



**United States Department of Agriculture
Rural Development**

September 9, 2011

SUBJECT: Finding of No Significant Impact (FONSI)
Chemtex Project Alpha
Turkey, North Carolina

DESCRIPTION OF ACTION

The U.S. Department of Agriculture, Rural Business-Cooperative Service (RBS) has received an application from a lender, BB&T, on behalf of Chemtex International LLC for funding under the RBS 9003 Biorefinery Assistance Program. The proposed funding is for construction and operation of a refinery to produce advanced biofuels in Sampson County, North Carolina. The applicant proposes to build a facility to process hybrid perennial grasses which will be grown in near-by marginal agricultural areas presently used for disposal of swine wastes, to produce some 20 million gallons of ethanol from integrated operations; the production of which would help meet the national goal for renewable fuel standard production of 36 billion gallons of renewable fuels by 2022 established by the Energy Independence and Security Act of 2007.

The environmental analysis of this proposed action is contained in an Environmental Assessment (EA) prepared by RBS.

Chemtex proposes to site, build and operate what is called Project Alpha, on a site of 166 acres located just outside the city of Clinton, NC; the facilities would use approximately 22 acres of the site for operations and services. Production of cellulosic ethanol will use different feedstocks, primarily two hybrid grasses, *Miscanthus giganteus* and *Arundo donax* which will be developed and grown on farms presently used for growing Bermuda grasses as part of swine waste disposition. The processing technology will be a proprietary technology developed by Chemtex, called Proesa™.

This proposal, construction and operation of an advanced biofuels facility, does not pose significant adverse effects to the natural or human environment. Some mitigation measures are proposed as loan conditions, detailed below.

BASIS FOR FINDINGS

As required by the National Environmental Policy Act and agency regulations, RBS has assessed the potential environmental effects of the proposal. After consideration of the

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applicant's proposal, comments from Federal and State environmental regulatory and natural resource agencies, the agency has determined that the proposal will not have a significant adverse effect on the natural or human environment. Therefore, RBS will not prepare an Environmental Impact Statement for this proposal.

The Applicant must obtain and comply with all appropriate Federal, State, and local permits and approvals required for construction and operation of the biorefinery, and this requirement shall be incorporated and enforceable through the Agency's Conditional Commitment for Guarantee. In addition, mitigation measures are proposed as part of loan conditions. Those measures, itemized in Table 1 attached, are for the reduction of any risk of invasive species as part of the production of feedstocks for the Project Alpha plant, and are to be incorporated into all agreements for growing feedstock using varieties of perennial grasses proposed, namely *Miscanthus giganteus* and *Arundo donax*.

FINDINGS

The attached environmental assessment for the subject proposal has been prepared and reviewed by the appropriate Rural Business-Cooperative Service officials. After reviewing the assessment and the supporting materials attached to it, I find that the subject proposal will not significantly affect the quality of the human environment. Therefore, the preparation of an environmental impact statement is not necessary.

I also find that the assessment properly documents the proposal's status of compliance with the environmental laws and requirements listed therein.

Prepared by: Frank P. Mancino 9/9/2011
FRANK MANCINO Date
Environmental Protection Specialist, Program Support Staff

Recommended: for Linda J. Rodgers 9-9-11
LINDA J. RODGERS Date
Director, Program Support Staff

Recommended: William C. Smith 9/9/11
WILLIAM C. SMITH Date
Director, Energy Division, Rural Business-Cooperative Service

Approved: Judith A. Canales 9/12/11
JUDITH A. CANALES Date
Administrator, Rural Business-Cooperative Service

Table : Recommended Feedstock Producer Conditions

The applicant, Chemtex International Inc., will incorporate into all feedstock producer agreements, the following action items, unless there is an approved Conservation Plan with NRCS:

1. New Producer orientation to discuss production methods, management activities, potential for spread of giant miscanthus and/or Arundo donax, treatment methods, and responsibilities, pest/disease identification, treatment methods, and responsibilities, eradication methods, if necessary, and reporting requirements;
2. Site-specific best management practices(BMPs), which could include, but not be limited to, NRCS Conservation Practice Standards (CPS) for soil erosion, pesticide use and application, fertilizer use and application, and other relevant areas for each specific site;
3. Setbacks/buffers to manage the giant miscanthus/Arundo donax stand and to prevent unintentional spread of the giant miscanthus/Arundo donax shall follow all local, State, or Federal regulations for containment of biomass plantings in existence at the time of the development of the producer’s Conservation Plan or through an amendment of the Conservation Plan initiated by the producer and approved by RBCS and NRCS, if determined appropriate or the site-specific conditions. If no such guidance exists, minimum procedures to prevent unintentional spread of giant miscanthus/Arundo donax shall include:
 - a. Establish or maintain a minimum 25 feet of setback/border around a giant miscanthus/Arundo donax stand, unless the field is adjacent to existing cropland or actively managed pasture with the same operator.
 - b. Setback/border areas may be planted to an annual row crop such as corn or soybeans; may be planted to a site-adapted, perennial cool-season or warm season forage or turf grass; may be kept in existing vegetation; or kept clear by disking, rotovating, or treating with a non-selective burn down herbicide at least once a year. The method used may be dependent on slope and the potential for erosion.
 - c. The use of only those known sterile varieties of giant miscanthus cultivars for producers included within the proposed project areas; all clone cultivars must be approved for planting under a recognized Quality Assurance program;
 - d. The initiation of a seed sampling program to determine the on-going sterility of seeds produced from the BCAP acres within the project areas. The seed sampling program includes recommended actions, including eradication, if a seed sample returns viable seed.
 - e. Exclusion of planting giant miscanthus on certain acreage within approximately 1,300 Feet from any known *Miscanthus sinensis* or *Miscanthus sacchariflorus* to limit the potential for cross-pollination resulting in viable seed.

f. Exclusion of planting giant miscanthus and/or *Arundo donax* on certain acreage within the project areas, depending upon certain site-specific conditions, like those lands subject to frequent flooding events;

4. Monitoring program developed to identify (1) spread of giant miscanthus or *Arundo donax* outside of planted fields with notification provided to both USDA and the Project Sponsors as soon as possible after identification of the issue, (2) identification of diseases and pests with notification provided to the Project Sponsors as soon as possible after identification of the issue; a USDA representative will conduct an annual field visit to monitor the site and to look for potential spread of giant miscanthus/*Arundo donax* beyond the site; the USDA will work with local weed control districts to provide additional monitoring/evaluation of these sites as appropriate.

5. Annual producer reporting, which would include land use tracking with the average and total size of enrolled fields; prior land use; rationale for land use change; spread of giant miscanthus/*Arundo donax* outside of planted fields; any pests/diseases identification; the use of pesticides/herbicides to control unwanted spread of giant miscanthus/*Arundo donax* or pests/diseases; BMP and CPS incorporated into field management, such as erosion control structures or materials, vegetative barriers, etc.; fertilizer usage and application methods; and cost data.

**Environmental Assessment
For
Chemtex International
Inc.**

**Project
Alpha
Clinton, NC**

September 9, 2011

I. Project Description and Need

The USDA, Rural Business-Cooperative Service (RBS) is considering an application for a loan guarantee pursuant to Section 9003 of the Food, Conservation, and Energy Act of 2008 (known as the Farm Bill of 2008). The loan guarantee is to the lender, BB&T, for ChemTex International, Inc. (the Company). to construct and operate a Cellulosic Biorefinery, known as Project Alpha, to be located southeast of Clinton, Sampson County, North Carolina. The proposal would include the construction of the biorefinery and its related infrastructure on approximately 166 acres located south of Warsaw Road (SR 24) between Fontana Street and Clive Jacobs Road (Figure 1).

The biorefinery proposes the use of local fiber crops for the production of up to 20 million gallons per year of ethanol and bio-based chemicals that will contribute to meeting the requirements of the USEPA Renewable Fuel Standard (RFS) requirements established by the Energy Independence and Security Act (EISA).

If approved, the project would commence construction in the 2nd quarter of 2012, with operations planned to begin in 2014. Simultaneous with plant construction would be the establishment of new energy crops in the nearby Sprayfield Areas, which are marginal lands that will benefit from remediation through energy crop production. There are nearly 100,000 acres of Sprayfield area lands available for growing *Miscanthus giganteus* and/or *Arundo donax*, two species of perennial grasses suitable (known as giant cane and giant reed) for biofuel production: it is estimated that approximately 15-20,000 acres of the Sprayfields Areas will be utilized for growing *Miscanthus giganteus* and/or *Arundo donax* for the initial biorefinery production of 20 million gallons/yr of ethanol; future production increases may be possible and the number of acres for *Miscanthus/Arundo donax* production in the Sprayfield areas would increase proportionally; however, such increases are not part of this proposed action.

Chemtex International Inc's Project Alpha will produce bioethanol and develop downstream sustainable chemicals. The project will yield the following:

- 20 million gallons per year of cellulosic ethanol and develop downstream sustainable chemicals.
- 60,000 tons of high purity chemical grade lignin.
- Create 65 direct jobs and 250 indirect jobs in an economically depressed area.

Chemtex has a proprietary process, known as Proesa™, to produce low-cost fermentable sugars from cellulosic biomass for the production of ethanol and/or bio-chemicals. The technology is unique in that it offers significant capital and operating cost benefits compared with other second generation technologies in the marketplace.

II. Primary Beneficiaries and Related Activities

The primary beneficiary of the project is the applicant, Chemtex International Inc (Chemtex). The project will also benefit the entire Sampson County area which is heavily reliant on the agricultural sector. This region is currently promoting growth in the biofuel industry. The project will create at least 65 direct jobs. There is also potential for future projects within North Carolina for additional job creation. This will have a positive economic impact on the area. Because of this project, the people in Sampson County, with possible expansion to the state of North Carolina, will benefit through indirect job creation and increased taxable assessments. To the extent that some 20 million gallons of cellulosic ethanol will be produced annually, the project will contribute to the achieving of the goals of the EISA and RFS2 standards of increased production of cellulosic and advanced biofuels which reduce dependency upon imported petroleum as well as reduce the level of green houses gas (GHG) emissions caused by the combustion of petroleum fuels.

III. Description of Project Area

The 166 acre site has been identified as *NC 24 Clinton* and is located south of the Turkey Highway near Clinton, Sampson County, NC. Figures 2-4 show the location of the site (Appendix A contains additional maps and photos).

Two site surveys were completed in March and April, 2011, to assess a number of parcels beyond the proposed 166 acre site. The proposed site is bounded on the north by railroad tracks and North Carolina Highway 24, beyond which are industrial businesses. The site is bounded to the east by wooded areas, beyond which are single family residential properties. The site is bounded to the south by agricultural field as well as wooded areas. The site is bounded to the west by agricultural fields. The site is bounded to the northwest by an auto salvage yard. The undeveloped woodlands consisted mainly of second and third growth loblolly pines and saplings. The surrounding landscape was generally flat. Portions of the site are heavily overgrown with greenbriers and small saplings, along with existing agricultural fields and undeveloped woodlands in the center and western side of the site. The western portion of the

site includes hydric soils and wetlands indicators, and an unnamed tributary to Chestnut Creek and thence to the Rowan Branch stream.

Soil units for the parcels consisted of Faceville Sandy Loam, Marvyn Loamy Sand, Norfolk Loamy Sands and Rains Sandy Loam. These soil units are found predominately in agricultural settings. The upper 3 to 8 feet of these soil types consist mainly silty and or clayey sand with varying degrees of organic content underlain by sandy silty clays to an approximate depth of 99 inches. Permeability and average water storage capacity within these soil types are considered to be moderate in nature. (Appendix B contains the NRCS soils report.)

The site has a natural buffer of between 400 and 1,200 feet of woods on its east and west property lines. The site's north property line extends for approximately 750 feet along NC Highway 24. The site's southern boundary extends along a property that is planned for future industrial development purposes.

The site's west and north boundaries are industrial use areas that include heavy industrial zoning and light industrial zoning. Industrial activities in this area include metalworking manufacturing, a metals machining shop, metal scrap dealer, oil jobber, industrial laundry, and warehousing/distribution. The site's east boundary line of approximately 2,000 feet with between 400 and 1,200 feet of woodland buffer. This property boundary adjoins residential zoning and has about 10 residents.

The proposed site is currently zoned RA-20: Residential Agriculture. Plans are underway to submit an application to the City of Clinton Planning Board for changing this site's zoning classification to I-2: Heavy Industrial zoning, which would fully apply to this projects uses. I-2 heavy Industrial zoning would be consistent with the City of Clinton's zoning requirements for this project.

Figure 1: Project Alpha Site Location

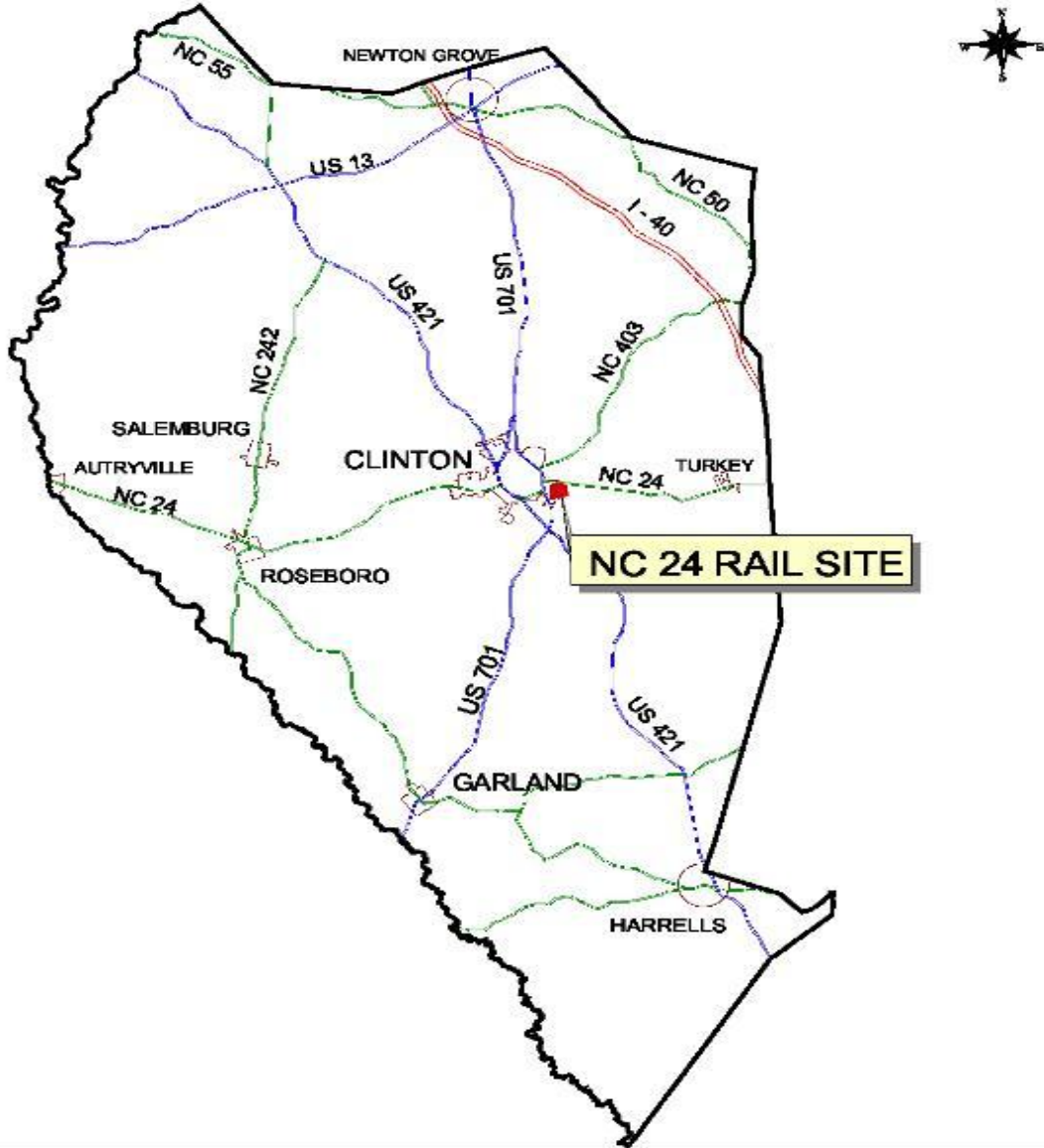


Figure 2: Aerial view of Site

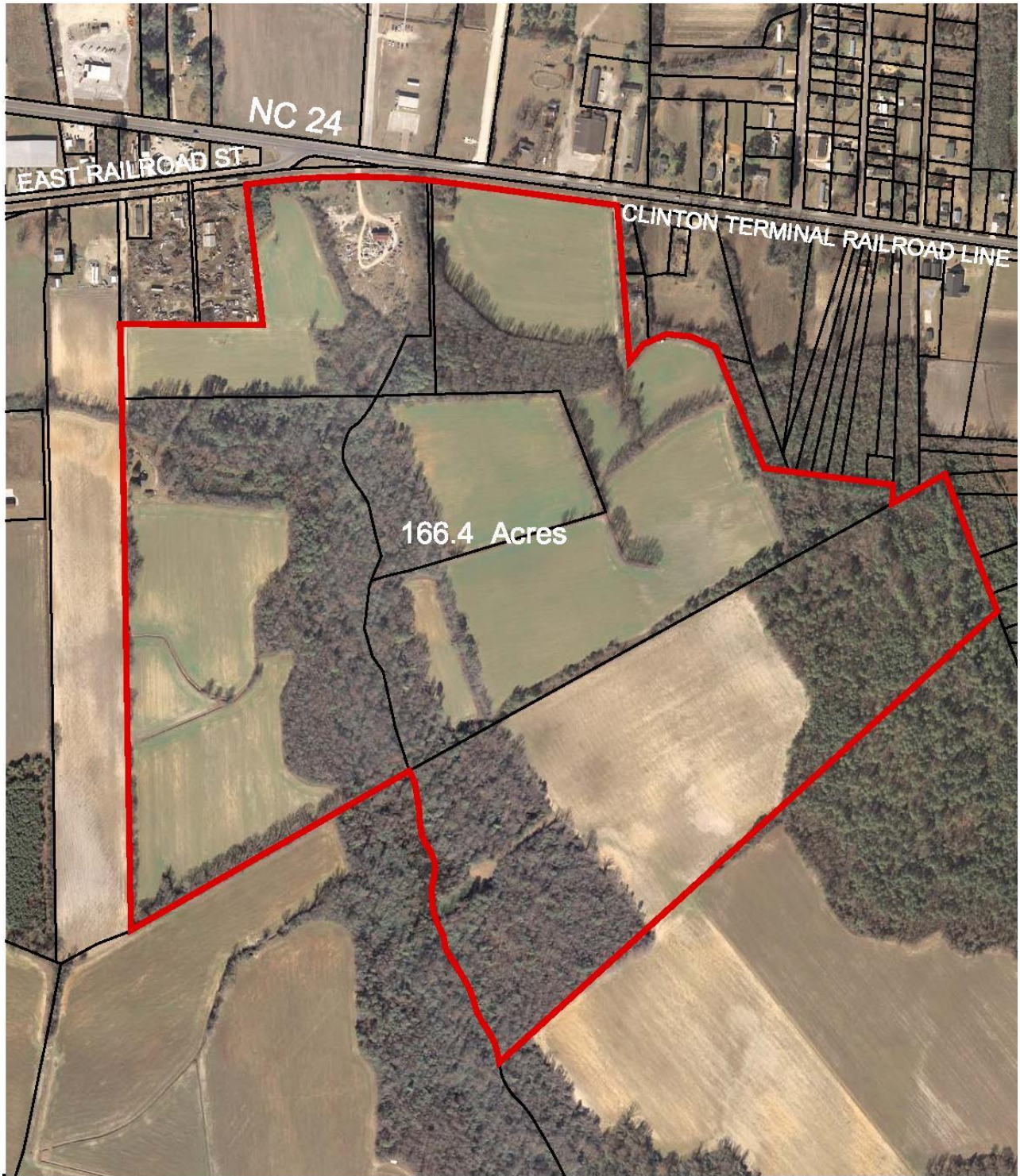


Figure 3

CHEMTEX SITE: TOPO

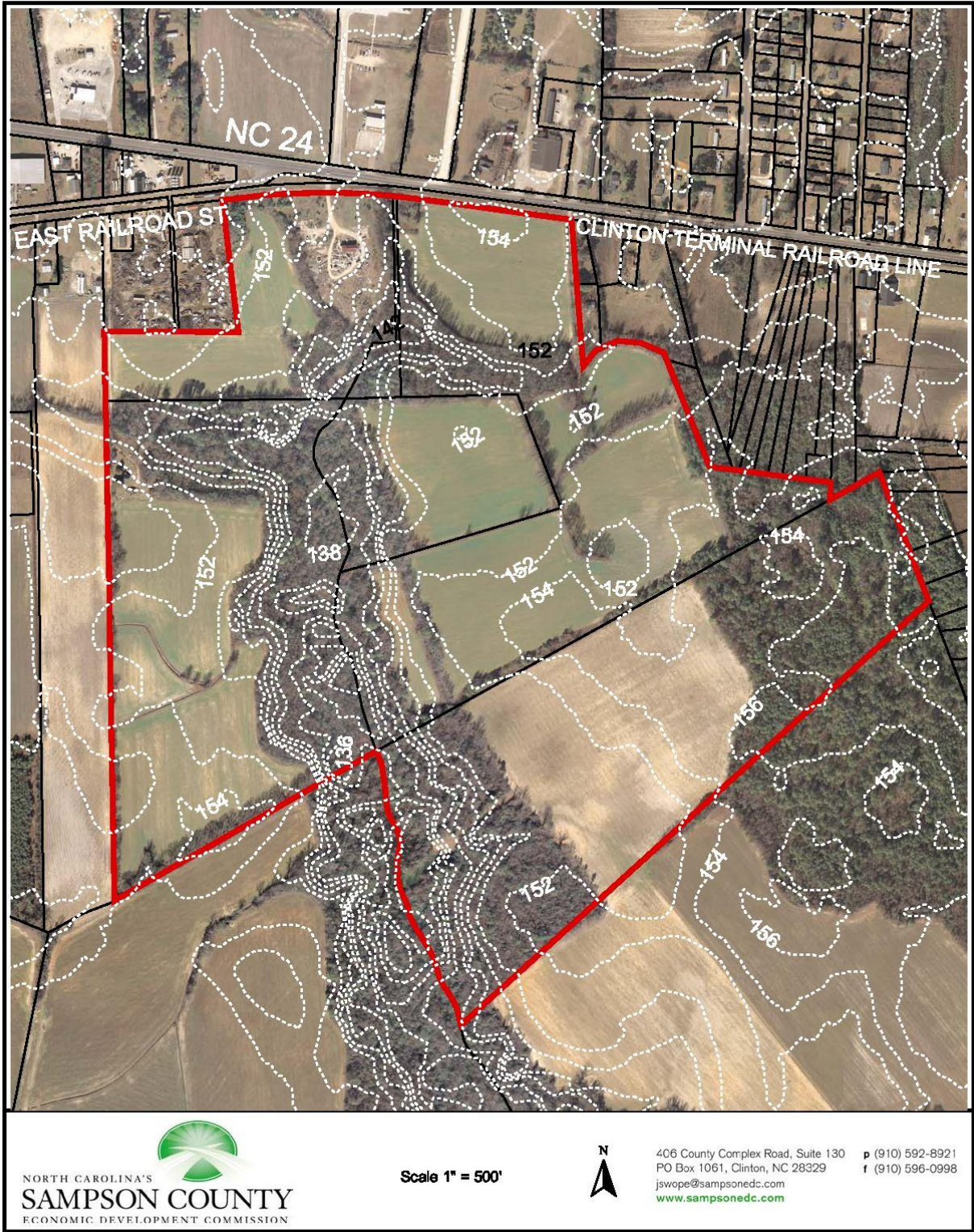
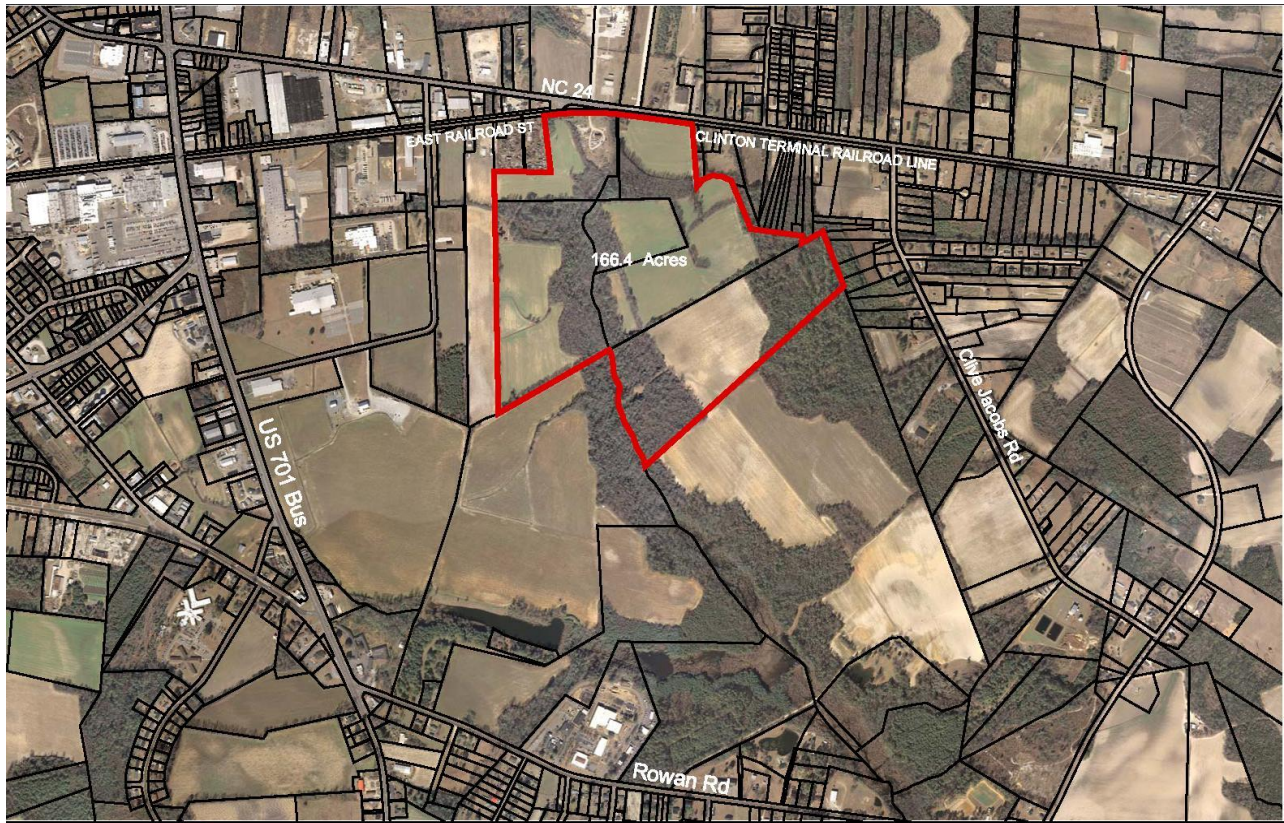


Figure 4: Regional Properties



Scale: 1" = 1200'



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Facilities and Processes

The plant will use a patented process technology called Proesa™, which converts selected ligno-cellulosic material into bio-ethanol in a sustainable manner. The production of ethanol involves four stages. The first stage is the *pre-treatment* of the biomass to break it into pulp at microscopic level, separating it into lignin, cellulose and hemicellulose. The second stage, known as *saccharification*, involves enzymatic hydrolysis of the C5 and C6 sugars.

