vulnerable populations, and as such, is not expected to place a disproportionate burden of potential environmental consequences on any one group of people.

4.0 PREDICTED ENVIRONMENTAL EFFECTS OF PROJECT

4.1 Topography

The project will have minimal effect of the existing topography. The site will undergo grading to provide a more level and usable area for facility operations and erosion control. All runoff from the developed portions of the site will be directed to a 10-year stormwater pond with emergency spillway and riser barrel/dewatering device that will be constructed to the south of the transfer station building. The site will not undergo changes that will increase the amount of runoff on the site (only approximately 200,000 square feet of impermeable surface will be added); and therefore, increases of frequency or flow of water in the intermittent streams located on the site is not expected.

4.2 Soils

As mentioned above, the proposed site will be graded prior to construction. Approximately 5,000 cubic yards of soil will be cut for grading purposes, and 5,500 cubic yards of soil will be required for fill dirt. As a result, approximately 500 cubic yards of fill dirt (from off site) will be required for grading of the site. BMPs will be used during construction to ensure that chemical spillage is minimized, and soil is not contaminated. Long-term effects to soil in the area are not expected due to the facility being fully-enclosed, and facility policy will prohibit the long-term storage of chemicals outside.

4.3 Land Use

According to the County's Zoning Ordinance, transfer stations may be located in all Zoning Districts in the exclusive planning jurisdiction of the County where governmental facilities and office buildings are located. This parcel is located within the exclusive planning jurisdiction; and therefore, there are no conflicts with zoning or planned use for the development of this site into the transfer station.

4.4 Wetlands

Site development will not result in the impact of wetlands in the vicinity of the project. There are no wetlands within areas to be disturbed by the project construction or operation of the transfer station. A stormwater management plan will be in place during both construction and operation of the facility.

4.5 Prime or Unique Agricultural Lands

There are no impacts on prime or unique agricultural lands at the proposed project site since no prime or unique agricultural lands were identified on the property.

4.6 Public Lands and Scenic, Recreational, and State Natural Areas

There is no impact anticipated for the natural areas located in the Cane Creek Reservoir, the Pickards Mountain area, or the Hank Anderson Community Park in Carrboro.

4.7 Areas of Archaeological or Historical Value

If the Historical Value Survey identifies any resources at Site 056, the North Carolina Department of Cultural Resources, Division of Archives and History, will be contacted prior to construction for recommendations. The County will proceed based on these recommendations. The project is not expected to impact historical features adjacent to the project area.

4.8 Air Quality

The facility will have minimal impact on ambient air quality. The facility shall be fully enclosed and the heating, ventilating, and air-conditioning (HVAC) systems will be provided to maintain indoor air quality and minimize potential air emissions. The building envelope will be constructed from environmentally-preferable materials that minimize life-cycle environmental impacts, resource depletion, and human toxicity.

The project will generate up to 70 vehicle trips per day. This includes county, municipalities, and commercial haulers and tractor trailers hauling refuse to the landfill. While currently there are no trucks entering the property, adjacent to the property, along NC Highway 54, the average daily traffic count is greater than 8,000 vehicles per day. The collection vehicles will be restricted to certain County roads to reach the property, in order to avoid travelling down scenic roads or bike routes between the collection areas and the transfer station. The transfer station is located approximately 12 miles from the waste generation centroid. The expected increase in carbon footprint as a result of the additional mileage than currently travelled is minimal.

Air quality impacts during construction are expected to be minimal. Emissions from construction vehicles will represent a short-term air quality impact from dust and equipment emissions.

4.9 Noise Levels

The proposed project will increase noise levels over current conditions. However, this increase will be limited to the noise associated with the collection vehicle and tractor trailers entering and

leaving the site. The transfer building will be totally enclosed and constructed with an acoustic building shell (interior insulation and liner panel system) to contain noise within the building. On-site traffic and noise levels will be controlled by maintaining the natural wooded buffers around the site.

4.10 Water Resources

4.10.1 Groundwater Resources

No public water or sewer is available at the site. A groundwater well (or wells) will be drilled to provide water for consumption, washdown, and fire protection. A storage tank will be built on site and sized appropriately to ensure adequate water for fire protection. Daily water usage is expected to be in the range of 500 to 1,000 gallons per day. Based on the size of the property (142 acres) and the previously discussed recharge rate of 477 gallons/day/acre, the water usage at the site is not expected to have an impact on the quantity of water available to the neighboring residences or farms.