The third stage is the *fermentation* process to produce ethanol from the sugars.

The final stage is the separation of ethanol via *distillation*. The purification involves treatment of the ethanol containing beer through resins. Lignin is separated by removing excess water through filtration. Figure 5 shows the conceptual design of the plant with its major facilities.

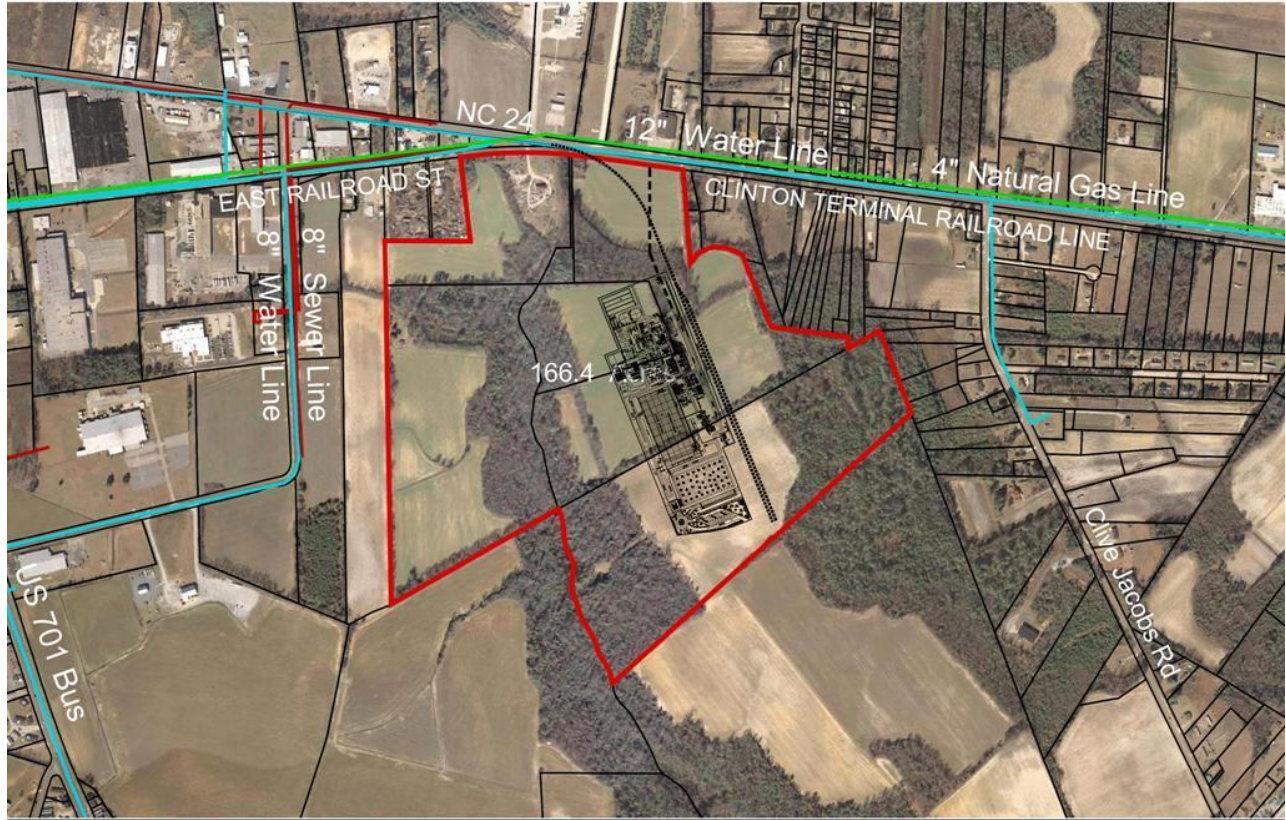
The plant will be a sustainable development through its use of *Arundo donax* (giant cane), and/or *Miscanthus* which have high yields on marginal and unproductive lands and reduce carbon dioxide. Lignin, produced as a by-product, will be used as a fuel for power generation on site and may also be sold for other industrial purposes, such as cosmetics.

Facilities would consist of:

- Parking Lots
- Services Building
- Offices
- Biomass Storage, Fresh and Dry
- Biomass Boiler, Geneset and Electrical
- Natural Gas Service area
- Wastewater Treatment Area
- Fermentation and Thermal Oxidation Area
- Ethanol/Enzymes Warehouse, Cooling Towers
- Rail Spur
- Entry/Access Road

Figures 5-6 show the proposed facility layout and site services.

Figure 5: Site Services and Layout of Proposed Facilities



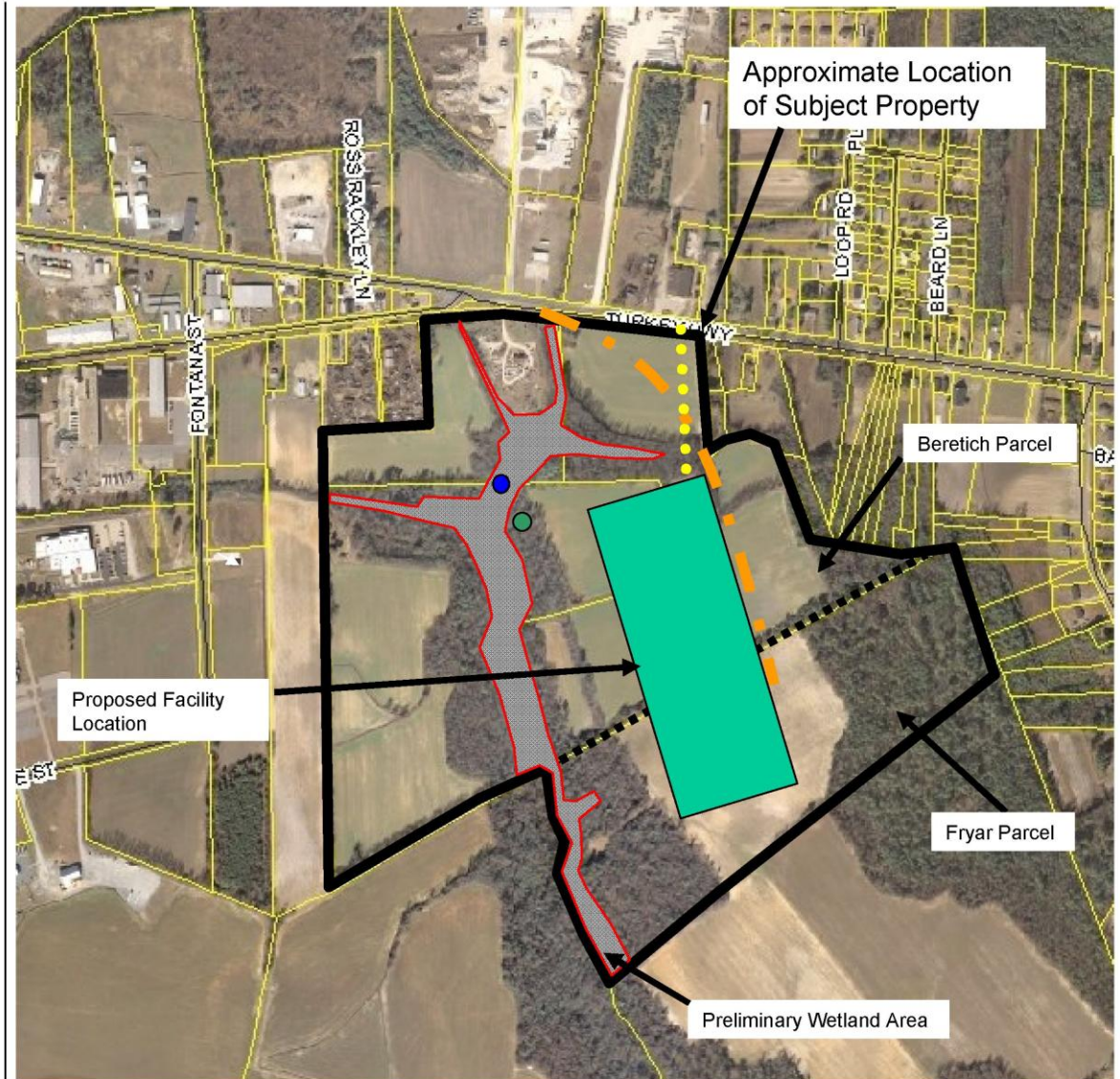
CONCEPTUAL
Scale: 1" = 800'
FACILITY LAYOUT



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LEGEND	
RAIL
ENTRY ROAD	-----

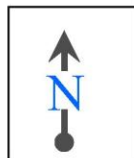
Figure 6: Facility Layout



LEGEND

- Site Boundary
- Preliminary Wetland Area
- Wetland Data Point
- Upland Data Point

- Rail
- Entry Road



SOURCE:

Sampson County Online GIS
2008 Aerial Photograph



**FIGURE 2
PROPOSED FACILITY LAYOUT**

Approximate 166-acre Property
NC 24 Rail Site
Clinton, Sampson County, NC
ECS Project: 33:1690

IV. Environmental Impact

1. Construction

Although the project site covers 166 acres, Project Alpha will be built on approximately 22 acres (Figure 5). These 22 acres will be situated in an area to minimize impact on any wildlife or wetlands. To protect against any adverse impacts to wetlands, a minimum 50 foot vegetative buffer will be maintained around each delineated wetland and/or stream (Figure 6).

In general, all state and local construction and building code requirements will be followed. Also, state and local guidelines and regulations regarding construction practices will be observed to properly control erosion and stream siltation. Any land clearing will be reviewed with the local planning committee prior to starting work, and all local requirements will be followed.

In the construction phase, for the purpose of containing and minimizing dust emissions, there will be application of water to all areas and lanes in the building site, to wet unpaved roads and any road used by the site vehicles as well as to regularly clean vehicles leaving all process-related areas; the vehicles used for transporting dusty materials shall be covered with tarpaulins and travel at low speed.

Vehicle refueling in the building site shall take place in an ad-hoc area with waterproofed paving and suitable slopes to collect any accidental spill in the catch basins. An emergency plan shall be implemented to manage accidents that might occur in the construction stage and affect the environmental component (mainly soil and aquifer). Rainwater shall be properly managed in the building site both in the construction phase and in the operation phase.

Earth moved in the construction phase shall be stored in suitably shaped heaps so as to avoid unstable phenomena over time; such heaps of earth shall also be protected from the effects of wind and rain. Any external earth material shall be transported into the building site in compliance with regulations; in any event the Company is bound to guarantee the origin of the said material. In the case that the Company needs to dispose of the earth and rocks excavated in the construction phase, such material shall comply with the requirements set out in regulations, so as to be excluded from the waste regulations, otherwise it shall be managed as waste.

During excavations, special caution shall be taken to avoid damaging underground utilities or

structures (pipes, tanks, etc.), which might create hazardous conditions leading to contamination of the soil/subsoil. Any accidental spills of pollutants (oils, hydrocarbons, etc.) will be managed in a suitable manner, in order to avoid any soil and groundwater pollution.

In the construction phase, the Company will:

- a. Segregate different types of waste;
- b. Manage effluents from washrooms as liquid waste and appoint an authorized subcontractor for disposal;
- c. Limit movement of pollutants;
- d. Protect the ground layer vegetation, where still present in the site and will aim for rapid arrangement and restoration of green areas.

Noise levels will be controlled within allowable limits as determined by OSHA. The site will use standard engineering practices to control noise to acceptable levels (usually 80dB within 3 ft of the noise source). In addition, the Company will conduct control tests within 30 days from the start-up of the plant in order to confirm compliance with the legal limits in the neighboring residential areas. Should the levels exceed the legal limits, the plant shall be stopped until appropriate sound mitigation measures are implemented.

Landscaping activities to blend the structures in with the surrounding environment and mitigate their visual impact will be carried out before the plant is put in operation; appropriate follow up care will be taken after planting the trees, so as to promote establishment, for a period of at least 5 years, including replacing any dead trees with live ones. Landscaping will be in meet or exceed local regulations.

2. Air Quality

The Clean Air Act (CAA) required the USEPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. NAAQS include two types of air quality standards. Primary standards protect public, including the health of sensitive populations such as asthmatics, children and the elderly. Secondary standards protect

public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings (USEPA, 2009a). USEPA has established and North Carolina has adopted NAAQS for seven principal pollutants, which are called “criteria pollutants”.

Table 2 - National Ambient Air Quality Standards

Pollutant	Primary Standards	Averaging Times	Secondary Standards
Carbon Monoxide	9 ppm (10 mg/m)	8-hours	None
	35 ppm (40 mg/m3)	1-hour	None
Lead	1.5 ug/m3	Quartely Average	Same as primary
Nitrogen Dioxide (NOx)	0.053 ppm (100 ug/m3)	Annual (Arithmetic Mean)	Same as primary
	0.1 ppm (188 ug/m3)	1- hours	None
PM10	150 ug/m3	24-hour	Same as primary
PM2.5	15 ug/m3	Annual (Arith. Mean)	Same as primary
	35 ug/m3	24-hour	Same as primary
Ozone	0.075 ppm	8-hour	Same as primary
Sulfur Dioxide (SO2)	0.03 ppm	Annual	
	0.14 ppm	24-hour	
	0.075 ppm	1-hour	

For Project Alpha operations, there are 4 sources of projected air emissions

1. Regenerative Thermal Oxidizer (RTO)
2. Steam Generation (Boiler)
3. Waste Water Treatment system
 - this system will only generation air emissions during emergencies, which will be routed through a flare
4. Ethanol Loading
 - vapors will be taken through a flare

Areas that meet the air quality standards for the criteria pollutants are designated as being in attainment. Title 40 of the Code of Federal Regulations (CFR) Section 81.334, states that Sampson County is listed as unclassifiable/attainment for all National Ambient Air Quality Standards (NAAQS). Since Sampson County has never been designated nonattainment for any of the NAAQS, projects that are requesting federal funding or need federal approval in Sampson County would not be subject to the general conformity requirements. Therefore, a project located in Sampson County would be considered in compliance with the North Carolina Air Quality Implementation Plan (Letter from NCDENR, April, 2011).

The proposed Alpha Project is expected to be permitted as a Synthetic Minor Source with respect to New Source Review (NSR) regulations. The Alpha Project is considered under NSR as a “Fuel Conversion Plant” and would have a 100 ton/year major source threshold being applicable. The

total facility-wide emissions for the Alpha Project are expected to be well below the 100 tons/year major source permitting threshold for criteria pollutants, as shown in Table 3. The facility is not expected to be a major source of HAPs. It is expected to be classified as a HAP Area Source with total HAP emissions less than the 25 tons/year total HAP major source threshold. Additionally, any individual HAP emission is expected to be less than 10 tons/year.

The proposed biomass boiler would be subject to 40 CFR 63 Subpart J (Boiler MACT for Area Source). Based on the size of the proposed source (235 MMbtu/hr), this regulation will require it to meet the particulate limit of 0.03 lbs/MMbtu heat input.

Additionally, the proposed facility's PTE emissions are expected to demonstrate compliance with any applicable State of North Carolina and Federal ambient air quality standards (AAQS).

Table 3: Estimated Emissions/yr

Pollutant	Project Alpha
NOx	90 tpy
VOCs	90 tpy
CO	90 tpy
PM10	80 tpy
PM2.5	80 tpy
SO2	85 tpy
Lead	5 tpy
Total HAPs	20 tpy

North Carolina has determined that facilities below the major source threshold do not pose a significant threat to air quality, and, as long as they operate in compliance with their permits, are consistent with the state implementation plan. The proposed facility would not significantly impact air quality, and the operations will be consistent with the state implementation plan. Project Alpha will have little impact on air quality standards in North Carolina and is estimated to be in compliance with the North Carolina Air Quality Implementation.

The Project will also have a net positive impact on the environment, in particular by reducing greenhouse gases and their resulting impact on global warming. With the use of Proesa technology, direct CO₂ emissions can be reduced by up to 91% compared to traditional gasoline. Proesa also reduces GHG emission up to 85% compared to traditional gasoline. Reductions are based on the type of feedstock used.

Odor impact

The potential for odor has been reviewed with the City and County managers, and found to be acceptable. The following BMPs will be undertaken:

- a. The Company shall record on an ad hoc register the daily amounts of feedstock delivered in the storage area, the daily amount fed into the bioethanol production plant and the associated lignin output, the daily amount of lignin and possibly feedstock fed into the boiler.
- b. The Company shall identify an appropriate technological solution to capture and contain odor emissions in addition to managing feedstock storage properly.

3. Water Resources

Water use may be summarized as follows:

Water inputs in the plant:

1. Water intake from City of Clinton water supply.
2. Water contained in the incoming biomass.
3. Water entering by means of the enzymatic solution and other additives in water solution.

Water outputs from the plant:

1. Evaporation from the cooling towers.
2. Discharge from the cooling towers.
3. Water leaving with the lignin flow.
4. Discharge from water treatment.
5. Water leaving with slurry from water treatment.
6. Traces of water leaving with flows of CO₂, ethanol and fusel oil.

The main use of water is for topping up the cooling towers, while the production process itself does not require a great amount of topping up as a result of the considerable reuse of process waters.

Supply of water for drinking and hygienic-sanitary use will take place through connection to the City of Clinton Water supply. Wastewater will be discharged directly to the City of Clinton Waste water system.

Water will be supplied to the site by the City of Clinton. The water makeup requirement will be 1.0 MGD. The City of Clinton currently has a 12-inch water line, which serves this site. The City's water system currently has an available surplus of 1.0 MGD with an additional 1.0 MGD available from existing wells. In addition, the City of Clinton is studying water system expansion improvements that would include the City's water treatment capacity by 2.5 MGD.

Additionally, the City of Clinton draws water from two aquifers, the Black River aquifer (shallow) and the Cape Fear aquifer (deep). The City of Clinton expects that given proper management of the well fields, an additional 1.5 million gallons per day is available for use.

The site's wastewater (for both process and sanitary) would be handled by the City of Clinton's Waste Water Treatment System. The expected flow to sewer from the site will be 550,000 G/D. The City of Clinton currently has an 8- inch gravity sewer line that serves this site. The City's wastewater treatment system currently has an available surplus of 1.5 MGD.

The sewage system for disposal of effluent waters may be broken into two separate networks for the treatment of clean water, and waste water.

Clean water may be used to feed the Fire Water Tanks, and the excess from these tanks will not be discharged to any source outside the facility. The water system will be managed through the waste water treatment located on facility. This is also true for storm water management. The clean water network may feed the fire prevention tanks and the excess from these tanks will flow through a suitable conduit into the canal outside the plant. The waste water network will be delivered to the water treatment plant in the anaerobic digestion section.

There will be a waste water treatment facility located on site to clean and reuse most water. The WWT facility will consist of large anaerobic reactors to remove the bulk of the organic load from the wastewater with a flowrate of 1.5 MGD. The reactors can produce effluent with COD/ BOD/ TSS concentrations as low as 9000, 3000, and 1000 mg/l respectively, as well as a significant quantity of biogas (for on-site power use), and waste biological solids. The anaerobic reactor effluent will be polished in an aerobic system. A portion of that effluent will then be sent to the City of Clinton as effluent while the remainder will be further polished in a Reverse Osmosis system before being returned to the process.

The makeup of the water discharge, in particular the process water discharge, and been reviewed with City of Clinton and their engineering consultants and found to be acceptable. It is anticipated that flows to the city will have the following characteristics:

1. COD < 700 mg/l
2. BOD < 10 mg/l
3. TSS < 10 mg/l
4. Temperature < 35C
5. pH 7.0 – 8.5

Due to the strict requirements of the Fermentation process and Boiler feedwater makeup, treated, or 'gray', water is not a feasible option. Chemtex is reviewing the water usage plan to minimize water makeup through process changes and in-house waste water treatment optimization.

The Waste Water Treatment system will be sized to also handle cleanup water, which might be contaminated with grease or oil.

Chemtex's Proesa™ process requires a considerable amount of water, particularly in the phases of pre-hydrolysis and enzymatic hydrolysis. Water is also used in gas washing operations, in the scrubber that cleans the exhaust steam and in the scrubber that cleans the CO₂ deriving from fermentation. A certain amount of water is also needed to top-up the water in the cooling circuit and to feed the de-mineralized water plant producing water for steam production.

The overall facility design process is to recover and recycle after a specific treatment a large part of the water exiting from the process. All these flows pass through a water treatment plant in order to reduce COD and eliminate inhibitors and other molecules that might be harmful if recycled in the process.

Wetlands/Streams

There is water body associated with hydric soils which transects the western portion of the site as an unnamed tributary of Rowan Branch, flows south to Chestnut Pond and into Rowan Branch. Along the unnamed tributary, a large ponded area was observed in the southeastern corner of Parcel B and two ponds were observed along the western property boundary of Parcel F.

Utilizing the USACE wetland delineation methodology with regard to the NCDENR definition of a wetland, there are approximately 20-35 acres of wetlands which may be jurisdictional under Federal law. Their relative sizes and locations are depicted on Figures 6 through 7. No wetlands

were encountered within the rest of the project site. To prevent impacts to wetlands, no construction activities, including vegetation removal, material dredge, or fill will take place within any wetland areas, nor within 50 ft of any delineated wetland area or stream. Facilities, including utility services, roads, and railroad spur have been sited so that no operations will impact wetland areas.

4. Solid Waste

Waste disposal is a service offered by the City of Clinton. They provide curbside service through Clinton Waste Management Services. Also, a landfill is located in Sampson County. Sampson County hosts a regional landfill that exceeds federal Subtitle D and state solid waste requirements. The landfill is owned and operated by Sampson County Disposal, Inc., a subsidiary of Waste Industries, Inc. The landfill is located approximately 8 miles west of Clinton and 4 miles east of Roseboro on Highway 24. The landfill will accept construction debris, demolition debris, commercial yard waste, business and residential waste, and has sufficient capacity for the foreseeable future to handle all of the estimated facility's wastes.

In the construction phase, debris will only be during the 18-month construction timeframe. It will be the responsibility of the General Contractor to remove construction debris from the site, to be land filled appropriately. The Company will: segregate different types of waste, manage effluents from washrooms as liquid waste and appoint an authorized subcontractor for disposal, limit movement of pollutants, protect the ground layer vegetation, where still present in the site, rapid arrangement and restoration of green areas. Compliance must be ensured with the state and local provisions as with the relevant industry standards applying in the various fields considered.

During operations the following wastes will be generated:

- Solid waste will be generated from the Waste Water treatment plant, 115 yd³ @ 20% solids. This material will not be hazardous; it is planned that this material will be land applied to provide nutrients and moisture to agricultural land, not land filled.
- The Steam Generation system will also produce solid waste in the form of ash, approximately 1,999 tons/year. The ash is not hazardous and will be disposed on in the county landfill, where there is sufficient capacity for this amount.
- A nominal amount of solid waste will be generated from the biomass handling system as sweepings.

- Items or equipment removed from service (such as bag filters, filter elements, screens, etc) will be minimal as equipment /parts are expected to have minimum 2-year life. Parts will be sent to the landfill as needed.
- There are not expected to be any hazardous solid wastes, as the Proesa™ process uses steam and heat separate the sugars, not chemicals as in some other processes. Project Alpha will not treat, store, or dispose of hazardous wastes at the facility

Sufficient capacity for land filling such materials exists nearby in Sampson County.

At the facility, feedstock will be stored in a roofed area with paving suitable for collecting any drippings in the collection system.

Lignin, a byproduct of the Ethanol process, will be stored exclusively in a dedicated area; if transportation to and from storage is done via a conveyor belt, it will be adequately protected from weather conditions and to prevent odor emissions.

Chemicals and in general of substances that are potentially hazardous for the environment shall be stored in appropriate tanks equipped with a suitably-shaped containment basin for collecting any accidental spill. Any spill caused by the leakage or breakage of the tanks containing chemicals (anti-foam agents, enzymatic solution and urea) required for production purposes shall be disposed of as liquid waste and shall not be routed to the effluent treatment unit.

The fusel oil (alcohols) resulting from the distillation process for the production of bioethanol shall not be used to feed the lignin-combustion boiler for power generation purposes and shall be routed to the wastewater treatment unit by means of a dedicated pipe, taking care to avoid any accidental spill. The Company shall supply a chemical analysis of the effluent originating from the treatment unit to confirm that the routing of fusel oil into the treatment unit does not cause any modification in re-circulating water that might affect the composition of air emissions already reported.

5. Permits

Appendix C contains a list of potential permits required. From current projections, it appears that the Company would be in compliance with all applicable permits.

6. Land Use

The land use will require zoning changes from residential and agricultural to industrial for the site. The effect of changing the project site land use will be a positive one for several reasons.

By using feedstock not suitable for human or animal consumption, and which will be grown on marginal lands, providing soil remediation, there will be a positive impact on area resources. Furthermore, the project brings a unique advanced technology to the area that provides significant energy-security advantages by producing renewable fuel from local sources.

Another benefit of the project on the land is that the project proposes to use selected high-yield crops (*Arundo donax*, *Miscanthus*), which can yield in the 10-20 dry ton per acre. This agricultural model can provide substantial added-value for the local farmers and integrators that are presently farming low yield biomasses like coastal Bermuda grass (1-4 dry tons per acre depending from the year). The energy grasses selected will not only be the feedstock supporting the plant, but will provide substantial benefits to the land with higher potential for nutrients uptake allowing a natural integration with the existing swine and poultry operations in the area.

7. Transportation

The project will be located within an industrially developed area of the City of Clinton, approximately 3- miles from the city center. The project site fronts on NC-24, which is planned to be by-passed with the rerouting of NC-24 east through a corridor located south of this site area. This rerouting of NC-24 will alleviate the volume of east and westbound truck and car traffic on the current NC-24. Currently, some 8,700 trucks/day use NC-24 in the vicinity of the project area.

The project will increase transportation at and near the project site as there is truck traffic scheduled for 10 trucks per hour, 12 hours a day and 7 days a week. The proposed site is located within an area of existing heavy industrial activity and therefore can accommodate this site's development plans. There are a small number of residents (less than 10) to the sites east property line and with a minimum buffer of 400 to 500 feet; there would be minimal impact to residential properties.

The site is adjacent to Turkey Highway on North Carolina Highway 24, which allows for direct

access to a major road. Additionally, several other major highways including Highway 403 and 701 are in the immediate vicinity. Interstate 40 is approximately 14 miles from the site and Interstate 95 is approximately 30 miles from the site.

The site is located on a major rail service line. There are also multiple lines of service available in the town of Clinton, the municipality where the site is located. Rail access will be extended to the site for use in transporting the ethanol product. The Company will provide adequate guarantees that transportation of bioethanol by rail will be conducted in a suitable manner to minimize risks for the population exposed.

An inquiry with NC Department of Transportation local District Engineering Office provide the following options for developing this site with the above-stated truck traffic.

1. Install the driveway access on the eastern side of the property to avoid conflict with the existing four lane section and construct a left turn lane and right turn lane, both with 150' minimum storage and 150' bay tapers.
2. Install the driveway access closer to the western side of the property and extend the existing four lane section down past the site and strip the inside west bound lane for a dedicated left into the development and strip the outside east bound lane for the right turn lane into the development.

The right of way in that section of NC 24 is 30 feet from the centerline on the north side and 30 feet from the centerline on the south side and/or to the center of the ditch between the railroad and NC 24.

8. Natural Environment

This project will not negatively affect the natural environment of the site location. There are no known effects to the natural environment or the wildlife at this time. The area is not listed on the National Registry of Natural Landmarks, nor located near any designed National Park, Wildlife Refuge or State Parks.

9. SocioEconomics/Environmental Justice

The project will create an additional 65 direct jobs and 250 indirect jobs in North Carolina (based on Bureau of Economic Analysis 3.8 jobs are created per every 1 biorefinery job). The majority of these jobs will be sourced from locally available resources. In terms of potential economic impact for North Carolina, this complex will be the first of its kind in North America and will provide the foundation for further expansion and development of related industries.

Executive Order 12898 of February 11, 1994, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to consider whether their projects would result in disproportionate adverse impacts on minority or low-income populations in the United States, its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands (U.S. Department of Housing and Urban Development, 1994).

The population of Sampson County in 2010 was 63,431 persons, an increase of approximately 5% since 2000. The percentages of minority groups in Sampson County are: 27%- Black; 16%-Hispanic; 2%- Native American; 2%- two races reported. The percentage of persons in poverty is approximately 21%. Median household income in 2009 was \$33,937; per capita income was \$18,295.

The U.S. Census Bureau defines poverty areas as census tracts or block numbering areas where at least 20 percent of the residents are below the poverty level, which is determined using a set of monetary income thresholds that vary by family size and composition that do not vary geographically but are updated for inflation (U.S. Census Bureau, 2010d, and Appendix C)

There would be no disproportionate adverse impacts to any population group from the construction of the Alpha Project. Implementation of the action will likely have a positive impact on the local economy, both during the construction phase and during the operational phase of the facility. Local vendors and construction contractors would likely benefit from potential work opportunities associated with the construction of the facility.

10. Energy Impacts

Project Alpha's proposed site is located approximately 2,100 feet south of a Progress Energy 115/138 KV electric transmission line, which will more than adequately serve this project's electric requirements.

Project Alpha's proposed site is serviced by a 4-inch natural gas line of the Piedmont Natural Gas Company, which is located along sites frontage on NC-24. Discussions are underway with Piedmont Natural Gas Co. to determine if this gas line will adequately serve this projects needs or if a new service line will need to be installed to provide adequate gas supplies for this project.

In general terms, this project will not impact the area's energy supplies.

Steam:

Steam is produced on the site with the non-fermentable residues of the biomass (lignin). The lignin will be consumed in a biomass boiler, which will generate steam for the process.

Power:

Some power will be produced on the site by use of biogas (a byproduct from the anaerobic waste water treatment system). The biogas will generate power via a generator, providing approximately 4.4 MW. Additional power will be taken from the local electrical grid.

The machines with the highest power consumption are the process pumps and the systems for handling solids.

Natural gas:

Natural gas is used in the plant as a fuel to feed:

1. Pilot lights for biomass boilers (only during switch-on phases)
2. Thermal oxidizer (only when the oxidizer load is insufficient to sustain spontaneous combustion reactions)

In the biomass boiler, natural gas feeds the pilot lights during switch-on to sustain combustion, while in the thermal oxidizer it is required to sustain the oxidizing reactions in the case of a decline in the amount of pollutant entering the oxidizer (this is normally sufficient to maintain

required temperature conditions).

The amount of natural gas taken from the network is reduced by using biogas, produced during the anaerobic digestion phase of the water treatment plant, as fuel for the boilers.

Energy savings:

In order to reduce energy consumption (essentially power and natural gas) the facility design has achieved results by:

1. Choice of cutting edge high-efficiency equipment and systems;
2. Optimal heat recovery in the ethanol production plant;
3. Optimal thermal recovery in the auxiliary utilities production systems.

In particular, the following improvements were introduced:

1. Recovery of exhaust steam from steam explosion to provide necessary energy for the beer stripper and other minor utilities: enables a reduction in steam consumption by the plant and therefore in gas consumption by the boilers; 92% of pretreatment exhaust steam is recovered;
2. Introduction of an aerobic section in the water treatment plant: enables a reduction in the amount of natural gas taken from the external network;
3. Use of high-efficiency boilers: enables maximum steam production in relation to the amount of fuel burnt;
4. Use of high-efficiency engines and electronic switch-on and regulation units for large engines: these plant devices enable reduced energy consumption by engines in relation to their mechanical performance.
5. Use of a high-efficiency lighting system: enables a notable reduction in electricity consumption.

Natural Gas

Piedmont Natural Gas Company is the natural gas provider for the site. An existing 4inch natural gas line is located on the north side of the site's frontage on NC-24 and will provide adequate natural gas for the process requirements.

Electrical Service

The local power provider is Progress Energy; with an existing 115/138KV transmission line

located approximately 2,000ft north of the site. Progress Energy has surveyed the project site and determined it is feasible to bring power onto the site from the existing transmission line.

11. Aesthetics

The plant will be located in a rural area, in the center of hundreds of acres. Wastes brought on-site will be sorted within a building and processed in enclosed pieces of equipment such as tanks. No piles of materials will be visible. No aesthetics issues associated with the proposed project are anticipated.

V. Coastal Zone Management Act

The area is not considered part of the Coastal Zone Management Program.

VI. Compliance With Advisory Council on Historic Preservation's Regulations

There are no properties listed on the National Register of Historic Places on or near the Project Alpha site. In addition, no historic properties which might be eligible for listing on the National Register are on or near the Project Alpha site. Appendix D includes correspondence with State Historic Preservation Officer, who concurred in the determination of no historic properties affected by the proposed facility.

VII. Compliance With the Wild and Scenic Rivers Act

The site is not within nor will affect any designated portion of a wild and scenic river.

VIII. Compliance With the Endangered Species Act

A site survey was performed to determine if there were any listed or candidate species and the survey found no evidence of any species covered under the Endangered Species Act. Consultation with the US Fish and Wildlife Service (USFWS) resulted in a determination that no threatened or endangered species would be affected by the Project Alpha construction and operation, as shown in Appendix D.

IX. Compliance With Farmland Protection Policy Act and Departmental Regulation 9500-3, Land Use Policy

A site-specific soils report is in Appendix B. Appendix D provides a copy of the form AD-1006, to determine impacts to prime farmland. The results show the conversion of some 22 acres prime farmland within the project area; scores low, and is considered a minor adverse impact.

X. Compliance With Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands

There are wetlands on the western side of the site, as shown in Figures 4 and 5, in association with the unnamed tributary to Rowan Creek. The applicant will avoid impacting all such wetlands during construction and operation by siting all facilities and services more than 50 ft from them; in those instances where the road might cross a wetland area, the applicant will obtain all Section 404 permits from the Army Corps of Engineers.

The unnamed tributary to Rowan Creek is designated on the FEMA FIRM map as within the 100 yr Flood zone, designated as a Special Flood Hazard Area (SFHA, as shown in Appendix E). No facilities or services will be constructed within that SFHA, and no activities will fill, dredge, alter or otherwise adversely affect the SFHA area.

XI. Compliance With Coastal Barrier Resources Act

The project is not located within the Coastal Barrier Resources System.

XIII. Consultation Requirements of Executive Order 12372, Intergovernmental Review of Federal Programs

A project description was sent to NC State agencies, as well as Federal agencies and their responses are in Appendix F. Commentors noted that the City of Clinton would need to make a determination of water supply adequacy under State law, if providing water for Project Alpha which will be done. Commentors also recommended additional information on the use of potentially invasive species for the feedstock in the Sprayfield areas. The cumulative impacts section below addresses the issue of invasive species in the Sprayfield areas and proposes mitigation measures to reduce any risks to the environment from potential spreading outside the Sprayfield areas.

XV. Reaction to Project

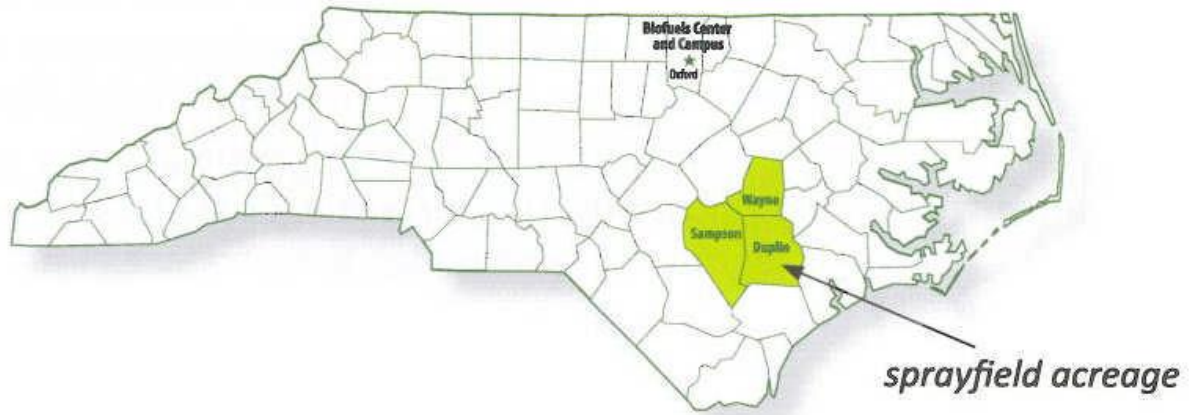
A Public Notice for the project was published in the local paper (the Sampson Independent) from July 19-21, 2011. No negative comments were received from the public, some 5 comments were in favor of the project. In addition, letters describing the project were sent to all adjacent landowners. Consultation and notice were frequent with city of Clinton officials and Sampson County officials. A copy of the Incentive Letter provided by Sampson County as voted on by the Sampson County Commissioners in Public Hearing is also provided in Appendix G. Overall public reaction has been in favor of the project.

XVI. Cumulative Impacts

Feedstock from the Sprayfield Areas

Project Alpha proposes to obtain feedstock from a three county area within a 50 km radius of the plant. The targeted growers would be those within what is known as The Sprayfields Area, which is used for the disposal of swine manure by spray application to Bermuda grass fields subsequently harvested for hay. There are some 100,000 acres currently being used for swine manure disposal within the three county region of Duplin, Wayne, and Sampson (Figure 8); the proposed project would enter into contractual agreements for the use of approximately 15-25,000 acres within the three county area for the growth of selected biofuel feedstock with the intention to use higher yielding varieties of perennial grasses as feedstock, such as *Miscanthus giganteus*, and *Arun donax* (giant cane), both of which would have yields more than four times that of bermuda grass, and could be harvested year round, using existing or slightly modified farm equipment. The process used is illustrated in Figure 8 (and detailed in Appendix H). The feedstock would first be established on a plantation for distribution by rhizome or vegetative stem. Neither grasses produce seed but spread from vegetative or rhizome cultivation.

Figure 8-a1



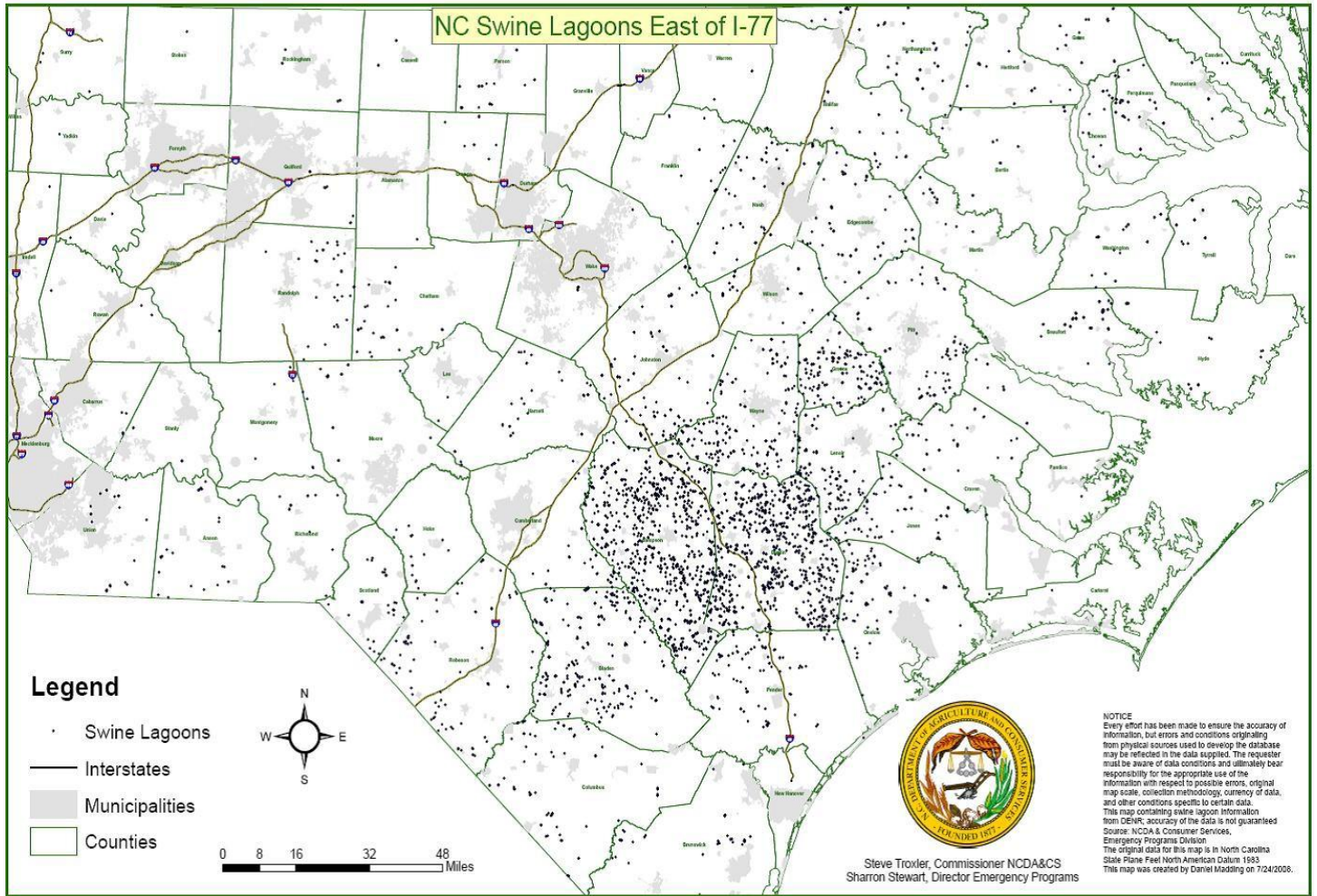


Figure 8-a2: Swine Lagoons in Eastern NC

Figure 9: Arundo donax before fall harvesting



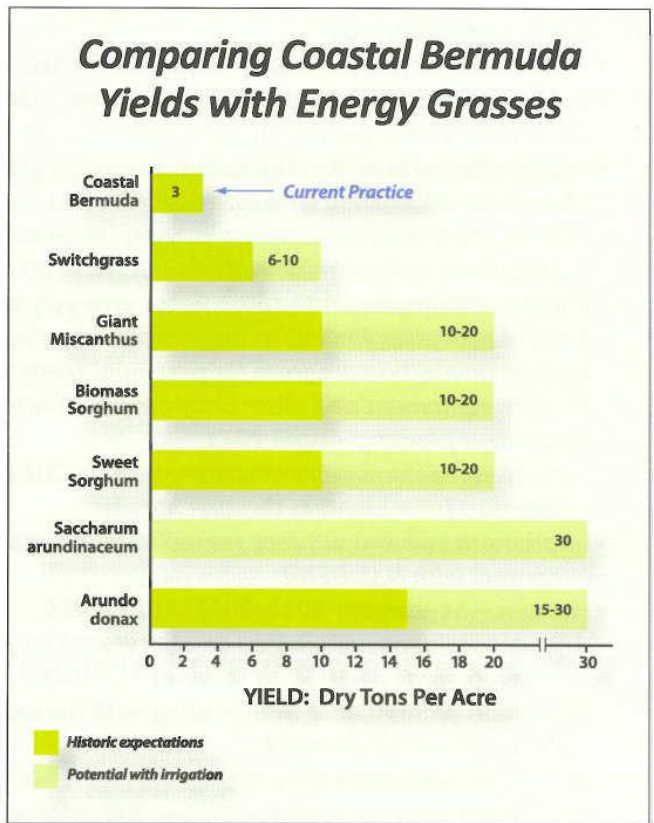
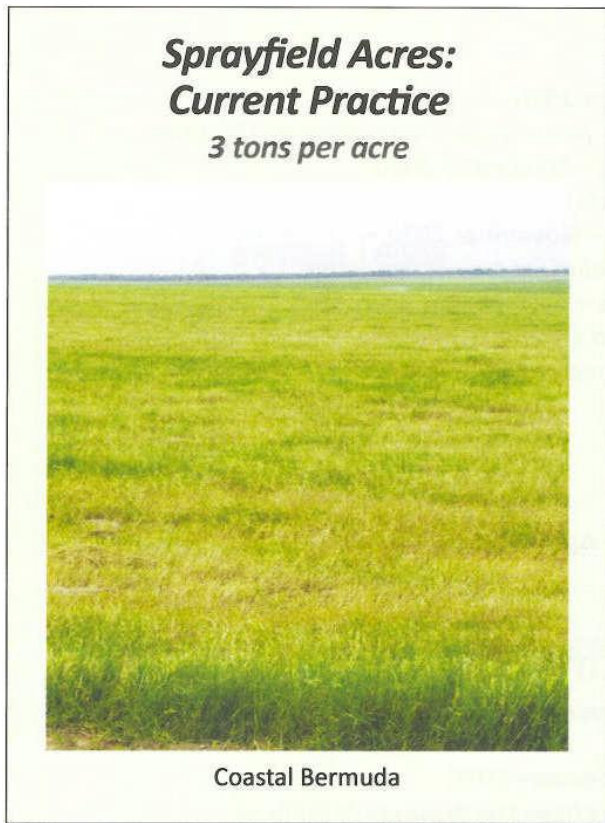


Figure 10: Planting Operations

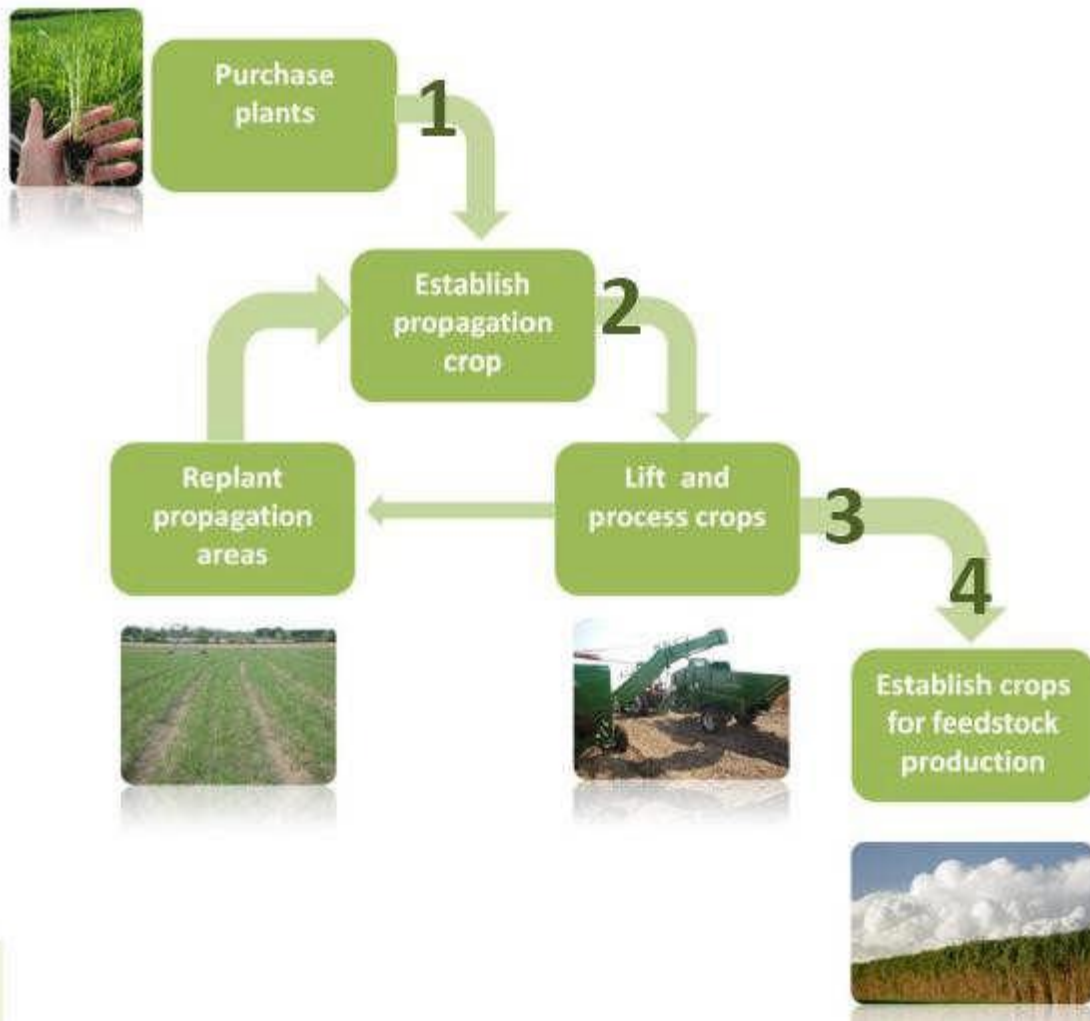








FIGURE 11: Initial Planting Process

Figure 12: Propagation Methods

		methods	advantages	disadvantages
		Rhizome	<ul style="list-style-type: none"> • safest way to propagate • no need water after planting • good production on the first year 	<ul style="list-style-type: none"> • one year of nursery for rhizome reproduction • can be planted only in spring
		Stem	<ul style="list-style-type: none"> • can be planted from autumn to spring • no need of nursery • easy to establish 	<ul style="list-style-type: none"> • lower productivity on the first year • irrigation is required after plantation
		Micropropagation	<ul style="list-style-type: none"> • quick reproduction of propagules • Potentially cheap • easy to establish (tomato/tobacco planter) 	<ul style="list-style-type: none"> • lower productivity on the first year • use of greenhouse for acclimatization before passing to production • irrigation is required during the first year

Various methods can be used to plant *Miscanthus* and *Arundo donax*, and additional research is underway in North Carolina on the optimal method for planting. Subsequent to the planting, the plantations would grow the grasses for a year before harvesting would commence. Once established, the varieties need no herbicide or nutrient application, and harvesting could be seasonal, or year round, depending upon the variety grown, and the delivery terms of each contract, as shown in Figure 13.