A separate septic tank and drain field system will be designed to handle the minimal sanitary wastes generated at the facility. The effect of this waste system is not expected to be greater than a residential septic system. The concept of a pump and haul system for the washdown water has been approved by the Division of Waste Management and Division of Water Quality.

No solvents or similar type cleaning fluids will be used in washdown operations of the transfer. No long-term outdoor storage of waste or other materials will be allowed.

4.10.2 Surface Water Resources

BMPs, including bioretention to improve storm runoff quality, will be implemented in the development of stormwater management and control measures for those areas outside of the building envelope.

Wastewater will originate during normal facility operations primarily from equipment and tipping floor cleaning and sanitary wastes. The washdown system would be designed with storage and containment for the capture of all wash waters resulting from station operation. Wastewater, meeting standards established by the County, will be hauled to a public wastewater treatment facility for disposal. No washdown water will be discharged on site.

Wastewater associated with this project will have no adverse effects on surface or groundwater at the site as the facility will be designed so that the tipping floor area will be totally enclosed.

As referenced in Section 3.10, a SWID survey identified several features as subject to the stream buffer section of the County's Zoning Ordinance. As such, construction of the waste transfer station will adhere to these regulations and the appropriate buffers calculated and left undisturbed to protect these waters. Follow up with the USACOE regarding the isolated pools located in the parcel will be completed prior to construction. However, construction is not planned to impact the area referenced by the County Staff as requiring USACOE input.

4.11 Forest Resources

If the flora and fauna inventory conducted prior to site acquisition indicates any forest resources of significance that may be affected by this transfer station, the appropriate agencies will be contacted for recommendations.

The construction of the transfer station will result in the loss of approximately 20 acres of trees, but the majority of the site will remain wooded. The remaining wooded area is of the same habitat type as that to be cleared prior construction. Project design will include erosion management practices, and long-term effects from the removal of these trees are not expected.

4.12 Shellfish or Fish and Their Habitats

As stated above, if the survey identifies any significant shellfish or fish habitats in the vicinity of the site, then the proper agencies will be contacted for guidance. However, there are no perennial surface waters located in the project area, and the creeks located nearby are not expected to be effected. Therefore, no impacts are expected for these three species of freshwater mussels and one species of fish.

4.13 Wildlife and Natural Vegetation

If it is determined by the flora and fauna survey that the transfer station placement will significantly affect the wildlife and natural vegetation of the site, the appropriate agencies will be contacted prior to construction for recommendations for mitigation.

Only a portion of the site will be cleared for the construction of the transfer station building, parking spaces, access road, and equipment storage (approximately 20 acres of the approximate 149-acre site). The surrounding wooded area, which is the same habitat type, will remain intact.

4.14 Environmental Justice

In order to ensure that all groups of people in the community are aware of and potentially involved in the waste transfer station project, the County has included the community in several of the stages of the development of the proposed waste transfer station. They have conducted several public meetings and heard comments from the public regarding the project and siting process. A website[2] to inform the public of progress during the siting process was created. A Community Advisory Group (CAG) is under development that includes residents from the vicinity of the proposed waste transfer station. The purpose of this group is to keep the community involved in the process from the construction of the transfer station through to its operation. This group may act as a mediator for concerns and comments from the public regarding the project. Members of the CAG create a direct pathway from the impacted community to the consulting team, Solid Waste Management, County Management, and the BOCC.

4.15 Introduction of Toxic Substances

No toxic substances will be introduced during the construction of the project. During operations, the transfer station will be operated in accordance with applicable regulations, and BMPs designed to assure that toxic substances will not be introduced to the environment. These practices include:

- Waste prohibition: By permit and regulation, the facility cannot accept any hazardous, toxic, or radioactive waste.

- Load inspection: Orange County Solid Waste Operations Staff will conduct inspections on the refuse to assure that the material received is in accordance with allowable waste by the permit issued by NCDENR for the transfer station. A program of random visual inspections will be in place to check for unsuitable materials. Any material that cannot be demonstrated to comply with the facility permit will be rejected. In addition, all loads dumped on the tipping floor are visually inspected by operations staff to assure that unsuitable material is not placed in trailers for transport to the landfill.