Figure 13: Supply Chain Model

- Fresh, chopped material will be used 80% of the year, and dried, baled material will be use 20% of the year.
- The chopped material, due to the light bulk density and water content making transportation cost higher than baled material, will generally be taken from farms within 35-miles of the facility. This material will be harvested year-round. Both Arun donax and Miscanthus are good candidates for chopped material.
- The baled material will be kept at the field, under plastic, until it is required at the facility. It is economically feasible to bring baled material from within 50-miles of the facility. Testing at the Chemtex pilot facility has shown little change in product yield for baled material stored for long periods of time (such as 1-year). Miscanthus, bermuda grass, and wheat straw are good candidates for baled material.
- Feedstock will be brought to the facility via truck 7-days/ week.
- There will be 3-days of on-site storage, kept in an open sided building w/ roof. The building will have ventilation and fire prevention systems.
- The chopped material will be processed within 72-hours of harvesting; after this time the degraded material is not suitable.

Currently, the Sprayfields use lagoons for swine manure storage, and use spray application of the nutrient-laden water for growing Bermuda grass which is harvested for hay. The use of energy grasses in place of Bermuda grass will benefit the sprayfield land managers because the higher yielding energy grass will remediate more nutrients; the energy grasses will be sold as feedstock for the facility; and the change will convert marginal land into productive land. It is anticipated that switching to energy cane grasses would not require additional water or nutrients, and that no adverse impacts to soils, water quality or land use would result. Possible beneficial impacts to soils, water quality and land use would be minor to moderate, depending upon the type of grasses, the length of growing and harvesting management actions.

Invasive Species Concerns

Arundo donax and *Miscanthus giganteus* are not listed as an invasive species within North Carolina. Neither species reproduces by seed. However, other varieties of *Miscanthus* such as *Miscanthus sinensis* or *Miscanthus sacchariflorus* are considered invasive species; in other States, such as Tennessee, Texas, and California, *Arundo donax* has been considered an invasive species (http://plants.usda.gov/java/profile?symbol=ARDO4&mapType=nativity&photoID=ardo4_005_avp.jpg).

Concerns have been raised about the potential for unwanted spreading of rhizomes to other fields or to water bodies with potential downstream establishment, particularly in wetlands. To reduce the potential for any unwanted propagation, best management practices will be required for all producer feedstock agreements to include mandatory consultation by producers with local NRCS agents, and adoption of specific NRCS BMPs to include the provisions of Table 4:

Table 4: Recommended Feedstock Producer Conditions

The applicant, Chemtex International Inc., will incorporate into all feedstock producer agreements, the following action items, unless there is an approved Conservation Plan with NRCS:

1. New Producer orientation to discuss production methods, management activities, potential for spread of giant miscanthus and/or Arundo donax, treatment methods, and responsibilities, pest/disease identification, treatment methods, and responsibilities, eradication methods, if necessary, and reporting requirements;
2. Site-specific best management practices(BMPs), which could include, but not be limited to, NRCS Conservation Practice Standards (CPS) for soil erosion, pesticide use and application, fertilizer use and application, and other relevant areas for each specific site;
3. Setbacks/buffers to manage the giant miscanthus/Arundo donax stand and to prevent unintentional spread of the giant miscanthus/Arundo donax shall follow all local, State, or Federal regulations for containment of biomass plantings in existence at the time of the development of the producer’s Conservation Plan or through an amendment of the Conservation Plan initiated by the producer and approved by RBCS and NRCS, if determined appropriate or the site-specific conditions. If no such guidance exists, minimum procedures to prevent unintentional spread of giant miscanthus/Arundo donax shall include:
 - a. Establish or maintain a minimum 25 feet of setback/border around a giant miscanthus/Arundo donax stand, unless the field is adjacent to existing cropland or actively managed pasture with the same operator.
 - b. Setback/border areas may be planted to an annual row crop such as corn or soybeans; may be planted to a site-adapted, perennial cool-season or warm season forage or turf grass; may be kept in existing vegetation; or kept clear by disking, rotovating, or treating with a non-selective burn down herbicide at least once a year. The method used may be dependent on slope and the potential for erosion.
 - c. The use of only those known sterile varieties of giant miscanthus cultivars for producers included within the proposed project areas; all clone cultivars must be approved for planting under a recognized Quality Assurance program;
 - d. The initiation of a seed sampling program to determine the on-going sterility of seeds produced from the BCAP acres within the project areas. The seed sampling program includes recommended actions, including eradication, if a seed sample returns viable seed.
 - e. Exclusion of planting giant miscanthus on certain acreage within approximately 1,300 Feet from any known *Miscanthus sinensis* or *Miscanthus sacchariflorus* to limit the potential for cross-pollination resulting in viable seed.

<p>f. Exclusion of planting giant miscanthus and/or <i>Arundo donax</i> on certain acreage within the project areas, depending upon certain site-specific conditions, like those lands subject to frequent flooding events;</p>
<p>4. Monitoring program developed to identify (1) spread of giant miscanthus or <i>Arundo donax</i> outside of planted fields with notification provided to both USDA and the Project Sponsors as soon as possible after identification of the issue, (2) identification of diseases and pests with notification provided to the Project Sponsors as soon as possible after identification of the issue; a USDA representative will conduct an annual field visit to monitor the site and to look for potential spread of giant miscanthus/<i>Arundo donax</i> beyond the site; the USDA will work with local weed control districts to provide additional monitoring/evaluation of these sites as appropriate.</p>
<p>5. Annual producer reporting, which would include land use tracking with the average and total size of enrolled fields; prior land use; rationale for land use change; spread of giant miscanthus/<i>Arundo donax</i> outside of planted fields; any pests/diseases identification; the use of pesticides/herbicides to control unwanted spread of giant miscanthus/<i>Arundo donax</i> or pests/diseases; BMP and CPS incorporated into field management, such as erosion control structures or materials, vegetative barriers, etc.; fertilizer usage and application methods; and cost data.</p>

XIX. Mitigation Measures

To ensure that there are no impacts to the natural environment from the spread of potentially invasive species of *Miscanthus* and/or *Arundo donax*, RBS will condition the loan guarantee to include recommended consultation with NRCS and minimum BMPs listed in Table 4 above as part of all producer agreements for growing feedstock using *Miscanthus* and/or *Arundo donax*.

XX. Environmental Determinations

The following recommendations shall be completed:

A. Based on an examination and review of the foregoing information and such supplemental information attached hereto, I recommend that the approving official determine that this proposal will have: () a significant effect on the quality of the human environment and an Environmental Impact Statement must be prepared; will not have (X) a significant effect on the quality of the human environment.

B. I recommend that the approving official make the following compliance determinations for the below-listed environmental requirements.

Not in compliance	In compliance	
		X Clean Air Act.
		X Federal Water Pollution Control Act.
		X Safe Drinking Water Act—Section 1424(e).
		X Endangered Species Act.
		X Coastal Barrier Resources Act.
		X Coastal Zone Management Act—Section 307(c) (1) and (2).
		X Wild and Scenic Rivers Act.
		X National Historic Preservation Act.
		X Archeological and Historic Preservation Act.
		X Subpart B, Highly Erodible Land Conservation
		X Subpart C, Wetland Conservation, of the Food Security Act.
		X Executive Order 11988, Floodplain Management.
		X Executive Order 11990, Protection of Wetlands.
		X Farmland Protection Policy Act.
		X Departmental Regulation 9500–3, Land Use Policy.
		- State Office Natural Resource Management Guide.

C. I have reviewed and considered the types and degrees of adverse environmental impacts identified by this assessment. I have also analyzed the proposal for its consistency with FmHA or its successor agency under Public Law 103–354 environmental policies, particularly those related to important farmland protection, and have considered the potential benefits of the proposal. Based upon a consideration and balancing of these factors, I recommend from an environmental standpoint that the proposal

be approved.

not be approved because of the attached reasons.

Prepared by:

FRANK MANCINO Date
Environmental Protection Specialist, Program Support Staff

Recommended:

LINDA J. RODGERS Date
Director, Program Support Division

Recommended:

WILLIAM C. SMITH Date
Director, Energy Division, Rural Business-Cooperative Service

Approved:

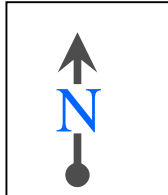
JUDITH A. CANALES Date
Administrator, Rural Business-Cooperative Service

Appendix A



LEGEND

— Site Boundary



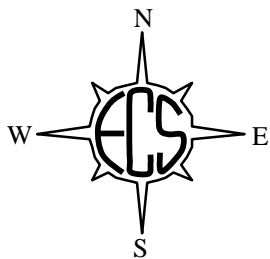
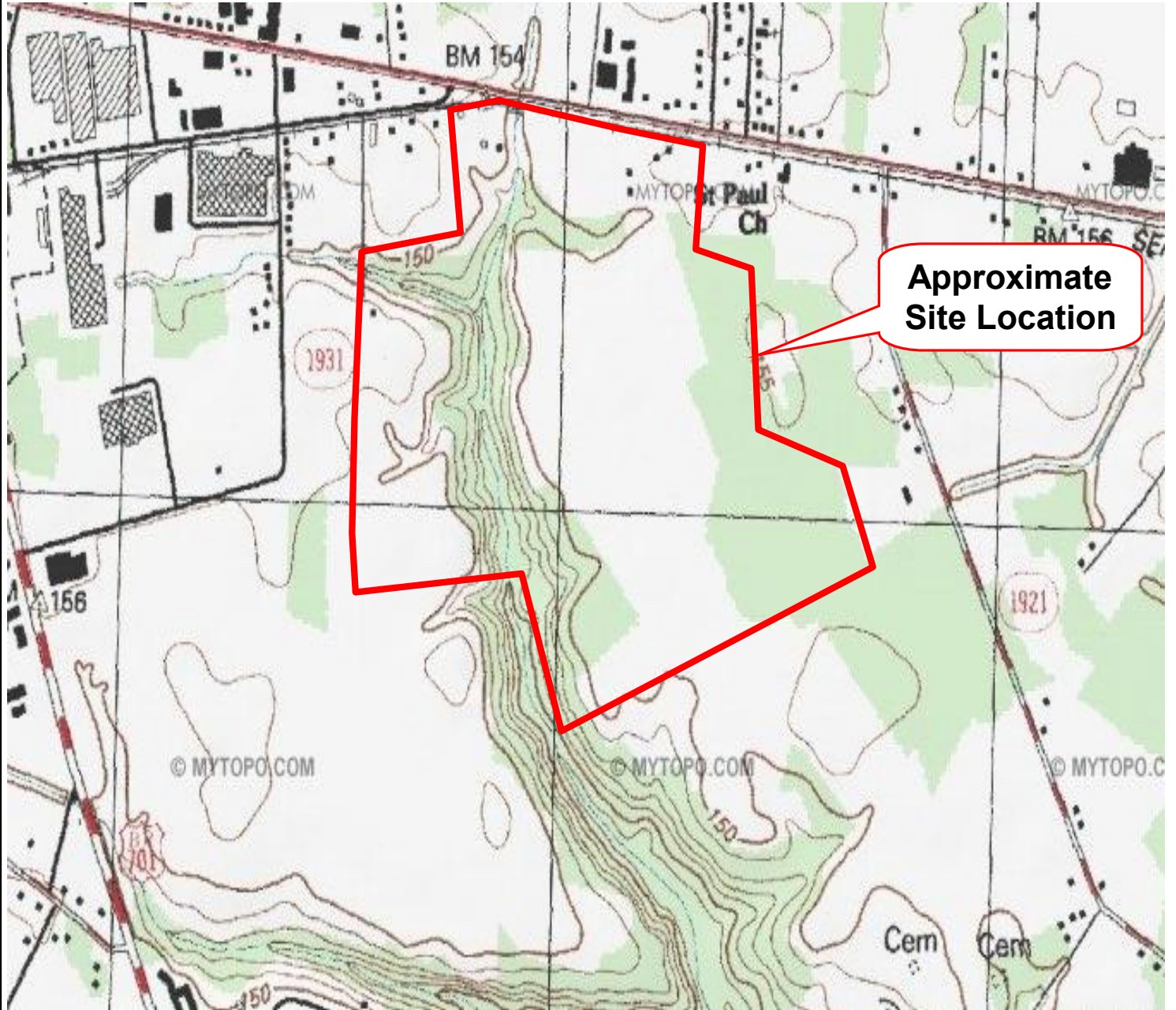
SOURCE:

Google Maps



**FIGURE 1
SITE LOCATION MAP**

Approximate 166-acre Property
 NC 24 Rail Site
 Clinton, Sampson County, NC
 ECS Project: 33:1690



— Approximate Site Location

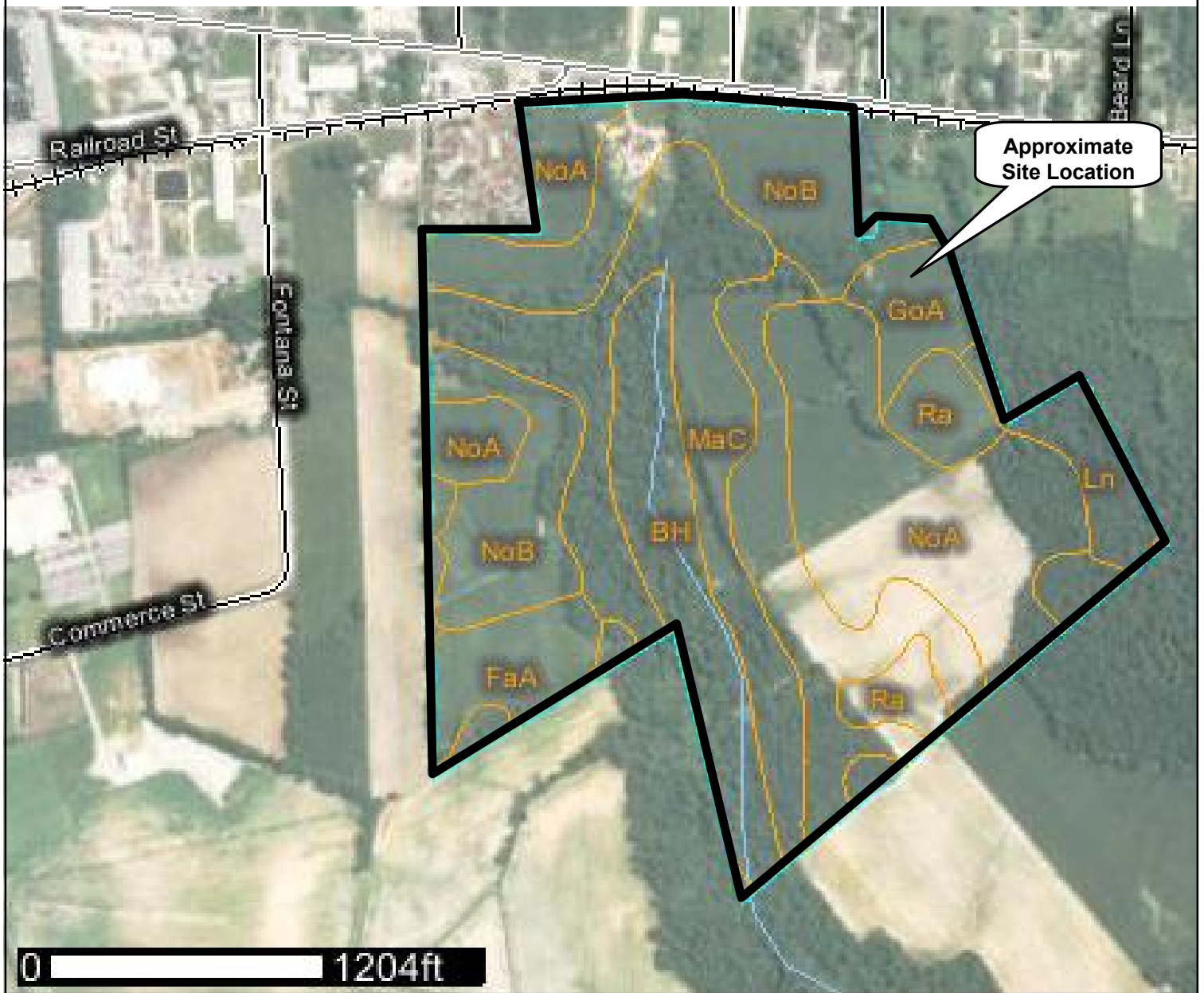
SOURCE:

United States Geological Survey 7.5-Minute Series Topographic Map: Clinton, North Carolina



**FIGURE 2
USGS TOPOGRAPHIC MAP**

Approximate 166-acre Property
NC 24 Rail Site
Clinton, Sampson County, NC
ECS Project: 33:1690

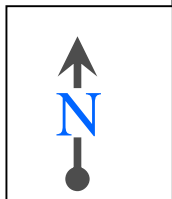


LEGEND

— Site Boundary

SOILS LOCATED ON-SITE

- | | |
|--|---------------------------------|
| BH – Bibb and Johnston soils | MaC – Marvyn loamy sand |
| FaA – Faceville fine sandy loam | NoA – Norfolk loamy sand |
| FaB – Faceville fine sandy loam | NoB – Norfolk loamy sand |
| GoA – Goldsboro loamy sand | Ra – Rains sandy loam |
| Ln – Lynchburg sandy loam | |



SOURCE:

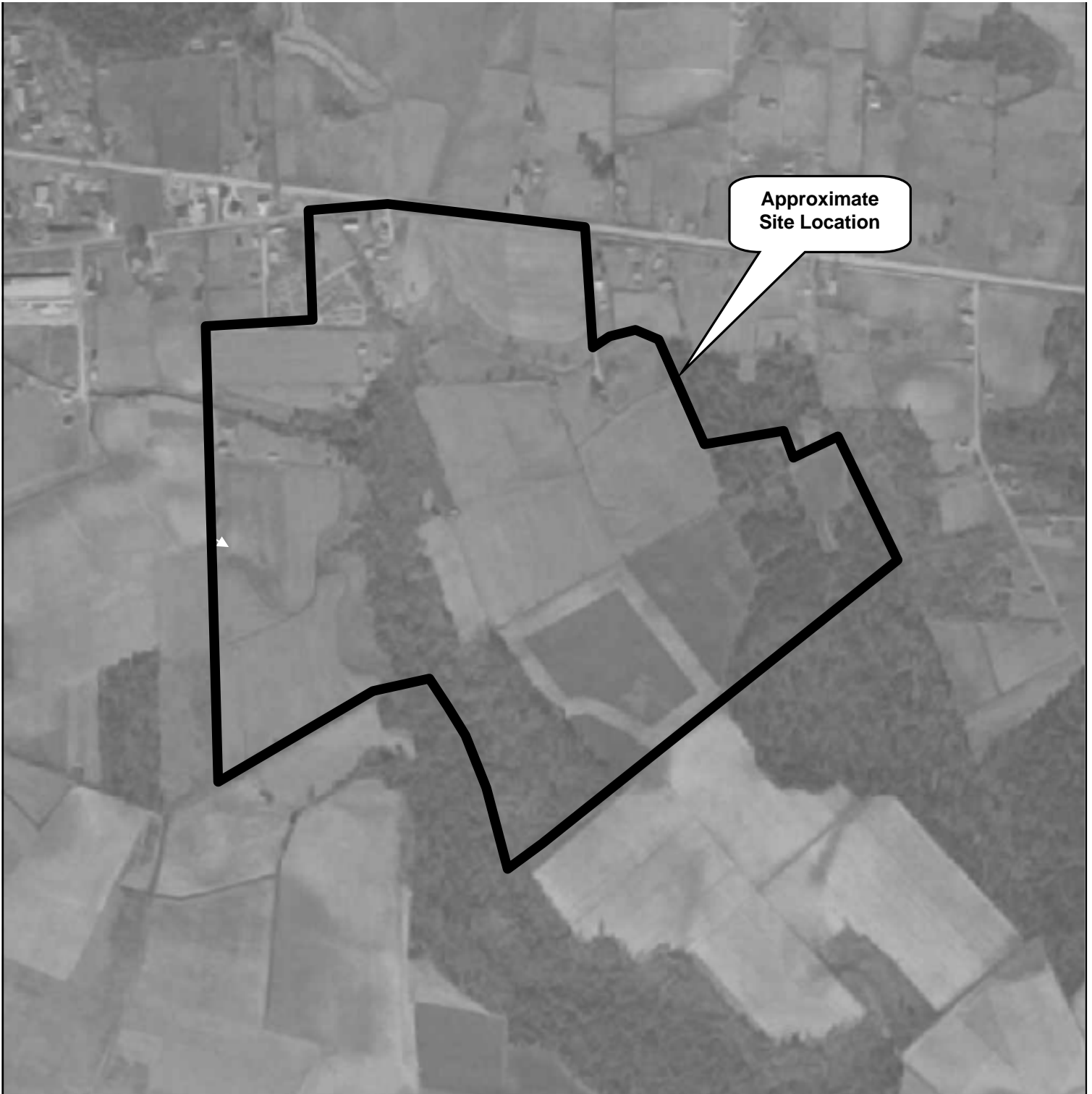
USDA-NRCS On-line Web Soil Survey

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>



**FIGURE 3
Soils Map**

Approximate 166-acre Property
NC 24 Rail Site
Clinton, Sampson County, NC
ECS Project: 33:1690



Approximate Site Location

LEGEND

— Site Boundary



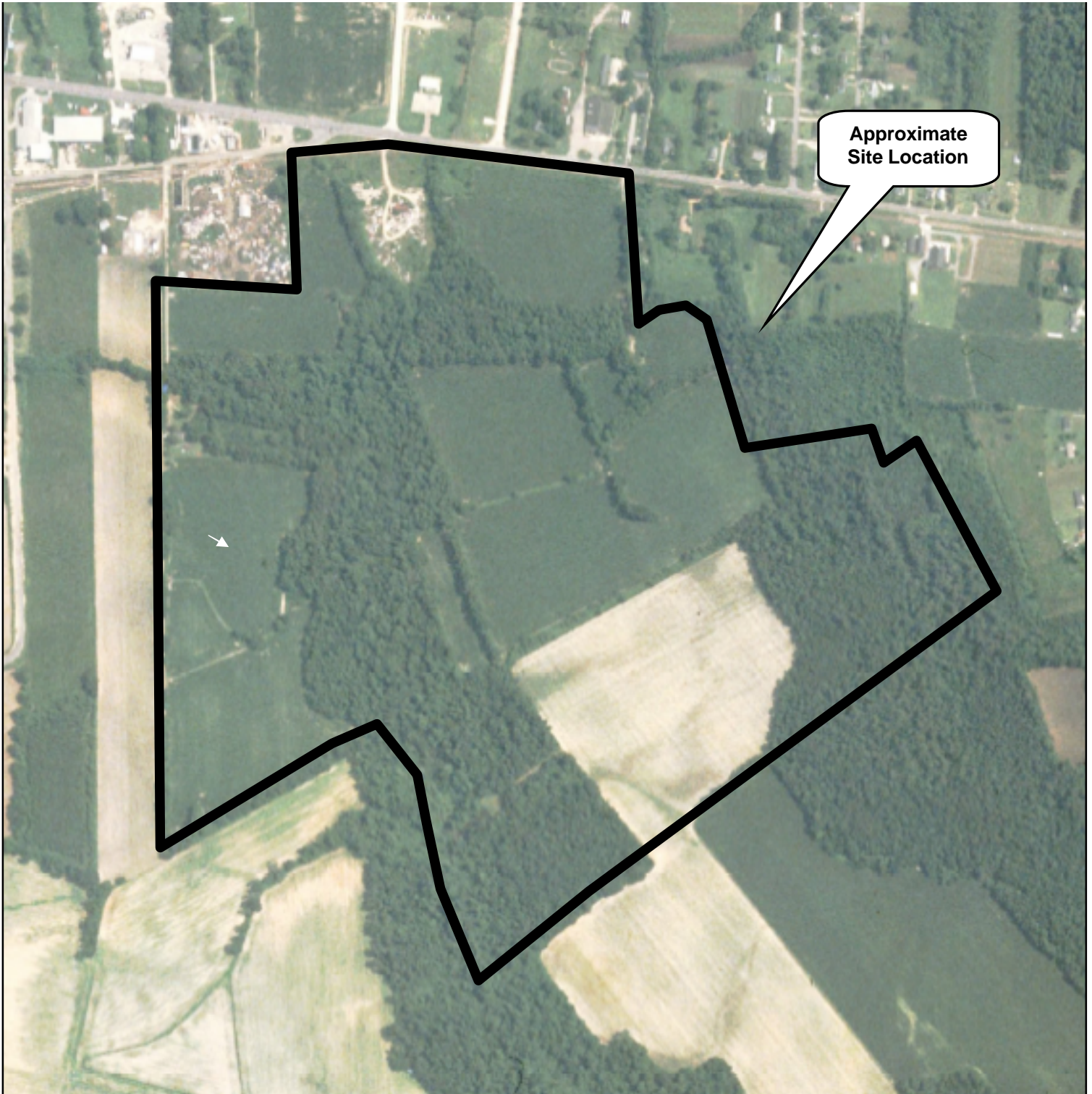
SOURCE:

EDR



**1958
AERIAL MAP**

Approximate 166-acre Property
NC 24 Rail Site
Clinton, Sampson County, NC
ECS Project: 33:1690



Approximate Site Location

LEGEND

— Site Boundary



SOURCE:

EDR



**2006
AERIAL MAP**

Approximate 166-acre Property
NC 24 Rail Site
Clinton, Sampson County, NC
ECS Project: 33:1690

Appendix B



A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Sampson County, North Carolina

Project Alpha - 166.4 acres



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

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individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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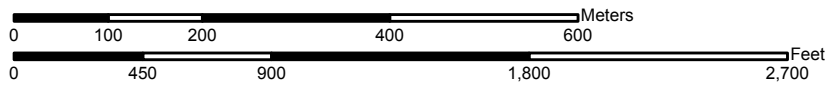
Soil Map (Project Alpha - 166.4 acres)



78° 18' 9"



Map Scale: 1:8,350 if printed on A size (8.5" x 11") sheet.




78° 17' 0"

Custom Soil Resource Report

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
-  Local Roads

MAP INFORMATION

Map Scale: 1:8,350 if printed on A size (8.5" × 11") 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: Sampson County, North Carolina
 Survey Area Data: Version 11, Jun 5, 2009

Date(s) aerial images were photographed: 6/22/2006

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 (Project Alpha - 166.4 acres)

Sampson County, North Carolina (NC163)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BH	Bibb and Johnston soils, frequently flooded	11.5	7.3%
FaA	Faceville fine sandy loam, 0 to 2 percent slopes	7.1	4.5%
FaB	Faceville fine sandy loam, 2 to 6 percent slopes	16.3	10.3%
GoA	Goldsboro loamy sand, 0 to 2 percent slopes	7.6	4.8%
Ln	Lynchburg sandy loam	9.8	6.2%
MaC	Marvyn loamy sand, 6 to 12 percent slopes	28.4	18.0%
NoA	Norfolk loamy sand, 0 to 2 percent slopes	38.1	24.1%
NoB	Norfolk loamy sand, 2 to 6 percent slopes	30.2	19.1%
Ra	Rains sandy loam	9.2	5.8%
Totals for Area of Interest		158.1	100.0%

Map Unit Descriptions (Project Alpha - 166.4 acres)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the

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contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Sampson County, North Carolina

BH—Bibb and Johnston soils, frequently flooded

Map Unit Setting

Elevation: 80 to 330 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 59 to 70 degrees F

Frost-free period: 210 to 265 days

Map Unit Composition

Bibb, undrained, and similar soils: 80 percent

Johnston, undrained, and similar soils: 10 percent

Description of Bibb, Undrained

Setting

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Sandy and loamy alluvium

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Available water capacity: Moderate (about 7.2 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 6 inches: Sandy loam

6 to 60 inches: Sandy loam

60 to 80 inches: Loamy sand

Description of Johnston, Undrained

Setting

Landform: Flood plains

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Sandy and loamy alluvium

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: Frequent

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Frequency of ponding: Frequent
Available water capacity: High (about 9.4 inches)

Interpretive groups

Land capability (nonirrigated): 7w

Typical profile

0 to 30 inches: Mucky loam
30 to 34 inches: Loamy fine sand
34 to 80 inches: Fine sandy loam

FaA—Faceville fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days

Map Unit Composition

Faceville and similar soils: 90 percent

Description of Faceville

Setting

Landform: Flats on marine terraces, ridges on marine terraces
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey marine deposits

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability (nonirrigated): 1

Typical profile

0 to 8 inches: Fine sandy loam
8 to 13 inches: Fine sandy loam
13 to 80 inches: Clay

FaB—Faceville fine sandy loam, 2 to 6 percent slopes

Map Unit Setting

Elevation: 80 to 330 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 59 to 70 degrees F

Frost-free period: 210 to 265 days

Map Unit Composition

Faceville and similar soils: 85 percent

Description of Faceville

Setting

Landform: Ridges on marine terraces

Landform position (two-dimensional): Shoulder, summit

Landform position (three-dimensional): Crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Clayey marine deposits

Properties and qualities

Slope: 2 to 6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability (nonirrigated): 2e

Typical profile

0 to 8 inches: Fine sandy loam

8 to 13 inches: Fine sandy loam

13 to 80 inches: Clay

GoA—Goldsboro loamy sand, 0 to 2 percent slopes

Map Unit Setting

Elevation: 80 to 330 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 59 to 70 degrees F

Frost-free period: 210 to 265 days

Map Unit Composition

Goldsboro and similar soils: 90 percent
Minor components: 5 percent

Description of Goldsboro

Setting

Landform: Flats on marine terraces, broad interstream divides on marine terraces
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy marine deposits

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.0 inches)

Interpretive groups

Land capability (nonirrigated): 2w

Typical profile

0 to 8 inches: Loamy sand
8 to 15 inches: Loamy sand
15 to 45 inches: Sandy clay loam
45 to 80 inches: Sandy clay loam

Minor Components

Rains, undrained

Percent of map unit: 5 percent
Landform: Flats on marine terraces, carolina bays on marine terraces, broad interstream divides on marine terraces
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear

Ln—Lynchburg sandy loam

Map Unit Setting

Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days

Map Unit Composition

Lynchburg and similar soils: 85 percent
Minor components: 7 percent

Description of Lynchburg

Setting

Landform: Flats on marine terraces, broad interstream divides on marine terraces
Landform position (two-dimensional): Summit
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy marine deposits

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.3 inches)

Interpretive groups

Land capability (nonirrigated): 2w

Typical profile

0 to 6 inches: Sandy loam
6 to 10 inches: Sandy loam
10 to 65 inches: Sandy clay loam
65 to 80 inches: Clay

Minor Components

Rains, undrained

Percent of map unit: 2 percent
Landform: Flats on marine terraces, carolina bays on marine terraces, broad interstream divides on marine terraces
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear

Woodington, undrained

Percent of map unit: 2 percent
Landform: Flats on marine terraces, depressions on marine terraces, broad interstream divides on marine terraces
Down-slope shape: Linear
Across-slope shape: Concave

Coxville, undrained

Percent of map unit: 2 percent
Landform: Depressions, carolina bays
Landform position (two-dimensional): Summit
Down-slope shape: Concave
Across-slope shape: Concave

Toisnot, undrained

Percent of map unit: 1 percent

Landform: Flats on marine terraces, broad interstream divides on marine terraces, carolina bays on marine terraces

Landform position (two-dimensional): Summit

Down-slope shape: Linear

Across-slope shape: Linear

MaC—Marvyn loamy sand, 6 to 12 percent slopes

Map Unit Setting

Elevation: 80 to 330 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 59 to 70 degrees F

Frost-free period: 210 to 265 days

Map Unit Composition

Marvyn and similar soils: 80 percent

Description of Marvyn

Setting

Landform: Ridges on marine terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy and clayey marine deposits

Properties and qualities

Slope: 6 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 7.7 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Typical profile

0 to 4 inches: Loamy fine sand

4 to 12 inches: Loamy fine sand

12 to 45 inches: Sandy clay loam

45 to 80 inches: Sandy clay loam

NoA—Norfolk loamy sand, 0 to 2 percent slopes

Map Unit Setting

Elevation: 80 to 330 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 59 to 70 degrees F

Frost-free period: 210 to 265 days

Map Unit Composition

Norfolk and similar soils: 85 percent

Minor components: 5 percent

Description of Norfolk

Setting

Landform: Broad interstream divides on marine terraces, flats on marine terraces

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy marine deposits

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 40 to 72 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 7.6 inches)

Interpretive groups

Land capability (nonirrigated): 1

Typical profile

0 to 9 inches: Loamy sand

9 to 14 inches: Loamy sand

14 to 70 inches: Sandy clay loam

70 to 100 inches: Sandy clay loam

Minor Components

Rains, undrained

Percent of map unit: 5 percent

Landform: Flats on marine terraces, carolina bays on marine terraces, broad interstream divides on marine terraces

Landform position (two-dimensional): Summit

Down-slope shape: Linear

Across-slope shape: Linear

NoB—Norfolk loamy sand, 2 to 6 percent slopes

Map Unit Setting

Elevation: 80 to 330 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 59 to 70 degrees F

Frost-free period: 210 to 265 days

Map Unit Composition

Norfolk and similar soils: 85 percent

Minor components: 5 percent

Description of Norfolk

Setting

Landform: Broad interstream divides on marine terraces, flats on marine terraces

Landform position (two-dimensional): Shoulder, summit

Landform position (three-dimensional): Crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy marine deposits

Properties and qualities

Slope: 2 to 6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 40 to 72 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 7.6 inches)

Interpretive groups

Land capability (nonirrigated): 2e

Typical profile

0 to 9 inches: Loamy sand

9 to 14 inches: Loamy sand

14 to 70 inches: Sandy clay loam

70 to 100 inches: Sandy clay loam

Minor Components

Bibb, undrained

Percent of map unit: 3 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Down-slope shape: Concave

Across-slope shape: Linear

Johnston, undrained

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Linear

Ra—Rains sandy loam

Map Unit Setting

Elevation: 80 to 330 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 59 to 70 degrees F
Frost-free period: 210 to 265 days

Map Unit Composition

Rains, drained, and similar soils: 80 percent
Rains, undrained, and similar soils: 10 percent

Description of Rains, Drained

Setting

Landform: Flats on marine terraces, carolina bays on marine terraces, broad interstream divides on marine terraces
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy marine deposits

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 9.4 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 7 inches: Sandy loam
7 to 12 inches: Fine sandy loam
12 to 20 inches: Sandy loam
20 to 62 inches: Sandy clay loam
62 to 85 inches: Sandy clay loam

Description of Rains, Undrained

Setting

Landform: Flats on marine terraces, carolina bays on marine terraces, broad interstream divides on marine terraces

Landform position (two-dimensional): Summit

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy marine deposits

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: High (about 9.4 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 7 inches: Sandy loam

7 to 12 inches: Fine sandy loam

12 to 20 inches: Sandy loam

20 to 62 inches: Sandy clay loam

62 to 85 inches: Sandy clay loam

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

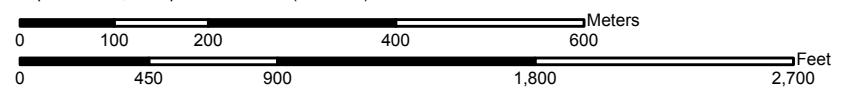
Farmland Classification (Project Alpha - 166.4 acres)

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Custom Soil Resource Report Map—Farmland Classification (Project Alpha - 166.4 acres)




Map Scale: 1:8,350 if printed on A size (8.5" x 11") sheet.



Custom Soil Resource Report

MAP LEGEND









Area of Interest (AOI)








 Area of Interest (AOI)

Soils

 Soil Map Units

Soil Ratings



-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available



Political Features




 Cities

Water Features

-  Oceans
-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways

-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

Map Scale: 1:8,350 if printed on A size (8.5" x 11") 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: Sampson County, North Carolina
 Survey Area Data: Version 11, Jun 5, 2009

Date(s) aerial images were photographed: 6/22/2006

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.

Table—Farmland Classification (Project Alpha - 166.4 acres)

Farmland Classification— Summary by Map Unit — Sampson County, North Carolina				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BH	Bibb and Johnston soils, frequently flooded	Not prime farmland	11.5	7.3%
FaA	Faceville fine sandy loam, 0 to 2 percent slopes	All areas are prime farmland	7.1	4.5%
FaB	Faceville fine sandy loam, 2 to 6 percent slopes	All areas are prime farmland	16.3	10.3%
GoA	Goldsboro loamy sand, 0 to 2 percent slopes	All areas are prime farmland	7.6	4.8%
Ln	Lynchburg sandy loam	Prime farmland if drained	9.8	6.2%
MaC	Marvyn loamy sand, 6 to 12 percent slopes	Farmland of statewide importance	28.4	18.0%
NoA	Norfolk loamy sand, 0 to 2 percent slopes	All areas are prime farmland	38.1	24.1%
NoB	Norfolk loamy sand, 2 to 6 percent slopes	All areas are prime farmland	30.2	19.1%
Ra	Rains sandy loam	Prime farmland if drained	9.2	5.8%
Totals for Area of Interest			158.1	100.0%

Rating Options—Farmland Classification (Project Alpha - 166.4 acres)

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Hydric Rating by Map Unit (Project Alpha - 166.4 acres)

This rating indicates the proportion of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is designated as "all hydric," "partially hydric," "not hydric," or "unknown hydric," depending on the rating of its respective components.

"All hydric" means that all components listed for a given map unit are rated as being hydric, while "not hydric" means that all components are rated as not hydric. "Partially hydric" means that at least one component of the map unit is rated as hydric, and at least one component is rated as not hydric. "Unknown hydric" indicates that at least one component is not rated so a definitive rating for the map unit cannot be made.

Custom Soil Resource Report

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

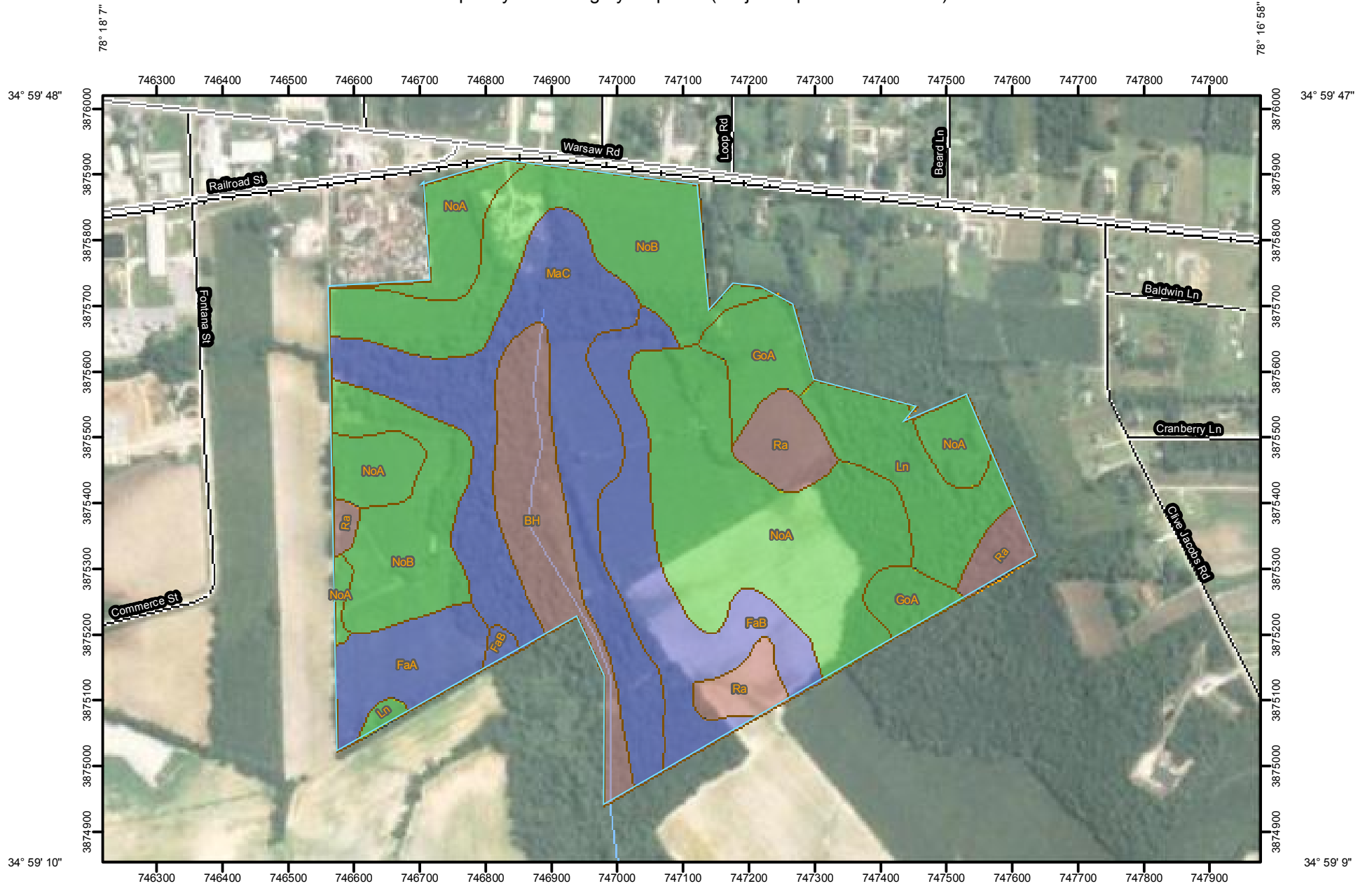
Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

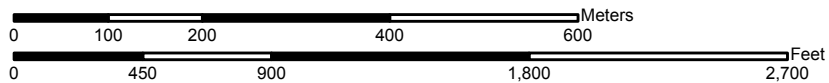
Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Custom Soil Resource Report

Map—Hydric Rating by Map Unit (Project Alpha - 166.4 acres)




Map Scale: 1:8,350 if printed on A size (8.5" x 11") sheet.



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Units


Soil Ratings

 All Hydric

 Partially Hydric

 Not Hydric

 Unknown Hydric


 Not rated or not available

Political Features

 Cities

Water Features

 Oceans

 Streams and Canals


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 Major Roads

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Map Scale: 1:8,350 if printed on A size (8.5" × 11") sheet.

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Custom Soil Resource Report

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MaC	Marvyn loamy sand, 6 to 12 percent slopes	Not Hydric	28.4	18.0%
NoA	Norfolk loamy sand, 0 to 2 percent slopes	Partially Hydric	38.1	24.1%
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Ra	Rains sandy loam	All Hydric	9.2	5.8%
Totals for Area of Interest			158.1	100.0%

Rating Options—Hydric Rating by Map Unit (Project Alpha - 166.4 acres)

Aggregation Method: Absence/Presence

Tie-break Rule: Lower

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. <http://soils.usda.gov/>

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. <http://soils.usda.gov/>

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. <http://soils.usda.gov/>

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United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. <http://soils.usda.gov/>

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.glti.nrcs.usda.gov/>

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. <http://soils.usda.gov/>

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. <http://soils.usda.gov/>

Custom Soil Resource Report

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

Appendix C

Appendix C

Summary of Ethanol Plant Permitting Requirements
Clinton, North Carolina

Permit	Regulatory Agency Applicability		Timeline
AIR			
Construction and Operating Permit	NC - Division of Air	Construction and operation of a source subject to an applicable standard, requirement or rule that emits any regulated air pollutant including facilities subject to Section 112 of the Clean Air Act. Certain exemptions apply. General, small, synthetic minor or Title V permit may be required based on specific emissions quantities or locations.	If the draft permit is not required to go to public notice or to public hearing, the director shall issue or deny the permit within 90 days of receipt of a complete application or 10 days after receipt of requested additional information, whichever is later. If a public notice is required, the notice typically lasts for 30 days. Time associated with a public hearing (if required) and the Division of Air Quality response is not included herein.
LAND			
Erosion and Sediment Control Certificate of Approval	NC - Division of Land Resources	Any land-disturbing activity covering one acre or more, except agriculture, mining and forestry activities conducted in accordance with N.C. Forest Practice Guidelines related to water quality.	The approval should be issued within 30 calendar days after receipt of a complete application package.
WATER			
National Pollutant Discharge Eliminations Systems Construction Permit (Storm water)	NC - Division of Water Quality	Direct discharges of stormwater associated with certain industrial activities and municipalities to surface waters of the state during construction.	An NPDES Construction Permit is automatically issued with an Erosion and Sediment Control Permit.
National Pollutant Discharge Eliminations Systems Individual Permit (Storm water)	NC - Division of Water Quality	Direct discharges of stormwater associated with certain industrial activities and municipalities to surface waters of the state during operation. Required if: 1. Discharges an average of 25,000 gallons or more per day of process wastewater, or 2. Contributes more than 5% of the design flow or maximum allowable headworks loading of the POTW treatment plant for any pollutant of concern, or	An NPDES Individual Permit takes approximately 180 days for approval, which includes a public comment period. An NPDES Individual Permit must be issued before operations begin. A facility should request a significant user determination from the POTW director 210 days prior to discharge. The facility has 90 days after the POTW determination to submit a permit application. The POTW has 30 days to respond to the completeness of the permit. After a complete permit has been submitted, the POTW has 90 days to take final action.
Significant Industrial User Wastewater Permit	City of Clinton	All industrial users proposing to discharge nondomestic wastewater, or proposing to change the volume or characteristics of an existing discharge of nondomestic wastewater shall request from the POTW Director a significant industrial user determination. If the POTW Director determines or suspects that the proposed discharge fits the significant industrial user criteria he will require that a significant industrial user permit application be filed.	The POTW director is required to take action on all applications by either issuing a pretreatment permit or by denying the discharge not later than 90 days following the receipt of a complete application. The DWQ has 30 days from the receipt of the pretreatment permit from the POTW to make comments and unless an objection is specified by the division, the permit shall be final and binding. In the event that DWQ objects, the POTW has 60 days upon receipt of the objection to resubmit the permit to address that objection. If this period of time expires, permit authority passes to the division.
Industrial User Pretreatment Permit State Review	NC - Division of Water Quality	3. Is required to meet a national categorical pretreatment standard, or 4. Is determined by the control authority to have a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement or receiving stream standard, or to limit the POTW's sludge disposal options.	