- Collection of wash water, contact water, and spills: The transfer station building is designed to capture all tipping floor washdown water, as well as any contact water that may drain from the refuse. The containment system would also contain any spills of any toxic materials. The wastewater from the containment system is going to be pumped and hauled to a wastewater treatment plant. Any contamination to the wastewater (as a result of a spill) could be treated prior to its release to a public wastewater treatment plant.

[2] http://www.olver.com/orangecounty/

5.0 MITIGATIVE MEASURES

It is anticipated that the construction and operation of the Orange County Solid Waste Transfer Station will have no significant impacts to the project area. This section reviews the mitigation measures that are incorporated into the siting, design, construction, and operation of the facility. In order to mitigate and prevent these adverse consequences, the following actions are proposed:

- BMPs will be used during construction to ensure that chemical spillage is minimal, and soil is not contaminated. The facility will be enclosed, which will further protect soils in and around the solid waste transfer station.

- The Historical Value Survey will determine if any significant archaeological and historical resources are located at this site. If so, the NC DCR, Division of Archives and History, will be contacted prior to construction for recommendations.

- The impact on air quality from the facility is not significant, and the system is designed such that emissions from the facility will not pose a health risk. An HVAC system will be installed to protect indoor air quality as well as decrease potential air emissions. The building envelope will be constructed from environmentally-preferable materials that minimize life-cycle environmental impacts, resource depletion, and human toxicity.

- The flora and fauna survey will determine if significant detrimental impacts will be caused by the transfer station in terms of the forest resources, shellfish and fish habitats, and wildlife and natural vegetation at the proposed site and its surrounding areas. If this survey indicates significant impacts on these natural resources, the appropriate agencies will be contacted for recommendations.

- The building will be designed in a way to decrease noise reaching the outside. In addition, the lot will remain heavily wooded, which will buffer the surrounding area to any on-site traffic and noise levels.

- In order to protect surface water and groundwater, BMPs will be implemented to improve storm runoff quality at the site. Wastewater will be managed in a way that does not allow for the contamination of water resources prior to its hauling to the public wastewater treatment facility for disposal. A separate septic tank and drain field system will be designed to handle the minimal sanitary wastes generated at the facility. No solvents or similar type cleaning fluids will be used in washdown operations of the transfer. No long-term outdoor storage of waste or other materials will be allowed.

- The stream buffer regulations in the County Zoning Ordinance will be followed to protect the surface water resources identified in the SWID survey.

6.0 REFERENCES

EPA's EnvironMapper Store Front: http://www.epa.gov/enviro/html/em/

FEMA Map Service:
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North Carolina Department of Transportation (NCDOT). LiDAR Data Release (Shapefile). May 2007.

North Carolina Natural Heritage Program: http://www.ncnhp.org/

Orange County Zoning Ordinance:
http://www.municode.com/resources/gateway.asp?sid=33&pid=13166

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U.S. Fish & Wildlife Service, National Wetlands Inventory: http://www.fws.gov/nwi/

Cunningham, W.L. and C.C. Daniel, 2001. "Investigation of Groundwater Availability and Quality in Orange County, NC." U.S. Geological Survey Water Resources Investigation Report 00-4286.

7.0 EXHIBITS

- Exhibit A — Conceptual Site Plan Layout
- Exhibit B.1 — Site Location Map
- Exhibit B.2 — Site Topography and Slopes
- Exhibit C.1 & C.2 — Site Firmette maps
- Exhibit D — Site Soil Map
- Exhibit E — County Zoning Map
- Exhibit F — Wetlands Map
- Exhibit G — County Parks
- Exhibit H — Historical Resources

8.0 PERMITS, LICENSES, AND APPROVAL REQUIREMENTS

Table 4 presents a summary of the permits, licenses, and approvals required for the construction and operation of the facility.

TABLE 4

Permits, Licenses, and Approval Requirements for Construction and Operation of the Solid Waste Transfer Station

Item	Administrative Authority
Solid Waste Management Facility Permit	NC Department of Environment, Health, and Natural Resources
Environmental Assessment/Finding of No Significant Impact	Orange County Planning and Inspections Department
Building Permits	Orange County Planning and Inspections Department
Site Plan Approval	Orange County Planning and Inspections Department

9.0 APPENDICES

- APPENDIX A — Surface Water Identification Determination," Orange County Planning and Inspections Department, Erosion Control Division, January 16, 2009
- APPENDIX B — Natural Heritage Program Species of Interest Descriptions