Appendix C

**Summary of Ethanol Plant Permitting Requirements
Clinton, North Carolina**

Permit	Regulatory Agency Applicability	Timeline
WETLANDS		
Clean Water Act Sections 401 and 404	NC - Division of Water Quality	<p>A permit is required prior to the deposition of fill, earth, construction debris, and soil in an isolated wetland.</p> <p>WSP has not identified any specific buffer distance or other requirements applicable to the Cape Fear Watershed where Clinton is located. A riparian buffer distance of 50 feet applies generally to new construction near water bodies in other areas of the State.</p> <p>Construction of temporary sediment control measures or best management practices as required by the NC Sediment and Erosion Control Program on a construction site is deemed to comply with wetlands standards, provided that the temporary sediment control measures or best management practices are restored to natural grade and stabilized within two months of completion of the project and native woody vegetation is reestablished during the next appropriate planting season and maintained thereafter.</p>
		North Carolina offers an express review program for simple wetlands and water quality permits. Under this program the process is scheduled to take 5 weeks. The process begins with an initial review meeting with the Division of Water Quality to review the proposed discharge or encroachment and determine whether or not it can be accepted into the express review program.
MATERIAL STORAGE		
Emergency Planning and Community Right-to-Know Act, SARA Title III	NC DENR	<p>A facility must report hazardous substances stored onsite above threshold planning quantities (TPQ) to the State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC), and the local fire department.</p> <p>Section 302 - Extremely hazardous substance (EHS) notification (one time notification) - Includes sulfuric acid and any other EHS onsite above the TPQ</p> <p>Section 311 - MSDS submission (one time notification) - includes potassium chloride, urea, and any other hazardous substance above the TPQ</p> <p>Section 312 - Tier II reporting form - includes potassium chloride, urea, and any other hazardous substance above the TPQ</p>
		<p>Section 302 - within 60 days of having EHS onsite.</p> <p>Section 311 - within 90 days of having hazardous substance onsite.</p> <p>Section 312 - by March 1st every year.</p>
BUILDING AND ZONING		
Zoning Compliance Permit	City of Clinton	<p>The City of Clinton Zoning Ordinance requires a Zoning Compliance Permit before construction of a new building. The site is currently zoned as RA-20 for Residential Agricultural District. According to the Sampson County Economic Development Commission, the property is planned to have its zoning changed to I-2 for Heavy Industrial District.</p> <p>Manufacturing of chemical products is a permitted use of an I-2 zoned property. Dimensional requirements of I-2 land are outlined in Section 9.15.3 of the City of Clinton Zoning Ordinance.</p>
		A Zoning Compliance Permit requires approximately 6 weeks to be approved.
Building Permit	Sampson County Inspections Department	<p>A Building Permit must be acquired after a Zoning Compliance Permit has been issued. Plumbing, electrical, and mechanical work also require permits from Sampson County. Building construction must comply with the North Carolina Uniform Statewide Building Code.</p>
		A Building Permit will be issued within approximately 2 weeks of a completed application submission. A Zoning Compliance Permit is required before a facility can apply for a Building Permit.
Elevation Certificate	Sampson County Public Inspections Department	<p>Because the southwest area of the property is located in a 100-year flood plain, an Elevation Certificate must be filed with the Sampson County Inspections Department.</p>
		A preliminary elevation form should be submitted when the property is surveyed prior to construction. A final Elevation Certificate will be completed and filed after construction is completed.
Water Service Application	Sampson County Public Works Department	<p>In order to connect to the public water supply, a water service application is required.</p>
		Approximately 2 weeks is required to install a new tap on the public water line.

Appendix C

Summary of Ethanol Plant Permitting Requirements Clinton, North Carolina

Permit	Regulatory Agency Applicability	Timeline
FUEL ALCOHOL		
Alcohol Fuel Producers Permit	US Department of Treasury	A facility wishing to establish an alcohol fuel plant must apply for and obtain an alcohol fuel producer's permit.
ABC Commercial Permit	NC Alcohol Beverage Control (ABC) Commission	In order to produce fuel alcohol in the State of North Carolina, a facility must obtain an ABC Commercial Permit.
		An Alcohol Fuel Producers Permit requires approximately 60 days to be approved. The application should be submitted after construction has begun, but before the facility is operational. The permit will be issued within 5 to 7 days of receipt of the application. A federal Alcohol Fuel Producers Permit is required before a facility can apply for an ABC permit.

Rural Development
Environmental Justice (EJ) and Civil Rights Impact Analysis (CRIA)
Certification

1. Applicant's name and proposed project description: ChemTex International, Inc., NC
Biorefinery to produce cellulosic ethanol from energy grasses

2. Rural Development's loan/grant program/guarantee or other Agency action: Section 9003, RBCS

3. Attach a map of the proposal's area of effect identifying location or EJ populations, location of the proposal, area of impact or

Attach results of EJ analysis from the Environmental Protection Agency's (EPAs) EnviroMapper with proposed project location and impact footprint delineated.

4. Does the applicant's proposal or Agency action directly, indirectly or cumulatively affect the quality and/or level of services provided to the community?

Yes No N/A

5. Is the applicant's proposal or Agency action likely to result in a change in the current land use patterns (types of land use, development densities, etc)?

Yes No N/A

6. Does a demographic analysis indicate the applicant's proposal or Agency's action may disproportionately affect a significant minority and/or low-income populations?

Yes No N/A

If answer is no, skip to item 12. If answer is yes, continue with items 7 through 12.

7. Identify, describe, and provide location of EJ population _____

8. If a disproportionate adverse affect is expected to impact an EJ population, identify type/level of public outreach implemented. _____

9. Identify disproportionately high and adverse impacts on EJ populations. _____

10. Are adverse impacts appreciably more severe or greater in magnitude than the adverse impacts expected on non-minority/low-income populations?

Yes No N/A

11. Are alternatives and/or mitigation required to avoid impacts to EJ populations?

Yes No N/A

If yes, describe _____

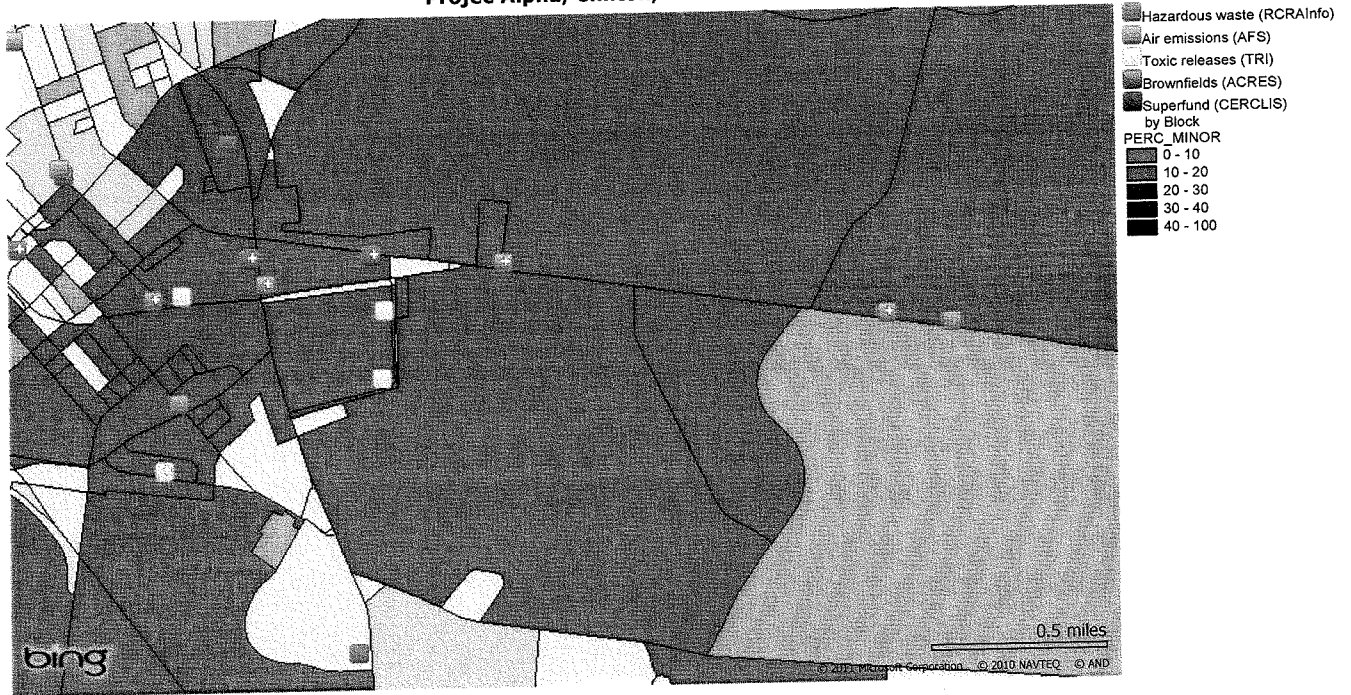
12. I certify that I have reviewed the appropriate documentation and have determined that:

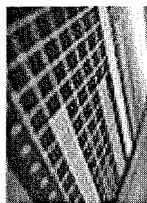
No major EJ or civil rights impact is likely to result if the proposal is implemented.
 A major EJ or civil rights impact is likely to result if the proposal is implemented.

Frank Mancino
Name and Title of Certifying Official

9/7/2011
Date

Projec Alpha, Clinton, NC



U.S. Census Bureau
American FactFinder

Sampson County, North Carolina
Selected Economic Characteristics: 2005-2009
Data Set: 2005-2009 American Community Survey 5-Year Estimates
Survey: American Community Survey

NOTE. Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

For more information on confidentiality protection, sampling error, nonsampling error, and definitions, see Survey Methodology.

Selected Economic Characteristics	Estimate	Margin of Error	Percent	Margin of Error
EMPLOYMENT STATUS				
Population 16 years and over	48,322	+/-172	48,322	(X)
In labor force	30,585	+/-581	63.3%	+/-1.3
Civilian labor force	30,515	+/-591	63.1%	+/-1.3
Employed	27,842	+/-673	57.6%	+/-1.4
Unemployed	2,673	+/-365	5.5%	+/-0.8
Armed Forces	70	+/-52	0.1%	+/-0.1
Not in labor force	17,737	+/-635	36.7%	+/-1.3
Civilian labor force	30,515	+/-591	30,515	(X)
Percent Unemployed	8.8%	+/-1.2	(X)	(X)
Females 16 years and over				
Population 16 years and over	24,699	+/-94	24,699	(X)
In labor force	14,056	+/-348	56.9%	+/-1.4
Civilian labor force	14,056	+/-348	56.9%	+/-1.4
Employed	12,661	+/-369	51.3%	+/-1.5
Own children under 6 years				
Population 16 years and over	5,301	+/-205	5,301	(X)
All parents in family in labor force	3,649	+/-303	68.8%	+/-4.7
Own children 6 to 17 years				
Population 16 years and over	9,953	+/-347	9,953	(X)
All parents in family in labor force	7,236	+/-424	72.7%	+/-4.1
COMMUTING TO WORK				
Workers 16 years and over	27,212	+/-664	27,212	(X)
Car, truck, or van -- drove alone	21,755	+/-770	79.9%	+/-2.1
Car, truck, or van -- carpooled	4,198	+/-564	15.4%	+/-2.0
Public transportation (excluding taxicab)	52	+/-46	0.2%	+/-0.2
Walked	446	+/-140	1.6%	+/-0.5
Other means	298	+/-98	1.1%	+/-0.4
Worked at home	463	+/-130	1.7%	+/-0.5
Mean travel time to work (minutes)	24.4	+/-0.7	(X)	(X)
OCCUPATION				
Civilian employed population 16 years and over	27,842	+/-673	27,842	(X)
Management, professional, and related occupations	7,352	+/-508	26.4%	+/-1.7
Service occupations	4,374	+/-406	15.7%	+/-1.5
Sales and office occupations	5,426	+/-392	19.5%	+/-1.3
Farming, fishing, and forestry occupations	1,732	+/-339	6.2%	+/-1.2
Construction, extraction, maintenance, and repair occupations	3,022	+/-342	10.9%	+/-1.2
Production, transportation, and material moving occupations	5,936	+/-469	21.3%	+/-1.6
INDUSTRY				
Civilian employed population 16 years and over	27,842	+/-673	27,842	(X)

Selected Economic Characteristics	Estimate	Margin of Error	Percent	Margin of Error
Agriculture, forestry, fishing and hunting, and mining	3,126	+/-412	11.2%	+/-1.4
Construction	2,217	+/-296	8.0%	+/-1.0
Manufacturing	4,366	+/-327	15.7%	+/-1.1
Wholesale trade	943	+/-220	3.4%	+/-0.8
Retail trade	3,578	+/-421	12.9%	+/-1.4
Transportation and warehousing, and utilities	1,194	+/-264	4.3%	+/-0.9
Information	443	+/-118	1.6%	+/-0.4
Finance and insurance, and real estate and rental and leasing	827	+/-176	3.0%	+/-0.6
Professional, scientific, and management, and administrative and waste management services	1,215	+/-206	4.4%	+/-0.7
Educational services, and health care and social assistance	5,776	+/-392	20.7%	+/-1.4
Arts, entertainment, and recreation, and accommodation and food services	1,492	+/-244	5.4%	+/-0.9
Other services, except public administration	1,458	+/-224	5.2%	+/-0.8
Public administration	1,207	+/-204	4.3%	+/-0.7
CLASS OF WORKER				
Civilian employed population 16 years and over	27,842	+/-673	27,842	(X)
Private wage and salary workers	21,336	+/-604	76.6%	+/-1.6
Government workers	4,393	+/-432	15.8%	+/-1.5
Self-employed in own not incorporated business workers	2,033	+/-261	7.3%	+/-0.9
Unpaid family workers	80	+/-54	0.3%	+/-0.2
INCOME AND BENEFITS (IN 2009 INFLATION-ADJUSTED DOLLARS)				
Total households	22,624	+/-409	22,624	(X)
Less than \$10,000	2,674	+/-286	11.8%	+/-1.3
\$10,000 to \$14,999	1,945	+/-251	8.6%	+/-1.1
\$15,000 to \$24,999	3,573	+/-364	15.8%	+/-1.6
\$25,000 to \$34,999	3,198	+/-353	14.1%	+/-1.5
\$35,000 to \$49,999	3,278	+/-355	14.5%	+/-1.6
\$50,000 to \$74,999	3,735	+/-320	16.5%	+/-1.4
\$75,000 to \$99,999	2,169	+/-230	9.6%	+/-1.0
\$100,000 to \$149,999	1,549	+/-239	6.8%	+/-1.1
\$150,000 to \$199,999	231	+/-70	1.0%	+/-0.3
\$200,000 or more	272	+/-92	1.2%	+/-0.4
Median household income (dollars)	34,779	+/-1,484	(X)	(X)
Mean household income (dollars)	47,728	+/-1,890	(X)	(X)
With earnings	17,313	+/-409	76.5%	+/-1.3
Mean earnings (dollars)	48,210	+/-1,752	(X)	(X)
With Social Security	7,634	+/-314	33.7%	+/-1.2
Mean Social Security income (dollars)	13,259	+/-360	(X)	(X)
With retirement income	3,877	+/-258	17.1%	+/-1.1
Mean retirement income (dollars)	17,711	+/-2,434	(X)	(X)
With Supplemental Security Income	1,123	+/-171	5.0%	+/-0.7
Mean Supplemental Security Income (dollars)	6,555	+/-532	(X)	(X)
With cash public assistance income	235	+/-82	1.0%	+/-0.4
Mean cash public assistance income (dollars)	2,107	+/-563	(X)	(X)
With Food Stamp/SNAP benefits in the past 12 months	2,990	+/-322	13.2%	+/-1.4
Families				
Families	15,933	+/-491	15,933	(X)
Less than \$10,000	1,082	+/-179	6.8%	+/-1.1
\$10,000 to \$14,999	870	+/-155	5.5%	+/-1.0
\$15,000 to \$24,999	2,305	+/-291	14.5%	+/-1.8
\$25,000 to \$34,999	2,171	+/-280	13.6%	+/-1.7
\$35,000 to \$49,999	2,606	+/-297	16.4%	+/-1.8
\$50,000 to \$74,999	3,101	+/-280	19.5%	+/-1.7
\$75,000 to \$99,999	1,988	+/-231	12.5%	+/-1.4
\$100,000 to \$149,999	1,388	+/-205	8.7%	+/-1.3
\$150,000 to \$199,999	227	+/-69	1.4%	+/-0.4
\$200,000 or more	195	+/-56	1.2%	+/-0.4
Median family income (dollars)	44,211	+/-1,887	(X)	(X)
Mean family income (dollars)	54,852	+/-2,010	(X)	(X)
Per capita income (dollars)	18,295	+/-681	(X)	(X)
Nonfamily households				
Nonfamily households	6,691	+/-368	6,691	(X)
Median nonfamily income (dollars)	17,381	+/-1,688	(X)	(X)
Mean nonfamily income (dollars)	28,632	+/-3,779	(X)	(X)
Median earnings for workers (dollars)	22,455	+/-800	(X)	(X)

Selected Economic Characteristics	Estimate	Margin of Error	Percent	Margin of Error
Median earnings for male full-time, year-round workers (dollars)	32,000	+/-944	(X)	(X)
Median earnings for female full-time, year-round workers (dollars)	27,107	+/-1,163	(X)	(X)
HEALTH INSURANCE COVERAGE				
Civilian Noninstitutionalized Population	(X)	(X)	(X)	(X)
With health insurance coverage	(X)	(X)	(X)	(X)
With private health insurance coverage	(X)	(X)	(X)	(X)
With public health coverage	(X)	(X)	(X)	(X)
No health insurance coverage	(X)	(X)	(X)	(X)
Civilian Noninstitutionalized Population Under 18 years	(X)	(X)	(X)	(X)
No health insurance coverage	(X)	(X)	(X)	(X)
PERCENTAGE OF FAMILIES AND PEOPLE WHOSE INCOME IN THE PAST 12 MONTHS IS BELOW THE POVERTY LEVEL				
All families	15.2%	+/-1.5	(X)	(X)
With related children under 18 years	23.7%	+/-2.6	(X)	(X)
With related children under 5 years only	26.1%	+/-7.1	(X)	(X)
Married couple families	7.8%	+/-1.4	(X)	(X)
With related children under 18 years	11.9%	+/-3.0	(X)	(X)
With related children under 5 years only	13.1%	+/-7.4	(X)	(X)
Families with female householder, no husband present	36.6%	+/-4.9	(X)	(X)
With related children under 18 years	48.9%	+/-6.4	(X)	(X)
With related children under 5 years only	67.3%	+/-17.0	(X)	(X)
All people	20.5%	+/-1.4	(X)	(X)
Under 18 years	29.6%	+/-3.6	(X)	(X)
Related children under 18 years	28.9%	+/-3.6	(X)	(X)
Related children under 5 years	36.6%	+/-5.4	(X)	(X)
Related children 5 to 17 years	25.9%	+/-3.9	(X)	(X)
18 years and over	17.3%	+/-1.1	(X)	(X)
18 to 64 years	17.4%	+/-1.3	(X)	(X)
65 years and over	17.0%	+/-2.3	(X)	(X)
People in families	17.2%	+/-1.6	(X)	(X)
Unrelated individuals 15 years and over	38.0%	+/-3.3	(X)	(X)

Source: U.S. Census Bureau, 2005-2009 American Community Survey

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Notes:

- Employment and unemployment estimates may vary from the official labor force data released by the Bureau of Labor Statistics because of differences in survey design and data collection. For guidance on differences in employment and unemployment estimates from different sources go to Labor Force Guidance.
- Workers include members of the Armed Forces and civilians who were at work last week.
- Occupation codes are 4-digit codes and are based on Standard Occupational Classification 2000.
- Industry codes are 4-digit codes and are based on the North American Industry Classification System 2002 and 2007. The 2005, 2006 and 2007 ACS data are coded using NAICS 2002 while the 2008 and 2009 ACS data use NAICS 2007 codes. Categories that differ between 2002 and 2007 NAICS are aggregated so that the 5 years of data are consistent in display and reflect the NAICS 2007 codes. The industry categories adhere to the guidelines issued in Clarification Memorandum No. 2, "NAICS Alternate Aggregation Structure for Use By U.S. Statistical Agencies," issued by the Office of Management and Budget.
- Selected earnings and income data are not available for certain geographic areas due to problems with group quarters data collection and imputation. See the ACS User Notes for details.
- Logical coverage edits applying a rules-based assignment of Medicaid, Medicare and military health coverage were added in 2009 -- please see http://www.census.gov/hhes/www/hlthins/publications/coverage_edits_final.pdf for more details.
- While the 2005-2009 American Community Survey (ACS) data generally reflect the November 2008 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.
- Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:

1. An '***' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '****' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of

Appendix D



North Carolina Department of Cultural Resources
State Historic Preservation Office

Claudia Brown, Acting Administrator

Beverly Eaves Perdue, Governor
Linda A. Carlisle, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

May 26, 2011

Laura Cutbirth
Westar Trade Resources
2030 Main Street, Suite 410
Dallas, TX 75201

Re: Chemtex International Inc., Alpha Biorefinery, Turkey Highway, Clinton, Sampson County,
ER 11-0795

Dear Ms. Cutbirth:

Thank you for your letter of May 5, 2011, concerning the above project. We appreciate your and Wesley Wilcox's providing additional information to identify the parcels that will be disturbed by construction, and to establish that the two cemeteries noted as being within the southeastern portion of Parcel C (Option 2) are outside the project's APE (area of potential effect).

With these clarifications made, we have conducted a review of the proposed project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed.

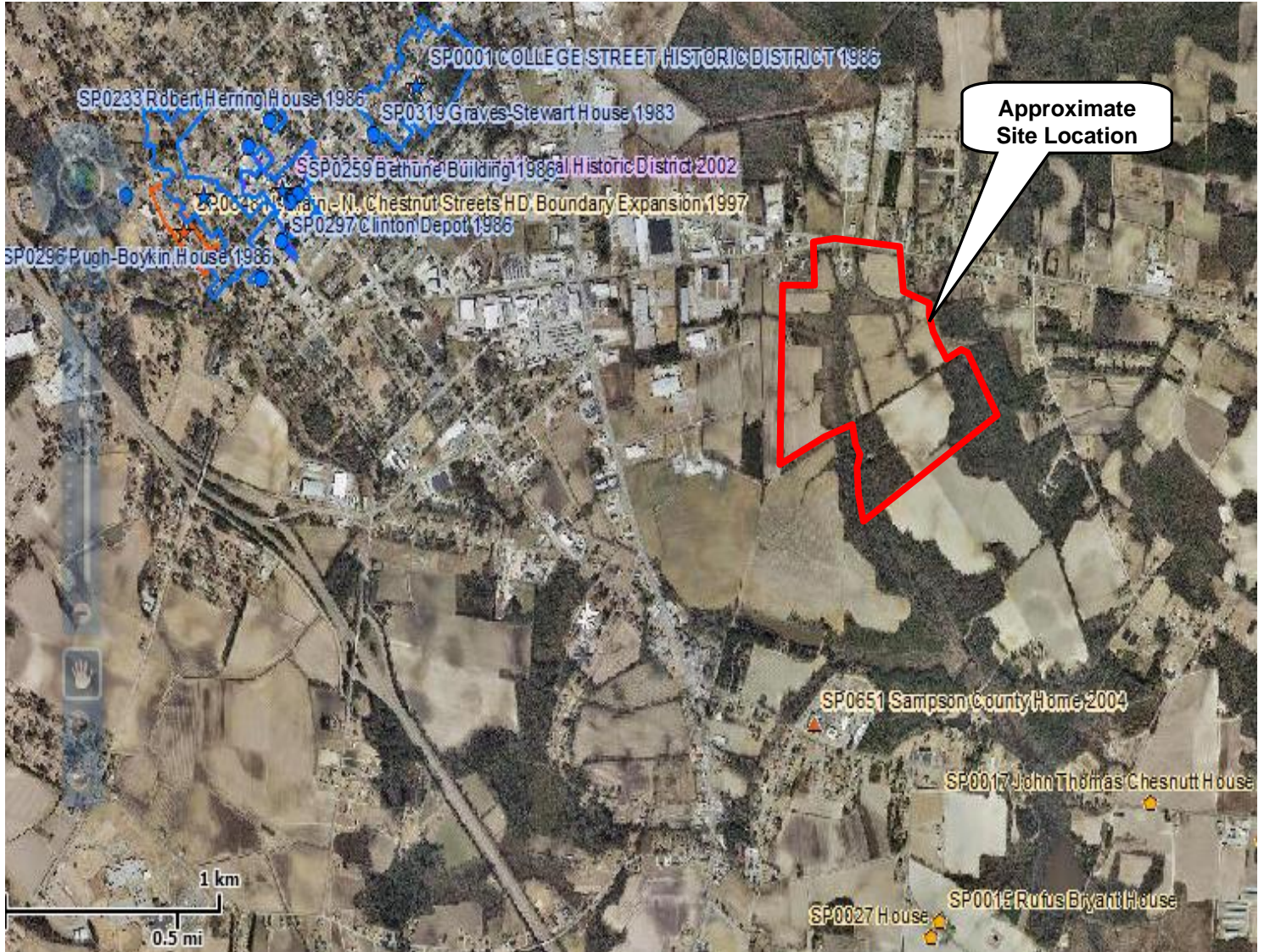
The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above-referenced tracking number.

Sincerely,

Renee Gledhill-Earley

for Claudia Brown



LEGEND

- Site Boundary
- NC- SHPO Surveyed Sites
- SP0561 – Sampson County Home
- SP0017 – John Thomas Chestnut House



SOURCE:

NC State Historic Preservation Office (SHPO)
 On-line Mapping
www.hpo.ncdcr.gov/



FIGURE 9
NC State Historic Preservation Office

Approximate 166-acre Tract
 Beretich and Fryar Properties
 Chemtex NC 24 Rail Site
 Clinton, Sampson County, NC
 ECS Project: 18524



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

May 24, 2011

Laura Cutbirth
Westar Trade Resources
2030 Main Street, Suite 410
Dallas, TX 75201

Re: Chemtex Group- Construction of a Biorefinery in Sampson County, NC

Dear Ms. Cutbirth:

This letter is to inform you that a list of all federally-protected endangered and threatened species with known occurrences in North Carolina is now available on the U.S. Fish and Wildlife Service's (Service) web page at <http://www.fws.gov/raleigh>. Therefore, if you have projects that occur within the Raleigh Field Office's area of responsibility (see attached county list), you no longer need to contact the Raleigh Field Office for a list of federally-protected species.

Our web page contains a complete and frequently updated list of all endangered and threatened species protected by the provisions of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)(Act), and a list of federal species of concern¹ that are known to occur in each county in North Carolina.

Section 7 of the Act requires that all federal agencies (or their designated non-federal representative), in consultation with the Service, insure that any action federally authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any federally-listed endangered or threatened species. A biological assessment or evaluation may be prepared to fulfill that requirement and in determining whether additional consultation with the Service is necessary. In addition to the federally-protected species list, information on the species' life histories and habitats and information on completing a biological assessment or evaluation can be found on our web page at <http://www.fws.gov/raleigh>. Please check the web site often for updated information or changes.

¹ The term "federal species of concern" refers to those species which the Service believes might be in need of concentrated conservation actions. Federal species of concern receive no legal protection and their designation does not necessarily imply that the species will eventually be proposed for listing as a federally endangered or threatened species. However, we recommend that all practicable measures be taken to avoid or minimize adverse impacts to federal species of concern.

If your project contains suitable habitat for any of the federally-listed species known to be present within the county where your project occurs, the proposed action has the potential to adversely affect those species. As such, we recommend that surveys be conducted to determine the species' presence or absence within the project area. The use of North Carolina Natural Heritage program data should not be substituted for actual field surveys.

If you determine that the proposed action may affect (i.e., likely to adversely affect or not likely to adversely affect) a federally-protected species, you should notify this office with your determination, the results of your surveys, survey methodologies, and an analysis of the effects of the action on listed species, including consideration of direct, indirect, and cumulative effects, before conducting any activities that might affect the species. If you determine that the proposed action will have no effect (i.e., no beneficial or adverse, direct or indirect effect) on federally listed species, then you are not required to contact our office for concurrence (unless an Environmental Impact Statement is prepared). However, you should maintain a complete record of the assessment, including steps leading to your determination of effect, the qualified personnel conducting the assessment, habitat conditions, site photographs, and any other related articles.

With regard to the above-referenced project, we offer the following remarks. Our comments are submitted pursuant to, and in accordance with, provisions of the Endangered Species Act.


Based on the information provided and other information available, it appears that the proposed action is not likely to adversely affect any federally-listed endangered or threatened species, their formally designated critical habitat, or species currently proposed for listing under the Act at these sites. We believe that the requirements of section 7(a)(2) of the Act have been satisfied for your project. Please remember that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action.

However, the Service is concerned about the potential impacts the proposed action might have on aquatic species. Aquatic resources are highly susceptible to sedimentation. Therefore, we recommend that all practicable measures be taken to avoid adverse impacts to aquatic species, including implementing directional boring methods and stringent sediment and erosion control measures. An erosion and sedimentation control plan should be submitted to and approved by the North Carolina Division of Land Resources, Land Quality Section prior to construction. Erosion and sedimentation controls should be installed and maintained between the construction site and any nearby down-gradient surface waters. In addition, we recommend maintaining natural, vegetated buffers on all streams and creeks adjacent to the project site.

The North Carolina Wildlife Resources Commission has developed a Guidance Memorandum (a copy can be found on our website at (<http://www.fws.gov/raleigh>) to address and mitigate secondary and cumulative impacts to aquatic and terrestrial wildlife resources and water quality. We recommend that you consider this document in the development of your projects and in completing an initiation package for consultation (if necessary).

We hope you find our web page useful and informative and that following the process described above will reduce the time required, and eliminate the need, for general correspondence for species' lists. If you have any questions or comments, please contact John Ellis of this office at (919) 856-4520 ext. 26.

Sincerely,

A handwritten signature in blue ink, appearing to read "Pete Benjamin". The signature is fluid and cursive, with the first name being the most prominent.

Pete Benjamin
Field Supervisor

List of Counties in the Service's Raleigh Field Office Area of Responsibility

Alamance	Perquimans
Beaufort	Person
Bertie	Pitt
Bladen	Randolph
Brunswick	Richmond
Camden	Robeson
Carteret	Rockingham
Caswell	Sampson
Chatham	Scotland
Chowan	Tyrrell
Columbus	Vance
Craven	Wake
Cumberland	Warren
Currituck	Washington
Dare	Wayne
Duplin	Wilson
Durham	
Edgecombe	
Franklin	
Gates	
Granville	
Greene	
Guilford	
Halifax	
Harnett	
Hertford	
Hoke	
Hyde	
Johnston	
Jones	
Lee	
Lenoir	
Martin	
Montgomery	
Moore	
Nash	
New Hanover	
Northampton	
Onslow	
Orange	
Pamlico	
Pasquotank	
Pender	

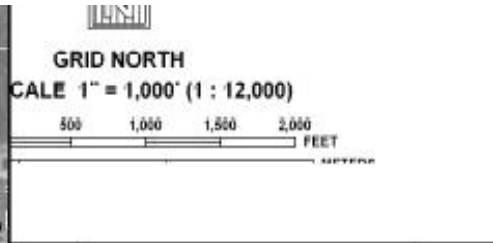
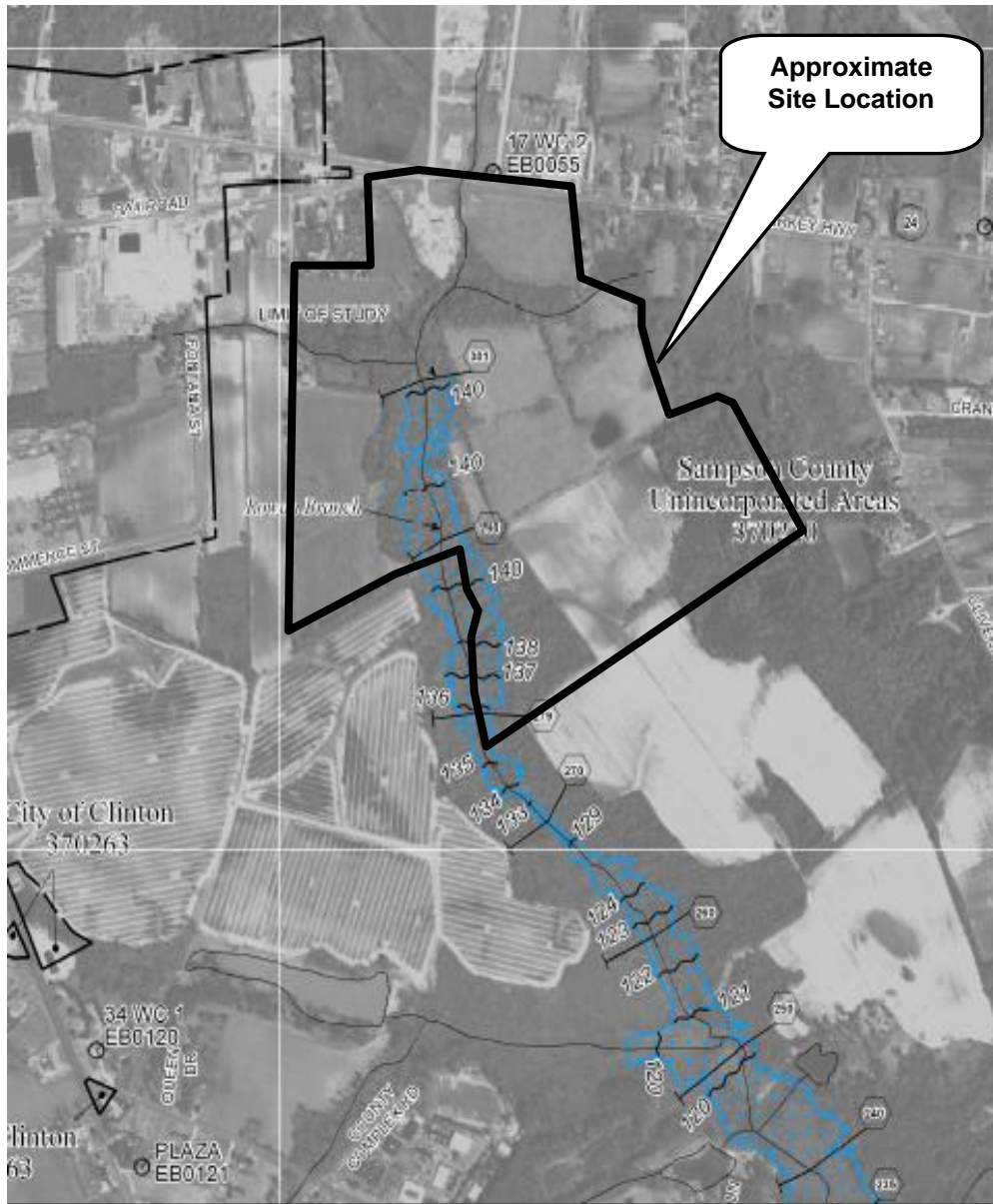
FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request August 2, 2011			
Name of Project Project Alpha		Federal Agency Involved USDA, Rural Development, RBS			
Proposed Land Use Biorefinery Facility		County and State Sampson County, NC			
PART II (To be completed by NRCS)		Date Request Received By NRCS August 3, 2011		Person Completing Form Milton Cortes NRCS	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? (If no, the FPPA does not apply - do not complete additional parts of this form)		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated N/A	Average Farm Size 267
Major Crop(s) CORN	Farmable Land In Govt. Jurisdiction Acres: 86.8 % 534,789	Amount of Farmland As Defined in FPPA Acres: 76.6 % 472,209			
Name of Land Evaluation System Used SAMPSON	Name of State or Local Site Assessment System N/A	Date Land Evaluation Returned by NRCS August 3, 2011			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		22			
B. Total Acres To Be Converted Indirectly		14			
C. Total Acres In Site		158			
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		118			
B. Total Acres Statewide Important or Local Important Farmland		28			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		0.0311			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		49			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)		74			
PART VI (To be completed by Federal Agency) Site Assessment Criteria (Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)		Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use		(15)	7		
2. Perimeter In Non-urban Use		(10)	3		
3. Percent Of Site Being Farmed		(20)	10		
4. Protection Provided By State and Local Government		(20)	0		
5. Distance From Urban Built-up Area		(15)	3		
6. Distance To Urban Support Services		(15)	0		
7. Size Of Present Farm Unit Compared To Average		(10)	5		
8. Creation Of Non-farmable Farmland		(10)	2		
9. Availability Of Farm Support Services		(5)	5		
10. On-Farm Investments		(20)	2		
11. Effects Of Conversion On Farm Support Services		(10)	0		
12. Compatibility With Existing Agricultural Use		(10)	7		
TOTAL SITE ASSESSMENT POINTS		160	48		
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	74		
Total Site Assessment (From Part VI above or local site assessment)		160	48		
TOTAL POINTS (Total of above 2 lines)		260	112		
Site Selected:		Date Of Selection	Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
Reason For Selection:					

Name of Federal agency representative completing this form: **Frank Mancino, PSS/RHS/RD**
(See Instructions on reverse side)

Date: **August 2, 2011**
Form AD-1006 (03-02)

Appendix E



PANEL 2404J

FIRM

FLOOD INSURANCE RATE MAP NORTH CAROLINA



PANEL 2404
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	CID No.	PANEL	SUFFIX
CLINTON CITY OF	370263	2404	J
SAMPSON COUNTY	370220	2404	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 **MAP NUMBER**
JANUARY 5, 2007 **3720240400J**

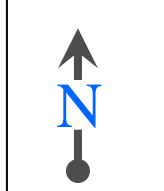



State of North Carolina
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

LEGEND

— Site Boundary



SOURCE:

FEMA

<http://www.msc.fema.gov>



FIGURE 4
FIRM- Flood Insurance Rate Map

Approximate 166-acre Tract
Beretich and Fryar Properties
Chemtex NC 24 Rail Site
Clinton, Sampson County, NC
ECS Project: 18524

Appendix F



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

July 8, 2011

Tom Vilsack, Secretary of Agriculture
U.S. Department of Agriculture
1400 Independence Ave., S.W.
Washington, DC 20250

Mr. Vilsack,

I am writing to provide details on our investigation and requirements for access on the proposed Chemtex site located just east of Clinton, NC on NC 24 highway.

There are several items that I would like to address. They are listed below:

- 1) Current traffic count on NC 24 East in vicinity of SR 1232 (East Railroad Street) is 8700 vehicles per day per our 2009 traffic count. The traffic count on SR 1232 is 2500 vehicles per day.
- 2) There would not be any restrictions on truck traffic at this site
- 3) There are two options for roadway improvements for this site for site access.
 - A) Install the driveway access on the eastern side of the property to avoid conflict with the existing four lane section and construct a left turn lane and right turn lane, both with 150' minimum storage and 150' bay tapers.
 - B) Install the driveway access closer to the western side of the property and extend the existing four lane section down past the site and stripe the inside west bound lane for a dedicated left into the development and stripe the outside east bound lane for a right turn lane into the development.
- 4) There is not data for a truck load. The existing NC 24 road is paved with asphalt on top of a concrete slab. Load is not an issue on this section of roadway.

Conclusion: The research performed by the Clinton District staff supports the four issues addressed above. The data and information provided as of the date of this letter is the proposed requirements the NCDOT will require the developer to address on a driveway permit. If any changes in conditions occur prior to the issuance of a driveway permit, the NCDOT may require another review of the above requirements.

If more information is needed, please call me at 910-592-6174.

Sincerely,

A handwritten signature in cursive script, appearing to read "L.E. Reynolds".

Mr. L.E. Reynolds, PE
District Engineer

cc: District Road files
Sampson County Road files
John Swope-Sampson County Economic Developer
David Thomas, PE., Div. Main. Eng.

LER:ler

FAX

North Carolina Department of Administration
Office of the Secretary
Telephone: (919) 807-2425 Fax: (919) 733-9571

Location:
116 West Jones Street, Raleigh, NC 27603-8003

Mail:
1301 Mail Service Center, Raleigh, NC 27699-1301

DATE: 8/18/11	NUMBER OF PAGES: (including cover sheet) 21
TO: Laura Cutbirth	FROM: Sheila Green
FAX#: 214-320-0909	TELEPHONE#: 919-807-2419
MESSAGE: Dear Laura, Per our conversation today, here are the comments for Project # 12-0009. The originals will be mailed to you and a copy will be mailed to USDA office.	



North Carolina
Department of Administration

Beverly Eaves Perdue, Governor

Moses Carey, Jr., Secretary

August 18, 2011

Ms. Laura Cutbirth
Chemtex International Inc.
c/o Westar Trade Resources
2030 Main Street, Suite 410
Fort Bragg, NC 28310

Dear Ms. Cutbirth:

Re: SCH File # 12-E-0000-0009; SCOPING; Development of a bioethanol production plant located along the Turkey Highway in the City of Clinton that will produce 20 million gallons per year of bioethanol

The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-10, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act. Attached to this letter for your consideration are the comments made by agencies in the course of this review.

If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

Should you have any questions, please do not hesitate to call.

Sincerely,


Sheila Green
State Environmental Review Clearinghouse

Attachments

cc: Region M
USDA, Rural Development

Mailing Address:
1301 Mail Service Center
Raleigh, NC 27699-1301

Telephone: (919)807-2425
Fax (919)733-9571
State Courier #51-01-00
e-mail state.clearinghouse@doa.nc.gov

Location Address:
116 West Jones Street
Raleigh, North Carolina

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North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

MEMORANDUM

TO: Sheila Green
State Clearinghouse

FROM: Melba McGee *[Signature]*
Environmental Review Coordinator

RE: 12-0009 - Scoping Chemtex Group Project Alpha, Bioethanol
Production Plant in Sampson County

DATE: August 18, 2011

The Department of Environment and Natural Resources has reviewed the proposed project. The attached comments are for the applicant's consideration. More specific comments will be provided during the environmental review process.

Thank you for the opportunity to respond.

Attachments

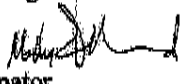


☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

MEMORANDUM

To: Melba McGee
Office of Legislative and Intergovernmental Affairs, DENR

From: Molly Ellwood 
Southeastern Permit Coordinator
Habitat Conservation Program

Date: August 15, 2011

RE: Project Scoping for Chemtex Group Project Alpha for a Bioethanol Production Plant in Sampson County; OLIA No. 12-0009

This memorandum responds to a request for our concerns regarding impacts on fish and wildlife resources resulting from the subject project. Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the proposed project. Our comments are provided in accordance with certain provisions of the North Carolina Environmental Policy Act (G.S. 113A-1 through 113A-10; 1 NCAC 25) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Chemtex International, Inc is requesting scoping comments for a potential bioethanol production plant in Sampson County. Chemtex Project Alpha is expected to produce 20 million gallons per year of bioethanol and develop downstream sustainable chemicals. The selected site for the facility is south of Turkey Highway in Clinton and the nearest waterbody is an unnamed tributary that runs into Chestnut Pond which then runs into the Rowan Branch.

Due the preliminary nature of the information provided, the NCWRC does not have any specific concerns regarding this project at this time. However, to help facilitate future document preparation and the review process, our general informational needs are outlined below:

1. Please include a description of any streams or wetlands that may be affected by the project and how these impacts have been avoided and minimized to the greatest extent practicable.
2. Cover type maps showing wetland acreages impacted by the project. Wetland acreages should include all project-related areas that may undergo hydrologic change as a result of ditching, other drainage, or filling for project construction. Wetland identification may be accomplished through coordination with the U. S. Army Corps of Engineers (USACE). If the

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • Fax: (919) 707-0028

USACE is not consulted, the person delineating wetlands should be identified and criteria listed.

3. Mitigation for avoiding, minimizing or compensating for direct and indirect degradation in habitat quality as well as quantitative losses that result from the project.
4. Please clearly explain where the cellulose material will be coming from and if there will be any environmental impacts associated with the production and transportation of the raw materials.
5. Due to potential environmental impacts associated with water discharges, please explain where the wastewater from the production plant will be discharged or treated.
6. The scoping document provided discusses how the proposed site was selected because of its location. Please provide information in future documents that explains that the current infrastructure is suitable for the expected production and that future changes to the current infrastructure may or may not be requested as a result of the plant.
7. Please provide a detailed alternative analysis concerning the selection of this site and how it compares to other sites that were explored for this project. The site with the least environmentally damaging design should be selected as the preferred alternative.
8. Discuss the cumulative impacts of secondary development facilitated by the proposed project. Such discussion should weigh the economic benefits of such growth against the costs of associated environmental degradation.
 - (a) Include specific requirements for both residential and industrial developments and Best Management Practices (BMPs) that will be required.
 - (b) Include specific measures that will be used to protect stream corridors, riparian habitat, and a minimum of the 100-year floodplain from filling and development.

We offer the following recommendations to address secondary and cumulative impacts and to reduce impacts to aquatic and terrestrial wildlife resources. Additional information regarding these recommendations can be found in NCWRC's *Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality* (August 2002). This document is located on the web at: http://www.ncwildlife.org/pg07_WildlifeSpeciesCon/pg7c3_impacts.pdf.

9. Description of fishery and wildlife resources within the project area, including a listing of federally or state designated threatened, endangered, or special concern species. A listing of designated plant species can be developed through consultation with:

NC Natural Heritage Program
Dept. of Environment & Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601
(919) 733-7795

and,

NCDA Plant Conservation Program

P. O. Box 27647
Raleigh, N. C. 27611
(919) 733-3610

Thank you for the opportunity to provide input in the early planning stages for this project. If we can further assist your office, please contact me at (910) 796-7427.



North Carolina Department of Environment and Natural Resources
Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Pertue
Governor

Dee Freeman
Secretary

August 10, 2011

MEMORANDUM

TO: Melba McGee
Department of Environment and Natural Resources

THRU: Jeff Manning, Supervisor
Basinwide Planning Unit *JM*

FROM: Hannah Stallings, DWQ's SEPA Coordinator *HUS*

SUBJECT: Sampson County - Scoping for Bioethanol Production Plant
DWQ#14377; DENR#12-0009

The Division of Water Quality (DWQ) has reviewed the subject scoping document. Several areas of the scoping document were unclear and we request clarified responses on the following:

1. Part 1 states that "preliminary work has already begun." Please clarify what is covered under this "preliminary work" as no ground should be disturbed prior to this project receiving a *Finding of No Significant Impact*.
2. Several areas of the scoping document have several answers for the same question: section 1 of part 1 on page 1; section C of part 2 on page 2; item 4 of section F of part 2 on page 3; and item 3 of section G of part 2 on page 3. Please clarify which of the boxes should be marked.
3. Section A, Part 2, page 2 - Please clarify what land use is on the remaining 10% of unaccounted for project space.
4. Section D, Part 2, Page 2 - Please clarify the percentages of the total project area for the cited acreages.
5. Page 5 - While Item 3, Section H, on page 5 states that 69 jobs will be created, Item 5 states that only 65 jobs will be created. Please clarify which is the correct number.
6. Item 10 addresses impact on "important land resource[s]" and not surface waters as indicated in the prompt. Please clarify if any surface waters will be impacted by the proposed project.

The following comments are offered to assist Chemtex International, Inc., in its planning process for the proposed facility and in the environmental document that will be prepared for this project:

1. Please clarify whether the infrastructure and volumes cited in sections B and C of part 2 on page 2 refer to existing and future plans or whether the numbers in section C should be different. That is, will this project double the amount of water to be provided and wastewater to be treated from the proposed facility or will the needed capacity of each double once the proposed project is constructed?
2. Item 9 in Section G of Part 2 on Page 4 states that "No mitigation measures have yet been taken for the Project and none are expected." If 76 acres of land will be cleared as indicated on page 2, then sediment and erosion control measures should be used to lessen the project's impact on local surface waters.

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Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
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Internet: www.ncwaterquality.org
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Also, insufficient information was provided in regard to the wastewater infrastructure that will support the proposed project. The following information is needed in future environmental documentation:

1. Provide a hydraulic analysis for the sewer collection system downstream of the project. The analysis should include the existing capacity for the 8-inch receiving line, downstream collection system (including pump stations, force mains, etc.). Clarify if the system can handle the additional flow or if modifications will be required.
2. Provide a general history of sanitary sewer overflows (SSOs) over the past five years within the sewer shed where the project will occur. If a substantial amount of SSOs have been reported, describe the effect the project will have on potential future SSOs.
3. Provide the current condition of Clinton's Wastewater Treatment Plant and its ability to handle the additional flow and loads from the project. Include within this discussion any Notices of Violation (NOVs) that have occurred at the facility and the effect the project may have on future NOVs. Per page 8 of the scoping document it appears that the additional flow from project (550,000 GPD) will push the facility past the 80% threshold of the system's permitted hydraulic capacity. Clarify the existing hydraulic capacity of the system (based on the average flow of the last calendar year) and if this exceeds the 80% threshold, discuss if the municipality has evaluated plans for future expansions.
4. DWQ contacted the City of Clinton in regards to this project and was informed that the City has limited knowledge concerning the technical aspects of it. It is strongly suggested that the City be informed and provide comments into the affects the additional flow and industrial load will have on the City's collection and treatment system.

Please contact me at 807-6434 if I can be of any further assistance.
Thank you.

Cc: Belinda Henson - FRO

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Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 FAX: 919-807-6492 Customer Service: 1-877-623-6748
Internet: www.ncwaterquality.org
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INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

Project Number: 12-0009 Due Date: 8/10/11

After review of this project it has been determined that the BNR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input checked="" type="checkbox"/> Permit to construct & operate wastewater treatment facilities, power system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
<input type="checkbox"/> NPDES- permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility granted after NPDES. Reply time, 30 days after receipt of plans or laws of NPDES permits whichever is later.	90-120 days (N/A)
<input type="checkbox"/> Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
<input type="checkbox"/> Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (13 days)
<input type="checkbox"/> Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require easement to fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
<input checked="" type="checkbox"/> Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (20.0100 thru 20.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (20.0113).	90 days
<input type="checkbox"/> Permit to construct & operate Transportation Facility as per 15 A NCAC (20.0800, 20.0601)	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
<input checked="" type="checkbox"/> Any open burning associated with subject proposal must be in compliance with 15 A NCAC 20.1900		
<input type="checkbox"/> Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1130(a)(1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950.	N/A	60 days (90 days)
<input type="checkbox"/> Complex Source Permit required under 15 A NCAC 20.0800		
<input checked="" type="checkbox"/> The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office, Land Quality Section At least 30 days before beginning activity. A fee of \$65 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
<input type="checkbox"/> Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
<input type="checkbox"/> Mining Permit	On-site inspection usual. Surety bond filed with BNR Bond amount varies with type mine and number of acres of affected land. Any acre mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
<input type="checkbox"/> North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days.	1 day (N/A)
<input type="checkbox"/> Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
<input type="checkbox"/> Oil Refining Facilities		90-120 days (N/A)
<input type="checkbox"/> Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to prepare plans, inspect construction, certify construction is according to BNR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of \$200.00 must accompany the application. An additional inspection fee based on a percentage of the total permit cost will be required	30 days (60 days)

PERMITS		SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/>	Permit to drill exploratory oil or gas well	File surety bond of \$5,000 with BNR pending to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to BNR rules and regulations.	10 days N/A
<input type="checkbox"/>	Geophysical Exploration Permit	Application filed with BNR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days N/A
<input type="checkbox"/>	State Lakes Construction Permit	Application fees based on structure size charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days N/A
<input checked="" type="checkbox"/>	401 Water Quality Certification	N/A	60 days (130 days)
<input type="checkbox"/>	CAMA Permit for MAJOR development	\$250.00 fee must accompany application	55 days (150 days)
<input type="checkbox"/>	CAMA Permit for MINOR development	\$50.00 fee must accompany application	22 days (25 days)
<input type="checkbox"/>	Several geologic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geologic Survey, Box 27687 Raleigh, NC 27611		
<input type="checkbox"/>	Abandonment of any wells, if required must be in accordance with Title 15A, Subchapter 2C.0100.		
<input type="checkbox"/>	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTs) are discovered during any excavation operation.		
<input type="checkbox"/>	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
<input type="checkbox"/>	Ten Families or House Riparian Buffer Rules required.		
* Other comments (attach additional pages as necessary, being certain to cite comment authority)			

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

Asheville Regional Office
2090 US Highway 70
Swannanoa, NC 28778
(828) 296-4500

Mooresville Regional Office
610 East Center Avenue, Suite 301
Mooresville, NC 28115
(704) 663-1699

Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 796-7215

Fayetteville Regional Office
225 North Green Street, Suite 714
Fayetteville, NC 28301-5043
(910) 433-3300

Raleigh Regional Office
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 791-4200

Winston-Salem Regional Office
585 Waightown Street
Winston-Salem, NC 27107
(336) 771-5000

Washington Regional Office
943 Washington Square Mall
Washington, NC 27889
(252) 946-5481



North Carolina Department of Environment and Natural Resources

Division of Water Resources

Beverly Eaves Perdue
Governor

Thomas A. Reeder
Director

Dee Freeman
Secretary

August 8, 2011

MEMORANDUM

FROM: Jim Mead, SEPA Review Coordinator - DWR

Jim Mead

TO: Melba McGee, Environmental Projects Officer - DENR

SUBJECT: Bioethanol Production Plant
City of Clinton
Request for Scoping Comments
DENR Project No. 12-0009

The Division of Water Resources (DWR) has reviewed the scoping request and has the following comments.

In accordance with Session Law 2010-150, local governments and community water systems must address foreseeable future water needs when 80% of a water system's available water supply has been allocated, or when seasonal demand exceeds 90% of the available supply. Based on data submitted in the 2010 Local Water Supply Plan, an additional 1 MGD demand would create an allocation beyond 80% of available supply for Sampson County Water District I.

Therefore, Sampson County Water District I needs to show how it will address foreseeable future water needs in accordance with State law with a projected increase in demand of 1 MGD by the proposed bioethanol facility.

For questions regarding these comments, please contact Vardry Austin, 919-715-5422, or Vardry.austin@ncdenr.gov.

cc: Linwood Peele & Vardry Austin - DWR

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DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES
DIVISION OF WATER RESOURCES
PUBLIC WATER SUPPLY SECTION

Project Number 12-0009
County Sampson

Inter-Agency Project Review Response

Project Name USDA-RD/Chemtex
International Inc

Type of Project Scoping - Development of bioethanol
production plant along Turkey Hwy
in City of Clinton that will produce 20
million gallons per year of ethanol

- The applicant should be advised that plans and specifications for all water system improvements must be approved by the Division of Water Resources/Public Water Supply Section prior to the award of a contract or the initiation of construction (as required by 15A NCAC 18C .0300et. seq.). For information, contact the Public Water Supply Section, (919) 733-2321.
- This project will be classified as a non-community public water supply and must comply with state and federal drinking water monitoring requirements. For more information the applicant should contact the Public Water Supply Section, (919) 733-2321.
- If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Water Resources, Public Water Supply Section, Technical Services Branch, 1834 Mail Service Center, Raleigh, North Carolina 27699-1634, (919) 733-2321.
- For Regional and Central Office comments, see the reverse side of this form.

Jim McRight

Review Coordinator

PWSS

Section/Branch

07/19/2011

Date

DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES
DIVISION OF WATER RESOURCES
PUBLIC WATER SUPPLY SECTION

Project Number
12-0009

County
Sampson

Inter-Agency Project Review Response

Project Name USDA-RD/Chemtex
International Inc

Type of
Project

Scoping - Development of
bioethanol production plant
along Turkey Hwy in City of
Clinton that will produce 20
million gallons per year of
ethanol

Comments provided by:

- Regional Program Person
 Regional Supervisor for Public Water Supply Section
 Central Office program person

Name Winston Cole Date 08/05/2011
Debra Benoy-Fayetteville RO Date 07/19/2011

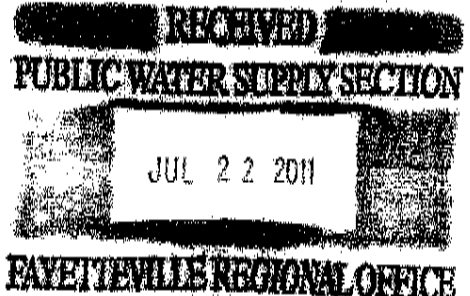
Telephone number: 910 433 4268

Program within Division of Water Resources:

- Public Water Supply
 Other, Name of Program: _____

Response (check all applicable):

- No objection to project as proposed
 No comment
 Insufficient information to complete review
 Comments attached
 See comments below



All construction projects with water systems must submit plans and specifications to public water supply section (PWS) for review and obtain approval before construction work can begin.

Once the project is completed before the water system can be placed into service, the applicant again must obtain a final approval from PWS.

Return to:

Public Water Supply Section Environmental Review Coordinator for the
Division of Water Resources

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

Dominique Boyd

COUNTY: SAMPSON

H11: ENERGY RELATED
FACILITIES/ACTIVITIES

STATE NUMBER: 12-E-0000-0009
DATE RECEIVED: 07/13/2011
AGENCY RESPONSE: 08/10/2011
REVIEW CLOSED: 08/15/2011

MS SHIRLEY FOYE
CLEARINGHOUSE COORDINATOR
DEPT OF TRANSPORTATION
STATEWIDE PLANNING - MSC #1554
RALEIGH NC

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DENR LEGISLATIVE AFFAIRS
DEPT OF AGRICULTURE
DEPT OF CULTURAL RESOURCES
DEPT OF TRANSPORTATION
MID CAROLINA COG

PROJECT INFORMATION

APPLICANT: Chemtex International Inc.
TYPE: National Environmental Policy Act
Scoping

DESC: Development of a bioethanol production plant located along the Turkey Highway in the City of Clinton that will produce 20 million gallons per year of bioethanol

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: NO COMMENT COMMENTS ATTACHED

SIGNED BY: *Dominique Boyd*

DATE: 7/29/11





STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

August 1, 2011



State Number: 12-E-0000-0009

Project Title: Bioethanol Production Plant

After a review of the Bioethanol Production Plant project document, I would like to offer a few minor comments. After reviewing your application it has been determined that the Bioethanol Production Plant is in close proximity of project R-2303: NC 24, starting from SR 1003 to I-40. Widen to four lanes divided. Planning/Design in progress. Please coordinate with the Town's administration to avoid any potential conflicts.

Thank You,

Dominique L. Boyd
Transportation Planning Branch
Southeast Unit

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING BRANCH
1554 MAIL SERVICE CENTER
RALEIGH NC 27899-1554



<http://ncdot.org/doh/preconstruct/tpb/>

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601
Phone: 919-733-4705
Fax: 919-733-2417

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: SAMPSON

H11: ENERGY RELATED
FACILITIES/ACTIVITIES

STATE NUMBER: 12-E-0000-0009
DATE RECEIVED: 07/13/2011
AGENCY RESPONSE: 08/10/2011
REVIEW CLOSED: 08/15/2011

CLEARINGHOUSE COORDINATOR
CC&PS - DIV OF EMERGENCY MANAGEMENT
FLOODPLAIN MANAGEMENT PROGRAM
MSC # 4719
RALEIGH NC

REVIEW DISTRIBUTION

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DENR LEGISLATIVE AFFAIRS
DEPT OF AGRICULTURE
DEPT OF CULTURAL RESOURCES
DEPT OF TRANSPORTATION
MID CAROLINA COG

PROJECT INFORMATION

APPLICANT: Chemtex International Inc.
TYPE: National Environmental Policy Act
Scoping

DESC: Development of a bioethanol production plant located along the Turkey Highway in the City of Clinton that will produce 20 million gallons per year of bioethanol

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)607-2425.



RECEIVED

AUG 2011

Secretary's Office

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: NO COMMENT COMMENTS ATTACHED

SIGNED BY:

Ken Oshe

DATE:

7/29/2011



North Carolina Department of Crime Control and Public Safety
 Division of Emergency Management
 Office of Geospatial and Technology Management

Beverly Eaves Perdue, Governor
 Reuben F. Young, Secretary

H. Douglas Hoell, Jr., Director

July 29, 2011

State Clearinghouse
 N.C. Department of Administration
 1301 Mail Service Center
 Raleigh, North Carolina 27699-1301



Subject: Intergovernmental Review State Number: 12-E-0000-0009
 Chemtex International Inc.

As requested by the North Carolina State Clearinghouse, the North Carolina Department of Crime Control and Public Safety Division of Emergency Management Office of Geospatial and Technology Management (GTM) reviewed the proposed project listed above and offer the following comments:

- 1) Sampson County participates in the National Flood Insurance Program and enforces a Flood Damage Prevention Ordinance that requires a Floodplain Development Permit be issued for all development located in the Special Flood Hazard Area, SFHA (100 year floodplain), within their jurisdiction. The proposed project site includes the SFHA of Rowan Branch (see attachment). Please ensure the Floodplain Administrator for Sampson County reviews and issues a permit for the proposed project.
- 2) Rowan Branch has been studied by the North Carolina Floodplain Mapping Program (NCFMP) by limited detailed methods and has non-encroachment areas. Construction within a non-encroachment area requires, prior to construction, approval of either a no-rise study with a no-rise certification for projects that do not increase base flood elevation or for projects that result in an increase in base flood elevations the approval of a Conditional Letter of Map Revision.

Mail:
 4719 Mail Service Center
 Raleigh, NC 27699-4719
 Telephone: 919-715-5711



Location:
 1812 Tillery Place, Suite 105
 Raleigh, NC 27604
 Fax: 919-715-0408

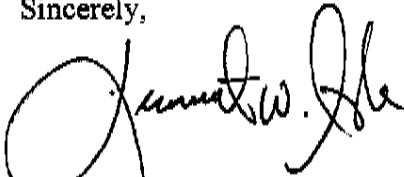
www.NCCrimeControl.org

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Thank you for your cooperation and consideration. If you have any questions concerning the above comments, please contact Dan Brubaker, P.E., CFM, the NC NFIP Engineer at (919) 715-5711 ext. 110, by email at dbrubaker@ncem.org or at the address shown on the footer of this document.

Sincerely,



Kenneth W. Ashe, P.E., CFM
Assistant Director

Attachments

c: John Gerber, NFIP State Coordinator
Dan Brubaker, NFIP Engineer

Location: 1812 Tillery Place, Suite 105 • Raleigh, NC 27604 • (919) 715-5711

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NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: SAMPSON

H11: ENERGY RELATED
FACILITIES/ACTIVITIES

STATE NUMBER: 12-E-0000-0009
DATE RECEIVED: 07/13/2011
AGENCY RESPONSE: 08/10/2011
REVIEW CLOSED: 08/15/2011

CLEARINGHOUSE COORD REGION M
MID CAROLINA COG
P.O. BOX 1510
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PROJECT INFORMATION

APPLICANT: Chemtex International Inc.
TYPE: National Environmental Policy Act
Scoping

DESC: Development of a bioethanol production plant located along the Turkey Highway in the City of Clinton that will produce 20 million gallons per year of bioethanol

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: NO COMMENT COMMENTS ATTACHED

SIGNED BY:

DATE:

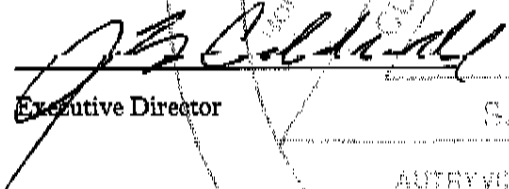
7-19-11

Mid-Carolina Council of Governments

130 Gillespie Street • Post Office Drawer 1510 • Telephone (910) 323-4191 • Fax (910) 323-9330
Fayetteville, North Carolina 28302

STATEMENT OF MID-CAROLINA COUNCIL OF GOVERNMENTS IN SUPPORT OF CHEMTEX PROJECT IN SAMPSON COUNTY

The Chemtex Project ALPHA will provide tremendous benefit to the agricultural economy of Sampson County. The projects total direct jobs created will be 65 by the year 2014 with a total taxable investment estimated at \$90 million. The Chemtex Project is an important step towards North Carolina achieving its goals of utilizing forestry and non-foods agriculture biomass resources as feedstock to produce biofuels. The estimated annual production capacity is 20 million gallons of ethanol for use as fuel. In addition, the hog lagoon irrigation fields would produce a higher economic yield than current production of hay. The project will use City of Clinton utilities, Progress Energy electric service and Piedmont Natural Gas, and will be a major asset to the entire region.


Executive Director

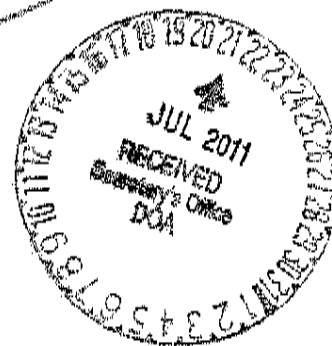
SAMPSON CO.

Date

7-19-11

AUTRYVILLE, CLINTON, GAHL AND
HARBELLS, NEWTON GROVE, ROSEBORO
SALEMBURG, TURKEY

INTERGOVERNMENTAL COOPERATION



"PROGRESS THROUGH INTERGOVERNMENTAL COOPERATION"

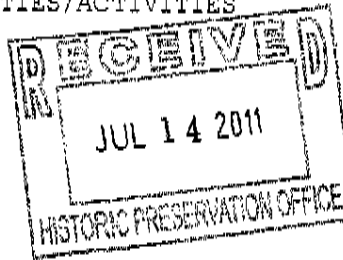
NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: SAMPSON

H11: ENERGY RELATED
FACILITIES/ACTIVITIES

STATE NUMBER: 12-E-0000-000
DATE RECEIVED: 07/13/2011
AGENCY RESPONSE: 08/10/2011
REVIEW CLOSED: 08/15/2011

MS RENEE GLEDHILL-EARLEY
CLEARINGHOUSE COORDINATOR
DEPT OF CULTURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE
MSC 4617 - ARCHIVES BUILDING
RALEIGH NC



ER 11-0795

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PREVIOUSLY
CLEARANCE
OK

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SIGNED BY: Renee Gledhill-Earley

DATE: 7.18.11

Appendix G



NORTH CAROLINA'S
SAMPSON COUNTY
ECONOMIC DEVELOPMENT COMMISSION

Perfectly Positioned.

July 7, 2011

Mr. Paolo Carollo
Executive Vice President
Chemtex International, Incorporated
1979 Eastwood Road
Wilmington, North Carolina 28403

Dear Mr. Carollo:

It is our pleasure to inform you that at a public hearing held on Tuesday, July 5, 2011 that the Sampson County Board of Commissioners unanimously approved support for a 20,000,000 gallon per year cellulosic biofuels production facility of Chemtex International, Inc. (Chemtex) locating within Sampson County. Specifically, the Commissioners approved providing Chemtex with a financial incentive package totaling an estimated \$ 2,870,686 over the first 6-years of the facility's operations.

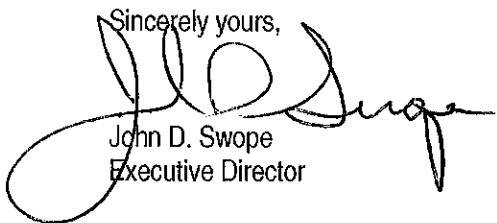
This proposed Chemtex cellulosic biofuels production facility would be a great fit for Sampson County and our surrounding region. We recognize that one of the benefits of this facility would be increased yields and revenues for farmers who would grow energy grass feedstock on hog lagoon spray fields currently under cultivation with Bermuda grass. We estimate that if 15,000 acres of existing spray fields in Sampson County were to grow energy grasses the annual revenue to farmers would increase to \$ 9,000,000, a 50% increase over the cultivation of Bermuda grass.

It is the goal of this grant back incentive package to support Chemtex in the lease and purchase of a 166.4 acre industrial site located on NC-24 east of City of Clinton. We understand the development of this facility is dependent on Chemtex obtaining the conditional loan guarantee from the United States Department of Agriculture as part of the USDA 9003 Biorefinery Assistance Program. We support Chemtex's application to obtain this loan guaranty and offer our assistance in this effort.

If Chemtex accepts this financial incentive the terms of this contract between Sampson County and Chemtex International, Inc. will be stated within an Incentive Agreement between these two parties. This financial incentive and agreement comply with the existing Sampson County Economic Development Investment Incentive Policy.

Again, we are pleased to be able to offer this financial incentive to support the development of this facility in Sampson County. We welcome each opportunity to be of assistance in this work.

Sincerely yours,



John D. Swope
Executive Director

Cc: - The Honorable Jefferson Strickland, Chairman, Sampson County Board of Commissioners
- Mr. Ed Causey, County Manager, County of Sampson

Appendix H

Project Alpha

- The North Carolina hog industry uses Sprayfield Land to remediate hog waste
- Sprayfield land managers mostly grow Bermuda grass, for which there is a limited market in NC
 - The use of energy grasses in place of bermuda grass will benefit the sprayfield land managers
 - The higher yielding energy grass will remediate more nutrients
 - The energy grasses will be sold as feedstock for the facility
 - This change will convert marginal land into productive land
- Within the three county region of Duplin, Wayne, and Sampson there are 100,000 acres of sprayfield land which can support 5-6 facilities the size of Project Alpha when converted to energy grasses

Establishing New Supply Chains



Yields beyond 20 ton per acre

Supply Chain

- Planting and harvesting of energy grasses can be accomplished with existing equipment
- The tools currently used to apply the lagoon effluent to the sprayfields can be used with the taller energy grasses with minor modifications

Planting Operations



Purpose-built energy cane rhizome planter



Video link to commercial planting of
Arundo donax:

http://www.whitetechnologyllc.com/Planting_video.htm

Harvesting Operations



Cutting and windrowing Miscanthus with two commercially available brands of equipment



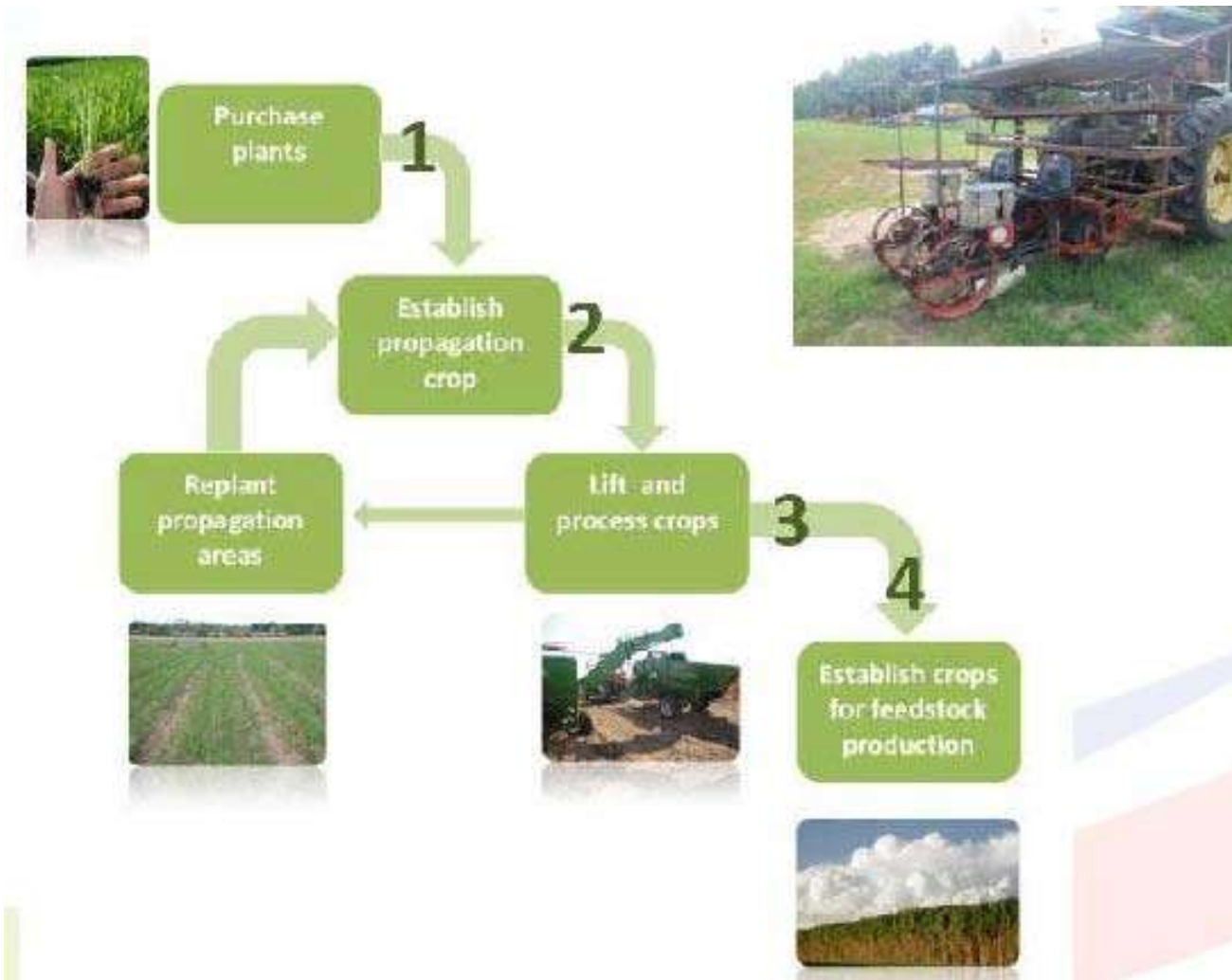
Growing Biofuels in North Carolina

Trial crops in Williamsdale Farms: Duplin County NC Second year crop for Switchgrass (front) and Arundo donax (back)

Multiple trial crops in collaboration with NC State University and NCDA are documenting the productivity of energy grasses in North Carolina.

Planting Operations







Crop Scale-up Flowchart



Tobacco transplanter used in step #4 of

Crop Scale-up Flowchart (shown on the left) was used to plant Miscanthus and switchgrass seedlings in a NC sprayfield

Planting Operations

		methods	advantages	disadvantages
		Rhizome	<ul style="list-style-type: none"> • safest way to propagate • no need water after planting • good production on the first year 	<ul style="list-style-type: none"> • one year of nursery for rhizome reproduction • can be planted only in spring
		Stem	<ul style="list-style-type: none"> • can be planted from autumn to spring • no need of nursery • easy to establish 	<ul style="list-style-type: none"> • lower productivity on the first year • irrigation is required after plantation
		Micropropagation	<ul style="list-style-type: none"> • quick reproduction of propagules • Potentially cheap • easy to establish (tomato/tobacco planter) 	<ul style="list-style-type: none"> • lower productivity on the first year • use of greenhouse for acclimatization before passing to production • irrigation is required during the first year



Arundo donax canes ready for stem-method propagation

Planting Operations



Planting Miscanthus from rhizomes with modified tobacco transplanter

Video link to 0' 38" planting video

http://www.whitetechnologyllc.com/Planting_video.htm

Harvesting Operations



Baling Miscanthus with commercially available equipment
(3'x 4'x 8' bale)

Harvesting Operations



Green chop harvesting of energy canes

3' 40" video link of commercial harvesting of Arundo donax:

http://www.whitetechologyllc.com/Harvest_video.htm

Harvesting Operations



CLAAS Jaguar 900-830

Video link for Arundo donax harvesting

http://www.claas.it/countries/generator/cl-pw/it/products/trincia_raccogliatrice/jaguar_980-930/start.lang=it_IT.html

Sprayfield Operations in eastern NC



Figure 1 Figure 2 Figure 3

Sprayfield trial plots on Cottle Farm in Duplin County, NC

Includes Switchgrass, Biomass Sorghum, Sweet Sorghum, Miscanthus and Coastal Bermudagrass. Arundo donax trials at separate location. Pictures taken two months after planting.

Figure 1: Triplicate trial plots Figure 2: Non-evaporative rain gauge Figure 3: Triplicate trial plots

Sprayfield equipment, Traveling Gun

Traveling gun irrigation devices are widely used for spraying effluent in NC.

re
in



Nozzle



this
nt
y

Minor modification is required on this equipment (extension to the height of the water nozzle to clear energy grasses). Cost estimated for this modification is negligible.

Nozzle

Sprayfield equipment, Center Pivot



Center Pivot irrigation devices widely used for spraying effluent in NC.

No significant modifications are required.

